

**PROJECT MANUAL
VOLUME 2 OF 2**

DIVISIONS 01 to 50

BID DOCUMENTS

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NEWFIELD+DOWNES



ANTINOZZI ASSOCIATES
ARCHITECTURE & INTERIORS

**ADDITIONS AND RENOVATIONS
NEW LONDON HIGH SCHOOL
JEFFERSON AVE. & CHESTER ST.
NEW LONDON, CT**

PHASE 2 EARLY HAZ-MAT PACKAGE

STATE PROJECT # 095-0090MAG/N

DATE: JANUARY 17, 2019

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15050
01/17/2018

**NEW LONDON HIGH SCHOOL
ADDITIONS & RENOVATIONS
Phase 2: Early Haz-Mat Package
State Project #095-0090 MAG/N**

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APPENDICES: INFORMATION AVAILABLE TO THE BIDDER

- A. Limited Hazardous Building Materials Inspection Report dated September 13, 2018
- B. Limited Hazardous Building Materials Inspection Report dated January 8, 2019
- C. Lead in Dust Determination Report Former Rifle Range dated May 7, 2018
- D. Lead in Dust Determination Report Auditorium on First Level dated May 23, 2018
- E. Lead in Dust Determination Report Storage Area (Former Rifle Range) dated June 27, 2018

DIVISIONS 03 – 50: NOT INCLUDED IN THIS PHASE 2 SCOPE OF WORK

DRAWINGS

Cover Sheet

Hazardous Materials Abatement Drawings:

- **HM-001:** Description: Ground/Lower Level: April 2019 Scope of Work: 30x42 Sheet
- **HM-002:** Description: Main/First Level: Summer 2019 Scope of Work: 30x42 Sheet
- **HM-003:** Description: Ground/Lower Level: Summer 2019 Scope of Work: 30x42 Sheet
- **NLHS-06.28.18:** Description: Ground/Lower Level April 2019 Scope of Work Firing Range Duct Removal: 11x17 Sketch in Volume 2 of Project Manual

END OF SECTION

SECTION 010000 – GENERAL REQUIREMENTS

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Contractor use of site and premises.
- B. Work Sequence.
- C. Owner occupancy.

1.2 CONTRACTOR USE OF SITE AND PREMISES

- A. Limit use of site and premises as follows:
 - 1. Owner occupancy
 - 2. Work by Owner
 - 3. Use of site and premises by public
 - 4. Work performed by other trades
- B. Coordinate use of the premises under direction of the Owner.
- C. Assume full responsibility for protection and safekeeping of products under this Contract.
- D. Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

1.3 WORK SEQUENCE

- A. Perform Work in phases if applicable, to accommodate the Owner's occupancy requirements and remaining construction phases, coordinate abatement schedule and operations with the Owner, Consultant, and or Architect.
- B. The Owner will not occupy portions of the building for normal activities during the Work. The Contractor is responsible for creating a phasing plan to accommodate remaining renovations.

1.4 OWNER OCCUPANCY

- A. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.
- B. Schedule the Work to accommodate this requirement.
- C. Maintain a means of egress as required by all fire codes.

- D. Coordinate Work with the City of New London, Sanitation Health Officer, Building Inspector, and Fire Marshal.
- E. Maintain a permanent means of egress during construction. Provide and maintain a temporary means of egress as required by the Fire Marshal and Building Inspector.

1.5 CLOSEOUT AND PUNCH LIST

- A. The Contractor shall carefully check his own work and that of any Subcontractor as the work is being performed. Unsatisfactory work shall be corrected immediately.
- B. When the Contractor determines that he is substantially complete, that is, has less than one percent of his Contract remaining to be completed, he shall prepare for submission to the Consultant, a list of items to be completed or corrected. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all work in accordance with the Contractor Documents.
- C. Upon receipt of the Contractor's list of items to be completed or corrected, the Consultant will promptly make a thorough inspection and prepare a "punch list" setting forth in accurate detail any items on the Contractor's list and any additional items that are not acceptable.
- D. When the "punch list" has been prepared, the Consultant will arrange a meeting with the Contractor to identify and answer questions on the work which must be completed before final acceptance.
- E. The Contractor shall correct all "punch list" items or shall cause the correction of the "punch list" items within a time frame to be established when the "punch list" is made. The time frame for the completion of the "punch list" shall not exceed the completion date of the Contract. Should the "punch list" not be completed within the specified time frame, the Owner may invoke the rights given under the General Conditions.
- F. The Consultant shall not be expected to inspect any area more than once for the preparation of the "punch list" items. If, during an inspection, the Consultant discovers fifteen (15) or more deficient conditions, then the area shall be declared Not Ready for Inspection. Additional inspection(s) of the area will be back-charged to the abatement contractor
- G. All inspections and sampling required for asbestos abatement compliance will be performed by the Consultant.

1.6 CLEANING

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

1.7 ADDITIONAL GENERAL REQUIREMENTS

- A. The Asbestos Abatement Contractor shall employ a competent Supervisor with at least five (5) years of experience on projects of similar scope and magnitude who shall be responsible for all work involving asbestos abatement as described in the specifications and defined in the applicable regulations, and have full time daily supervision of the same. The Supervisor shall be the “competent person” as defined by OSHA regulations.
- B. The Contractor shall allow the work of this contract to be inspected if required by local, state, federal, and any other authorities having jurisdiction over such work. The Contractor shall immediately notify the Owner and Consultant and shall maintain written evidence of such inspection for review by the Owner and Consultant.
- C. The Contractor shall incur the cost of all fines resulting from regulatory non-compliance as issued by federal, state, and local agencies. The Contractor shall incur the cost of all work requirements mandated by federal, state, and local agencies as a result of regulatory non-compliance or negligence. The contractor shall incur all cost associated with re-sampling clearance’s due to failures, both TEM Air Clearances , and Lead Dust Samples. Turnaround Time for samples that need to be re-collected because of failure will be expedited at the abatement contractors cost.
- D. The Contractor shall immediately notify the Owner and Consultant of the delivery of all permits, licenses, certificates of inspection, of approval or occupancy, etc., and any other such instruments required under codes by authorities having jurisdiction, regardless of who issued, and shall cause them to be displayed to the Owner and Consultant for verification and recording.
- E. The **contractor shall provide** as part of their bid submittal a written narrative describing in full detail the removal procedure (getting asbestos materials out of the building(s) of all asbestos materials from the building(s) into the asbestos dumpsters and/or asbestos trailers.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION 010000

SECTION 012100 - ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements governing allowances.
 - 1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when direction will be provided to the Contractor. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
 - 1. Lump-sum allowances.
 - 2. Unit-cost allowances.
 - 3. Quantity allowances.
- C. Related Sections:
 - 1. Division 01 Section "Unit Prices" for procedures for using unit prices.
 - 2. Division 01 Section "Quality Requirements" for procedures governing the use of allowances for testing and inspecting.
 - 3. Divisions 02 through 49 Sections for items of Work covered by allowances.

1.3 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Architect from the designated supplier.

1.4 SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.
- B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- C. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.
- D. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.5 COORDINATION

- A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.6 LUMP-SUM, UNIT-COST AND QUANTITY ALLOWANCES

- A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include freight, and delivery to Project site.
- B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials under allowances shall be included as part of the Contract Sum and not part of the allowance.
- C. Unused Materials: Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.
 - 1. If requested by Architect or OR, retain and prepare unused material for storage by Owner. Deliver unused material to Owner's storage space as directed.

1.7 TESTING AND INSPECTING ALLOWANCES

- A. Testing and inspecting allowances include the cost of engaging testing agencies, actual tests and inspections, and reporting results.
- B. The allowance does not include incidental labor required to assist the testing agency or costs for retesting if previous tests and inspections result in failure. The cost for incidental labor to assist the testing agency shall be included in the Contract Sum.
- C. Costs of services not required by the Contract Documents are not included in the allowance.

- D. At Project Closeout, credit unused amounts remaining in the testing and inspecting allowance to Owner by Change Order.

1.8 ADJUSTMENT OF ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
 - 1. Include installation costs in purchase amount only where indicated as part of the allowance.
 - 2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
 - 3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
 - 4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.
- B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's handling, labor, installation, overhead, and profit.
 - 1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
 - 2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

1.9 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

1.10 SCHEDULE OF ALLOWANCES: (LUMP-SUM, UNIT-COST AND QUANTITY)

- A. **Allowance No. 1: Quantity Allowance for Additional Concrete Floor Scarifying**
 - 1. Include an allowance of four (4) additional passes with a Blastrac machine over the concrete slab areas in the lead contaminated Storage Rooms (approximately 3,700 SF) which are outside of the Rifle Range.

END OF SECTION

SECTION 012200 – UNIT PRICES

PART 1 - GENERAL

1.1 SUMMARY

- A. A unit price is an amount proposed by Bidders and stated on the Bid Form as a price per unit of measurement for materials or services that will be added to or deducted from the Contract Sum by Change Order in the event the project Scope of Work is altered.
- B. Unit prices include material, any direct or indirect expenses of the Contractor or Sub-Contractor, profit, insurance, bonding, and any applicable taxes. Includes Removal, Packaging (as per the all applicable regulations), Transporting, & Disposing Building Debris as Contaminated Friable ACM or Non-Friable ACM, Lead RCRA Hazardous, PCB Bulk Product Waste Materials. **The same unit price shall apply whether the work is added or deducted.**
- C. All interior and exterior caulking and glazing compounds are assumed PCB Bulk Product Waste.
- D. Refusal by the Abatement contractor to sign off on F&O Inc. Final Visual Inspection Form(s) waives the right of the abatement contractor to argue or challenge the amount of asbestos quantities that are noted on our forms.
- E. Reasonableness of unit prices will be considered in award.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

- A. Unit prices (must be legible) include material, any direct or indirect expenses of the Contractor or Sub-Contractor, profit, insurance, bonding, and any applicable taxes. Includes Removal, Packaging (as per the all applicable regulations), Transporting, and Disposing Building Debris as Contaminated Friable ACM or Non-Friable ACM, Lead RCRA Hazardous, PCB Bulk Product Waste Materials. Tipping fees-ALL Fees associated with transportation cost shall be included in the unit pricing.

Item No. 1 – SMALL CONTAINMENT PREPARATION TO ENCLOSE ASBESTOS/PCB ABATEMENT AREAS (<160 SF/260 LF)-INCLUDES DECONTAMINATION SYSTEM(s)-

\$ _____ per containment

Item No. 2 – LARGE CONTAINMENT PREPARATION TO ENCLOSE ASBESTOS/PCB ABATEMENT AREAS (>160 SF/260- LF-5,000 SF) INCLUDES DECONTAMINATION SYSTEM(s)

\$ _____ per containment

Item No. 3 – DARK BROWN GLUE DAUBS ASSOCIATED WITH 12"x12" CEILING AND WALL TILES REMOVAL AND DISPOSAL AS ACM

\$ _____ per square foot ceiling surface.

Item No. 4 – BROWN, DUCT PIN GLUE REMOVAL AND DISPOSAL AS ACM

\$ _____ per square foot.

Item No. 5 – 9"x9" FLOOR TILE AND ASSOCITED MASTIC (Includes ALL layers down to original substrate) REMOVAL AND DISPOSAL AS NON FRIABLE ACM

\$ _____ per square foot

Item No. 6 – GRAY CAULIKNG EXPANSION JOINTS REMOVAL AND DISPOSAL AS ACM and PCB BULK PRODUCT WASTE

\$ _____ per linear foot

Item No. 7 – BLACK WATER/PROOFING PAPER REMOVAL AND DISPOSAL AS ACM

\$ _____ per square foot.

Item No. 8 – SINK(s) WITH GRAY UNDERCOATING REMOVAL AND DISPOSAL AS ACM

\$ _____ per sink

Item No. 9 – GRAY CAULKING/GLAZING COMPOUNDs REMOVAL AND DISPOSAL AS ACM AND PCB BULK PRODUCT WASTE (SPECIFIC TO INTERIOR WINDOWS)

\$ _____ per window.

Item No. 10 – ENTIRE BOILER REMOVAL AND DISPOSAL AS ACM AND CLEAN DEBRIS (SCRAP METAL)

\$ _____ per boiler

Item No. 11 – PACKING INSULATION REMOVAL AND DISPOSAL AS ACM

\$ _____ per square foot

Item No. 12 – BREACHING INSULATION REMOVAL AND DISPOSAL AS ACM

\$ _____ per square foot

Item No. 13 – WATER TANK INSULATION/ GLUE REMOVAL AND DISPOSAL AS ACM

\$ _____ per square foot

Item No. 14 – COST TO SCARIFY/GRIND CONCETRE FLOOR AND DISPOAL OF AS RCRA LEAD HAZARDOUS MATERIALS (Removal OF ONE (1) INCH OF SURFACE-TWO PASSES).

\$ _____ per square foot

Item No. 15 – GLOVE-BAG SET UP AND DISPOSAL INLUDES LABOR, MATERAILS, EQUIPMENT <3 Linear Feet 3 Square Feet

\$ _____ per glove-bag

Item No. 16 – COST TO SCARIFY/GRIND CONCRETE FLOOR AND DISPOSAL AS RCRA LEAD HAZARDOUS MATERIALS WITH A BLASTAC MACHIN IN LEAD CONTAMINATED STORAGE ROOM AREAS (APPROX 3,700 SF) WHICH ARE OUTSIDE THE FIRING RANGE.

\$ _____ per pass

END OF SECTION 012200

SECTION 01250 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections include the following:
 - 1. Division 1 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.

1.3 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, within this specification.

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
 - 2. Within 5 days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and

finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Architect.
1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 4. Include costs of labor and supervision directly attributable to the change.
 5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 6. Comply with requirements in Division 1 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.
- C. Proposal Request Form: Recommended form is AIA Document G709 for Proposal Requests.

1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, Contractor will issue a Change Order for signatures of Owner and Contractor on AIA Document G701 (or similar format).

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714 (or similar format). Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

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PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01250

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
 - 1. Division 1 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 2. Division 1 Section "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with Continuation Sheets.
 - b. Submittals Schedule.
 - c. Contractor's Construction Schedule.
 - 2. Submit the Schedule of Values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.

- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Architect's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value.
 - 1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
 3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
 4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
 5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. If specified, include evidence of insurance or bonded warehousing.
 6. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.
- C. Retainage: Owner shall retain 5% of each progress payment until proof of the project's substantial completion. Upon substantial completion, Owner shall retain 2½% of the remaining project completion cost. Upon final project completion and closeout, the Owner will then proceed to release the remaining retainage amount and make final payment to the Contractor.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
 - 1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
 - 2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- E. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt. One copy shall include waivers of lien and similar attachments if required.
- F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
 - 1. When an application shows completion of an item, submit final or full waivers.
 - 2. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 - 3. Submit final Application for Payment with or proceeded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 - 4. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
 - 1. List of subcontractors.
 - 2. Schedule of Values.
 - 3. Contractor's Construction Schedule (preliminary if not final).
 - 4. Products list.
 - 5. Schedule of unit prices.
 - 6. Submittals Schedule (preliminary if not final).
 - 7. List of Contractor's staff assignments.
 - 8. List of Contractor's principal consultants.

9. Copies of building permits.
 10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 11. Initial progress report.
 12. Report of preconstruction conference.
 13. Certificates of insurance and insurance policies.
 14. Performance and payment bonds.
 15. Data needed to acquire Owner's insurance.
 16. Initial settlement survey and damage report if required.
- H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- I. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
 6. AIA Document G707, "Consent of Surety to Final Payment."
 7. Evidence that claims have been settled.
 8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
 9. Final, liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01290

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. Administrative and supervisory personnel.
 - 2. Project meetings.
 - 3. Requests for Interpretation (RFIs).
- B. Related Sections include the following:
 - 1. Division 1 Section "Construction Progress Documentation" for preparing and submitting Contractor's Construction Schedule.
 - 2. Division 1 Section "Execution Requirements" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
 - 3. Division 1 Section "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

- A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

1.4 COORDINATION

- A. Coordination: Each contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its operations with operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.

4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 1. Preparation of Contractor's Construction Schedule.
 2. Preparation of the Schedule of Values.
 3. Preparation of Site Mobilization Plan.
 4. Preparation of Temporary Egress Plan.
 5. Installation and removal of temporary facilities and controls.
 6. Delivery and processing of submittals.
 7. Progress meetings.
 8. Preinstallation conferences.
 9. Project closeout activities.
 10. Startup and adjustment of systems.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1.5 SUBMITTALS

- A. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.

1.6 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
 1. Attendees: General Contractor shall inform participants and others involved, and individuals whose presence is required, of date and time of each meeting.
 2. Agenda: General Contractor shall prepare the meeting agenda and distribute the agenda to all invited attendees.

3. Minutes: General Contractor shall record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.
- B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
 1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing and long-lead items.
 - d. Designation of key personnel and their duties.
 - e. Procedures for processing field decisions and Change Orders.
 - f. Procedures for RFIs.
 - g. Procedures for testing and inspecting.
 - h. Procedures for processing Applications for Payment.
 - i. Distribution of the Contract Documents.
 - j. Submittal procedures.
 - k. Preparation of Record Documents.
 - l. Use of the premises.
 - m. Work restrictions.
 - n. Owner's occupancy requirements.
 - o. Responsibility for temporary facilities and controls.
 - p. Construction waste management and recycling.
 - q. Parking availability.
 - r. Office, work, and storage areas.
 - s. Equipment deliveries and priorities.
 - t. First aid.
 - u. Security.
 - v. Progress cleaning.
 - w. Working hours.
 3. Minutes: General Contractor will record and distribute meeting minutes.
- C. Progress Meetings: Conduct progress meetings at regular intervals not exceeding every 2 weeks. Coordinate dates of meetings with preparation of payment requests.
 1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Work hours.
 - 10) Hazards and risks.
 - 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Status of correction of deficient items.
 - 14) Field observations.
 - 15) RFIs.
 - 16) Status of proposal requests.
 - 17) Pending changes.
 - 18) Status of Change Orders.
 - 19) Pending claims and disputes.
 - 20) Documentation of information for payment requests.
3. Minutes: General Contractor will record and distribute the meeting minutes to the Project team.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
 - a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

1.7 REQUESTS FOR INTERPRETATION (RFIs)

- A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.
 - 1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
 - 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
 - 1. Project name.
 - 2. Date.
 - 3. Name of Contractor.
 - 4. Name of Architect.
 - 5. RFI number, numbered sequentially.
 - 6. Specification Section number and title and related paragraphs, as appropriate.
 - 7. Drawing number and detail references, as appropriate.
 - 8. Field dimensions and conditions, as appropriate.
 - 9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 - 10. Contractor's signature.
 - 11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
 - a. Supplementary drawings prepared by Contractor shall include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments.
- C. Hard-Copy RFIs: CSI Form 13.2A.
 - 1. Identify each page of attachments with the RFI number and sequential page number.
- D. Software-Generated RFIs: Software-generated form with substantially the same content as indicated above.
 - 1. Attachments shall be electronic files in Adobe Acrobat PDF format.
- E. Architect's Action: Architect will review each RFI, determine action required, and return it. Allow five working days for Architect's response for each RFI. RFIs received after 3:00 p.m. will be considered as received the following working day.
 - 1. The following RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.

- c. Requests for coordination information already indicated in the Contract Documents.
 - d. Requests for adjustments in the Contract Time or the Contract Sum.
 - e. Requests for interpretation of Architect's actions on submittals.
 - f. Incomplete RFIs or RFIs with numerous errors.
2. Architect's action may include a request for additional information, in which case Architect's time for response will start again.
3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 1 Section "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.
- F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.
- G. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log at each progress meeting. Include the following:
 1. Project name.
 2. Name and address of Contractor.
 3. Name and address of Architect.
 4. RFI number including RFIs that were dropped and not submitted.
 5. RFI description.
 6. Date the RFI was submitted.
 7. Date Architect's response was received.
 8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01310

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Contractor's Construction Schedule.
 - 2. Submittals Schedule.
 - 3. Field condition reports.
 - 4. Special reports.
- B. Related Sections include the following:
 - 1. Division 1 Section "Payment Procedures" for submitting the Schedule of Values.
 - 2. Division 1 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
 - 3. Division 1 Section "Submittal Procedures" for submitting schedules and reports.
 - 4. Division 1 Section "Quality Requirements" for submitting a schedule of tests and inspections.

1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
 - 1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.
- B. Cost Loading: The allocation of the Schedule of Values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum, unless otherwise approved by Architect.

- C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- E. Event: The starting or ending point of an activity.
- F. Float: The measure of leeway in starting and completing an activity.
 - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
 - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
 - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- G. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.
- H. Major Area: A story of construction, a separate building, or a similar significant construction element.
- I. Milestone: A key or critical point in time for reference or measurement.
- J. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.
- K. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.4 SUBMITTALS

- A. Submittals Schedule: Submit three copies of schedule. Arrange the following information in a tabular format:
 - 1. Scheduled date for first submittal.
 - 2. Specification Section number and title.
 - 3. Submittal category (action or informational).
 - 4. Name of subcontractor.
 - 5. Description of the Work covered.
 - 6. Scheduled date for Architect's final release or approval.
- B. Contractor's Construction Schedule: Submit two opaque copies of initial schedule, large enough to show entire schedule for entire construction period.

- C. Field Condition Reports: Submit two copies at time of discovery of differing conditions.
- D. Special Reports: Submit two copies at time of unusual event.

1.5 QUALITY ASSURANCE

- A. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to the Preliminary Construction Schedule and Contractor's Construction Schedule, including, but not limited to, the following:
 - 1. Review software limitations and content and format for reports.
 - 2. Verify availability of qualified personnel needed to develop and update schedule.
 - 3. Discuss constraints.
 - 4. Review delivery dates for Owner-furnished products.
 - 5. Review schedule for work of Owner's separate contracts.
 - 6. Review time required for review of submittals and resubmittals.
 - 7. Review requirements for tests and inspections by independent testing and inspecting agencies.
 - 8. Review time required for completion and startup procedures.
 - 9. Review and finalize list of construction activities to be included in schedule.
 - 10. Review submittal requirements and procedures.
 - 11. Review procedures for updating schedule.

1.6 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
 - 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
 - 2. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."
- B. Time Frame: Extend schedule from date established for commencement of the Work to date of Final Completion.
 - 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- C. Activities: Treat each separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
 - 1. Activity Duration: Define activities so no activity is longer than **20** days, unless specifically allowed by Architect.
 - 2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 - a. Mechanical, Electrical & Plumbing equipment.
 - b. Specialty items.
 - 3. Submittal Review Time: Include review and resubmittal times indicated in Division 1 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
 - 4. Startup and Testing Time: Include not less than seven days for startup and testing.
 - 5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
- D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
 - 1. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
 - 2. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Division 1 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 - 3. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Division 1 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 - 4. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Uninterruptible services.
 - b. Use of premises restrictions.
 - c. Seasonal variations.
 - d. Environmental control.

- E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.
- F. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.

2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's Construction Schedule within 10 days of date established for the Notice to Proceed. Base schedule on the Preliminary Construction Schedule and whatever updating and feedback was received since the start of Project.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

2.4 REPORTS

- A. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a request for interpretation on CSI Form 13.2A. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.5 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At bi-monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule at each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 3. As the Work progresses, indicate Actual Completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
1. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 013200

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Sections include the following:
 - 1. Division 1 Section "Construction Progress Documentation" for developing a schedule of required tests and inspections.
 - 2. Division 1 Section "Cutting and Patching" for repair and restoration of construction disturbed by testing and inspecting activities.
 - 3. Divisions 2 through 16 Sections for specific test and inspection requirements.

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and

completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

- C. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.
- D. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.
- E. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.
- F. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- H. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.
- I. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

- A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 SUBMITTALS

- A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - 1. Specification Section number and title.
 - 2. Description of test and inspection.
 - 3. Identification of applicable standards.
 - 4. Identification of test and inspection methods.
 - 5. Number of tests and inspections required.
 - 6. Time schedule or time span for tests and inspections.
 - 7. Entity responsible for performing tests and inspections.
 - 8. Requirements for obtaining samples.
 - 9. Unique characteristics of each quality-control service.
- C. Reports: Prepare and submit certified written reports that include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.
 - 9. Test and inspection results and an interpretation of test results.
 - 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 12. Name and signature of laboratory inspector.
 - 13. Recommendations on retesting and reinspecting.
- D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.6 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

- B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- C. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or products that are similar to those indicated for this Project in material, design, and extent.
- F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - 1. Requirement for specialists shall not supersede building codes and regulations governing the Work.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
 - 1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 - 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

1.7 QUALITY CONTROL

- A. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
 - 1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

- a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
 2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- B. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 1 Section "Submittal Procedures."
- C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- D. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform any duties of Contractor.
- E. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 4. Facilities for storage and field curing of test samples.
 5. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.

7. Security and protection for samples and for testing and inspecting equipment at Project site.
- F. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
 1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.8 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Conducted by a qualified testing agency as required by authorities having jurisdiction, as indicated in individual Specification Sections, and as follows:
 1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
 2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
 4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
 5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
 6. Retesting and reinspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Prepare a record of tests and inspections. Include the following:
 1. Date test or inspection was conducted.
 2. Description of the Work tested or inspected.
 3. Date test or inspection results were transmitted to Architect.
 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
 - 2. Comply with the Contract Document requirements for Division 1 Section "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 017320 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Demolition and removal of selected portions of a building or structure.
 - 2. Repair procedures for selective demolition operations.
- B. Related Sections include the following:
 - 1. Division 1 Section "Construction Facilities and Temporary Controls" for temporary construction and environmental-protection measures for selective demolition operations.
 - 2. Division 1 Section "Cutting and Patching" for cutting and patching procedures for selective demolition operations.

1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to Owner.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site.

- B. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered during selective demolition remain Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to Owner.

1.5 SUBMITTALS

- A. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- B. Proposed Dust-Control and Noise-Control Measures: Submit statement or drawing that indicates the measures proposed for use, proposed locations, and proposed time frame for their operation. Identify options if proposed measures are later determined to be inadequate.
- C. Stamped shoring layout drawings prepared by the General Contractor's Professional Engineer, indicating location, method and design loads for the temporary shoring system utilized.
- D. Schedule of Selective Demolition Activities: Indicate the following:
 - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
 - 2. Interruption of utility services.
 - 3. Coordination for shutoff, capping, and continuation of utility services.
 - 4. Use of elevator and stairs.
 - 5. Locations of temporary partitions and means of egress.
 - 6. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
- E. Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged.
- F. Predemolition Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by selective demolition operations. Submit before Work begins.
- G. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.6 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.

- B. Professional Engineer Qualifications: Current Professional Engineer's License valid in the State of Connecticut.
- C. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- D. Standards: Comply with ANSI A10.6 and NFPA 241.
- E. Predemolition Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to selective demolition including, but not limited to, the following:
 - 1. Inspect and discuss condition of construction to be selectively demolished.
 - 2. Review structural load limitations of existing structure.
 - 3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.

1.7 PROJECT CONDITIONS

- A. Owner will occupy portions of site immediately adjacent to selective demolition areas. Conduct selective demolition so Owner's operations will not be disrupted. Provide not less than 72 hours' notice to the Owner's Representative of activities that will affect Owner's operations.
- B. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
 - 1. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from authorities having jurisdiction.
- C. Owner assumes no responsibility for condition of areas to be selectively demolished.
 - 1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- D. Hazardous Materials: Hazardous materials may be present and removal of such materials, where it is necessary to complete the work as outlined herein, is part of the Project. Comply with Abatement industry protocol and standards as needed. Consult Hazardous Materials Reports for more information.
- E. Storage or sale of removed items or materials on-site will not be permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Maintain fire-protection facilities in service during selective demolition operations.

1.8 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 REPAIR MATERIALS

- A. Use repair materials identical to existing materials.
 - 1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
 - 2. Use materials whose installed performance equals or surpasses that of existing materials.
- B. Comply with material and installation requirements specified in individual Specification Sections.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to the Architect.
- E. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations. Professional Engineer shall develop shoring layout plan for all temporary shoring and supervise the General Contractor's implementation of that plan. See paragraph 1.5 for submittal requirements.
- F. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 UTILITY SERVICES

- A. Existing Utilities: Maintain services indicated to remain and protect them against damage during selective demolition operations.
- B. Do not interrupt existing utilities serving occupied or operating facilities unless authorized in writing by Construction Administrator and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to authorities having jurisdiction.
 - 1. Provide at least 72 hours' notice to Construction Administrator if shutdown of service is required during changeover.
- C. Utility Requirements: Refer to Division 15 and 16 Sections for shutting off, disconnecting, removing or capping utilities. Do not start selective demolition work until utility disconnecting and sealing have been completed and verified in writing.

3.3 PREPARATION

- A. Dangerous Materials: Drain, purge, or otherwise remove, collect, and dispose of chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with selective demolition operations.
- B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference walks, walkways, and other adjacent occupied and used facilities.
 - 1. Do not close or obstruct walks, walkways, or other adjacent occupied or used facilities without permission from the owner's representative and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
 - 2. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
 - 3. Protect existing site improvements, appurtenances, and landscaping to remain.
- C. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
 - 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 - 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
 - 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
- D. Temporary Enclosures: Provide temporary enclosures for protection of existing building and construction, in progress and completed, from exposure, foul weather, other construction

operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

1. Where heating and cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
- E. Temporary Partitions: Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise.
- F. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of construction to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
 1. Strengthen or add new supports when required during progress of selective demolition.

3.4 POLLUTION CONTROLS

- A. Dust Control: Use water mist, temporary enclosures, and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations.
 1. Do not use water when it may damage existing construction or create hazardous or objectionable conditions, such as ice, flooding and pollution.
 2. Wet mop floors to eliminate trackable dirt and wipe down walls and doors of demolition enclosure. Vacuum carpeted areas.
- B. Disposal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 1. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- C. Cleaning: Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

3.5 SELECTIVE DEMOLITION

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows.
 1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.

2. 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. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 4. 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 during flame-cutting operations.
 5. Maintain adequate ventilation when using cutting torches.
 6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 9. Dispose of demolished items and materials promptly.
 10. Return elements of construction and surfaces that are to remain to condition existing before selective demolition operations began.
- B. Existing Facilities: Protect existing elevators, stairs, walkways, loading docks, building entries, and other building facilities during selective demolition operations.
- C. Removed and Reinstalled Items: Comply with the following:
1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
 3. Protect items from damage during transport and storage.
 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Construction Administrator, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.
- E. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals, using power-driven saw, then remove concrete between saw cuts.
- F. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.

3.6 PATCHING AND REPAIRS

- A. General: Promptly repair damage to adjacent construction caused by selective demolition operations.
- B. Patching: Comply with Division 1 Section "Cutting and Patching."
- C. Repairs: Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
 - 1. Completely fill holes and depressions in existing masonry walls that are to remain with an approved masonry patching material applied according to manufacturer's written recommendations.
- D. Finishes: Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.
- E. Floors and Walls: Where walls or partitions that are demolished extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - 1. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.
 - 2. Where patching occurs in a painted surface, apply primer and intermediate paint coats over patch and apply final paint coat over entire unbroken surface containing patch. Provide additional coats until patch blends with adjacent surfaces.
 - 3. Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
- F. Ceilings: Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.8 SELECTIVE DEMOLITION SCHEDULE

- A. The general intent of scope for Selective Demolition is indicated on the Drawings.

END OF SECTION 017320

SECTION 017329 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.4 QUALITY ASSURANCE

- A. The Contractor shall provide all cutting, fitting and patching work that may be required to make all parts come together properly, and fit to receive or be received by work of subcontractors.
- B. All damaged existing areas to remain and existing areas affected by demolition and/or new construction work shown on Drawings shall be patched as required to match immediate existing adjacent areas in material, fire rating, finish and color, unless otherwise noted.
- C. Where openings occur in existing fire rated areas or partitions due to new work, and/or where existing fireproofing is removed as a result of new construction work, the Contractor shall close openings and patch or replace materials to match the adjacent surfaces in material, finish and rating.
- D. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- E. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operating elements include the following:
 - 1. Primary operational systems and equipment.
 - 2. Control systems.

3. Communication systems.
 4. Electrical wiring systems.
 5. HVAC systems
- F. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Miscellaneous elements include the following:
1. Water, moisture, or vapor barriers.
 2. Membranes and flashings.
 3. Exterior curtain-wall construction.
 4. Equipment supports.
 5. Piping, ductwork, vessels, and equipment.
 6. Noise- and vibration-control elements and systems.
- G. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.

- B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

3.3 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Concrete / Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - 4. Excavating and Backfilling: Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.
 - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 - 6. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.
 - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
 - 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.

- b. Restore damaged pipe covering to its original condition.
- 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
- 4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
- 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
- D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION 017310

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Inspection procedures.
 - 2. Final cleaning.
- B. Related Sections include the following:
 - 1. Division 1 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
 - 2. Division 1 Section "Execution Requirements" for progress cleaning of Project site.
 - 3. Division 1 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
 - 4. Division 1 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
 - 5. Divisions 2 through 16 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.

5. Prepare and submit Project Record Documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
8. Complete startup testing of systems.
9. Submit test/adjust/balance records.
10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
11. Advise Owner of changeover in utilities.
12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
13. Complete final cleaning requirements, including touchup painting.
14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."
2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report and warranty.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements.

Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected. Expenses incurred by the Architect for more than one reinspection will be the responsibility of the Contractor and will be invoiced directly.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit one copy of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding into the building in order of the room numbers indicated on the Drawings.
 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Page number.

1.6 WARRANTIES

- A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.

3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to building.
 - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces.
 - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - h. Sweep concrete floors broom clean in unoccupied spaces.

- i. Remove labels that are not permanent.
 - j. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - k. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - l. Replace parts subject to unusual operating conditions..
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 017700

SECTION 017810 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
 - 1. Record Drawings.
 - 2. Record Product Data.
- B. Related Sections include the following:
 - 1. Division 1 Section "Closeout Procedures" for general closeout procedures.
 - 2. Division 1 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
 - 3. Divisions 2 through 16 Sections for specific requirements for Project Record Documents of the Work in those Sections.

1.3 SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit two set(s) of marked-up Record Prints.
- B. Record Product Data: Submit two copies of each Product Data submittal.
 - 1. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in manual instead of submittal as Record Product Data.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings on site.
1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an understandable drawing technique.
 - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations below first floor.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.
 - h. Locations of concealed internal utilities.
 - i. Changes made by Change Order or Construction Change Directive.
 - j. Changes made following Architect's written orders.
 - k. Details not on the original Contract Drawings.
 - l. Field records for variable and concealed conditions.
 - m. Record information on the Work that is shown only schematically.
 3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect.
 - e. Name of Contractor.

2.2 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

2.3 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

15050
01/17/2018

NEW LONDON HIGH SCHOOL
ADDITIONS & RENOVATIONS
Phase 2: Early Haz-Mat Package
State Project #095-0090 MAG/N

END OF SECTION 017810

SECTION 028100 - TRANSPORTATION & DISPOSAL OF HAZARDOUS MATERIALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and General Provisions of Contract, including General Supplementary Conditions and Division 01 Specifications Sections, apply to this Section.

1.2 RELATED SECTIONS

- A. Fuss & O'Neill EnviroScience, LLC Limited Hazardous Building Materials Inspection Reports dated September 13, 2018 and January 8, 2019.
- B. Section 028213 - Asbestos Abatement
- C. Section 028319 – Lead Paint Awareness
- D. Section 028320 – Lead Dust Reduction
- E. Section 028434 – Presumed PCB Bulk Product Abatement

1.3 DESCRIPTION OF WORK

- A. This section describes the segregation, packing, labeling, transport, and disposal of waste materials generated during the demolition activities and the subsequent shipment of properly packaged and labeled waste materials to an approved disposal site. The following materials have been identified:
 - 1. Remove and dispose of all miscellaneous maintenance/cleaning products such as but not limited to solvents, paints, cleaners, degreasers, oils etc.
 - 2. Remove and dispose of all fire extinguishers.
 - 3. Remove and dispose of all medical waste (associated with Nurses' stations etc.).
 - 4. Remove and dispose of all batteries.
 - 5. Remove and dispose of ash associated with incinerator and stack. A representative sample of incinerator ash was analyzed for TCLP total RCRA 8 metals for waste profiling. Arsenic, chromium, mercury, selenium, and silver were reported below laboratory detection levels. Barium was reported at 0.1 mg/L, cadmium at 0.275 mg/L and lead at 4.29 mg/L.
 - 6. Remove and dispose of all hydraulic oils associated with all elevator equipment.
 - 7. Remove and disposal of all greases, oils, lubricant oils associated with mechanical equipment, heating equipment etc.
 - 8. Coordinate and facilitate removal of all transformers associated with transformer vault with utility company (CL&P). Remove all transformers throughout the building and site.

The transformer area will be assessed and tested at the time the work is conducted. The Contractor shall assume the transformer vault will need to remain in place for transformers to be removed by CL&P and testing of concrete and/or soil in the area to assess the presence/absence of contaminants. Testing will either be conducted by CL&P or the Owner's Consultant. The Contractor shall anticipate delays for the transformer vault demolition. Note: lighting system associated with underwater lighting in pool area as well.

9. Remove and dispose of all chlorine and associated chemicals for pool system and mechanical equipment (e.g. but not limited to chlorine tanks, filtration, piping, injector pumps, etc.).
10. Remove and disposal of all oil associated with oil transfer pumps, lines (sub slab, trenched, etc.), and any other equipment associated with heating oil systems.
11. Remove and dispose of acid waste and vent lines and neutralization traps.
12. Remove and dispose of all refrigerants (R-134 a, etc.) associated with all equipment.
13. Remove and dispose of all materials associated with sump pumps and associated lines.
14. Remove and dispose of two (2) existing 275-gallon ASTs. One (1) diesel AST along the northern interior wall in the basement of the building and one (1) AST containing waste oil in the maintenance garage.
15. Remove and dispose of all drums containing floor waxing materials.
16. Properly decontaminate or remove in its entirety stained concrete flooring associated with the 1958 boiler room, generator room, incinerator room, compressor room, etc. (entire lower mechanical area). Note: PCB (<50 ppm) black tar under slab.
17. Remove and dispose of all air conditioning units.

1.4 CODES AND REGULATIONS

- A. General Applicability of Codes and Regulations: Except to the extent that more explicit or more stringent requirements are written directly into the Contract Documents, all applicable codes and regulations have the same force and effect (and are made a part of the contract document by reference) as if copied directly into the Contract Documents, or as if published copies are bound herewith.
- B. Contractor Responsibility: The Contractor shall assume full responsibility and liability for the compliance with all applicable Federal, State, and local regulations pertaining to hazardous waste management and disposal. Hold the Owner and Consultant harmless for failure to comply with any applicable work, hauling, disposal, safety, health or other regulation on the part of the Contractor, the Contractor's employees, or Subcontractors.
- C. Federal Requirements: which govern the management; hauling and disposal of hazardous waste include but are not limited to the following:
 1. DOT: U.S. Department of Transportation, including but not limited to:
 - a. Hazardous Substances, Title 49, Part 171 and 172 of the Code of Federal Regulations.
 - b. Hazardous Material Regulations, General Awareness and Training of Requirements for Handlers, Loaders and Drivers, Title 49, Parts 171-180 of the Code of Federal Regulations.

- c. Hazardous Material Regulations, Editorial and Technical Revisions, Title 49, Parts 171-180 of the Code of Federal Regulations.
- 2. EPA: U.S. Environmental Protection Agency (EPA), including but not limited to:
 - a. Management of Hazardous Wastes Resource Conservation and Recovery Act (RCRA), Title 40, Parts 260-268 of the Code of Federal Regulations.
- D. State Requirements: Abide by all state requirements which govern the management, hauling, and disposal of hazardous and regulated wastes.

1.5 DEFINITIONS

- A. Toxicity Characteristic Leaching Procedure (TCLP): A laboratory test method to determine the mobility of both organic and inorganic analytes present in liquid, solid and multiphasic wastes performed in accordance with test methods required under 40CFR Part 268.

1.6 SUBMITTALS

- A. Before Start of Work: Submit the following to the Consultant for review prior to the start of work. The Consultant reserves the right to request revisions or additional information prior to start of work.
 - 1. Copy of state and local licenses for waste hauler.
 - 2. U.S. EPA Identification Number of waste hauler.
 - 3. Name and address of waste disposal facility where hazardous waste manifests are to be disposed including:
 - a. Contact person and telephone number.
 - b. Copy of state license and permit.
 - c. Disposal facility permits.
 - 4. Specimen copy of Uniform Hazardous Waste Manifest form.
 - 5. Copy of EPA "Notice of Hazardous Waste activity" form.
 - 6. Copy of forms required by state and local agencies.
 - 7. Sample of disposal label to be used.
- B. During Work: Submit the following as required by the work.
 - 1. Submit copies of all executed manifests and disposal, recycling, site receipts to Consultant.

PART 2 - PRODUCTS

2.1 MATERIALS

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

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

PART 3 - EXECUTION

3.1 GENERAL

- 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.

3.2 HAZARDOUS WASTE

- A. The following waste products are designated by the Owner as non-salvageable and as Hazardous Waste Types:
 - 1. Waste Type A: PCB waste
 - a. PCB-containing ballasts from fluorescent light fixtures.
 - b. Other identified materials.
 - 2. Waste Type B: Mercury-containing waste
 - a. Thermostats with mercury switches. Individually bagged mercury-containing thermostats.
 - b. Fluorescent and mercury-vapor lamps.
 - c. Other identified materials.

3.3 HAZARDOUS WASTE PACKAGING AND LABELING

- A. Package each segregated Hazardous Waste Type, A and B, in specified containers as follows.
IMPORTANT: Do Not Mix Waste Streams:
 - 1. Waste Type A:
 - a. Package in DOT 17-H Open-Top Drums.
 - b. Fill to capacity only with Waste Type A (Do not mix waste stream types).
 - c. Install gasket on lid, apply lock ring and seal.
 - d. Apply Hazardous Waste Label to drum side.
 - e. Enter DOT Shipping Data as follows: RQ Waste Polychlorinated Biphenyl, 9, UN-2315, PG-II (M001).
 - f. Adjacent to each label, enter the date indicating when waste was first placed in each drum.

2. Waste Type B:
 - a. Package in DOT 17-H Open-Top Drums and Polyethylene disposal bag liners.
 - b. Fill liner bags only with Waste Type B (Do not mix waste stream types); then neck liner bags down into DOT 17-H Open-Top Drum and seal with duct tape.
 - c. Install gasket on lid, apply lock ring and seal.
 - d. Apply Hazardous Waste Label to drum side.
 - e. Enter DOT Shipping Data as follows: RQ Hazardous Waste Solid, NOS, 9, NA3077, PG-III (D009).
 - f. Adjacent to each label, enter the date indicating when waste was first placed in each drum.
3. Sealed and Labeled Containers: maintain all containers in a continuously sealed condition after they have been sealed.
 - g. Do not reopen sealed containers.
 - h. Do not place additional waste in sealed containers.

3.4 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;
 3. When moved from site to site, each container remains within the geographic boundaries of the facility without moving or crossing public access highways.

3.5 REMOVAL OF HAZARDOUS WASTES

- A. Immediately seal containers of hazardous waste as each container is filled. Remove containers of hazardous waste from the work site within seventy-two (72) hours of being filled:
 1. Transporting filled containers from the work site to an approved disposal site or recycling center.
 2. Continuously maintain custody of all hazardous material generated at the work site including security, short-term storage, transportation and disposition until custody is transferred to an approved disposal site or recycling center. Document continuous chain-of custody.
 3. Do not remove, or cause to be removed, hazardous waste from Owner's property without a legally executed Uniform Hazardous Waste manifest.
 4. At completion of hauling and disposal of each load submit copy of waste manifest, chain of custody form and landfill receipt to Consultant.

3.6 RECYCLING AND RECOVERY

- A. Turn over waste which contains materials for which recovery and/or recycling is possible to an approved recycling center. Materials subject to recycling include, but are not limited to:

1. Fluorescent light tubes
2. Thermostats with mercury switches
3. Clean metal from above ground storage tanks
4. Virgin heating oil from above ground storage tanks

3.7 REMOVAL OF ABOVE GROUND FUEL OIL TANKS (ASTS)

- A. Removal of a tank shall include all necessary pumping out of excess product and residue, purging, defuming, etc. All tanks, sludge and unwanted product removed shall become the responsibility of the Contractor and shall be removed from the site and disposed in accordance with the Department of Energy and Environmental Protection Regulations, including, but not limited to by Sections 22a-449(d)-101 through 22a-449(d)-113 of the Regulations of CT State Agencies (RCSA).
- B. The Contractor shall submit written documentation in the form of a bill of lading and recycling ticket and/or receipt to the Engineer indicating the final disposal locations of the removed tanks and associated piping as well as all other materials taken off the site associated with the removal. Contractor responsible for removal of all materials associated with the AST.

END OF SECTION 028100

SECTION 02 82 13 – ASBESTOS ABATEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. General Provisions of Contract, including General Supplementary Conditions shall apply to this Section.
- B. Fuss & O'Neill Inc. Limited Hazardous Building Materials Inspection Reports dated September 13, 2018 and January 8, 2019.
- C. Section 028100 – Transportation & Disposal of Hazardous Materials
- D. Section 028319 – Lead Paint Awareness
- E. Section 028320 – Lead Dust Reduction
- F. Section 028434 – Presumed PCBs Removal and Disposal
- G. Hazardous Materials Abatement Drawings HM-001, HM-002, HM-003, NLHS-06.28.18

1.2 CONSULTANT

- A. The Owner and/or Architect shall retain a Consultant for the purposes of project management and monitoring during Asbestos Abatement activities. At the discretion of the Owner and/or Architect, the Consultant will represent the Owner and/or Architect during the abatement project. The Asbestos Abatement Contractor (the "Contractor") will regard the Consultant's direction as authoritative and binding as provided herein, in matters particularly, but not limited to the following:
 - 1. Approval of work areas
 - 2. Review of monitoring results
 - 3. Completion of the various segments of work
 - 4. Final completion of the abatement
 - 5. Submission of data
 - 6. Daily field punch list items
- B. The State of Connecticut-licensed Asbestos Consultant – Project Designer for this project is Carlos Texidor (License No. 000275).

1.3 SCOPE OF WORK

- A. Work outlined in this Section includes all work necessary for the removal, packaging, transporting, and disposing of asbestos-containing materials (ACM) and Asbestos impacted

during the Phase 2 (the “Work”) at New London High School, New London, Connecticut (the “Site”). This Work under this Contract includes, but is not limited to asbestos abatement in the New London High School.

- B. This scope of work does not include the asbestos roofing abatement in the New London High School.
- C. This scope of work includes necessary selective demolition to access ACM scheduled for abatement.

1.4 USE OF THE CONTRACT DOCUMENTS

- A. It shall be incumbent upon the Contractor to visit the Site and determine what exists, its condition, and what will be required to accomplish the Work intended by the Contract Documents. No increase in the Contract Sum will be permitted as a result of the Contractor's failure to visit the Site and understand the existing conditions.
- B. All work shall comply with the Contract Documents and with applicable codes, laws, regulations, and ordinances wherever applicable. The most stringent of all the foregoing shall govern the Work.
- C. It is not intended that the Specifications show every detail of the Work, but the Contractor shall be required to furnish within the Contract Sum all material and labor necessary for the completion of the Work in accordance with the intent of these Specifications.
- D. In case of ambiguity among the Contract documents, the more stringent requirement as determined by the Consultant shall prevail.
- E. The Work of this Contract includes making modifications as necessary, subject to approval by Owner in consultation with the Consultant to correct any conflicts.
- F. All items not specifically mentioned in the Specifications, but implied by trade practices to complete the Work, shall be included.

1.5 SITE EXAMINATION

- A. It is understood that the Contractor has examined the Site and made their own estimates of the facilities and difficulties attending the execution of the Work, and has based their price thereon.
- B. Except for unforeseeable concealed conditions as determined by the Consultant, the Contractor shall make no claim for additional cost due to the existing conditions at the Site.

1.6 CONTRACTOR QUALIFICATIONS

- A. All bidders shall submit a record of prior experience in asbestos abatement projects, listing no less than three completed projects in the past year, with all projects of similar size and scope.

The Contractor shall list the experience and training of the project foremen and all on-site personnel. The information that should be included is as follows:

1. Project Name and Address
 2. Owner's Name and Address
 3. Architect/Consultant
 4. Contract Amount
 5. Date of Completion
 6. Extras and Changes
- B. The Contractor selected must appear on the approved list of Asbestos Abatement Contractors on file at the State of Connecticut Department of Public Health (CTDPH) and hold a valid license for asbestos abatement within the State of Connecticut.
- C. Submit a written statement regarding whether the Contractor has ever been cited for non-compliance with federal, state, or local asbestos and/or lead regulations pertaining to worker protection, removal, transport, or disposal.

1.7 TESTING LABORATORY SERVICES

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

1.8 ADDITIONAL GENERAL REQUIREMENTS

- A. The Contractor shall employ a competent CTDPH-licensed Asbestos Abatement Supervisor with at least three years of experience on projects of similar scope and magnitude who shall be responsible for all work involving asbestos abatement as described in the specifications and defined in applicable regulations, and have full-time daily supervision of the same. The Supervisor shall be the competent person as defined by Occupational Safety and Health Administration (OSHA) regulations.
- B. If required by federal, state, local, and any other authorities having jurisdiction over such work, the Contractor shall allow the work of this contract to be inspected. The Contractor shall immediately notify the Owner, and the Architect, and Consultant and shall maintain written evidence of such inspection for review by the Owner, and the Architect, and Consultant.
- C. The Contractor shall incur the cost of all fines resulting from regulatory non-compliance as issued by federal, state, and local agencies. The Contractor shall incur the cost of all work requirements mandated by federal, state, and local agencies as a result of regulatory non-compliance or negligence.
- D. The Contractor shall immediately notify the General Contractor, and Consultant of the delivery of all permits, licenses, certificates of inspection, of approval, or occupancy, etc., and any other such instruments required under codes by authorities having jurisdiction, regardless of who issued, and shall cause them to be displayed to the Owner, and the Architect and Consultant for verification and recording.

1.9 PROJECT DESCRIPTION

- A. The base bid includes the removal, packaging, transporting, and disposing of all ACM as identified herein conducted by workers meeting the requirements of OSHA Title 29 CFR, Part 1926.1101 for Class 1 and 2 work. This shall include all necessary demolition to access the ACM for abatement.
- B. Materials as discovered outside of those listed (either above or below) will be measured and paid or credited by unit prices. The quantities are estimates only and should be field verified by the Contractor.
- C. The base bid includes the following ACM:

BASE BID - ASBESTOS

LOCATION	MATERIAL TYPE	ESTIMATED QUANTITY	NOTES
Former Firing Range			
Former Rifle Range	Glue daubs – dark brown, associated with 12” x 12” ceiling and wall tiles Includes Removal, Packaging, Transporting, & Disposing as Contaminated Non-Friable ACM.	~600 SF	1, 2, 5
Former Rifle Range and Unassigned Space outside of the Former Rifle- REFER TO DRAWING-NLHS-06.28.18	Glue – brown duct pin glue/adhesive Includes Removal, Packaging, Transporting, & Disposing as Contaminated Non-Friable ACM.	~1,000 SF	1, 2, 3, 5
Auditorium Building			
G134, G133, 135, G137, G139, G141, G117, G118, G119, G121, G123, G115, G114, G112, G116, G129, G124, G126, G127, G122, G130, G121, G114, G11, G108, G112,	9”x9” Floor tile and mastic Includes Removal, Packaging, Transporting, & Disposing as Contaminated Non-Friable ACM.	~10,500 SF	1, 4, 5
G117, G118, G132, 138, 136, G116-Corridor, G108, G111, G112, G114, G115, G117, G118, G119, G120	Gray caulking expansion joints- Removal, Packaging, Transporting, & Disposing as Contaminated Friable ACM. <i>See Section 02 84 34 Polychlorinated Biphenyl Bulk Product Abatement & Performance Based Clean-Up & Disposal Plan for Additional Information</i>	~900 LF	1, 5, 6
G115-Nursing Room	Sink with Gray undercoating	1 sink	1, 5, 6

LOCATION	MATERIAL TYPE	ESTIMATED QUANTITY	NOTES
114 Waiting Room	Gray caulking/glazing compounds- Removal, Packaging, Transporting, & Disposing as Contaminated Friable ACM. <i>See Section 02 84 34 Polychlorinated Biphenyl Bulk Product Abatement & Performance Based Clean-Up & Disposal Plan for Additional Information</i>	2 windows	1, 5, 6
Boiler Room/G13 Storage Room			
C17-Boiler Room	Boiler Number 2 (Clever Brooks-Fire Tube) - Removal, Packaging, Transporting, & Disposing as Contaminated Friable ACM.	1 Boiler	1, 5, 6, 7
C17-Boiler Room	Packing Insulation- Removal, Packaging, Transporting, & Disposing as Contaminated Friable ACM	250 SF	1, 5, 6
C17-Boiler Room	Breaching insulation- Removal, Packaging, Transporting, & Disposing as Contaminated Friable ACM	500 SF	1, 5, 6
G13-Storage Room C17-Boiler Room	Water Tank Insulation- Removal, Packaging, Transporting, & Disposing as Contaminated Friable ACM	800 SF	1, 5, 6

Notes:

- Quantities shall be verified by Contractor during the time of the walk-through. Discrepancies of amounts and/or locations of asbestos-containing materials shall be addressed prior to bidding the work to the Owner and Consultant.
- Abatement Contractor shall remove asbestos containing materials first before beginning any Lead Reduction Work.
- Contractor shall remove in its entirety all of the HVAC duct systems as indicated in NLHS drawing dated 06-28-2018 Items 3, 4, 5, 6 and 7. The contractors shall dispose of any fiberglass insulation as Lead RCRA Hazardous Waste. Bare duct work will be disposed of as ACM after wet wiping.
- All materials associated with the floor tile or any flooring materials and mastic shall be removed and disposed of as asbestos, including, but not limited to, carpet, adhesives, leveling compounds, concrete toppings, etc. (all layers down to original substrate shall be included in cost)
- Contractor shall confirm quantities prior to the start of work.
- The Contractor shall demolish/remove components that are necessary to access the asbestos containing/contaminated materials and/or facilitate establishing the work area for example but not limited to cabinets, bottom of wall systems, brick, windows, doors, radiators, wood, metal, masonry, stone, lights, ductwork, counters, flooring materials, wall materials, ceiling materials, roof materials, façade materials etc. If any of the materials to be removed to access asbestos and/or to facilitate establishing the work area are contaminated with asbestos debris the materials shall be appropriately or disposed of as asbestos waste. If any of the materials will disturb asbestos the removal of such materials shall be conducted after the asbestos containment has been approved by the Owner's Authorized Representative.
- Boiler will be completely dismantled under full negative pressure containment. Contractor shall dispose all asbestos-containing materials associated with the boiler. All

exterior and interior components are presumed asbestos-containing and must be disposed of as ACM. The contractor shall remove all other boiler components that are not ACM as clean construction debris or scrap metal. The contractor is responsible to remove the boiler from the school in it's entirety (includes all metal and non-asbestos materials). Contractor shall retain licensed qualified Boiler Technicians to drain any heating fuel from pipes attached to Boiler # 2.

- D. Some of the Work will be performed in multiple mobilizations, at different periods of time, in conjunction with other trades (i.e., other trades work, demolition work, etc.).
- E. Safety Data Sheets (SDS) for chemicals to be used during the project must be submitted to the Consultant prior to site delivery.
- F. Encapsulants applied to any surface that will receive a new finish that requires an adhesive must be compatible with the application of the new finish.
- G. The Contractor shall be responsible for providing temporary water, power, and heat as needed at the Site to perform the work required. Temporary lighting within the work areas must be connected to Ground Fault Circuit Interrupter (GFCI) power panels installed by a State of Connecticut-licensed electrician, permitted as required, and located outside of the work areas.

1.10 DEFINITIONS

- A. The following definitions relative to asbestos abatement apply:
 1. Abatement: Procedures to control fiber release from ACM; includes removal, encapsulation, and enclosure.
 2. Air Monitoring: The process of measuring the total airborne fiber concentration of an area, or a person.
 3. Amended Water: Water to which a surfactant (wetting agent) has been added.
 4. Architect: Antinozzi Associates: a person or firm professionally engaged in the design of certain large constructions other than buildings and the like.
 5. Asbestos: For the purpose of this project design, Asbestos is the name given to a number of naturally occurring fibrous silicates. This includes the serpentine forms and the amphiboles, and includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite, or any of these forms, which have been chemically-altered; as well as the amphiboles richterite and winchite as found in Libby amphibole asbestos.
 6. Asbestos-Containing Materials: For the purpose of this project design, an asbestos containing material is any building material categorized by EPA as a surfacing material, thermal system insulation, or miscellaneous that contains any amount of asbestos (as defined above) based on the analytical methodology adopted by the project designer for application to subject building materials at the Site.
 7. Asbestos Felt: A product made by saturating felted asbestos with asphalt, or other suitable bindery, such as a synthetic elastomer.
 8. Asbestos Fibers: Those particles with a length greater than five (5) microns and a length to diameter ratio of 3:1 or greater.
 9. Asbestos Project Designer: The State of Connecticut-licensed Asbestos Consultant – Project Designer for this project is Carlos Texidor (License No. 000275).

10. Asbestos Work Area: A regulated area as defined by OSHA Title 29 CFR, Part 1926.1101 where asbestos abatement operations are performed, which is isolated by physical barriers to prevent the spread of asbestos dust, fibers, or debris. The regulated area shall comply with requirements of regulated area for demarcation, access, respirators, prohibited activities, competent persons and exposure assessments and monitoring.
11. Caulking: Resilient mastic compound often having a silicone bituminous or rubber base; used to seal cracks, fill joints, and prevent leakage. Typical applications: around windows, and doors. Caulking is at joints between two dissimilar materials. (i.e., masonry to wood, masonry to steel).
12. Clean Room: An uncontaminated area or room, which is a part of the worker decontamination enclosure with provisions for storage of worker street clothes and protective equipment.
13. Clearance Sampling: Final air sampling performed aggressively after the completion of the abatement project in a regulated area. Air samples collected by the air sampling professional having a total airborne fiber concentration of less than 0.010 fibers per cubic centimeter of air (fibers/cc) in each of five (5) samples collected inside the containment will denote acceptable clearance sampling by Phase Contrast Microscopy (PCM), or five air samples collected inside the containment by the air sampling professional having an average asbestos concentration of less than 70 structures per square millimeter (s/mm²) of air will denote acceptable clearance sampling for Transmission Electron Microscopy (TEM).
14. Competent Person: As defined by OSHA Title 29 CFR, Part 1926.1101, a representative of the Abatement Contractor who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure. The Competent Person has authority to take prompt corrective measures, and to eliminate such hazards during asbestos removal. The Competent Person shall be properly trained in accordance with EPA's Model Accreditation Plan (MAP).
15. Consultant: Fuss & O'Neill Inc.: A company retained by the Owner with State of Connecticut-licensed asbestos designer and asbestos project monitors to provide services enumerated in this section during asbestos abatement.
16. Containment: An enclosure within the building which establishes a contaminated area and surrounds the location where ACM and/or other toxic or hazardous substance removal is conducted, and establishes a Control Work Area.
17. Curtained Doorway: A device to allow ingress and egress from one area to another while permitting minimal air movement between the areas. Two curtained doorways spaced a minimum of six feet apart can form an airlock.
18. Damp-proofing: Application of a water impervious material to surface (such as a wall) to prevent penetration of moisture, typically at foundation or below grade surface.
19. Decontamination Enclosure System: A series of connected areas, with curtained doorways between any two adjacent areas, for the decontamination of workers and equipment. A decontamination enclosure system always contains at least one airlock and is adjacent and connected to the regulated area, where possible.
20. Encapsulant: A liquid material which can be applied to ACM, which controls the possible release of asbestos fibers from the materials either by creating a membrane over the surface (bridging encapsulant), or penetrating the material and binding its components together (penetrating encapsulant).

21. Equipment Room: Any contaminated area or a room that is part of the worker decontamination enclosure with provisions for storage of contaminated clothing and equipment.
22. Fixed Object: Unit of equipment or furniture in the work areas that cannot be removed from the work area.
23. Friable Asbestos Materials: Any material that contains more than 1% asbestos by weight, that can be crumbled, pulverized or reduced to powder by hand pressure.
24. Glazing Compound: Any compound used to hold window glass in place, also referred to as putty, or glazier's putty. Is not field-applied, usually installed during manufacture of windows.
25. HEPA Filter: High Efficiency Particulate Air (HEPA) filter in compliance with ANSI Z9.2 1979.
26. HEPA Vacuum Equipment: Vacuum equipment fitted with a HEPA filter system for filtering the effluent air from the unit.
27. Movable Object: Unit of equipment or furniture in the work area that can be removed from the work area.
28. Negative Air Pressure Equipment: A portable local exhaust system equipped with HEPA filtration used to create negative pressure in a regulated area (negative with respect to adjacent unregulated areas), and capable of maintaining a constant, low velocity air flow into regulated areas from adjacent unregulated areas.
29. NESHAPs: National Emissions Standard for Hazardous Air Pollutants regulations enforced by the EPA.
30. Owner: The City of New London: An employee or executive who has the principle responsibility for a process, program, or project.
31. Permissible Exposure Limit (PEL): The maximum total airborne fiber concentration to which an employee is allowed to be exposed. The new limit established by OSHA Title 29 CFR, Part 1926.1101 is 0.1 fibers per cubic centimeter (fibers/cc) as an eight (8)-hour time-weighted average (TWA), and 1.0 fibers/cc averaged over a sampling period of 30 minutes as an Excursion Limit. The Contractor shall be responsible for maintaining work areas in a manner that this standard is not exceeded.
32. Project Monitor: A professional capable of conducting air monitoring and analysis of schemes. This individual should be an industrial hygienist, an environmental scientist, or a Consultant with experience in asbestos air monitoring and worker protection equipment and procedures. This individual should have demonstrated proficiency in conducting air sample collection in accordance with OSHA Title 29 CFR, Parts 1910.1001 and 1926.1101.
33. RCRA: The Resource Conservation and Recovery Act (EPA Title 40 CFR, Parts 260 - 265).
34. Regulated Area: An area established by the employer to demarcate where Class I, II, and III asbestos work is conducted and any adjoining area where debris and waste from such asbestos work accumulate, and a work area within which total airborne fiber concentrations exceed, or there is a reasonable possibility that they may exceed the PEL.
35. Shower Room: A room between the clean room and the equipment room in the work decontamination enclosure with hot and cold running water and suitably arranged for employee showering during decontamination. The shower room is located in an airlock between the contaminated area and the clean area.
36. Totally Enclosed Manner: A manner that will ensure no exposure of human beings or the environment to a concentration of asbestos.

37. Transport Vehicle: A motor vehicle or rail car used for the transportation of cargo by any mode. Each cargo-carrying body (e.g., trailer, railroad freight car) is a separate transport vehicle.
38. Waterproofing: Material, usually a membrane or applied compound (tar/mastic), used to make a surface impervious to water, includes concealed conditions (applications around doors, windows, and in wall cavities). Sometimes combined with felts.

1.11 SUBMITTALS

- A. The Contractor shall submit the following to the Consultant in one complete package prior to the pre-construction meeting, and no later than 10 business days prior to the anticipated start of the Work:
 1. Submit copies of all notifications, permits, applications, licenses, and like documents required by federal, state, or local regulations obtained or submitted in proper fashion.
 2. Submit a schedule to the Owner/Architect and the Consultant that defines a timetable for executing and completing the project, including work area preparations, removal, cleanup, decontamination, and final clearance air monitoring (if applicable).
 3. Submit the current valid State of Connecticut Asbestos Abatement Contractor license and certificate of insurance.
 4. Submit the name and address of the hauling contractor and landfill to be used. Also submit current valid operating permits and certificates of insurance for the transporter and landfill.
 5. Submit photographic or video documentation showing the building conditions prior to the start of work. The Contractor shall be held responsible for all damage to the building and its contents not shown on the pre-construction documentation.
 6. Submit the plans and construction details for the construction of the decontamination systems and the isolation of the work areas as may be necessary for compliance with this specification and applicable regulations.
 7. Submit the CTDPH license, training, medical, and respirator fit test records of each employee who may be on the Site.
 8. If the Contractor's CTDPH-licensed Asbestos Abatement Supervisor is not conducting OSHA-required employee exposure monitoring, submit the qualifications of the air sampling professional that the Contractor proposes to use for this project for this task.
 9. Submit detailed product information on all materials and equipment proposed for asbestos abatement work on this project. This includes Safety Data Sheets (SDS) on all products and chemicals that may be used on the project.
 10. Submit pertinent information regarding the qualifications of the Project Supervisor (competent person) for this project, as well as a list of past projects completed.
 11. Submit a chain-of-command for the project.
 12. Submit a site-specific Emergency Action Plan for the project. The Plan may include emergency procedures to be followed by Contractor personnel to evacuate the building, hospital name, phone number, and most direct transportation route from the Site, emergency telephone numbers, etc.
 13. Submit a written site-specific Respiratory Protection Program for employees for the Work, including make, model and National Institute of Occupational Safety and Health (NIOSH) approval numbers of respirators to be used at the Site (if applicable).

14. Proposed electrical safeguards to be implemented by a qualified Electrical Contractor, including but not limited to: location of transformers, GFCI outlets, lighting, and power panels necessary to safely perform the project, including a description of electrical hazards and a safety plan for common practices in the work area. This may also include safety plan for temporary lighting, extension cord and other powered equipment used in the work area (locations, daily inspections, etc.).
15. Submit the proposed worker orientation plan that at a minimum includes a description of asbestos hazards and abatement methodologies, a review of worker protection requirements, and the outline of safety procedures.
16. No work on the Site will be allowed to begin until the Owner/Architect and the Consultant as listed herein approve the Pre-Construction Submittals. Any delay caused by the Contractor's refusal or inability to submit this documentation in a timely manner does not constitute a cause for change order or a time extension;

B. The Contractor shall submit the following to the Consultant during the Work:

1. Copies of personal air sampling results (Consultant will not review or provide any direction or advice regarding results). The Contractor shall be responsible for proper sample analytical review and personal protective equipment (PPE) selection and use. Records are retained solely for project record.
2. Copies of training, respirator fit test records, and medical records for new employees to start work (24-hours in advance) and prior to the new employee arriving at the Site.
3. Carbon copies from waste shipment record, waste manifest records, bill of lading or other waste tracking record for all specified materials.
4. Copies of daily log sheets, daily sign-in sheets, and containment sign-in sheets.

C. The Contractor shall submit the following to the Consultant at the completion of the Work. The Owner reserves right to retain payment(s) until all items are received in completion:

1. Original final completed copies of the waste shipment records, signed by all transporters and the designated disposal site owner/operator.
2. Original final completed copies of bill of lading, weight tickets, recycling tickets, and manifests for all specified materials.
3. Contractor's logs (daily activity logs, daily sign in sheets, containment sign-in sheets), and all worker training, medical records and respirator fit test records.
4. Copies of all OSHA personal monitoring results.

1.12 REGULATIONS AND STANDARDS

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

1. EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) Regulations (Title 40 CFR, Part 61, Subpart M);
2. EPA Asbestos Hazards Emergency Response Act (AHERA) Regulations (Title 40 CFR, Part 763, Subpart E);

3. OSHA Asbestos Regulations (Title 29 CFR, Parts 1910.1001 and 1926.1101); and
4. Department of Transportation (DOT) Hazardous Waste Transportation Regulations (Title 49 CFR, Parts 170 – 180).
5. Connecticut Department of Energy and Environmental Protection (CTDEEP) Regulations (Section 22a-209-8(i) and Section 22a-220 of the Connecticut General Statutes);
6. CTDPH Standards for Asbestos Abatement (Sections 19a-332a-1 to 19a-332a-16);
7. CTDPH Licensing and Training Requirements for Persons Engaged in Asbestos Abatement and Asbestos Consultant Services (Sections 20-440-1 to 20-440-9 and Section 20-441);
8. 2003 International Building Code as adopted by the 2005 State of Connecticut Building Code including the 2009, 2011, 2013, and 2016 amendments;
9. Life Safety Code, National Fire Protection Association (NFPA);
10. Local health and safety codes, ordinances or regulations pertaining to asbestos remediation and all national codes and standards including American Society of Testing and Materials (ASTM), American National Standards Institute (ANSI), and Underwriter's Laboratories (UL).

1.13 EXEMPTIONS

- A. Any deviations from these specifications require the written approval and authorization from the Owner and Consultant. Any deviations that may impact the bid cost shall be delineated with the bid for the Architect/Owner to review.
- B. Any modifications from the standard work practices identified in the CTDPH Standards for Asbestos Abatement, Sections 19a-332a-1 to 19a-332a-16 must be requested in writing and approved in writing by the CTDPH. The Consultant shall develop the Alternative Work Practice (AWP) application on behalf of the Owner. If the Contractor intends to request an AWP for this project, the nature of the AWP shall be disclosed in the bid documents and the cost savings associated with said AWP shall be provided for the Owner's consideration. An AWP shall not be filed without prior Owner's and Consultant's approval.

1.14 FINAL RE-OCCUPANCY AIR CLEARANCE

- A. Following the completion of the encapsulation phase of the work, the Consultant shall collect final re-occupancy clearance air samples inside the work area per CTDPH Standards for Asbestos Abatement (19a-332-1 to 19a-332-16).
- B. The Owner shall be responsible for payment of the sampling and analysis of the initial final air clearance samples only. The Contractor shall be responsible for payment of all costs associated with the collection and analysis of additional final clearance air samples if the first set of samples fail to satisfy the clearance criteria.
- C. Contractor shall not conduct demolition or other removal activities during final re-occupancy air clearance sampling.
- D. Exterior asbestos abatement work: Re-occupancy clearance air sampling is not required following removal of exterior non-friable ACM if removal does not render materials friable and

negative pressure enclosures (NPEs) are not utilized. If removal renders non-friable materials friable, the Work must be performed within a NPE and final re-occupancy air clearance sampling will be conducted.

1.15 NOTIFICATIONS, POSTINGS, SUBMITTALS, AND PERMITS

- A. The Contractor shall make the following notifications and provide the submittals to the following agency prior to the start of work. This notification is required ten (10) calendar days prior to the start of the abatement project.

1. Connecticut Department of Public Health
410 Capitol Avenue
MS #51 AIR
P.O. Box 340308
Hartford, CT 06134-0308
2. United States Environmental Protection Agency (USEPA)
Jordan Alves (alves.jordan@epa.gov)
Region 1- New England (OEP05-2)
5 Post Office Square, Suite 100
Boston, MA 02109-3912

- B. The minimum information included in the notification to these agencies includes:

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

1.16 WORK SITE SAFETY PLAN

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

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

- B. The Contractor shall be responsible for training all workers in these procedures.

1.17 INDEPENDENT AIR SAMPLING AND ASBESTOS ABATEMENT MONITORING

- A. This Section describes independent air sampling work being performed on behalf of the Owner. This work is not in the Contract Sum. This Section describes air monitoring conducted by the Consultant to verify that the building beyond the work area and the outside environment remains uncontaminated. (Personal air monitoring required by OSHA is work to be performed by the Contractor and is within the Contract Sum). Negative exposure assessments will not be reviewed and/or approved by the Consultant. It shall be the Contractor's responsibility to determine its validity.
- B. The purpose of the Consultant's air monitoring is to verify proper engineering controls in the work area:
 - 1. Contamination of the building outside of the work area by airborne fibers.
 - 2. Failure of filtration or rupture in the differential pressure system.
 - 3. Contamination of air outside the building envelope by airborne fibers.
- C. Should any of the above occur, the Contractor shall immediately cease asbestos abatement activities until the fault is corrected. Do not recommence work until authorized by the Consultant.
- D. The Consultant may monitor total airborne fiber concentrations in the work area. The purpose of this air monitoring will be to detect total airborne fiber concentrations, which may challenge the ability of the Work Area isolation procedures to protect the balance of the building or outside of the building from contamination by airborne fibers.
- E. To determine if the elevated total airborne fiber concentrations encountered during abatement operations have been reduced to an acceptable level, the Consultant will sample and analyze air in accordance with clearance air sampling requirements.
- F. The Consultant may perform on-site monitoring throughout the project, as follows:
 - 1. All work procedures shall be continuously monitored by the Consultant to assure that areas outside the designated work locations in the buildings will not be contaminated.
 - 2. Prior to work on any given day, the Contractor's designated "competent person" shall discuss the day's work schedule with the Consultant to evaluate job tasks with respect to safety procedures and requirements specified to prevent contamination of the building or the employees. This includes a visual work area inspection and the building or the employee decontamination. This includes a visual inspection of the work area and the decontamination enclosure systems.

1.18 CONTRACTOR'S AIR SAMPLING RESPONSIBILITY

- A. The Contractor shall independently retain an air sampling professional or the CTDPH-licensed Asbestos Abatement Supervisor shall monitor total airborne fiber concentrations in the worker breathing zones, and to establish conditions and work procedures for maintaining compliance with OSHA Title 29 CFR, Parts 1910.1001 and 1926.1101.

- B. The Contractor's air sampling professional shall document all air sampling results and provide a report to the Consultant within 48-hours after sample collection.
- C. All air sampling shall be conducted in accordance with methods described in OSHA Title 29 CFR, Parts 1910.1001 and 1926.1101.

1.19 PROPER WORKER PROTECTION

- A. This Section describes the equipment and procedures required for protecting workers against asbestos contamination and other workplace hazards except for respiratory protection.
- B. All workers are to be accredited as Abatement Workers as required by the EPA AHERA Title 40 CFR, Parts 763 Appendix C to Subpart E, February 3, 1994.
- C. The Contractor is required to be certified and accredited as required by CTDPH.
- D. In accordance with OSHA Title 29 CFR, Part 1926, all workers shall receive a training course covering the dangers inherent in handling asbestos, the dangers of breathing asbestos dust, proper work procedures, and proper worker protective measures. This course must include, but is not limited to the following:
 - 1. Methods of recognizing asbestos
 - 2. Health effects associated with asbestos
 - 3. Relationship between smoking and asbestos in producing lung cancer
 - 4. Nature of operations that could result in exposure to asbestos
 - 5. Importance of and instruction in the use of necessary protective controls, practices and procedures to minimize exposure including:
 - a. Engineering controls
 - b. Work Practices
 - c. Respirators
 - d. Housekeeping procedures
 - e. Hygiene facilities
 - f. Protective clothing
 - g. Decontamination procedures
 - h. Emergency procedures
 - i. Waste disposal procedures
 - 6. Purpose, proper use, fitting, instructions, and limitations of respirators as required by OSHA Title 29 CFR, Part 1910.134
 - 7. Appropriate work practices for the work
 - 8. Requirements of medical surveillance program
 - 9. Review of OSHA Title 29 CFR, Part 1926
 - 10. Pressure Differential Systems
 - 11. Work practices including hands on or on job training
 - 12. Personal Decontamination procedures
 - 13. Air monitoring, personal and area
- E. The Contractor shall provide medical examinations for all workers who may encounter a total airborne fiber concentration of 0.10 fibers/cc or greater for an 8-hour TWA. In the absence of

specific airborne fiber data provide medical examinations for all workers who will enter the work area for any reason. Examination shall, at a minimum, meet OSHA requirements as set forth in Title 29 CFR, Part 1926. In addition, provide an evaluation of the individual's ability to work in environments capable of producing heat stress in the worker.

- F. Submit the following to the Consultant for review. The Contractor shall not start work until these submittals are returned with Consultant action stamp indicating that they are approved.
1. Submit copies of certificates from an EPA approved AHERA Abatement Workers course for each worker as evidence that each asbestos Abatement Worker is accredited as required by the AHERA Regulation Title 40 CFR, Part 763 Appendix C to Subpart E, February 3, 1994.
 2. Submit evidence that the Contractor is certified to perform asbestos abatement work by the CTDPH.
 3. Submit documents verifying that each worker has had a medical examination within the last 12 months as part of compliance with OSHA medical surveillance requirements. Submit, at a minimum, for each worker the following:
 - a. Name and Social Security Number (minimum last 4 digits)
 - b. Physician's written opinion from examining physician including at a minimum the following:
 - 1) Whether worker has any detected medical conditions that would place the worker at an increased risk of material health impairment from exposure to asbestos.
 - 2) Any recommended limitations on the worker or on the use of PPE such as respirators.
 - 3) Statement that the worker has been informed by the physician of the results of the medical examination and of any medical conditions that may result from asbestos exposure.
 4. Copy of information that was provided to physician in compliance with OSHA Title 29 CFR, Part 1926.
 5. Statement that worker is able to wear and use the type of respiratory protection proposed for the project, and is able to work safely in an environment capable of producing heat stress in the worker.
 6. Effective June 4, 2000, submit copies of certificates for the site supervisor and the workers issued by CTDPH.
- G. Submit certification signed by an officer of the abatement-contracting firm and notarized that exposure measurement, medical surveillance, and worker training records are being kept in conformance with OSHA Title 29 CFR, Part 1926.
- H. The Contractor shall maintain control of and be responsible for access to all work areas to ensure the following requirements:
1. Non-essential personnel are prohibited from entering the area.
 2. All authorized personnel entering the work area shall read the "Worker Protection Procedures" that are posted at the entry points to the enclosure system, and shall be equipped with properly fitted respirators and protective clothing.
 3. All personnel who are exiting from the decontamination enclosure system shall be properly decontaminated.

4. Asbestos waste that is removed from the work area must be properly bagged and labeled in accordance with these Specifications. The surface of the bags shall be decontaminated. Asbestos waste removed from the NPE must be immediately transported off-site or immediately placed in locked, posted temporary storage on-site, and removed within 24-hours of the project conclusion.
5. Any material, equipment, or supplies that are removed from the decontamination enclosure system shall be thoroughly cleaned and decontaminated by wet cleaning and/or HEPA vacuuming of all surfaces.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name and product technical description.
- B. Damaged or deteriorating materials shall not be used and shall be removed from the premises. Material that becomes contaminated with asbestos shall be decontaminated or disposed as asbestos waste.
- C. Polyethylene (poly) sheeting in a roll size to minimize the frequency of joints shall be delivered to the Site with factory label indicating 6-mil.
- D. Poly disposable bags shall be 6-mil with OSHA-required pre-printed label (29 CFR, Part 1926.1101(k)(8)(iii)). Tie wraps for bags shall be plastic, five-inches long (minimum), pointed and looped to secure filled plastic bags.
- E. Tape or adhesive spray will be capable of sealing joints in adjacent poly sheets and for attachment of poly sheet to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water.
- F. Surfactant (wetting agent), shall consist of 50 percent polyoxyethylene ether and 50 percent polyoxyethylene ester, or equivalent, and shall be mixed with water to provide a concentration of one ounce surfactant to five gallons of water or as directed by manufacturer.
- G. Removal encapsulant shall be non-flammable factory prepared penetrating chemical encapsulant deemed acceptable to Consultant. Usage shall be in accordance with manufacturer's printed technical data.
- H. The Contractor shall have available spray equipment capable of mixing wetting agent with water and capable of generating sufficient pressure and volume and having sufficient hose length to reach all areas with asbestos.
- I. Impermeable containers are to be used to receive and retain any asbestos-containing or contaminated materials until disposal at an acceptable disposal site. The containers shall be labeled in accordance with OSHA Title 29 CFR, Part 1926.1101(k)(8)(iii) [June 1, 2015 requirements]. Containers must be both air and watertight.

- J. Labels and signs, as required by OSHA Title 29 CFR, Part 1926.1101, will be used.
- K. Encapsulant shall be bridging or penetrating type which has been deemed acceptable to the Consultant. Usage shall be in accordance with manufacturer's printed technical data.
- L. HEPA filtered local exhaust ventilation shall be utilized during the installation of enclosures and supports where ACM may be disturbed.

2.2 TOOLS AND EQUIPMENT

- A. The Contractor shall provide all clean tools and equipment necessary for asbestos removal, encapsulation, and enclosure.
- B. The Contractor's air monitoring professional or Abatement Supervisor shall have air-monitoring equipment of type and quantity to monitor operations and conduct personnel exposure surveillance per OSHA requirements. The equipment shall function properly, and air samples shall be calibrated with a recently calibrated (within 6 calendar months) rotometer.
- C. The Contractor shall have available sufficient inventory or dated purchase orders for materials necessary for the job including protective clothing, respirators, filter cartridges, poly sheeting of proper size and thickness, tape and air filters.
- D. The Contractor shall provide (as needed) temporary electrical power panels, electrical power cables, and electrical power sources (such as generators). Any electrical connection work affecting the building electrical power system shall be performed by a State of Connecticut-licensed electrician.
- E. The Contractor shall be responsible for coordinating electrical and water services and shall pay for these services for the duration of the project, if applicable.
- F. The Contractor shall assist the Consultant by providing necessary tools and equipment (e.g., coveralls, ladders, extension cords, lighting, etc.) for the Consultant to conduct inspections, final visual inspections, and final air clearance monitoring. The Consultant reserves the right to reject such items that are deemed unsafe and/or do not function properly and request items be replaced with adequate replacements. The work areas shall be safe to enter/occupy by the Consultant.
- G. The Contractor shall have available shower stalls and plumbing to support same to include sufficient hose length and drain system or an acceptable alternate.
- H. Exhaust air filtration system units shall contain HEPA filter(s) capable of sufficient air exhaust to create negative air pressure of -0.02 inches of water column within enclosure with respect to outside area. Digital monometers shall be supplied for Class 1 work. Equipment shall be checked for proper operation by smoke tubes or differential pressure gauge before the start of each shift and at least twice during the shift. Adequate exhaust air shall be provided for a minimum of four (4) air changes per hour within the NPE. No air movement system or air filtering equipment shall discharge unfiltered air outside. The Contractor will have reserve units so that the station system will operate continuously.

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

PART 3 - EXECUTION

3.1 PRE-CONSTRUCTION MEETING

- A. At least one week prior to the start of work, a Pre-Construction meeting will be scheduled and must be attended by the Contractor and any Sub-Contractors. The assigned Contractor Site Supervisor must also attend this meeting.
- B. The Contractor shall present a detailed project schedule and project submittals at the Pre-Construction Meeting. Variations, amendments, and corrections to the presented schedule will be discussed, and the Owner and the Consultant will inform the Contractor of any scheduling adjustments for this project.
- C. Following the Pre-Construction meeting, the Contractor shall submit a revised schedule (if needed) no later than one week after the meeting.

3.2 WORK AREA PREPARATION FOR INTERIOR ABATEMENT

- A. Where necessary, deactivate electrical power, including receptacles and light fixtures. Under no circumstances during the decontamination procedures will lighting fixtures be permitted to be operating when amended water spray may contact the fixture. Provide GFCI devices, temporary power, and temporary lighting installed in compliance with the applicable electrical codes. All installations are to be made by a State of Connecticut-licensed electrician, permitted as required, and located outside the work areas.
- B. Temporary power shall be continuous power. Portable generators for use during asbestos abatement are not authorized.
- C. Deactivate and/or isolate heating, ventilation, and air conditioning (HVAC) air systems or zones to prevent contamination and fiber dispersal to other areas of the building or structure. During the work, vents within the work area shall be covered with two layers of 6-mil poly, and completely sealed with duct tape.
- D. The Contractor shall be responsible for removing furniture, equipment and any other materials to be salvaged from the work areas. Contractor shall be responsible for removing all solid waste within the work areas (if applicable). The Contractor shall pre-clean moveable objects within the proposed work areas using HEPA-filtered vacuum equipment and/or wet cleaning methods as appropriate and remove such objects from work areas. Non-porous materials (i.e., metal) shall be cleaned, visually inspected by a project monitor prior to removal from the work areas and recycling/disposal as solid waste.

- E. Completely seal all openings, including, but not limited to: windows, corridors, doorways, skylights, ducts, grills, diffusers, and any other penetration of the work areas, with poly sheeting a minimum of 6-mil thick, and sealed with duct tape. This includes doorways and corridors that will not be used for passage during work areas and occupied areas.
- F. Pre-clean fixed objects within the work areas, using HEPA vacuum equipment and/or wet cleaning methods as appropriate, and enclose with a minimum 6-mil poly sheeting completely sealed with duct tape.
- G. Clean the proposed work areas using HEPA vacuum equipment or wet cleaning methods as appropriate. Do not use methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters.
- H. After HEPA vacuum cleaning, cover fixed walls and floors.
- I. Maintain emergency and fire exits from the work areas, or establish alternate exits satisfactory to fire officials.
- J. Clean and remove ceiling mounted objects, such as lights and other items not sealed-off, which interfere with asbestos abatement. Use hand-held amended water spraying or HEPA vacuuming equipment during fixture removal to reduce settled fiber dispersal.
- K. Create pressure differential between work areas and uncontaminated areas by the use of acceptable negative air pressure equipment sufficient to provide four air changes per hour and create negative air pressure of -0.02 inches of water column within enclosure with respect to outside area as measured on a water gauge.

3.3 WORK AREA PREPARATION FOR EXTERIOR ABATEMENT

- A. Where necessary, deactivate electrical power, including receptacles and light fixtures. Under no circumstances during the decontamination procedures will lighting fixtures be permitted to be operating when amended water spray may contact the fixture. Provide GFCI devices, temporary power, and temporary lighting installed in compliance with the applicable electrical codes. All installations are to be made by a Commonwealth of Massachusetts-licensed electrician, permitted as required, and located outside the work areas.
- B. If applicable, temporary power must be continuous power. Portable generators for use during asbestos abatement shall not be permitted.
- C. Deactivate and/or isolate heating, ventilating, and air conditioning (HVAC) air systems or zones to prevent contamination and fiber dispersal to other areas of the structure. During the work, vents within the work area shall be covered with two layers of 6-mil poly and completely sealed with duct tape.
- D. Completely seal all openings, including, but not limited to: windows, corridors, doorways, skylights, ducts, grills, diffusers, and any other penetration of the work areas, with poly sheeting a minimum of 6-mil thick, and sealed with duct tape.

- E. Install ground cover consisting of one layer of six-mil poly, extending out a minimum of 15 feet from the building foundation in work. Tape and glue ground cover to the building foundation.

3.4 DECONTAMINATION SYSTEM

- A. The Contractor shall establish contiguous to the work area, a decontamination system consisting of equipment room, shower room, and clean room, in series. The only access between contaminated and uncontaminated areas shall be through this decontamination enclosure. If it is not feasible to erect a contiguous decontamination system, the Contractor shall establish a remote decontamination unit in as close proximity to the work area as is feasible. For exterior work, the Contractor shall establish a remote decontamination system at the perimeter of the regulated work area.
- B. Access between rooms in the decontamination system shall be through double-flap curtained openings. The clean room, shower and equipment room within the decontamination enclosure, shall be completely sealed ensuring that the sole source of airflow through this area originates from uncontaminated areas outside the work area.
- C. The Contractor shall establish contiguous with the work area an equipment decontamination enclosure consisting of two totally enclosed chambers divided by a double-flapped curtained opening. This enclosure must be constructed so as to ensure no personnel enter or exit through this unit.
- D. Occupied areas and/or building space not within the work areas shall be separated from asbestos abatement work areas by means of airtight barriers.
- E. Construct the decontamination enclosure system with wood or metal framing, cover both sides with a double layer of 6-mil poly sheeting, completely sealed with spray adhesive, and taped at the joints.
- F. If a Consultant is retained for pre-abatement services, the Contractor and the Consultant shall visually inspect barrier several times daily to assure effective seal and the Contractor shall repair defects immediately.

3.5 ASBESTOS REMOVAL PROCEDURE - GENERAL

- A. The Contractor shall have a designated "competent person" on the Site at all times to ensure establishment of a proper enclosure system and proper work practices throughout project.
- B. Abatement work will not commence until authorized by the Consultant.
- C. The Contractor shall properly coordinate abatement work with other trades, new construction and Site use. The Contractor shall be responsible for addressing any concerns by the Owner and/or Consultant.
- D. With a fine mist, spray ACM with amended water using airless spray equipment or apply approved removal wetting agent to reduce the release of fibers during removal operation.

- E. To maintain indoor asbestos concentrations to the minimum, the wet asbestos must be removed in manageable sections. Material drop shall not exceed eight feet. For heights up to 15-feet, provide inclined chutes or scaffolding to intercept drop.
- F. Remove ACM as appropriate by standard methods. Fill disposal containers as removal proceeds; seal filled containers and clean containers before removal to equipment decontamination enclosure system. Wet clean each container thoroughly, double bag and apply caution label. Ensure that workers do not exit the work area through the equipment decontamination enclosure.
- G. After completion of stripping work, all surfaces from which asbestos has been removed shall be wet brushed, using a nylon brush, wet wiped, and sponged or cleaned by an equivalent method to remove all visible material (wire brushes are prohibited). During this work, the surfaces being cleaned shall be kept wet.
- H. Remove and containerize all visible accumulations of asbestos-containing and/or asbestos-contaminated debris. During cleanup, utilize brooms, rubber dustpan, and rubber squeegees to minimize damage to floor covering.
- I. Sealed disposal containers, and all equipment used in the work area, shall be included in the cleanup and shall be removed from work areas via the equipment decontamination enclosure at an appropriate time in the cleaning sequence. All asbestos waste in 6-mil poly disposal bags shall be double-bagged in the equipment decontamination enclosure before removal from the Site.
- J. At any time during asbestos removal, should the Consultant suspect contamination of areas outside the work area(s), they shall cause all abatement work to stop until the Contractor takes the necessary steps to decontaminate these areas, and eliminate the causes of such contamination. Unprotected individuals shall be prohibited from entering suspected contaminated areas until air sampling and visual inspections certify decontamination.
- K. After completion of the initial final cleaning procedure including removal of the inner layers of poly sheeting, but prior to encapsulation, a pre-sealant inspection shall be conducted by the Consultant. The pre-sealant inspection shall verify that ACM and residual dust has been removed from the work area.

3.6 ASBESTOS REMOVAL PROCEDURES – DUCT WORK AND CEILING, WALL TILES

- A. Prior to the removal of duct work and Glue Daubs, the Contractor shall ensure that work area preparation has been conducted in accordance with Sections 3.2 and 3.4 of this Specification.
- B. The Contractor shall wet the wall and ceiling tiles with amended water or detergent solution, so that entire surface is wet. Do not allow to puddle or run off into other areas. If a detergent is used, use in strict accordance with manufacturer's instructions. Allow time for humidity and water or removal encapsulant to loosen tiles prior to removal.
- C. The Contractor shall keep materials continuously wet throughout removal operation.

- D. Remove wall and ceiling tiles, and place in labeled disposal bags. At the Contractor's option, tiles may be placed directly into durable leak-tight containers.
- E. Remove the duct work by cutting the duct work into workable sizes avoiding any direct contact with the pin adhesive(s). All duct work must be wrapped in two layers of 6 mil poly prior to cutting into sections.

3.7 ASBESTOS REMOVAL PROCEDURES – FLOORING

- A. Prior to the removal of flooring and associated mastic, the Contractor shall ensure that work area preparation has been conducted in accordance with the approved AWP.
- B. The Contractor shall remove binding strips, all vinyl wall base or other restrictive molding from doorways, walls, etc., clean, and dispose of as non-asbestos waste. Dispose of any materials that have visible floor tile mastic attached to them as asbestos-containing waste.
- C. The Contractor shall wet the floor with amended water or detergent solution, so that entire surface is wet. Do not allow to puddle or run off into other areas. If a detergent is used, use in strict accordance with manufacturer's instructions. Allow time for humidity and water or removal encapsulant to loosen tiles prior to removal.
- D. The Contractor shall keep floor continuously wet throughout removal operation.
- E. Remove tiles using a manual or powered spade, or stripping machine. Continuously mist floor in area where machine is working with amended water, removal encapsulant or detergent solution. Wet any debris generated as necessary to keep continuously wet. Keep floor continuously wet where tile has been removed and until after completion of heavy adhesive residue removal.
- F. Remove flooring tiles, stack, place in boxes or wrap in felt, and place in labeled disposal bags. At the Contractor's option, tiles may be placed directly into durable leak-tight containers.
- G. Following removal of floor tiles, a layer (or layers) of adhesive will remain on the floor. The adhesive may be removed using shot/bead Blastrac machines and/or hand grinder with HEPA vacuumed dust collecting device no chemical stripping agents shall be utilized.

3.8 CONSULTANT'S RESPONSIBILITIES

- A. Air sampling may be conducted by the Consultant to ascertain the integrity of the controls that protect the building from asbestos contamination. Independently, the Contractor shall monitor air quality within the work area to ascertain the protection of employees, and to comply with OSHA regulations.
- B. The Consultant's project monitor may collect and analyze air samples during the following period:

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1. Abatement Period. If required, or retained for this service, the Consultant's project monitor shall collect samples on a daily basis during the work period. A sufficient number of area samples shall be collected outside of the work area, at the exhaust of the negative pressure system, and outside of the building to evaluate the degree of cleanliness or contamination of the building during removal. At the discretion of the Asbestos Project Monitor, additional air samples may be collected inside the work area and decontamination enclosure system.
 - a. If the Consultant's Asbestos Project Monitor determines that the building air quality has become contaminated from the abatement project, they shall immediately inform the Contractor to cease all removal operations and implement a work stoppage clean-up procedure. The Contractor, via their Asbestos Abatement Contractor, shall conduct a thorough clean-up of the building areas designated by the Consultant. No further removal work may occur until the Asbestos Project Monitor has determined through air sample collection and analysis that the airborne fiber concentrations are at or below the CTDPH re-occupancy standard.
- C. The Consultant's project monitor shall collect and analyze air samples during the following period:
 1. Post-Abatement Period. If required, the Asbestos Project Monitor shall conduct air sampling following the final clean-up phase of the project, once the "no visible residue" criterion, as established by the Asbestos Project Monitor, has been met and the work area has been encapsulated by the Contractor. Five air samples shall be collected inside the work area utilizing aggressive methods to comply with the CTDPH Standards for Asbestos Abatement Section 19a-332a-12.
 - a. Final re-occupancy air clearance sampling shall be conducted by the Asbestos Project Monitor in accordance with the CTDPH requirements using one of the following methods:
 - 1) Transmission Electron Microscopy (TEM) method with an average limit of less than 70 s/mm² of filter surface.
 - 2) Phase Contrast Microscopy (PCM) with a total airborne fiber concentration limit of less than or equal to 0.010 fibers/cc.
- D. The Owner shall be responsible for payment for the initial final clearance air sampling performance only. If the first set of samples fail to satisfy the re-occupancy criteria, the Contractor shall be responsible for payment of all costs associated with the additional final clearance air sampling and analysis.
- E. The Asbestos Project Monitor shall provide continual evaluation of the air quality of the building during removal, using their best professional judgment in respect to the CTDPH guideline of 0.010 fibers/cc, and the background air quality established during the pre-abatement period.
- F. Pre-abatement and abatement air samples shall be collected as required to obtain a volume of 1,200 liters. Samples shall be analyzed by PCM NIOSH 7400 Method.

3.9 CONSULTANT'S INSPECTION RESPONSIBILITIES

- A. The Consultant shall conduct inspections throughout the progress of the abatement project. Inspections shall be conducted to document the abatement work progress, as well as the procedures and practices employed by the abatement Contractor.
- B. The Consultant may perform the following inspections during the abatement activities:
 - 1. Pre-commencement Inspection. Pre-commencement inspections shall be performed at the time requested by the Contractor. The Consultant shall be informed 12-hours prior to the time the inspection is needed. If deficiencies are noted during the pre-commencement inspection, the Contractor shall perform the necessary adjustments to obtain compliance.
 - 2. Work Area Inspections. Work area inspections shall be conducted on a daily basis at the discretion of the Consultant. During the work inspections, the Consultant shall observe the Contractor's removal procedures, verify barrier integrity, monitor negative air filtration devices, assess project progress, and if deficiencies are noted, inform the abatement Contractor of specific remedial activities.
- C. The Consultant shall perform the following inspections during the abatement activities:
 - 1. Pre-sealant Inspection. Upon the request of the Contractor, the Consultant shall conduct a pre-sealant inspection. The Consultant shall be informed 12-hours prior the time that the inspection is needed. The pre-sealant inspection shall be conducted after completion of the initial cleaning procedures, but prior to encapsulation. The pre-sealant inspection shall verify that all ACM and residual debris have been removed from the work area. If the Consultant identifies residual dust or debris during the pre-sealant inspection, the Contractor shall comply with the request of the Consultant to render the area "dust free".
 - 2. Final Visual Inspection. Upon request of the abatement Contractor, the Consultant shall conduct a final visual inspection. Following the removal of the inner layer of poly sheeting, but prior to final air clearance, the Consultant shall conduct a final visual inspection inside the work area. If residual dust or debris is identified during the final inspection, the Contractor shall comply with the request of the Consultant to render the area "dust free".

3.10 RE-OCCUPANCY AIR CLEARANCE AIR TESTING

- A. After the visual inspection is completed and all surfaces in the abatement area have dried, the Consultant shall conduct final re-occupancy air clearance sampling. Aggressive air monitoring will be used. Selection of location and of samples shall be the responsibility of the Consultant. Air monitoring volumes shall be sufficient to provide a detection limit of 0.010 fibers/cc using PCM NIOSH Method 7400, or a detection limit of 70 s/mm² utilizing TEM analysis as required.
- B. Areas that do not comply with the Standard for Cleaning for Initial Clearance shall continue to be cleaned by, and at, the Contractor's expense until the specified Standard of Cleaning is achieved, as evidenced by results of air testing results, as previously specified. This shall include all Consultant-based costs.

- C. The Contractor shall properly schedule abatement work and other site activities at appropriate times and locations to prevent cross contamination and/or dust in areas where the Asbestos Project Monitor will conduct air sampling.

3.11 ASBESTOS DISPOSAL

- A. Asbestos-containing and/or asbestos-contaminated material disposal must be in compliance with requirements of, and authorized by the EPA, CTDEEP, and the State of Connecticut.
- B. Disposal approvals shall be obtained before commencing asbestos removal.
- C. A copy of approved disposal authorization shall be provided to the Owner and the Consultant, and any required federal, state, or local agencies.
- D. Copies of all fully-executed Waste Shipment Records (WSR) will be retained by the Consultant as part of the project file. The Contractor shall document the specific amount of waste on each WSR, portion/location of the Site building it was generated from, and the type of waste. Upon receipt of the ACM waste, the landfill operator will sign the WSR, and the quantity of asbestos debris leaving the Site, and arriving at the landfill is documented for the Owner.
- E. All asbestos debris shall be transported in covered, sealed vans, boxes, or dumpsters, which are physically isolated from the driver by an airtight barrier. All vehicles must be properly-licensed to meet DOT requirements.
- F. Any vehicles used to store or transport ACM will either be removed from the Site at night, or securely locked and posted to prevent disturbance.
- G. Any incident and/or accident that may result in spilling or exposure of asbestos waste outside the containment, on and off the property, and all related issues shall be the sole responsibility of the Contractor.

END OF SECTION 028213

SECTION 028319 – LEAD PAINT AWARENESS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. General Provisions of Contract, including General Supplementary Conditions shall apply to this Section.
- B. Fuss & O'Neill EnviroScience Inc. Limited Hazardous Building Materials Inspection Reports dated September 13, 2018 and January 8, 2019.
- C. Section 028100 – Transportation & Disposal of Hazardous Materials
- D. Section 028213 - Asbestos Abatement
- E. Section 028320 - Lead Dust Reduction
- G. Hazardous Materials Abatement Drawings HM-001, HM-002, HM-003, NLHS-06.28.18

1.2 SUMMARY OF WORK

- A. Work of this Section includes requirements for worker protection and waste disposal related to exterior painting and repair work involving lead-based paint (LBP)-coated building components and surfaces (the "Work) at New London High School, New London, Connecticut (the "Site").
- B. The procedures referenced herein shall be utilized during required repair/replacement work specified elsewhere that may impact building components coated with LBP. The following exterior painted components were determined to be coated with LBP:
 - 1. Black Metal handrail and associated brackets in stairwell;
 - 2. White Metal sinks in shop wing;
 - 3. Medium red locker frames; and;
 - 4. Medium red fire hose enclosures
- C. The repair/replacement work impacting LBP may result in dust and debris exposing workers to levels of lead above the Occupational Safety and Health Administration's (OSHA) Action Level. Worker protection, training, and engineering controls referenced herein shall be strictly followed, until completion of exposure assessment with results indicating exposures below the "Action Level". **This Section does not involve lead abatement, but identified worker protection requirements for trades involved in the demolition and disposal procedures if lead is involved in the demolition waste stream.**
- D. Construction activities disturbing surfaces with lead-containing paint that are likely to be employed, such as demolition, sanding, grinding, welding, cutting and burning, have been

known to expose workers to levels of lead in excess of the OSHA Permissible Exposure Limit (PEL). All work specified in the technical sections of the Contract Documents shall also be in conformance with this Technical specification section 02091 for Lead Paint Awareness.

1.3 DEFINITIONS

A. The following definitions relative to LBP shall apply:

1. Action Level (AL) - The allowable employee exposure, without regard to use of respiratory protection, to an airborne concentration of lead over an eight-hour time-weighted average (TWA) as defined by OSHA. The current action level is thirty micrograms per cubic meter of air (30 µg/m³).
2. Area Monitoring - The sampling of lead concentrations, which is representative of the airborne lead concentrations that may reach the breathing zone of personnel potentially exposed to lead.
3. Biological Monitoring - The analysis of a person's blood and/or urine, to determine the level of lead concentration in the body.
4. CDC - The Center for Disease Control
5. Change Room - An area provided with separate facilities for clean protective work clothing and equipment and for street clothes, which prevents cross-contamination.
6. Component Person - A person employed by the Contractor who is capable of identifying existing and predictable lead hazards in the surroundings or working conditions, and who has authorization to take prompt corrective measures to eliminate them as defined by OSHA.
7. Consultant - Fuss & O'Neill EnviroScience
8. EPA - United States Environmental Protection Agency
9. Exposure Assessment - An assessment conducted by an employer to determine if any employee may be exposed to lead at or above the action level.
10. High Efficiency Particulate Air (HEPA) - A type of filtering system capable of filtering out particles of 0.3 microns diameter from a body of air at 99.97% efficiency or greater.
11. HUD - United States Housing and Urban Development
12. Lead - Refers to metallic lead, inorganic lead compounds, and organic lead soaps. Excluded from this definition are other organic lead compounds.
13. Lead Work Area - An area enclosed in a manner to prevent the spread of lead dust, paint chips, or debris resulting from lead containing paint disturbance.
14. Lead Paint - Refers to paints, glazes, and other surface coverings containing a toxic level of lead.
15. MSHA - Mine Safety and Health Administration
16. NARI - National Association of The Remodeling Industry
17. NIOSH - National Institute of Occupational Safety and Health
18. OSHA - Occupational Safety and Health Administration
19. Owner - An employee or executive who has the principle responsibility for a process, program, or project.
20. Permissible Exposure Limit (PEL) - The maximum allowable limit of exposure to an airborne concentration of lead over an eight (8)-hour TWA, as defined by OSHA. The current PEL is fifty micrograms per cubic meter of air (50 µg/m³). Extended workdays lower the PEL by the formula: PEL equals 400 divided by the number of hours of work.

21. Personal Monitoring - Sampling of lead concentrations within the breathing zone of an employee to determine the 8 hour time weighted average concentration in accordance with OSHA Title 29 CFR, Parts 1910.1025 and 1926.62. Samples shall be representative of the employee's work tasks. Breathing zone shall be considered an area within a sphere with a radius of 18-inches and centered at the nose or mouth of an employee.
22. Resource Conservation and Recovery Act (RCRA) - RCRA establishes regulatory levels of hazardous chemicals. There are eight (8) heavy metals of concern for disposal: arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. Six (6) of the metals are typically in paints, excluding selenium and silver.
23. SDS - Safety Data Sheets
24. TWA - Time Weighted Average
25. Toxic Level of Lead - A level of lead, when present in dried paint or plaster, contains more than 0.50% lead by dry weight as measured by atomic absorption spectrophotometry (AAS) or 1.0 milligram per square centimeter (mg/cm²) as measured by on site testing utilizing an x ray fluorescence analyzer. (Term is specific to State of CT regulations and HUD guidelines only)
26. Toxicity Characteristic Leaching Procedure (TCLP) - The United States Environmental Protection Agency (EPA) required sample preparation and analysis for determining the hazard characteristics of a waste material.

1.4 REGULATIONS AND STANDARDS

- A. The following regulations, standards, and ordinances of federal, state, and local agencies are applicable and made a part of this specification by reference:

1. American National Standards Institute (ANSI)
 - a. ANSI 288.2 - 1980 Respiratory Protection
2. Code of Federal Regulation (CFR)
 - a. Title 29 CFR, Part 1910.134 - Respiratory Protection
 - b. Title 29 CFR, Part 1910.1025 – Lead
 - c. Title 29 CFR, Part 1910.1200 - Hazard Communication
 - d. Title 29 CFR, Part 1926.55 - Gases, Vapors, Fumes, Dusts, and Mists
 - e. Title 29 CFR, Part 1926.57 - Ventilation
 - f. Title 29 CFR, Part 1926.59 - Hazard Communication in Construction
 - g. Title 29 CFR, Part 1926.62 - Lead in Construction Interim Final Rule
 - h. Title 40 CFR, Parts 124 and 270 - Hazardous Waste Permits
 - i. Title 40 CFR, Part 172 - Hazardous Materials Tables and Communication Regulations
 - j. Title 40 CFR, Part 178 - Shipping Container Specifications
 - k. Title 40 CFR, Part 260 - Hazardous Waste Management Systems: General
 - l. Title 40 CFR, Part 261 - Identification and Listing of Hazardous Waste
 - m. Title 40 CFR, Part 262 - Generators of Hazardous Waste
 - n. Title 40 CFR, Part 263 - Transporters of Hazardous Waste
 - o. Title 40 CFR, Part 264 - Owner and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
 - p. Title 40 CFR, Part 265 - Interim Statutes for Owner and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
 - q. Title 40 CFR, Part 268 - Lead Disposal Restrictions

- r. Title 49 CFR, Parts 170 - 180
- 3. Underwriters Laboratories, Inc. (UL)
 - a. UL586 - 1990 High Efficiency Particulate Air Filter Units

1.5 QUALITY ASSURANCE

A. Hazard Communication Program

- 1. The Contractor shall establish and implement a Hazard Communication Program as required by OSHA Title 29 CFR, Part 1926.59.

B. Compliance Plan (Site-Specific)

- 1. The Contractor shall establish a written compliance plan, which is specific to the project site, to include the following:
 - a. A description of work activity involving lead including equipment used, material included, controls in place, crew size, employee job responsibilities, operating procedures, and maintenance practices.
 - b. Methods of engineering controls to be used to control lead exposure.
 - c. The proposed technology the Contractor will implement in meeting the PEL.
 - d. Air monitoring data documenting the source of lead emissions.
 - e. A detailed schedule for implementing the program, including documentation of appropriate supply of equipment, etc.
 - f. Proposed work practice which establishes proper protective work clothing, housekeeping methods, hygiene facilities, and practices.
 - g. Worker rotation schedule, if proposed, to reduce TWA.
 - h. A description of methods for informing workers of potential lead exposure.

C. Hazardous Waste Management

- 1. The Contractor shall establish a Hazardous Waste Management Plan, which shall comply with applicable regulations and address the following:
 - a. Identification of hazardous wastes
 - b. Estimated quantity of waste to be disposed
 - c. Names and qualifications of each subcontractor who will be transporting, storing, treating, and disposing of wastes
 - d. Disposal facility location and 24-hour point of contact
 - e. Establish EPA state hazardous waste and identification numbers if applicable
 - f. Names and qualifications (experience and training) of personnel who will be working on site with hazardous wastes.
 - g. List of waste handling equipment to be used in performing the work to include cleaning, volume reduction, if applicable, and transport equipment
 - h. Qualifications of laboratory to be utilized for TCLP sampling and analysis
 - i. Spill prevention, containment, and countermeasure plan (SPCC)
 - j. Work plan and schedule for waste containment, removal, treatment, and disposal

D. Medical Examinations

1. Before exposure to lead-contaminated dust, provide workers with a comprehensive medical examination as required by OSHA Title 29 CFR, Parts 1910.1025 and 1926.62.
2. The examination shall not be required if adequate records show that employees have been examined as required by OSHA Title 29 CFR, Part 1926.62 within the last year.
3. Medical examination shall include, at a minimum, approval to wear respiratory protection and biological monitoring.

E. Training

1. The Contractor shall ensure that workers are trained to perform lead paint disturbing activities and disposal operations prior to the start of work, in accordance with OSHA Title 29 CFR, Part 1926.62.

F. Respiratory Protection Program

1. The Contractor shall furnish each employee required to wear a negative pressure respirator with a respirator fit test at the time of initial fitting and at least once every six months thereafter, as required by OSHA Title 29 CFR, Part 1926.62.
2. The Contractor shall establish a Respiratory Protection Program in accordance with ANSI Z88.2, OSHA Title 29 CFR, Parts 1910.134 and 1926.62.

1.6 SUBMITTALS

A. The Contractor shall submit the following to the Consultant in one complete package prior to the pre-construction meeting and at least 10 business days before the start of the Work:

1. Submit a schedule to the Owner and the Consultant, which defines a timetable for executing and completing the project, including work area preparations, removal, cleanup, and decontamination.
2. Submit a current valid certificate of insurance.
3. Submit the name and address of the hauling contractor and location of the landfill to be used. Also submit current valid operating permits and certificates of insurance for the transporter and landfill.
4. Submit video documentation showing the existing building conditions prior to the start of work. The Contractor shall be responsible for all costs associated with damage to the building and its contents that are not shown on the video documentation.
5. Submit the plans and construction details for the construction of the decontamination systems and the isolation of the work areas as may be necessary for compliance with this specification and applicable regulations.
6. Submit copies of medical records for each employee to be used on the project, including results of biological monitoring and a notarized statement by the examining physician that such an examination occurred.
7. Submit workers' valid training certificates.
8. Submit record of successful respirator fit testing performed by a qualified individual within the previous six months, for each employee to be used on this project with the employee's name and social security number with each record.

9. Submit the name and address of Contractor's blood lead testing lab, OSHA CDC listing, and certification in the State of Connecticut.
10. Submit detailed product information on all materials and equipment proposed for demolition work on this project.
11. Submit pertinent information regarding the qualifications of the Project Supervisor (competent person) for this project, as well as a list of past projects completed.
12. Submit a chain-of-command for the project.
13. Submit a site-specific Emergency Action Plan for the project.
14. Submit a written site-specific written Respiratory Protection Program for employees for the Work, including make, model and NIOSH approval numbers of respirators to be used at the Site (if applicable).
15. No work on the Site will be allowed to begin until the Owner and the Consultant as listed herein accept the Pre-Construction Submittals. Any delay caused by the Contractor's refusal or inability to submit this documentation accurately, completely, and in a timely manner does not constitute a cause for change order or a time extension;

B. The following shall be submitted to the Consultant during the Work:

1. Results of personal air sampling
2. Training and medical records for new employees to start Site work (24-hours in advance)

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

1. Copies of all air sampling results
2. Contractor logs
3. Copies of manifests and receipts acknowledging disposal of all waste material from the project showing delivery date, quantity, and appropriate signature of landfill's authorized representative.

1.7 PERSONAL PROTECTION

A. Exposure Assessment

1. The Contractor shall determine if any worker will be exposed to lead at or above the action level.
2. The exposure assessment shall identify the level of exposure a worker would be subjected to without respiratory protection.
3. The exposure assessment shall be achieved by obtaining personal air monitoring samples representative of a full shift at least (8-hour TWA).
4. During the period of the exposure assessment, the Contractor shall institute the following procedures for protection of workers:
 - a. Protective clothing shall be utilized
 - b. Respiratory protection
 - c. Change areas shall be provided
 - d. Hand washing facilities and shower
 - e. Biological monitoring
 - f. Training of workers

B. Respiratory Protection

1. The Contractor shall furnish appropriate respirators approved by NIOSH/MSHA for use in atmospheres containing lead dust.
2. Respirators shall comply with the requirements of OSHA Title 29 CFR, Part 1926.62.
3. Workers shall be instructed in all aspects of respiratory protection.
4. The Contractor shall have an adequate supply of HEPA filter elements and spare parts on-site for all types of respirators in use.
5. The following minimum respirator protection for use during paint removal or demolition of components and surfaces with lead paint shall be the half-face air purifying respirator with a minimum of dual P100 filter cartridges for exposures (not in excess of 500 $\mu\text{g}/\text{m}^3$ or 10 x PEL).

C. Protective Clothing

1. Personal protective clothing shall be provided for all workers, supervisors, and authorized visitors entering the work area.
2. Each worker shall be provided daily with a minimum of two complete disposable coverall suits.
3. Removal workers shall not be limited to two (2) coveralls, and the Contractor shall supply additional coveralls as necessary.
4. Under no circumstances shall anyone entering the abatement area be allowed to re-use a contaminated disposable suit.
5. Disposable suits (TYVEK™ or equivalent), and other personal protective equipment (PPE) shall be donned prior to entering a lead control area. A change room shall be provided for workers to don suits and other PPE with separate areas to store street clothes and personal belongings.
6. Eye protection for personnel engaged in lead operations shall be furnished when the use of a full-face respirator is not required.
7. Goggles with side shields shall be worn when working with power tools or a material that may splash or fragment, or if protective eye wear is specified on the SDS for a particular product to be used on the project.

1.8 PERSONAL MONITORING

A. General.

1. The Contractor shall be required to perform the personal air sampling activities during lead paint disturbing work. The results of such air sampling shall be posted, provided to individual workers and submitted to the Client as described herein.

B. Air Sampling.

1. Air samples shall be collected for the duration of the work shift or for 8-hours, whichever is less. Personal air samples need not be collected every day after the first day, if working conditions remain unchanged, but must be collected each time there is a change in removal operations, either in terms of the location or in the type of work. Sampling

will be used to determine 8-hour TWA. The Contractor shall be responsible for personal air sampling as outlined in OSHA Title 29 CFR, Parts 1910.1025 & 1926.62.

2. Air sampling results shall be reported to individual workers in written form no more than 48-hours after the completion of a sampling cycle. The reporting document shall list each sample's result, sampling time and date, personnel monitored and their social security numbers, flow rate, sample duration, sample yield, cassette size, and analysts' name and company, and shall include an interpretation of the results. Air sample analysis results will be reported in $\mu\text{g}/\text{m}^3$.

C. Testing Laboratory.

1. The Contractor's testing lab shall be currently participating in AIHA's Environmental Lead Laboratory Accreditation Program (ELLAP). The Contractor shall submit to the Engineer for review and acceptance, the name and address of the laboratory, certification(s) of AIHA participation, a listing of relevant experience in air lead analysis, and presentation of a documented Quality Assurance and Quality Control Program.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Any substitution in materials, equipment, or methods to those specified shall be approved by the Owner, Owner, and Consultant prior to use. Any requests for substitution shall be provided in writing to the Owner, Owner, and Consultant. The request shall clearly state the rationale for the substitution.
- B. Submit to the Owner, Owner, and Consultant product data of all materials and equipment and samples of all materials to be considered as an alternate.
- C. Product data shall consist of manufacturer; catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, SDS, and other standard descriptive data. Submittal data shall be clearly marked to identify pertinent materials, products or equipment and show performance characteristics and capacities.
- D. Samples shall be of sufficient size and quantity to clearly illustrate the functional characteristics of the product or material with integrally related parts and attachment devices.

2.2 MATERIALS AND PRODUCTS

- A. Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name and product technical description.
- B. Damaged or deteriorating materials shall not be used and shall be removed from the premises.

- C. The Contractor shall have available sufficient inventory or dated purchase orders for materials necessary for the project including protective clothing, respirators, filter cartridges, polyethylene (poly) sheeting of proper size and thickness, tape, and air filters.
- D. Materials
 - 1. Poly sheeting in a roll size to minimize the frequency of joints shall be delivered to the Site with factory label indicating 6-mil.
 - 2. Poly disposable bags shall be 6-mil. Tie wraps for bags shall be plastic, five-inches long (minimum), pointed and looped to secure filled plastic bags.
 - 3. Tape or spray adhesive will be capable of sealing joints in adjacent poly sheets and for attachment of poly sheeting to finished or unfinished surfaces of dissimilar materials and capable of adhering onto both dry and wet conditions, including use of amended water.
 - 4. Impermeable containers are to be used to receive and retain any lead-containing or contaminated materials until disposal at an acceptable disposal site. The containers shall be labeled in accordance with EPA and DOT standards.
 - 5. HEPA-filtered exhaust systems shall be used during powered dust-generating abatement operations. The use of powered equipment without HEPA exhausts on this Site shall be prohibited.

2.3 TOOLS AND EQUIPMENT

- A. Provide suitable tools for all lead disturbing operations.
- B. The Contractor shall have available power cables or sources such as generators (where required).
- C. Vacuum units, of suitable size and capacities for the project, shall have HEPA filter(s) capable of trap-ping and retaining 99.97% of all mono-dispersed particles of 0.3 micrometers in diameter.

PART 3 - EXECUTION

3.1 PRE-CONSTRUCTION MEETING

- A. At least one week prior to the start of work, a Pre-Construction Meeting will be scheduled and must be attended by the Contractor and any Subcontractors. The assigned Contractor Site Supervisor must attend this meeting.
- B. The Contractor shall present a detailed project schedule and project submittal package at the Pre-Construction Meeting. Variations, amendments, and corrections to the presented schedule will be discussed, and the Owner and Consultant will inform the Contractor of any scheduling adjustments for this project.
- C. Following the Pre-Construction Meeting, the Contractor shall submit a revised schedule (if needed) no later than one week after the meeting.

3.2 WORKER PROTECTION/TRAINING

- A. The Contractor shall provide appropriate training, respiratory and other PPE, and biological monitoring for each worker and ensure proper usage during potential lead exposure and the initial exposure assessment.

3.3 CONTRACTOR'S RESPONSIBILITIES

- A. The Contractor shall be responsible for establishing and maintaining controls referenced herein to prevent dispersal of lead contamination from the lead work area.
- B. The Contractor shall also be responsible for conducting work with applicable federal, state, and local regulations as referenced herein.

3.4 WORKER HYGIENE PRACTICES *(Required during initial exposure assessment and if results of air sampling are above OSHA Action Level)*

- A. Work Area Entry.
 - 1. Workers shall don PPE prior to entering work area, including respiratory protection, disposable coveralls, gloves, headgear, and footwear.
- B. Work Area Departure.
 - 1. While leaving respirators on, workers shall remove all gross contamination, debris, and dust from disposable coveralls and proceed to change room, and remove coveralls and footwear and place in hazardous waste disposal container.
- C. Hand washing Facilities.
 - 1. All workers must wash their hands and faces upon leaving the work area.
- D. Equipment.
 - 1. All equipment used by workers inside the work area shall be wet-wiped or bagged for later decontamination before removal from the work area.
- E. Prohibited Activities.
 - 1. Under no circumstances shall workers eat, drink, smoke, chew gum or tobacco, apply cosmetics, or remove their respirators in the work area.
- F. Shock Hazards.
 - 1. The Contractor shall be responsible for using safe procedures to avoid electrical hazards. All temporary electrical wiring will be protected by ground fault circuit interrupters (GFCI).

3.5 LEAD WORK AREA *(Required during initial exposure assessment and if results of air sampling are above OSHA Action Level)*

- A. The Contractor shall place lead warning signs at all entrances and exits from the work area. Signage shall be a minimum of 20" x 14" and shall state the following:

**DANGER
LEAD WORK AREA
MAY DAMAGE FERTILITY OR THE UNBORN CHILD
CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM
DO NOT EAT, DRINK OR SMOKE IN THIS AREA**

- B. The Contractor shall designate a change room as specified in this Section. The change room shall consist of two layers of 6-mil thickness poly sheeting on the floor surface adjacent to the lead work area. The change room shall have separate storage facilities for street clothes to avoid cross-contamination.
- C. The Contractor shall provide potable water for hand and face washing and provide a portable shower unit.
- D. The Contractor shall place 6- mil poly drop cloths on floor/ground surfaces prior to beginning removal work to facilitate clean-up.

3.6 WORK AREA CLEAN-UP

- A. The Contractor shall remove all loose chips and debris from floor surfaces and place in hazardous waste disposal bags.
- B. The Contractor shall clean using a HEPA-filter equipped vacuum the adjacent surfaces to remove dust and debris.
- C. Poly drop cloths shall be cleaned and properly disposed of general construction and demolition waste.

3.7 WASTE DISPOSAL

- A. The Contractor's contractual liability shall be the proper disposal of all non-hazardous wastes generated at the Site in accordance with all applicable federal, state, and local regulations as referenced herein.
1. Fuss & O'Neill Inc. did not collect a sample for TCLP analysis for disposal characterization of the anticipated waste stream. The Contractor shall be responsible for collecting a waste characterization sample for TCLP analysis, as is required by the disposal site. Results of the TCLP analysis shall be forwarded by the Contractor to the Consultant prior to the waste being transported off of the Site. If the analytical result of the TCLP is > 5.0 milligrams per liter (mg/L), the waste shall be considered hazardous and transported and disposed as such. OR: If the analytical result of the TCLP is < 5.0

milligrams per liter (mg/L), the waste shall be considered non-hazardous and transported and disposed as such. Contractor shall bid work as Hazardous Materials.

3.8 CONSULTANT

- A. The Owner may retain a Consultant for the purpose of construction administration and project monitoring during demolition work at the Site.
- B. The Consultant will represent the Owner in all tasks of the project at the discretion of the Owner.

3.9 CONSULTANT'S RESPONSIBILITIES

- A. The Consultant may conduct air sampling to ascertain the integrity of controls that protect the environmental from possible lead contamination. Independently, the Contractor shall monitor air quality within the work area to ascertain the protection of employees and to comply with OSHA regulations.
- B. The Consultant's project monitor may collect and analyze air samples during the following period:
 - 1. Demolition Period. If required, the Consultant's project monitor shall collect air samples on a daily basis during the work period. A sufficient number of area air samples shall be collected outside of the work area, to evaluate the degree of cleanliness or contamination of the environment during removal. Additional air samples may be collected inside the work area and decontamination system, at the discretion of the project monitor.
- C. If the project monitor determines that the building air quality has become contaminated from the project, they shall immediately inform the Contractor to cease all demolition operations and implement a work stoppage clean-up procedure. The Contractor shall conduct a thorough clean-up of the areas designated by the Consultant. No further removal work may occur until the Consultant has assessed that the air has been decontaminated.
- D. Pre-abatement and abatement air samples shall be collected as required to obtain a volume of 600 liters of air. Air samples shall be analyzed by NIOSH Method 7300 sampling protocol.

3.10 CONSULTANT'S INSPECTION RESPONSIBILITIES

- A. Consultant may conduct inspections throughout the progress of the demolition project. Inspections shall be conducted to document the progress of the work, as well as the procedures and practices employed by the Contractor.
- B. The Consultant shall perform the following inspections during the course of abatement activities:

1. Pre-commencement Inspection. Pre-commencement inspections shall be performed at the time requested by the Contractor. The Consultant shall be informed a minimum of 12-hours prior to the time the inspection is required. If deficiencies are identified during the pre-commencement inspection, the Contractor shall perform the necessary adjustments to obtain compliance.
2. Work Area Inspections. Work area inspections shall be conducted on a daily basis at the discretion of the Consultant. During the work inspections, the Consultant will observe the Contractor's removal methods and procedures, assess project progress, and inform the Contractor of specific remedial activities if deficiencies are noted.

END OF SECTION 028319

SECTION 028320 – LEAD DUST REDUCTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. General Provisions of Contract, including General Supplementary Conditions shall apply to this Section.
- B. Fuss & O'Neill Lead in Dust Determination Reports dated May 7, 2018, May 23, 2018 and June 27, 2018
- C. Section 028100 – Transportation & Disposal of Hazardous Materials
- D. Section 028213 - Asbestos Abatement
- E. Section 028319 – Lead Paint Awareness
- F. Hazardous Materials Abatement Drawings HM-001, HM-002, HM-003, NLHS-06.28.18

1.2 CONSULTANT

- A. The Owner and/or Architect shall retain a Consultant for the purposes of project management and monitoring during Lead Reduction activities. At the discretion of the Owner and/or Architect, the Consultant will represent the Owner and/or Architect during the reduction project. The Lead Abatement Contractor (the "Contractor") will regard the Consultant's direction as authoritative and binding as provided herein, in matters particularly, but not limited to the following:
 - 1. Approval of work areas
 - 2. Review of monitoring results
 - 3. Completion of the various segments of work
 - 4. Final completion of the reduction
 - 5. Submission of data
 - 6. Daily field punch list items
- B. The State of Connecticut-licensed Asbestos Consultant – Lead Planner/Project Designer for this project is Carlos Texidor (License No. 002122).

1.3 ADDITIONAL GENERAL REQUIREMENTS

- A. The Contractor shall employ a competent CTDPH-licensed Lead Abatement Supervisor with at least (3) three years of experience on projects of similar scope and magnitude who shall be responsible for all work involving lead dust reduction as described in the specifications and defined in applicable regulations, and have full-time daily supervision of the same. The

Supervisor shall be the competent person as defined by Occupational Safety and Health Administration (OSHA) regulations.

- B. If required by federal, state, local, and any other authorities having jurisdiction over such work, the Contractor shall allow the work of this contract to be inspected. The Contractor shall immediately notify the Owner and Consultant and shall maintain written evidence of such inspection for review by the Owner and Consultant.
- C. The Contractor shall incur the cost of all fines resulting from regulatory non-compliance as issued by federal, state, and local agencies. The Contractor shall incur the cost of all work requirements mandated by federal, state, and local agencies as a result of regulatory non-compliance or negligence. The Contractor shall incur all the cost for all re-sampling of any post-reduction lead dust sampling as a result of inadequate cleaning or cross contamination.
- D. The Contractor shall immediately notify the Owner, and Consultant of the delivery Contractor shall immediately notify the Owner, and Consultant of the delivery of all permits, licenses, certificates of inspection, of approval, or occupancy, etc., and any other such instruments required under codes by authorities having jurisdiction, regardless of who issued, and shall cause them to be displayed to the Owner, and Consultant for verification and recording

1.4 SUMMARY OF WORK

- A. Work of this Section includes requirements for worker protection and waste disposal related to lead in dust contamination in the former rifle range and adjacent areas (the "Work") at the New London High School-490 Jefferson Avenue, Connecticut (the "Site").
- B. The base bid includes the removal, packaging, transporting, and disposing of all lead contaminated materials and items as identified herein conducted by workers meeting the requirements of OSHA Lead in Construction Title 29 CFR, Part 1926.62. This shall include all necessary selective demolition to access or remove the lead in dust contaminated materials and items.
- C. The base bid includes the following Lead contaminated materials:

BASE BID – LEAD DUST CONTAMINATED MATERIALS

LOCATION	MATERIAL TYPE	ESTIMATED QUANTITY	NOTES
New London High School-Former Rifle Range			
Former Rifle Range-A10	Concrete Floor (includes sand-pit floors and stairs)	~2,700 SF	1, 4
Former Rifle Range-A10	Concrete Ceiling	~2,700 SF	1, 7
Former Rifle Range-A10	CMU Block Wall and Concrete Curb(s)/knee walls	~3,300 SF	1, 3
Former Rifle Range-A10	Metal Deflector Panel(s)	6 plates	1, 2
Former Rifle Range-A10	HVAC Duct Work System (Supply duct work, exhaust duct work, supply air unit, exhaust fan, and louver) pin adhesive contains asbestos refer to Section 02 82 13	~225 LF	1, 6
Former Rifle Range-A10	Sand Pits	~20 CY	1, 10

LOCATION	MATERIAL TYPE	ESTIMATED QUANTITY	NOTES
Former Rifle Range-A10	Movable Objects (including but not limited to: chairs, file cabinets clothing, books, desks, equipment, etc.)	ALL	1, 11
Former Rifle Range	Acoustical Ceiling/Wall Tiles	~600 SF	1, 9
Unassigned/Storage Space outside of the Former Rifle Range-South Section-A8	Concrete Floor (Walls and Ceilings note 7 applies)	~9,900 SF	1, 4, 7
Unassigned/Storage Space outside of the Former Rifle Range-North Side-Storage Area- G38	Concrete Floor (Walls and Ceilings note 7 applies)	~11,980 SF	1, 5, 7
Unassigned/Storage Space outside of the Former Rifle Range-Crawl Space-A8	Concrete Floor, Walls and Ceilings (Walls and Ceilings note 7 applies)	~6,500 SF	1, 4, 7
Unassigned/Storage Space outside of the Former Rifle Range-North Side-A8	Movable Objects (including but not limited to: chairs, file cabinets clothing, books, desks, equipment, etc.)	ALL	1, 11
Switch Gear Room (A-9)	Concrete Floor (Walls and Ceilings note 7 applies)	~2,500 SF	1, 4, 7
Unassigned/Storage Space outside of the Former Rifle Range-South Section-A8, A9, A10, G-38	Fiberglass Duct Insulation (Dispose of as Lead RCRA Hazardous Waste)	ALL	1

Notes:

- Quantities shall be verified by Contractor during the time of the walk-through. Discrepancies of amounts and/or locations of asbestos-containing materials shall be addressed prior to bidding the work to the Owner and Consultant.
- Metals deflectors plates can be recycled once removed.
- Contractor shall remove all of the CMU walls and all knee walls in it's entirely for disposal as RCRA Hazards Waste.
- Contractor shall use a concrete floor grinder, or a concrete scarifier with HEPA filter dust collecting device attachment to remove material(s) on the surface (Lead Dust). Contractor shall use a concrete grinder or scarify concrete floor in it's entirely a minimum of six (6) passes. All accumulated waste shall be disposed of as RCRA Hazardous Materials.
- Contractor shall use a concrete floor grinder with a HEPA dust collecting device attachment or Blastrac machine to remove material on the surface. Contractor shall use a concrete grinder or scarify concrete floor in it's entirely a minimum of four (4) passes.
- Contractor shall remove in its entirely all of the HVAC duct systems as indicated in NLHS drawing dated 06-28-2018 Items 3, 4, 5, 6 and 7. The contractors shall dispose of any fiberglass insulation as Lead RCRA Hazardous Waste,

7. Contractor shall clean all identified ceiling surfaces by wiping with cloths wet with trisodium phosphate (TSP) solution and be cleaned with a HEPA vacuum in conjunction with wet-wiping methods.
 8. NOT USED
 9. Contractor shall remove all acoustical ceiling/wall 12"x12" tiles and dispose of as Lead RCRA Hazardous Waste. Glue daubs associated with tiles contains two (2) percent Chrysotile asbestos. **(Refer to Section 028213 Asbestos Abatement)**
 10. Contractor shall remove all sand in the sand pit and dispose of sand as Lead RCRA Hazardous Materials. After the sand is removed from the sand pits, the contractor shall use a concrete scarifier with HEPA dust collecting device attachment to remove material on the surface (Lead Dust).
 11. Contractor shall separate all non-porous items for proper decontamination using wet-wiping and HEPA vacuuming methods, items can then be disposed of as non-hazardous materials. After being cleaned, non-porous items such as new furniture, new art stools, and athletic equipment shall be turned over to the Owner to be saved elsewhere in the building. All other porous items movable objects/items (not limited to paper, uniforms, books, etc.) will be disposed of as Lead RCRA Hazardous Materials.
- D. The procedures referenced herein shall be utilized during required lead reduction work specified for the former firing range and adjacent area's located beneath the auditorium. The following areas are impacted with high levels of Lead-in in dust:
1. Former Firing Range; Floors, Ceilings, CMU walls, Concrete floors
 2. Unassigned space adjacent/and outside of the former firing range;
- E. The repair/replacement work impacting lead contaminated materials may result in dust and debris exposing workers to levels of lead above the Occupational Safety and Health Administration's (OSHA) Action Level. Worker protection, training, and engineering controls referenced herein shall be strictly followed, until completion of exposure assessment with results indicating exposures below the "Action Level". **This Section does not involve lead abatement, but identified worker protection requirements for trades involved in the demolition and disposal procedures if lead is involved in the demolition waste stream.**
- F. Construction activities disturbing surfaces with lead-containing materials that are likely to be employed, such as demolition, sanding, grinding, welding, cutting and burning, have been known to expose workers to levels of lead in excess of the OSHA Permissible Exposure Limit (PEL). All work specified in the technical sections of the Contract Documents shall also be in conformance with this Technical specification section 028320 for Lead Paint Awareness.

1.5 DEFINITIONS

- A. The following definitions relative to LBP shall apply:
1. Action Level (AL) - The allowable employee exposure, without regard to use of respiratory protection, to an airborne concentration of lead over an eight-hour time-weighted average (TWA) as defined by OSHA. The current action level is thirty micrograms per cubic meter of air (30 µg/m³).

2. Area Monitoring - The sampling of lead concentrations, which is representative of the airborne lead concentrations that may reach the breathing zone of personnel potentially exposed to lead.
3. Biological Monitoring - The analysis of a person's blood and/or urine, to determine the level of lead concentration in the body.
4. CDC - The Center for Disease Control
5. Change Room - An area provided with separate facilities for clean protective work clothing and equipment and for street clothes, which prevents cross-contamination.
6. Component Person - A person employed by the Contractor who is capable of identifying existing and predictable lead hazards in the surroundings or working conditions, and who has authorization to take prompt corrective measures to eliminate them as defined by OSHA.
7. Consultant - Fuss & O'Neill Inc.
8. EPA - United States Environmental Protection Agency
9. Exposure Assessment - An assessment conducted by an employer to determine if any employee may be exposed to lead at or above the action level.
10. High Efficiency Particulate Air (HEPA) - A type of filtering system capable of filtering out particles of 0.3 microns diameter from a body of air at 99.97% efficiency or greater.
11. HUD - United States Housing and Urban Development
12. Lead - Refers to metallic lead, inorganic lead compounds, and organic lead soaps. Excluded from this definition are other organic lead compounds.
13. Lead Work Area - An area enclosed in a manner to prevent the spread of lead dust, paint chips, or debris resulting from lead containing paint disturbance.
14. Lead Paint - Refers to paints, glazes, and other surface coverings containing a toxic level of lead.
15. MSHA - Mine Safety and Health Administration
16. NARI - National Association of The Remodeling Industry
17. NIOSH - National Institute of Occupational Safety and Health
18. OSHA - Occupational Safety and Health Administration
19. Owner - An employee or executive who has the principle responsibility for a process, program, or project.
20. Permissible Exposure Limit (PEL) - The maximum allowable limit of exposure to an airborne concentration of lead over an eight (8)-hour TWA, as defined by OSHA. The current PEL is fifty micrograms per cubic meter of air (50 µg/m³). Extended workdays lower the PEL by the formula: PEL equals 400 divided by the number of hours of work.
21. Personal Monitoring - Sampling of lead concentrations within the breathing zone of an employee to determine the 8 hour time weighted average concentration in accordance with OSHA Title 29 CFR, Parts 1910.1025 and 1926.62. Samples shall be representative of the employee's work tasks. Breathing zone shall be considered an area within a sphere with a radius of 18-inches and centered at the nose or mouth of an employee.
22. Resource Conservation and Recovery Act (RCRA) - RCRA establishes regulatory levels of hazardous chemicals. There are eight (8) heavy metals of concern for disposal: arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. Six (6) of the metals are typically in paints, excluding selenium and silver.
23. SDS - Safety Data Sheets
24. TWA - Time Weighted Average
25. Toxic Level of Lead - A level of lead, when present in dried paint or plaster, contains more than 0.50% lead by dry weight as measured by atomic absorption spectrophotometry (AAS) or 1.0 milligram per square centimeter (mg/cm²) as measured

by on site testing utilizing an x ray fluorescence analyzer. (Term is specific to State of CT regulations and HUD guidelines only)

26. Toxicity Characteristic Leaching Procedure (TCLP) - The United States Environmental Protection Agency (EPA) required sample preparation and analysis for determining the hazard characteristics of a waste material.

1.6 REGULATIONS AND STANDARDS

- A. The following regulations, standards, and ordinances of federal, state, and local agencies are applicable and made a part of this specification by reference:

1. American National Standards Institute (ANSI)
 - a. ANSI 288.2 - 1980 Respiratory Protection
2. Code of Federal Regulation (CFR)
 - a. Title 29 CFR, Part 1910.134 - Respiratory Protection
 - b. Title 29 CFR, Part 1910.1025 – Lead
 - c. Title 29 CFR, Part 1910.1200 - Hazard Communication
 - d. Title 29 CFR, Part 1926.55 - Gases, Vapors, Fumes, Dusts, and Mists
 - e. Title 29 CFR, Part 1926.57 - Ventilation
 - f. Title 29 CFR, Part 1926.59 - Hazard Communication in Construction
 - g. Title 29 CFR, Part 1926.62 - Lead in Construction Interim Final Rule
 - h. Title 40 CFR, Parts 124 and 270 - Hazardous Waste Permits
 - i. Title 40 CFR, Part 172 - Hazardous Materials Tables and Communication Regulations
 - j. Title 40 CFR, Part 178 - Shipping Container Specifications
 - k. Title 40 CFR, Part 260 - Hazardous Waste Management Systems: General
 - l. Title 40 CFR, Part 261 - Identification and Listing of Hazardous Waste
 - m. Title 40 CFR, Part 262 - Generators of Hazardous Waste
 - n. Title 40 CFR, Part 263 - Transporters of Hazardous Waste
 - o. Title 40 CFR, Part 264 - Owner and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
 - p. Title 40 CFR, Part 265 - Interim Statutes for Owner and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
 - q. Title 40 CFR, Part 268 - Lead Disposal Restrictions
 - r. Title 49 CFR, Parts 170 - 180
3. Underwriters Laboratories, Inc. (UL)
 - a. UL586 - 1990 High Efficiency Particulate Air Filter Units

1.7 QUALITY ASSURANCE

- A. Hazard Communication Program

1. The Contractor shall establish and implement a Hazard Communication Program as required by OSHA Title 29 CFR, Part 1926.59.

- B. Compliance Plan (Site-Specific)

1. The Contractor shall establish a written compliance plan, which is specific to the project site, to include the following:
 - a. A description of work activity involving lead including equipment used, material included, controls in place, crew size, employee job responsibilities, operating procedures, and maintenance practices.
 - b. Methods of engineering controls to be used to control lead exposure.
 - c. The proposed technology the Contractor will implement in meeting the PEL.
 - d. Air monitoring data documenting the source of lead emissions.
 - e. A detailed schedule for implementing the program, including documentation of appropriate supply of equipment, etc.
 - f. Proposed work practice which establishes proper protective work clothing, housekeeping methods, hygiene facilities, and practices.
 - g. Worker rotation schedule, if proposed, to reduce TWA.
 - h. A description of methods for informing workers of potential lead exposure.

C. Hazardous Waste Management

1. The Contractor shall establish a Hazardous Waste Management Plan, which shall comply with applicable regulations and address the following:
 - a. Identification of hazardous wastes
 - b. Estimated quantity of waste to be disposed
 - c. Names and qualifications of each subcontractor who will be transporting, storing, treating, and disposing of wastes
 - d. Disposal facility location and 24-hour point of contact
 - e. Establish EPA state hazardous waste and identification numbers if applicable
 - f. Names and qualifications (experience and training) of personnel who will be working on site with hazardous wastes.
 - g. List of waste handling equipment to be used in performing the work to include cleaning, volume reduction, if applicable, and transport equipment
 - h. Qualifications of laboratory to be utilized for TCLP sampling and analysis
 - i. Spill prevention, containment, and countermeasure plan (SPCC)
 - j. Work plan and schedule for waste containment, removal, treatment, and disposal

D. Medical Examinations

1. Before exposure to lead-contaminated dust, provide workers with a comprehensive medical examination as required by OSHA Title 29 CFR, Parts 1910.1025 and 1926.62.
2. The examination shall not be required if adequate records show that employees have been examined as required by OSHA Title 29 CFR, Part 1926.62 within the last year.
3. Medical examination shall include, at a minimum, approval to wear respiratory protection and biological monitoring.

E. Training

1. The Contractor shall ensure that workers are trained to perform lead paint disturbing activities and disposal operations prior to the start of work, in accordance with OSHA Title 29 CFR, Part 1926.62.

F. Respiratory Protection Program

1. The Contractor shall furnish each employee required to wear a negative pressure respirator with a respirator fit test at the time of initial fitting and at least once every six months thereafter, as required by OSHA Title 29 CFR, Part 1926.62.
2. The Contractor shall establish a Respiratory Protection Program in accordance with ANSI Z88.2, OSHA Title 29 CFR, Parts 1910.134 and 1926.62.

1.8 SUBMITTALS

- A. The Contractor shall submit the following to the Consultant in one complete package prior to the pre-construction meeting and at least 10 business days before the start of the Work:

1. Submit a schedule to the Owner and the Consultant, which defines a timetable for executing and completing the project, including work area preparations, removal, cleanup, and decontamination.
2. Submit a current valid certificate of insurance.
3. Submit the name and address of the hauling contractor and location of the landfill to be used. Also submit current valid operating permits and certificates of insurance for the transporter and landfill.
4. Submit video documentation showing the existing building conditions prior to the start of work. The Contractor shall be responsible for all costs associated with damage to the building and its contents that are not shown on the video documentation.
5. Submit the plans and construction details for the construction of the decontamination systems and the isolation of the work areas as may be necessary for compliance with this specification and applicable regulations.
6. Submit copies of medical records for each employee to be used on the project, including results of biological monitoring and a notarized statement by the examining physician that such an examination occurred.
7. Submit workers' valid training certificates.
8. Submit record of successful respirator fit testing performed by a qualified individual within the previous six months, for each employee to be used on this project with the employee's name and social security number with each record.
9. Submit the name and address of Contractor's blood lead testing lab, OSHA CDC listing, and certification in the State of Connecticut.
10. Submit detailed product information on all materials and equipment proposed for demolition work on this project.
11. Submit pertinent information regarding the qualifications of the Project Supervisor (competent person) for this project, as well as a list of past projects completed.
12. Submit a chain-of-command for the project.
13. Submit a site-specific Emergency Action Plan for the project.
14. Submit a written site-specific written Respiratory Protection Program for employees for the Work, including make, model and NIOSH approval numbers of respirators to be used at the Site (if applicable).
15. No work on the Site will be allowed to begin until the Owner and the Consultant as listed herein accept the Pre-Construction Submittals. Any delay caused by the Contractor's refusal or inability to submit this documentation accurately, completely, and in a timely manner does not constitute a cause for change order or a time extension;

- B. The following shall be submitted to the Consultant during the Work:

1. Results of personal Lead air sampling
2. Training and medical records for new employees to start Site work (24-hours in advance)

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

1. Copies of all air sampling results
2. Contractor logs
3. Copies of manifests and receipts acknowledging disposal of all waste material from the project showing delivery date, quantity, and appropriate signature of landfill's authorized representative.

1.9 PERSONAL PROTECTION

A. Exposure Assessment

1. The Contractor shall determine if any worker will be exposed to lead at or above the action level.
2. The exposure assessment shall identify the level of exposure a worker would be subjected to without respiratory protection.
3. The exposure assessment shall be achieved by obtaining personal air monitoring samples representative of a full shift at least (8-hour TWA).
4. During the period of the exposure assessment, the Contractor shall institute the following procedures for protection of workers:
 - a. Protective clothing shall be utilized
 - b. Respiratory protection
 - c. Change areas shall be provided
 - d. Hand washing facilities and shower
 - e. Biological monitoring
 - f. Training of workers

B. Respiratory Protection

1. The Contractor shall furnish appropriate respirators approved by NIOSH/MSHA for use in atmospheres containing lead dust.
2. Respirators shall comply with the requirements of OSHA Title 29 CFR, Part 1926.62.
3. Workers shall be instructed in all aspects of respiratory protection.
4. The Contractor shall have an adequate supply of HEPA filter elements and spare parts on-site for all types of respirators in use.
5. The following minimum respirator protection for use during paint removal or demolition of components and surfaces with lead paint shall be the half-face air purifying respirator with a minimum of dual P100 filter cartridges for exposures (not in excess of 500 $\mu\text{g}/\text{m}^3$ or 10 x PEL).

C. Protective Clothing

1. Personal protective clothing shall be provided for all workers, supervisors, and authorized visitors entering the work area.

2. Each worker shall be provided daily with a minimum of two complete disposable coverall suits.
3. Removal workers shall not be limited to two (2) coveralls, and the Contractor shall supply additional coveralls as necessary.
4. Under no circumstances shall anyone entering the abatement area be allowed to re-use a contaminated disposable suit.
5. Disposable suits (TYVEK™ or equivalent), and other personal protective equipment (PPE) shall be donned prior to entering a lead control area. A change room shall be provided for workers to don suits and other PPE with separate areas to store street clothes and personal belongings.
6. Eye protection for personnel engaged in lead operations shall be furnished when the use of a full-face respirator is not required.
7. Goggles with side shields shall be worn when working with power tools or a material that may splash or fragment, or if protective eye wear is specified on the SDS for a particular product to be used on the project.

1.10 PERSONAL MONITORING

A. General.

1. The Contractor shall be required to perform the personal air sampling activities during lead paint disturbing work. The results of such air sampling shall be posted, provided to individual workers and submitted to the Client as described herein.

B. Air Sampling.

1. Air samples shall be collected for the duration of the work shift or for 8-hours, whichever is less. Personal air samples need not be collected every day after the first day, if working conditions remain unchanged, but must be collected each time there is a change in removal operations, either in terms of the location or in the type of work. Sampling will be used to determine 8-hour TWA. The Contractor shall be responsible for personal air sampling as outlined in OSHA Title 29 CFR, Parts 1910.1025 & 1926.62.
2. Air sampling results shall be reported to individual workers in written form no more than 48-hours after the completion of a sampling cycle. The reporting document shall list each sample's result, sampling time and date, personnel monitored and their social security numbers, flow rate, sample duration, sample yield, cassette size, and analysts' name and company, and shall include an interpretation of the results. Air sample analysis results will be reported in $\mu\text{g}/\text{m}^3$.

C. Testing Laboratory.

1. The Contractor's testing lab shall be currently participating in AIHA's Environmental Lead Laboratory Accreditation Program (ELLAP). The Contractor shall submit to the Engineer for review and acceptance, the name and address of the laboratory, certification(s) of AIHA participation, a listing of relevant experience in air lead analysis, and presentation of a documented Quality Assurance and Quality Control Program.

1.11 CLEARANCE SAMPLING

1. The consultant will conduct a visual assessment of the clearance area to determine if there is any visible settled dust or related debris in the interior of the work spaces.
2. The consultant will conduct dust sampling after the clearance area has passed visual assessment of all floors, walls, ceilings, vertical and horizontal surfaces.
3. All dust samples must meet the Federal and State dust lead clearance levels (by wipe sampling) of 40 ug/ft².

PART 2 - PRODUCTS

2.1 GENERAL

- A. Any substitution in materials, equipment, or methods to those specified shall be approved by the Owner, Owner, and Consultant prior to use. Any requests for substitution shall be provided in writing to the Owner, Owner, and Consultant. The request shall clearly state the rationale for the substitution.
- B. Submit to the Owner, Owner, and Consultant product data of all materials and equipment and samples of all materials to be considered as an alternate.
- C. Product data shall consist of manufacturer; catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, SDS, and other standard descriptive data. Submittal data shall be clearly marked to identify pertinent materials, products or equipment and show performance characteristics and capacities.
- D. Samples shall be of sufficient size and quantity to clearly illustrate the functional characteristics of the product or material with integrally related parts and attachment devices.

2.2 MATERIALS AND PRODUCTS

- A. Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name and product technical description.
- B. Damaged or deteriorating materials shall not be used and shall be removed from the premises.
- C. The Contractor shall have available sufficient inventory or dated purchase orders for materials necessary for the project including protective clothing, respirators, filter cartridges, polyethylene (poly) sheeting of proper size and thickness, tape, and air filters.
- D. Materials

1. Poly sheeting in a roll size to minimize the frequency of joints shall be delivered to the Site with factory label indicating 6-mil.
2. Poly disposable bags shall be 6-mil. Tie wraps for bags shall be plastic, five-inches long (minimum), pointed and looped to secure filled plastic bags.
3. Tape or spray adhesive will be capable of sealing joints in adjacent poly sheets and for attachment of poly sheeting to finished or unfinished surfaces of dissimilar materials and capable of adhering onto both dry and wet conditions, including use of amended water.
4. Impermeable containers are to be used to receive and retain any lead-containing or contaminated materials until disposal at an acceptable disposal site. The containers shall be labeled in accordance with EPA and DOT standards.
5. HEPA-filtered exhaust systems shall be used during powered dust-generating abatement operations. The use of powered equipment without HEPA exhausts on this Site shall be prohibited.

2.3 TOOLS AND EQUIPMENT

- A. Provide suitable tools for all lead disturbing operations.
- B. The Contractor shall have available power cables or sources such as generators (where required).
- C. Vacuum units, of suitable size and capacities for the project, shall have HEPA filter(s) capable of trap-ping and retaining 99.97% of all mono-dispersed particles of 0.3 micrometers in diameter. HEPA filtered negative air machines shall also be used in areas of lead in dust removal.

PART 3 - EXECUTION

3.1 PRE-CONSTRUCTION MEETING

- A. At least one week prior to the start of work, a Pre-Construction Meeting will be scheduled and must be attended by the Contractor and any Subcontractors. The assigned Contractor Site Supervisor must attend this meeting.
- B. The Contractor shall present a detailed project schedule and project submittal package at the Pre-Construction Meeting. Variations, amendments, and corrections to the presented schedule will be discussed, and the Owner and Consultant will inform the Contractor of any scheduling adjustments for this project.
- C. Following the Pre-Construction Meeting, the Contractor shall submit a revised schedule (if needed) no later than one week after the meeting.

3.2 WORKER PROTECTION/TRAINING

- A. The Contractor shall provide appropriate training, respiratory and other PPE, and biological monitoring for each worker and ensure proper usage during potential lead exposure and the initial exposure assessment.
- B. Workers who will perform procedures must have completed one of the following training courses:
 - 1. EPA Lead Abatement Supervisor (40-hours)
 - 2. EPA Lead Abatement Worker (32-hours)

3.3 CONTRACTOR'S RESPONSIBILITIES

- A. The Contractor shall be responsible for establishing and maintaining controls referenced herein to prevent dispersal of lead contamination from the lead work area.
- B. The Contractor shall also be responsible for conducting work with applicable federal, state, and local regulations as referenced herein.
- C. **The Contractor shall also be responsible for all additional cost associated with post verification dust sampling to meet the clearance criteria of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) on floors, walls, ceilings and all vertical and horizontal surfaces of lead in dust on all surfaces that have been cleaned.**
- D. The Contractor shall install a clear viewing pane that looks directly into regulated work areas.

3.4 WORKER HYGIENE PRACTICES *(Required during initial exposure assessment and if results of air sampling are above OSHA Action Level)*

- A. Work Area Entry.
 - 1. Workers shall don PPE prior to entering work area, including respiratory protection, disposable coveralls, gloves, headgear, and footwear.
- B. Work Area Departure.
 - 1. While leaving respirators on, workers shall remove all gross contamination, debris, and dust from disposable coveralls and proceed to change room, and remove coveralls and footwear and place in hazardous waste disposal container.
- C. Hand washing Facilities.
 - 1. All workers must wash their hands and faces upon leaving the work area.
- D. Equipment.
 - 1. All equipment used by workers inside the work area shall be wet-wiped or bagged for later decontamination before removal from the work area.

E. Prohibited Activities.

1. Under no circumstances shall workers eat, drink, smoke, chew gum or tobacco, apply cosmetics, or remove their respirators in the work area.

F. Shock Hazards.

1. The Contractor shall be responsible for using safe procedures to avoid electrical hazards. All temporary electrical wiring will be protected by ground fault circuit interrupters (GFCI).

3.5 LEAD WORK AREA *(Required during initial exposure assessment and if results of air sampling are above OSHA Action Level)*

- A. The Contractor shall place lead warning signs at all entrances and exits from the work area. Signage shall be a minimum of 20" x 14" and shall state the following:

**DANGER
LEAD WORK AREA
MAY DAMAGE FERTILITY OR THE UNBORN CHILD
CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM
DO NOT EAT, DRINK OR SMOKE IN THIS AREA**

- B. The Contractor shall designate a change room as specified in this Section. The change room shall consist of two layers of 6-mil thickness poly sheeting on the floor surface adjacent to the lead work area. The change room shall have separate storage facilities for street clothes to avoid cross-contamination.
- C. The Contractor shall provide potable water for hand and face washing and provide a portable shower unit.
- D. The Contractor shall place 6- mil poly drop cloths on floor/ground surfaces prior to beginning removal work to facilitate clean-up.

3.6 WORK AREA CLEAN-UP

- A. The Contractor shall remove all loose chips and debris from floor surfaces and place in hazardous waste disposal bags.
- B. The Contractor shall clean using a HEPA-filter equipped vacuum the adjacent surfaces to remove dust and debris.
- C. Poly drop cloths shall be cleaned and properly disposed of general construction and demolition waste.

3.7 WASTE DISPOSAL

- A. The Contractor's contractual liability shall be the proper disposal of all hazardous wastes generated at the Site in accordance with all applicable federal, state, and local regulations as referenced herein. The Hazardous material contractor shall manifest the hazardous waste for shipment to a hazardous waste treatment, storage, disposal, or recycling facility (40 CFR 262.20 - 262.23, 262.42)

3.8 CONSULTANT

- A. The Owner may retain a Consultant for the purpose of construction administration and project monitoring during demolition work at the Site.
- B. The Consultant will represent the Owner in all tasks of the project at the discretion of the Owner.

3.9 CONSULTANT'S RESPONSIBILITIES

- A. The Consultant may conduct air sampling to ascertain the integrity of controls that protect the environmental from possible lead contamination. Independently, the Contractor shall monitor air quality within the work area to ascertain the protection of employees and to comply with OSHA regulations.
- B. The Consultant's project monitor may collect and analyze air samples during the following period:
 - 1. Demolition Period. If required, the Consultant's project monitor shall collect air samples on a daily basis during the work period. A sufficient number of area air samples shall be collected outside of the work area, to evaluate the degree of cleanliness or contamination of the environment during removal. Additional air samples may be collected inside the work area and decontamination system, at the discretion of the project monitor.
- C. If the project monitor determines that the building air quality has become contaminated from the project, they shall immediately inform the Contractor to cease all demolition operations and implement a work stoppage clean-up procedure. The Contractor shall conduct a thorough clean-up of the areas designated by the Consultant. No further removal work may occur until the Consultant has assessed that the air has been decontaminated.
- D. Pre-abatement and abatement air samples shall be collected as required to obtain a volume of 600 liters of air. Air samples shall be analyzed by NIOSH Method 7300 sampling protocol.

3.10 CONSULTANT'S INSPECTION RESPONSIBILITIES

- A. Consultant may conduct inspections throughout the progress of the demolition project. Inspections shall be conducted to document the progress of the work, as well as the procedures and practices employed by the Contractor.

- B. The Consultant shall perform the following inspections during the course of abatement activities:
1. Pre-commencement Inspection. Pre-commencement inspections shall be performed at the time requested by the Contractor. The Consultant shall be informed a minimum of 12-hours prior to the time the inspection is required. If deficiencies are identified during the pre-commencement inspection, the Contractor shall perform the necessary adjustments to obtain compliance.
 2. Work Area Inspections. Work area inspections shall be conducted on a daily basis at the discretion of the Consultant. During the work inspections, the Consultant will observe the Contractor's removal methods and procedures, assess project progress, and inform the Contractor of specific remedial activities if deficiencies are noted. Lead in dust clearance dust samples will be collected after a visual assessment has been completed in the specific work areas. The turnaround time for results is three to five days.

END OF SECTION 028320

SECTION 028434 – PRESUMED POLYCHLORINATED BIPHENYL REMOVAL & DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. General Provisions of Contract, including General Supplementary Conditions shall apply to this Section.
- B. Fuss & O'Neill EnviroScience, LLC Limited Hazardous Building Materials Inspection Reports dated September 13, 2018 and January 8, 2019.
- C. Section 028100 – Transportation & Disposal of Hazardous Materials
- D. Section 028213 – Asbestos Abatement
- E. Section 028319 – Lead Paint Awareness
- F. Section 028320 – Lead Dust Reduction
- G. Hazardous Materials Abatement Drawings HM-001, HM-002, HM-003, NLHS-06.28.18

1.2 CONSULTANT

- A. The Owner has retained Fuss & O'Neill Inc. (the "Consultant") for the purposes of project management and monitoring during presumed Polychlorinated Biphenyl (PCB) Bulk Product Waste Removal & Disposal. The Consultant will represent the Owner in all phases of the project at the discretion of the Owner. The PCB Abatement Contractor, Asbestos Abatement Contractor, Demolition Contractor, and/or other Building Trades (collectively the "Contractor") shall regard the Consultant's direction as authoritative and binding as provided herein, in matters particularly, but not limited to the following:
 - 1. Work area approval
 - 2. Monitoring results review
 - 3. Various segments of work completion
 - 4. Abatement final completion
 - 5. Data submission review
 - 6. Daily field punch list items

1.3 SCOPE OF WORK

- A. Work outlined in this Section includes all work necessary for the removal and disposal of the presumed greater than or equal to (\geq) 50 parts per million (ppm) PCB-containing material (PCB Bulk Product Waste) impacted during the New London High School Renovation Project (the "Work") in New London, Connecticut (the "Site").

B. The Work of this Section includes the following:

1. Site preparation and controls to facilitate renovation and minor disturbance of presumed PCB Bulk Product Waste.
2. Health and Safety in accordance with Occupational Safety and Health Administration (OSHA) requirements.
3. Removal and cleaning of the work areas following impacts to painted surfaces coated with presumed PCB Bulk Product Waste.
4. Packaging, transportation, and disposal of presumed PCB Bulk Product Waste at a facility permitted to accept PCB Bulk Product Waste. (Abatement Contractor's Responsibility)
5. Packaging, transportation, and disposal of containment, personal protection equipment (PPE), cleaning materials and supplies, and waste generated during impacts to painted surfaces coated with presumed PCB Bulk Product Waste and PCB Remediation Waste at a facility permitted to accept PCB Remediation Waste. (Abatement Contractor's Responsibility)
6. Recordkeeping and distribution as required in accordance with EPA Title 40 CFR, Part 761.125 (c) (5).

1.4 USE OF THE CONTRACT DOCUMENTS

- A. All work shall comply with the Contract Documents and with applicable codes, laws, regulations, and ordinances wherever applicable. The most stringent of all the foregoing shall govern the Work.
- B. It is not intended that the Specifications show every detail of the Work, but the Contractor shall be required to furnish within the Contract Sum all materials and labor necessary for the completion of the Work in accordance with the intent of the Specifications.
- C. In case of ambiguity among the Contract documents, the more stringent requirement as determined by the Consultant shall prevail.
- D. The Work of this Contract includes making modifications as necessary, subject to approval by Owner in consultation with the Consultant, to correct any conflicts between Contract Documents.
- E. All items, not specifically mentioned in the Specifications, but implied by trade practices to complete the Work, shall be included.

1.5 SITE EXAMINATION

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

1.6 ADDITIONAL GENERAL REQUIREMENTS

- A. The Contractor shall furnish all labor, materials, equipment, current employee training medical surveillance clearance and fit tests for assigned respirators and incidentals necessary to perform the specified work. Work shall be performed in accordance with the Contract Documents, the latest regulations from OSHA, the United State Environmental Protection Agency (EPA), and all other applicable federal, state, and local agencies. Whenever the requirements of the above references conflict or overlap, the more stringent provision shall apply.
- B. All project personnel engaged in the work covered under this section shall be trained in accordance with OSHA Title 29 CFR, Parts 1910.1000 and 1910.1200.
- C. This Section specifies the procedures for removal and disposal of removed materials as presumed PCB Bulk Product Waste.
- D. This Section also specifies the procedures for removal of containment, PPE, cleaning materials and supplies, and waste generated during removal of assumed PCB Bulk Product Waste and disposal of containment, PPE, cleaning materials and supplies, and waste generated during removal of PCB Bulk Product Waste as PCB Remediation Waste.
- E. Subsequent cleaning of all adjacent surfaces upon completion of Work is also included in this Section.
- F. Disturbance or removal of assumed PCB-containing material may cause a health hazard to workers and building occupants. The Contractor shall disclose to workers, supervisory personnel, sub-contractors, and consultants who will be at the Site of the seriousness of the hazard and proper work procedures that must be followed.
- G. During performance of the Work, workers, supervisory personnel, Subcontractors, or consultants who may encounter, disturb, or otherwise function in the immediate vicinity of the assumed PCB-containing material, shall take continuous measures as necessary to protect workers from the hazard of exposure. Such measures shall include the procedures and methods described in this Section, OSHA regulations, EPA regulations, and local requirements, as applicable.
- H. If requested or required by local, state, federal, and any other authorities having jurisdiction over such work, the Contractor shall allow the Work of this Contract to be inspected. The Contractor shall immediately notify the Owner and the Consultant, and shall maintain written evidence of such inspection for review by the Owner and the Consultant.
- I. The Contractor shall incur the cost of all fines resulting from regulatory non-compliance, as issued by federal, state, and local agencies. The Contractor shall incur the cost of all work requirements mandated by federal, state, and local agencies as a result of regulatory non-compliance, or negligence.

1.7 PROJECT DESCRIPTION

- A. This work includes impacts to the following Presumed PCB Bulk Product Waste and the generation of PCB Remediation Waste:

BASE BID – PRESUMED PCB BULK PRODUCT WASTE

LOCATION	MATERIAL TYPE	ESTIMATED QUANTITY	NOTES
G115-Nuring Room, 114 Waiting room, G112-Health Room	Gray caulking/glazing compounds- Removal, Packaging, Transporting, & Disposing Building Debris as Contaminated Friable ACM. <i>See Section 02 82 13 See Section Asbestos Containing Materials Abatement</i>	Two windows	1, 2, 3, 4,
G117, G118, G132, 138, 136, G116-Corridor, G108, G111, G112, G114, G115, G117, G118, G119, G120	Gray caulking expansion joints- Removal, Packaging, Transporting, & Disposing Building Debris as Contaminated Friable ACM. <i>See Section 02 82 13 Asbestos Containing Materials Abatement</i>	~900 LF	1, 2, 3, 4,

BASE BID – PRESUMED PCB REMEDIATION WASTE

LOCATION	MATERIAL TYPE	ESTIMATED QUANTITY
Throughout	Polyethylene Sheeting, PPE, Cleaning Materials & Supplies, & Other Waste Generated During Removal of Presumed PCB Waste	ALL

Waste Disposal Notes:

- The abatement contractor is responsible for the proper disposal of waste generated as part of this project and shall provide (2) 55 gallon drums for disposal of presumed PCB containing caulking and glazing materials (PCBs \geq 50 ppm) and (2) 55 gallon drums for disposal of presumed PCB remediation waste generated and collected by general trades contractors performing any cutting, sawing, drilling or other work which impacts painted surfaces. Coordinate with the Abatement Contractor for Temporary storage area for PCBs waste. Project Notes:
 - Polyethylene Sheeting, PPE, Cleaning Materials & Supplies, & Other Waste Generated during Removal of Presumed PCB Waste shall be disposed as PCB remediation waste.
 - Coordinate with Architectural, Plumbing, Mechanical, and Electrical Drawings for areas and locations that will be impacted.
 - Materials also contain Asbestos >1 Percent.
- B. Safety Data Sheets (SDS) for chemicals to be used during the project must be submitted to the Consultant prior to Site delivery.
- C. The Contractor shall be responsible for providing temporary water, power, and heat as needed at the Site. Temporary lighting within the work areas must be connected to Ground Fault Circuit Interrupter (GFCI) power panels, installed by a State of Connecticut-licensed electrician, permitted as required, and located outside of the work area.

1.8 DEFINITIONS

A. The following definitions relative to PCB abatement shall apply:

1. Abatement - Procedures to control PCB release from PCB Bulk Product Waste and PCB Remediation Waste; includes removal, encapsulation, and enclosure.
2. Air Monitoring - The process of measuring PCB concentrations of an area or exposure of a person.
3. CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act (Title 42 CFR, Parts 9601-9657).
4. Chemical Waste Landfill - A landfill at which protection against risk of injury to health or the environment from migration of PCBs to land, water, or the atmosphere is provided from PCBs and PCB Items deposited therein by locating, engineering, and operating the landfill as specified in EPA Title 40 CFR, Part 761.75.
5. Cleanup Site - The areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of a cleanup of PCB Remediation Waste, regardless of whether the Site was intended for management of waste.
6. Competent Person - As defined by OSHA, a representative of the Contractor who is capable of identifying existing PCBs hazards in the workplace and selecting the appropriate control strategy for PCB exposure. Person who has authority to take prompt corrective measures to eliminate such hazards during PCB removal.
7. Consultant - Fuss & O'Neill EnviroScience, LLC
8. Containment - An enclosure within the building which establishes a contaminated area, and surrounds the location where PCB and/or other toxic or hazardous substance removal is performed, and establishes a Control Work Area.
9. Designated Facility - An off-site disposer or commercial storer of PCB-containing waste designated on the manifest as the facility that will receive a manifested shipment of PCB containing waste.
10. Disposal - An intentional or accidental act of discarding, throwing away, completing, or terminating the useful life of PCBs and PCB-containing items. Disposal includes spills, leaks, and other uncontrolled discharges of PCBs, as well as actions related to containing, transporting, destroying, degrading, decontaminating, or confining PCBs and PCB items.
11. DOT - The United States Department of Transportation.
12. EPA Identification Number - The 12-digit number assigned to a facility by EPA upon notification of PCB waste activity under EPA Title 40 CFR, Part 761.205.
13. 3.
14. Fixed Object - Mechanical equipment, electrical equipment, fire detection systems, alarms, or all other fixed equipment, fixtures, or items which cannot be removed from the work area.
15. Generator of PCB Waste - Any person who acts, processes, or produces PCBs that are regulated for disposal under EPA Title 40 CFR, Part 761, Subpart D, whose act first causes PCBs or PCB-containing -items to become subject to the disposal requirements of EPA Title 40 CFR, Part 761, Subpart D, or who has physical control over the PCBs when a decision is made that the use of the PCBs has been terminated, and is therefore subject to the disposal requirements of EPA Title 40 CFR, Part 761, Subpart D. Unless another provision of EPA Title 40 CFR, Part 761 specifically requires a site-specific meaning, "generator of PCB waste" includes all of the sites of PCB waste generation owned or operated by the person who generates PCB waste.

16. GFCI - Ground Fault Circuit Interrupter
17. HEPA - High Efficiency Particulate Air
18. HEPA Filter - Filter in compliance with ANSI Z9.2 1979.
19. HEPA Vacuum Equipment - Vacuum equipment equipped with a HEPA filter system for filtering the air effluent.
20. Laboratory - A facility that analyzes samples for PCBs and is unaffiliated with any entity whose activities involve PCBs.
21. Large PCB Mark (M_L) - Mark that includes letters and striping on a white or yellow background, and shall be sufficiently durable to equal or exceed the life (including storage for disposal) of the PCB Article, PCB Equipment, or PCB Container. The size of the mark shall be at least six inches (6") on each side. If the PCB Article or PCB Equipment is too small to accommodate this size, the mark may be reduced in size proportionately down to a minimum of two inches on each side.
22. Manifest - The shipping document EPA form 8700-22 and any continuation sheet attached to EPA form 8700-22, originated and signed by the generator of PCB-containing waste.
23. Mark - The descriptive name, instructions, cautions, or other information applied to PCBs, and PCB Items, or other objects.
24. Marked - The marking of PCB Items and PCB storage areas and transport vehicles by means of applying a legible mark by painting, fixation of an adhesive label, or by any other method that meets the requirements of the EPA Title 40 CFR, Part 761.
25. Movable Object - Unit of equipment of furniture in the work area that can be removed from the work area.
26. Negative Air Pressure Equipment - A portable local exhaust system equipped with HEPA filtration used to create negative pressure in a regulated area (negative with respect to adjacent unregulated areas), and capable of maintaining a constant, low velocity air flow into regulated areas from adjacent unregulated areas.
27. On-Site - Within the boundaries of a contiguous property unit.
28. Owner - Regional School District No. 14: An employee or executive who has the principle responsibility for a process, program, or project.
29. PCB(s) - A chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances that contain such substance. Refer to EPA Title 40 CFR, Part 761.1(b) for applicable concentrations of PCBs. PCB and PCBs as contained in PCB items are defined in EPA Title 40 CFR, Part 761.3.
30. PCB Article - A manufactured article, other than a PCB Article Container, that contains PCBs and whose surface(s) has been in direct contact with PCBs. Includes capacitors, transformers, electric motors, pumps, pipes, and other manufactured item which (1) is formed to a specific shape or design during manufacture, (2) has end use function(s) dependent in whole or in part upon its shape or design during end use, and (3) has either no change of chemical composition during its end use, or only those changes of composition that have no commercial purpose separate from that of the PCB Article.
31. PCB Article Container - A package, can, bottle, bag, barrel, drum, tank, or other device used to contain PCB Articles or PCB Equipment, and whose surface(s) has not been in direct contact with PCBs.
32. PCB Bulk Product Waste - A waste derived from manufactured products containing PCBs in a non-liquid state, at any concentration where the concentration at the time of designation for disposal is greater than (\geq) 50 ppm PCBs. Does not include PCBs or PCB Items regulated for disposal under EPA Title 40 CFR Parts 761.60(a)-(c), 761.61,

- 761.63, or 761.64. PCB Bulk Product Waste is further defined in EPA Title 40 CFR, Part 761.3.
33. PCB Item - A PCB Article, PCB Article Container, PCB Container, PCB Equipment, or anything that deliberately or unintentionally contains, or has as a part of it any PCB or PCBs.
 34. PCB Remediation Waste - Waste containing PCBs in concentrations greater than 1 ppm as a result of a spill, release, or other unauthorized disposal.
 35. PCB Waste(s) - PCBs and PCB Items that are subject to the disposal requirements of EPA Title 40 CFR, Part 761, Subpart D.
 36. RCRA - The Resource Conservation and Recovery Act (EPA Title 40 CFR, Parts 260 - 265).
 37. Regulated Work Area - An area established by the employer to demarcate where PCB abatement is conducted and any adjoining area where debris, and waste from such abatement work accumulate.
 38. Storage for Disposal - Temporary storage area for PCBs that have been designated for disposal.
 39. Totally Enclosed Manner - A manner that will ensure no exposure of human beings or the environment to a concentration of PCBs.
 40. Transfer Facility - A transportation-related facility including loading docks, parking areas, and other similar areas where shipments of PCB waste are held during normal transportation. Transport vehicles are not transfer facilities under this definition, unless they are used for the storage of PCB waste, rather than for actual transport activities. Storage areas for PCB waste at transfer facilities are subject to the storage facility standards of EPA Title 40 CFR, Part 761.65, but such storage areas are exempt from the approval requirements of EPA Title 40 CFR, Part 761.65(d) and the recordkeeping requirements of EPA Title 40 CFR, Part 761.180, unless the same PCB waste is stored there for a period of more than 10 consecutive days between destinations.
 41. Transporter of PCB Waste - For the purposes of Title 40 CFR, Part 761, Subpart K, any person engaged in the transportation of regulated PCB waste by air, rail, highway, or water for purposes other than consolidation by a generator.
 42. Transport Vehicle - A motor vehicle or rail car used for the transportation of cargo by any mode. Each cargo-carrying body (e.g., trailer, railroad freight car) is a separate transport vehicle. TSCA means the Toxic Substances Control Act (15 U.S.C. 2601 et seq.).
 43. TSCA - The Toxic Substances Control Act (15 U.S.C. 2601 et seq.).

1.9 SUBMITTALS

- A. The Contractor shall submit the following to the Consultant in one complete package prior to the pre-construction meeting, and no later than 10 business days prior to the anticipated start of the Work:
 1. Site-Specific Health and Safety Plan (HASP): The Contractor shall prepare a site-specific HASP plan for protection of workers and control of the work site in accordance with OSHA regulatory requirements (Title 29 CFR, Part 1910.120). The HASP shall govern all work conducted at the site during the removal of PCB-Containing Materials and related debris, waste handling, sampling, waste management, and waste transportation. At a minimum, the HASP shall address the requirements set forth in OSHA Title 29 CFR, Part 1910.120, as further outlined below:

- a. Health and Safety Organization
- b. Site Description and Hazard Assessment
- c. Training
- d. Medical Surveillance
- e. Work Areas
- f. Personal Protective Equipment
- g. Personal Hygiene and Decontamination
- h. Standard Operating Procedures and Engineering Controls
- i. Emergency Equipment and First Aid Provisions
- j. Equipment Decontamination
- k. Air Monitoring
- l. Telephone List
- m. Emergency Response and Evacuation Procedures and Routes
- n. Site Control
- o. Heat and Cold Stress
- p. Recordkeeping
- q. Community Protection Plan
- 2. Employee Training, Medical, and Fit Test Documentation: The Contractor submit the following documentation:
 - a. Documentation of Training for all employees and Sub-contractors to be used for the removal work.
 - b. Medical clearance and respirator fit test records of each employee who may be on the project site.
- 3. PCB and or other Toxic or Hazardous Substances Disposal Plan (Abatement Contractor Responsibility):
A written plan that details the Contractor's plan for transportation and disposal of PCB-Containing Materials, or other Toxic or Hazardous Substance wastes generated during the project. The Disposal Plan shall identify:
 - a. The Contractor's insurance certificate and landfill's operating permits and insurance certificates.
 - b. Waste packaging, labeling, placarding, and manifesting procedures.
 - c. The name, address, and 24-hour contact number for the proposed treatment or disposal facility, or facilities to which waste generated during the project will be transported.
 - d. The name, address, contact person(s) and state-specific permit numbers for proposed waste transporters, and EPA and DOT identification number for firms that will transport PCB-Containing Material waste.
 - e. The license plate numbers of vehicles to be used in transporting of the waste from the Site to the disposal facility.
 - f. The route(s) by which the waste will be transported to the designated disposal facility, and states or territories through which the waste will pass.
- 4. Air Sampling Professional Qualifications: The qualifications of the air sampling professional that the Contractor proposed to use for this project to perform OSHA-required employee exposure monitoring.

B. The following documents shall be submitted to the Consultant within 15 working days following removal of waste from the Site (Abatement Contractor Responsibility):

- 1. Waste Profile Sheets

2. Pre-Disposal Analysis Test Results (if required by disposal facility)
3. Waste Manifests signed by the disposal facility
4. Tipping Receipts provided by the disposal facility
5. Certification of Final Treatment/Disposal signed by the responsible disposal facility official.

C. The following shall be submitted to the Consultant at the completion of the Work (Abatement Contractor Responsibility):

1. Disposal Site Receipts: Copy of waste shipment record(s) and disposal site receipt(s) that indicate that PCB-Containing Materials or other Toxic, or Hazardous Substances materials have been properly disposed.

1.10 REGULATIONS AND STANDARDS

A. The Contractor shall be solely responsible for conducting this project and supervising all work in a manner that will be in conformance with all federal, state, and local regulations and guidelines pertaining to presumed PCB Bulk Product impacted by work. Specifically, the Contractor shall comply with the requirements of the following:

1. EPA TSCA (Title 40 CFR, Part 761);
2. OSHA Hazardous Waste Operations and Emergency Response Regulations (Title 29 CFR, Parts 1910.120);
3. OSHA Respiratory Protection Standard (Title 29 CFR, Part 1910.134);
4. OSHA Hazard Communication (Title 29 CFR, Part 1910.1200);
5. Department of Transportation (DOT) Hazardous Waste Transportation Regulations (Title 49 CFR, Parts 170 – 180);
6. CTDEEP Regulations;
7. 2003 International Building Code as adopted by the 2005 State of Connecticut Building Code including the 2009, 2011, 2013, and 2016 amendments;
8. Life Safety Code (National Fire Protection Association [NFPA]);
9. Local health and safety codes, ordinances or regulations pertaining to PCB remediation and all national codes and standards including ASTM, ANSI, and Underwriter's Laboratories.

1.11 POSTING AND RECORD MAINTENANCE REQUIREMENTS

A. The following items shall be conspicuously displayed proximate but outside of the regulated work areas.

1. Warning Signs: Warning signs shall be in English and the language of any workers on-site who do not speak English, and be of sufficient size to be clearly legible and display the following or similar language in accordance with OSHA Title 29 CFR, Part 1910.1200:

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

In addition, all entrances to work areas shall be posted with a PCB M_L large marker.

- B. The Contractor shall maintain the following items on-site and available for review by all employees and authorized visitors:
 - 1. Documentation of Training, Medical Clearance, and Fit Test Records for all employees and the project Supervisor.
 - 2. SDS for all chemicals used during the project.
 - 3. Copies of Contractor's written hazard communication and respiratory protection programs.

1.12 MINIMUM REQUIREMENTS FOR WORKER HEALTH AND SAFETY

- A. The Contractor is responsible and liable for the health and safety of all on-site personnel and the off-site community affected by the Work. All on-site workers or other persons entering the regulated work areas shall be knowledgeable of and comply with all applicable federal, state, and local regulations protecting human health and the environment from the hazards posed by the Work.
- B. In addition to exposure concerns relating to the presence of PCBs, other health and safety considerations will apply to the Work. The Contractor shall be responsible for recognizing such hazards and shall be responsible for the health and safety of the Contractor's employees at all times. It is the Contractor's responsibility to comply with all applicable health and safety regulations.

1.13 WORK AREA IDENTIFICATION

- A. The Contractor shall lay-out and clearly identify regulated work areas at the Site. Access by equipment, site personnel, and the public to the work areas shall be limited as follows:

1.14 PERSONNEL PROTECTIVE EQUIPMENT

- A. The Contractor shall be responsible to determine and to provide the appropriate level of PPE in accordance with applicable regulations and standards necessary to protect the Contractor's employees from all hazards present.
- B. The Contractor shall provide all employees with the appropriate safety equipment and protective clothing to ensure an appropriate level of protection for each task, taking into consideration the chemical, physical, ergonomic, and biological hazards posed by the Site and Work.

- C. The PPE to be utilized for the project shall be selected based upon the potential hazards associated with the Site and the Work. Appropriate PPE shall be worn at all times within the regulated work area.
- D. The Contractor shall provide the appropriate level of respiratory protection to all field personnel engaged in activities where respiratory hazards exist, or where there is a potential for such hazard to exit.
- E. The Contractor shall provide, as necessary, protective coveralls, disposable gloves and other protective clothing for all personnel that will be actively involved in abatement activities or waste handling activities, or otherwise present in the regulated work area. Coveralls shall be Tyvek™ or equivalent material. Should the potential for exposure to liquids exist, splash resistant disposable suits shall be provided and utilized.
- F. Protective coveralls, and other protective clothing shall be donned and removed outside of the regulated work area and shall be disposed at the end of each day. Ripped coveralls shall be immediately replaced after appropriate decontamination has been completed to the satisfaction of the Contractor Site Supervisor. Protective clothing shall not be worn outside of the regulated work area.
- G. Hard hats, protective eyewear, rubber boots, and/or other non-skid footwear shall be provided by the Contractor as required for workers and authorized visitors.
- H. All contaminated protective clothing, respirator cartridges, disposable protective items HEPA filters, vacuum bags/collection devices, etc. shall be placed into proper containers provided by the Abatement Contractor for transport and proper disposal in accordance with EPA regulations as presumed PCB Remediation Waste.

1.15 EMERGENCY EQUIPMENT AND FIRST AID REQUIREMENTS

- A. At a minimum, the Contractor shall provide and maintain at the Site the following Emergency and First Aid Equipment:
 - 1. Fire Extinguishers: A minimum one fire extinguisher shall be supplied and maintained at the Site by the Contractor throughout the duration of the Work. Each extinguisher shall be a minimum of a 20-pound Class ABC dry fire extinguisher with Underwriters Laboratory approval per OSHA Title 29 CFR, Part 1910.157.
 - 2. First Aid Kit: A minimum one first aid kit meeting the requirements of OSHA Title 29 CFR, Part 1910.151 shall be supplied and maintained at the Site by the Contractor throughout the duration of the Work.
 - 3. Communications: Telephone communications (either cellular or land line) shall be provided by the Contractor for use by site personnel at all times during the Work.
- B. The Contractor Site Supervisor shall be notified immediately in the event of personal injury, potential exposure to contaminants, or other emergency. The Contractor Site Supervisor shall then immediately notify the Owner and Consultant.

1.16 STANDARD SAFETY AND HEALTH PROCEDURES AND ENGINEERING CONTROLS

- A. The following provisions shall be employed to promote overall safety, personnel hygiene and personnel decontamination:
1. Each Contractor or Subcontractor shall ensure that all safety equipment and protective clothing to be utilized by its personnel is maintained in a clean and readily accessible manner at the Site.
 2. All prescription eyeglasses in use on this project shall be safety glasses conforming to ANSI Standard Z87.1. No contact lenses shall be allowed on the Site.
 3. Prior to exiting the regulated work area(s), all personnel shall remove protective clothing, and place disposable items in appropriate disposal containers to be dedicated to that purpose. Following removal of PPE, personnel shall thoroughly wash and rinse their face, hands, arms and other exposed areas with soap and tap water wash and subsequent tap water rinse. A fresh supply of tap water shall be provided at the Site on each work day by the Contractor for this purpose.
 4. All PPE used on-site shall be decontaminated or disposed at the end of each work day. Discarded PPE shall be placed in sealed DOT-approved 55-gallon drums for off-site disposal provided by the Abatement Contractor.
 5. Respirators shall be dedicated to each employee, and not interchanged between workers without cleaning and sanitizing.
 6. Eating, drinking, chewing gum or tobacco, smoking, and any other practice that increases the likelihood of hand to mouth contact shall be prohibited within the delineated abatement and decontamination work zones. Prior to performing these activities, each employee shall thoroughly cleanse their face, hands, arms and other exposed areas.
 7. All personnel shall thoroughly cleanse their face hands, arms and other exposed areas prior to using toilet facilities.
 8. No alcohol, illicit drugs, or firearms will be allowed on the Site at any time.
 9. Contact with potentially contaminated surfaces should be avoided, if possible. Field personnel should minimize walking through standing water/puddles, mud, or other wet or discolored surfaces, kneeling on the ground, and placing equipment, materials or food on the ground, or other potentially contaminated surface.
- B. Workers must wear protective suits, protective gloves, and eye protection. Respiratory protection shall be in accordance with OSHA Title 29 CFR, Part 1910.134 and ANSI Z88.2.
1. Workers must be trained per OSHA requirements, have medical clearance, and must have recently received pulmonary function test (PFT) and respirator fit test by a trained professional.
 2. A personal air sampling program shall be in place, as required by OSHA.
 3. The use of respirators must also follow a complete written respiratory protection program as specified by OSHA.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Damaged or deteriorating materials shall not be used and shall be removed from the premises. Material that becomes contaminated with PCBs shall be decontaminated or disposed as PCB waste.
- B. Polyethylene (poly) sheeting in a roll size to minimize the frequency of joints shall be delivered to the Site with factory label indicating 4 or 6-mil thickness.
- C. Poly disposable bags shall be 6-mil thickness with pertinent pre-printed label. Tie wraps for bags shall be plastic, five-inches long (minimum), pointed and looped to secure filled plastic bags.
- D. Tape or adhesive spray will be capable of sealing joints in adjacent poly and for attachment of poly to finished or unfinished surfaces of dissimilar materials, and capable of adhering under both dry and wet conditions, including use of cleaning products.
- E. The Contractor shall have available spray equipment capable of mixing wetting agent with water and capable of generating sufficient pressure and volume, and having sufficient hose length to reach all areas with PCBs.

2.2 TOOLS AND EQUIPMENT

- A. The Contractor shall provide all tools and equipment necessary for PCB removal.
- B. The Contractor's air monitoring professional shall have air-monitoring equipment of type and quantity to monitor operations and conduct personnel exposure surveillance per OSHA requirements. The Contractor shall have available sufficient inventory or dated purchase orders for materials necessary for the Work including protective clothing, respirators, filter cartridges, poly of proper size and thickness, tape, and air filters.
- C. The Contractor shall provide (as needed) temporary electrical power panels, electrical power cables, and electrical power sources (such as generators). Any electrical connection work affecting the building electrical power system shall be performed by a State of Connecticut-licensed electrician.
- D. Vacuum units, of suitable size and capacities for the project, shall have HEPA filter(s) capable of trapping and retaining at least 99.97 percent of all mono-dispersed particles of 0.3 micrometers in diameter or larger.

PART 3 - EXECUTION

3.1 WORK AREA PROTECTION – REGULATED AREA

- A. Where necessary, deactivate electrical power. Provide GFCI devices, temporary power, and temporary lighting installed in compliance with the applicable electrical codes. All installations are to be made by a State of Connecticut-licensed electrician, permitted as required, and located outside the work area.
- B. Post warning signs in accordance with OSHA Title 29 CFR, Part 1910.1200 at all approaches to the regulated work area(s). Signs shall be conspicuously posted to permit a person to read signs and take precautionary measures to avoid exposure to PCBs or other Toxic or Hazardous Substances. These signs should include the large PCB ML markers at each entrance to the work area.
- C. Waste Containers for presumed PCB Bulk Product Waste and PCB Remediation Waste shall be located on-site, and shall be placed adjacent to the regulated area. Containers shall be lined, covered and secured. The PCB waste containers shall be properly marked as described in EPA Title 40 CFR, Part 761.40. Marking shall include a PCB ML marker formatted in accordance with EPA Title 40 CFR, Part 761.45.

3.2 DECONTAMINATION SYSTEM

- A. The Contractor shall establish an on-site wash facility as near as possible to the regulated work area(s). If a wash facility is not present at the Site, A portable facility will be made available by the Contractor. Hands, face, and all other potentially contaminated areas of the skin will be thoroughly cleaned prior to smoking, eating, or leaving the site.
- B. All equipment which is potentially contaminated is decontaminated prior to leaving the regulated work area. Equipment decontamination procedures will consist of the following:
 - 1. Physically remove packed dirt and debris with a stiff bristle brush and with tap water and hexane or equivalent
 - 2. Tap water rinse
 - 3. Second tap water and hexane or equivalent wash
 - 4. Second tap water rinse
 - 5. Allow to air dry.

Note: Most electronic monitoring equipment can be wrapped in plastic to eliminate the need for extensive decontamination protocols which could harm the electronics.

3.3 PRESUMED PCB BULK PRODUCT WASTE REMOVAL PROCEDURES

- A. The Contractor shall have a designated "competent person" on the Site at all times to ensure proper work practices throughout the project.

- B. The Contractor shall regulate the work area as required for compliance with OSHA Title 29 CFR, Part 1910.1200 to prohibit non-trained workers from entering areas where PCBs are to be removed.
- C. The Contractor shall establish a wash facility adjacent the work area.
- D. Materials shall be removed or impacted in a manner which does not breakdown the materials into fine dust or powder to the extent feasible. Equipment and tools to be utilized shall include hand tools and mechanical equipment such as coring drills, mechanical grinders, etc. to remove materials from adjacent substrates. Mechanical removal equipment shall as appropriate be fitted with HEPA-filtered vacuum attachments.
- E. The use of minimal quantities of water to moisten the generated dust prior to collection shall be utilized. Under no circumstances shall the presumed PCB waste show evidence of free liquid water, pooling, or ponding within the waste stream. Any liquid used to wet the dust and debris to control fugitive emissions shall be properly containerized and decontaminated in accordance with EPA Title 40 CFR, Part 761.79(b)(1) or disposed in accordance with EPA Title 40 CFR, Part 761.60(a).
- F. Dry or brittle presumed PCB-Containing Material shall be removed with additional engineering controls such as use of a HEPA-filtered vacuum to remove accumulated dust or debris during removal.
- G. Sequence of removal shall follow the following general requirements:
 - 1. Site preparation and controls to facilitate impacts to presumed PCB Bulk Product Waste including establishing a regulated area, preparing polyethylene sheeting drop cloths and the use of engineering controls such as tools and equipment equipped with HEPA filtration. These procedures must be must be utilized for PCB Waste removal.
 - 2. Health and Safety in accordance with OSHA requirements.
 - 3. Remove and containerize all visible accumulations of presumed PCB Bulk Product Waste. Waste shall be containerized in labeled and signed 6-mil poly disposable bags. Tie wraps for bags shall be plastic, 5-inches long (minimum), pointed and looped to secure filled plastic bags. Disposal bags shall then be placed in steel 55-gallon DOT-approved drums to be provided by the Abatement Contractor. Packaging and movement of the presumed PCB Bulk Product Waste and PCB Remediation Waste Storage area for PCB waste is the responsibility of the Contractor.
 - 4. Transportation, and disposal of presumed PCB Bulk Product Waste at a facility permitted to accept PCB Bulk Product Waste and shall be the responsibility of the Abatement Contractor.
 - 5. Transportation, and disposal of containment, personal protection equipment (PPE), cleaning materials and supplies, and waste generated during removal of PCB Bulk Product Waste as PCB Remediation Waste at a facility permitted to accept PCB Remediation Waste and shall be the responsibility of the Abatement Contractor.
 - 6. Following complete removal of PCB Bulk Product Waste and PCB Remediation Waste, the regulated work area shall be left clean with no remaining debris
 - 7. Recordkeeping and distribution as required in accordance with EPA Title 40 CFR, Part 761.125 (c) (5).

- H. At any time during impacts to presumed PCB-containing materials should the Consultant suspect contamination of areas outside the regulated work area, the Consultant shall issue a stop work order until the Contractor takes required steps to decontaminate these areas, and to eliminate the causes of such contamination. Unprotected individuals shall be prohibited from entering suspected contaminated areas until air sampling and visual inspections indicate acceptable decontamination.
- I. If requested by the Owner, the Consultant shall conduct a final visual inspection of the work area. If residual suspect presumed PCB-containing debris is identified during the final inspection, the Contractor shall comply with the Consultant's request to render the area clean of all residual PCB.

3.4 CLEANING AND DECONTAMINATION

- A. The Contractor shall be responsible for complete cleaning and decontamination of the regulated work area upon completion of work. The regulated work area will be required to meet proposed final visual inspection requirements.
- B. The Contractor shall utilize HEPA-filtered vacuum equipment and wet cleaning products to remove all visible dust and debris from all surfaces within the work area. If specialty cleaning products are utilized, the Contractor shall utilize the product(s) in accordance with manufacturer's specifications including any additional safety and disposal requirements for such use.
- C. Any liquid used to wet the dust and debris to control fugitive emissions shall be collected and decontaminated in accordance with EPA Title 40 CFR, Part 761.79(b)(1), or disposed in accordance with EPA Title 40 CFR, Part 761.60(a).
- D. All rags and other cleaning materials used to clean the work area shall be properly disposed as presumed PCB Remediation Waste. All presumed PCB Remediation Waste shall be stored for disposal in accordance with EPA Title 40 CFR, Part 761.61(a)(5)(v)(A). All waste containers shall be appropriately marked and labeled in accordance with EPA Title 40 CFR, Parts 761.40 and 761.45. Waste disposal is the responsibility of the Abatement Contractor.
- E. Equipment to be utilized in connection with the removal of PCB Bulk Product Waste including waste collection, or that will or may come in direct contact with the Site contaminants shall be decontaminated prior to leaving the Site to prevent migration of the potential contaminated residues. Decontamination shall be in accordance with EPA Title 40 CFR, Part 761.79 and Subpart S procedures.
- F. All non-disposable equipment and tools employed in the Work will be decontaminated at the conclusion of each work day utilizing the following sequence:
 - 1. Initial tap water rinse to remove gross debris
 - 2. Tap water and hexane or equivalent wash
 - 3. Tap water rinse
 - 4. Second tap water and hexane or equivalent wash
 - 5. Second tap water rinse

- G. The wash water and decontamination liquids shall be captured and containerized in DOT approved 55-gallon drums for off-site disposal in accordance with EPA Title 40 CFR, Part 761.60(a). Waste disposal is the responsibility of the Abatement Contractor.

3.5 CONSULTANT'S RESPONSIBILITIES

- A. Consultant may conduct inspections throughout the progress of the removal project. Inspections may be conducted to document the progress of the removal work, as well as the procedures and practices employed by the Contractor.
- B. The Consultant's project monitor shall provide continual evaluation of the condition of the building during removal, using their best professional judgments in respect to EPA and CTDEEP regulations.

3.6 CONSULTANT'S INSPECTION RESPONSIBILITIES

- A. Consultant may conduct inspections throughout the progress of the removal project. Inspections may be conducted to document the progress of the removal work, as well as the procedures and practices employed by the Contractor.
- B. The Consultant may perform the following inspections during abatement activities:
1. Pre-commencement Inspection. If requested by the Owner, Pre-commencement inspections shall be performed by the Consultant. The Consultant shall be informed 12-hours prior to the time the inspection is needed. If deficiencies are identified during the pre-commencement inspection, the Contractor shall perform the necessary adjustments to obtain compliance.
 2. Work Area Inspection. If requested by the Owner, Work area inspections may be conducted on a daily basis at the discretion of the Consultant. During the work inspections, the Consultant shall observe the Contractor's removal procedures, verify isolation barrier integrity, assess project progress, and inform the Contractor of specific remedial activities if deficiencies are noted.
- C. The Consultant shall perform the following inspection during abatement activities:
1. Final Visual Inspection. If requested by the Owner, the Consultant shall conduct a final visual inspection of the work area. The final visual inspection shall be conducted after completion of the final cleaning procedures. The final visual inspection shall verify that all PCB Waste(s) have been removed from the work area. If during the inspection the Consultant identifies residual dust or debris, the Contractor shall comply with the request of the Consultant to render the area "dust free".

3.7 MARKING OF WASTE CONTAINERS (ABATEMENT CONTRACTOR RESPONSIBILITY)

- A. All waste containers must be marked with the name of the waste contained, the date in which the first material was placed in the vessel, and the last date at which addition of waste occurred. All waste containers must be marked with a large PCB M_L marker.
- B. All waste containers containing PCB Bulk Product Waste, and PCB Remediation Waste in the form of waste and contaminated debris, containment system components, used PPE, personal and equipment wash water and decontamination fluids, or other wastes generated during the abatement work shall be labeled as follows:

DOT Class 9 UN3432 (solid)
Or UN2315 (liquid) PCB Waste
RQ

Waste for Disposal

Federal law prohibits improper disposal.

If found, contact the nearest police or public safety authority or
The U.S. Environmental Protection Agency.

Generator's Information: _____

Manifest Tracking No.: _____

Accumulation Start Date: _____

EPA ID No.: _____

EPA Waste No.: _____

Total Weight: _____

Container No.: _____

HANDLE WITH CARE

In addition, these containers must be marked with a PCB M_L marker. Such marking must be durable, in English and printed on, or affixed to the surface of the package, or on a label, tag or sign, and displayed on a background of sharply contrasting color, is unobscured by labels or attachments, and located away from any other marking (such as advertising) that could substantially reduce its effectiveness.

3.8 ON-SITE WASTE MANAGEMENT AND DISPOSAL OF SOLID HAZARDOUS WASTES (ABATEMENT CONTRACTOR RESPONSIBILITY)

- A. The materials as identified in Polychlorinated Biphenyl Abatement Section 02 84 34, 1.10 Project Description were presumed to contain PCBs and were classified as PCB Bulk Product Waste. Due to the material being presumed, TCLP analysis is necessary to satisfy landfill requirements for waste characterization. The Owner's Consultant shall to collect waste characterization samples for TCLP PCB analysis of the presumed PCB Bulk Product Material and PCB Remediation Waste which is anticipated to be required by the disposal site the Contractor identifies. The Contractor shall factor in time for TCLP testing, TCLP analysis and staging of waste as necessary to complete the waste profile and subsequent landfill facility acceptance of waste.

- B. All solid waste material, containment system components, used PPE, and other solid wastes generated during the Work, shall be placed directly in appropriate waste receptacles immediately upon removal from its in-situ position. Suitable waste receptacles may consist of roll-off containers or DOT-approved 55-gallon drums.
- C. The Contractor shall be responsible for all packaging, labeling, transport, disposal, and recordkeeping associated with PCB Bulk Product Waste and PCB Remediation Waste in accordance with all federal, state, and local regulations.
- D. The Contractor shall ensure that the person transporting the waste holds a valid permit issued in accordance with appropriate federal, state, and local regulations.
- E. The Contractor shall provide to the transporter at the time of transfer appropriate shipping records or uniform waste manifests as required by the federal, state, and local regulations with a copy to the Owner and Consultant.
- F. The Contractor shall maintain proper follow-up procedures to assure that waste materials have been received by the designated waste site in a timely manner, and in accordance with all federal, state, and local regulations.
- G. The Contractor shall assure that disposal of PCB Bulk Product Waste and PCB Remediation Waste at a facility approved to accept such waste(s) and shall provide a tracking/manifest form signed by the landfill's authorized representative.
- H. The impermeable cover shall remain securely in place at all times when material is not being actively placed in the vessels. The Contractor shall be responsible for ensuring that the cover remains securely intact until the container is removed from the Site.
- I. 55-gallon drums utilized for waste containerization shall consists of suitable DOT-approved 55-gallon drums that are watertight and free of corrosion, perforations, punctures, or other damage. All drums shall be securely covered and sealed at the conclusion of each work day.
- J. The waste containers shall remain staged at the Site with a secure impermeable cover in-place until the materials are transported from the Site to be delivered to the designated waste disposal facility.
- K. Drum staging area shall be designated prior to initiation of the abatement work, and approved by the Consultant. If this area is located outside of the building, the area (or areas) shall be surrounded by a chain-link fence with a minimum height of six feet. The fence shall be labeled with a PCB ML marker.
- L. Properly containerized waste must be transported by a licensed hauler, and shipped as PCB Bulk Product Waste for disposal at a permitted waste facility in accordance with EPA Title 40 CFR, Part 761.62(b).
- M. PCB Remediation Waste must be transported by a licensed hauler and shipped as PCB Remediation for disposal in accordance with EPA Title 40 CFR, Part 761.61(b) at one of the following a facilities:

1. A hazardous waste landfill permitted by EPA under Section 3004 of EPA RCRA,
 2. A State authorized landfill under Section 3006 of EPA RCRA, or
 3. A chemical waste landfill approved under EPA Title 40 CFR, Part 761.75.
- N. Provide required copies of the uniform waste manifests for PCB Remediation Waste to the Owner, waste generation State, and waste destination State, as required. The Consultant shall review the waste manifest to assure the proper information has been supplied prior to waste shipment, which includes, but is not limited to, Site address, generator information, waste description, waste profile, quantity, etc.
- O. Any PCB liquid waste shall be properly containerized and decontaminated in accordance with EPA Title 40 CFR, Part 761.79 (b)(1), or disposed in accordance with EPA Title 40 CFR, Part 761.60(a).
- P. Any chemicals, solvents or other products used during decontamination shall be properly containerized as PCB liquid waste. Waste must be properly decontaminated in accordance with EPA Title 40 CFR, Part 761.79 (b) (1), or disposed in accordance with EPA Title 40 CFR, Part 761.60(g).
- Q. All contaminated waste shall be carefully loaded on trucks or other appropriate vehicles for transport. Before and during transport, care shall be exercised to insure that no unauthorized persons have access to the waste materials.
- R. Waste transporters are prohibited from “back hauling” any freight after the PCB waste disposal, until decontamination of the vehicle and/or trailer is assured.

END OF SECTION 028434

APPENDIX A

Limited Hazardous Building Materials Inspection Report dated September 13, 2018

Limited Hazardous Building Materials Inspection

April 16 – May 10, 2018
New London High School
490 Jefferson Avenue
New London, CT

Antinozzi Associates
Bridgeport, Connecticut

September 13, 2018



Fuss & O'Neill EnviroScience, LLC
146 Hartford Road
Manchester, CT 06040

Project No. _____



FUSS & O'NEILL
EnviroScience, LLC

September 13, 2018

Mr. Bill Mead, AIA
Antinozzi Associates
271 Fairfield Avenue
Bridgeport, CT 06604
Email: bmead@antinozzi.com

Re: Limited Hazardous Building Materials Inspection
New London High School
490 Jefferson Avenue, New London, CT
Fuss & O'Neill EnviroScience Project No. 20170858.A1E

Dear Mr. Mead:

Enclosed is the report for the limited hazardous building materials inspection conducted in response to the proposed renovations for the New London High School located at 490 Jefferson Avenue in New London, Connecticut. The work was conducted for Antinozzi Associates (the "Client").

The services were performed from April 16 through May 10, 2018 by Fuss & O'Neill EnviroScience, LLC licensed inspectors and included a comprehensive asbestos inspection, lead-based paint determination, a visual survey for suspect polychlorinated biphenyls (PCBs) in source building materials and an inventory of PCB-containing ballasts and mercury-containing equipment. The information summarized in this report is for the above-mentioned materials only. The work was performed in accordance with our written proposal dated October 4, 2017.

If you should have any questions regarding the contents of this report, please do not hesitate to contact me at (860) 646-2469, extension 5570. Thank you for this opportunity to have served your environmental needs.

Sincerely,

Carlos Texidor
Senior Project Manager

CT/kr

Enclosure

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1 Introduction

From April 16 through May 10, 2018, Fuss & O'Neill EnviroScience, LLC (EnviroScience) representatives Mr. Ulkens Auguste and Ms. Kim Rinard performed a limited hazardous building materials inspection for proposed renovations at the New London High School located at 490 Jefferson Avenue in New London, Connecticut (the "Site"). The work was conducted for Antinozzi Associates (the "Client") in accordance with our written scope of services dated October 4, 2017 and is subject to the limitations included in *Appendix A*.

The inspection included the following:

- limited asbestos-containing material (ACM) inspection;
- lead-based paint (LBP) determination;
- visual survey of suspect polychlorinated biphenyls (PCB) source materials; and
- PCB-containing light ballasts and mercury-containing equipment inventory.

This comprehensive hazardous building materials inspection was performed in response to proposed renovation activities and included the main classroom building, auditorium/gymnasium building, and shop wing (S-wing).

This inspection was limited to non-invasive and discrete sampling techniques. Specific areas that were not inspected include the following:

- Roof top penthouses inaccessible at time of the survey;
- Roofing and flashing materials;
- Spaces above fixed ceilings, solid walls and between and beneath floors;
- Within cavities and void spaces between interior and exterior walls;
- At MEP floor and wall penetrations;
- Upper fiberglass gymnasium windows and associated panels;
- Behind fixed panels at exterior windows;
- Beneath window and door frames;
- Within kitchen equipment(i.e. stoves, warming ovens, walk-in cooler panels);
- Within chimneys;
- Within elevator shafts and elevator equipment;
- Within mechanical equipment(i.e. boilers, burners);
- Concealed pipe chases;
- Below grade at exterior façade walls

We have excluded collection and analysis of building materials for PCBs. Sampling for PCBs is presently not mandated by the Environmental Protection Agency (EPA); however, significant liability risk for disposing of PCB-containing wastes exists. Recent knowledge of PCBs within these matrices has become more prevalent, especially with remediation contractors, waste haulers, and disposal facilities. Many property Owners have become subject to large changes in schedule, scope, and costs as a result of failure to identify this possible contaminant prior to renovation or demolition.

2 Asbestos Inspection

A property Owner must ensure that a thorough ACM inspection is performed prior to possible disturbance of suspect ACM during renovation or demolition activities. This is a requirement of the EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) regulation located at Title 40 CFR, Part 61, Subpart M.

From April 16 through May 10, 2018, Mr. Auguste and Ms. Rinard of EnviroScience conducted the inspection. Mr. Auguste and Ms. Rinard are both State of Connecticut Department of Public Health (CTDPH)-licensed Asbestos Inspectors. Refer to *Appendix B* for the Asbestos Inspector licenses and accreditations.

2.1 Methodology

The inspection was conducted by visually inspecting for suspect ACM and touching each of the suspect materials. The suspect materials were categorized into three EPA NESHAP groups: friable and non-friable Category I and Category II type ACM.

- A Friable Material is defined as material that contains greater than 1 percent ($> 1\%$) asbestos that when dry **can** be crumbled, pulverized, or reduced to powder by hand pressure.
- A Category I Non-Friable Material refers to material that contains $> 1\%$ asbestos (i.e., packings, gaskets, resilient floor coverings, and asphalt roofing products) that when dry **cannot** be crumbled, pulverized, or reduced to powder by hand pressure.
- A Category II Non-Friable Material refers to any non-friable material excluding Category I materials that contain $> 1\%$ asbestos that when dry, **cannot** be crumbled, pulverized, or reduced to powder by hand pressure.

The suspect ACM were also categorized into their applications including Thermal System Insulation (TSI), Surfacing ACM (S), and Miscellaneous ACM (M). TSI includes those materials used to prevent heat loss/gain or water condensation on mechanical systems. Examples of TSI are pipe insulation, boiler insulation, duct insulation, and mudded pipe fitting insulations. Surfacing ACM includes those ACM that are applied by spray, trowel, or otherwise applied to an existing surface. Surfacing ACM is commonly used for fireproofing, decorative, and acoustical applications. Miscellaneous materials include those ACM not listed as thermal or surfacing, such as linoleum, vinyl asbestos flooring, ceiling tiles, caulking, glues, construction adhesives, etc.

The EPA recommends collecting suspect ACM samples in a manner sufficient to determine asbestos content and to segregate each suspect type of homogenous (similar in color, texture, and date of application) materials. The EPA NESHAP regulation does not specifically identify a minimum number of samples to be collected for each homogeneous material, but the NESHAP regulation does recommend the use of sampling protocols included in Title 40 CFR, Part 763, Subpart E: Asbestos Hazard Emergency Response Act (AHERA).

The EPA AHERA regulation requires a specific number of samples be collected based on the type of material and quantity present. This regulation includes the following protocol:

1. Surfacing Materials (S) (i.e., plasters, spray-applied fire-proofing, etc.) must be collected in a randomly distributed manner representing each homogenous area based on the overall quantity represented by the sampling as follows:
 - a. Three (3) samples collected from each homogenous area that is less than or equal to 1,000 square feet.
 - b. Five (5) samples collected from each homogenous area that is greater than 1,000 square feet but less than or equal to 5,000 square feet.
 - c. Seven (7) samples collected from each homogenous area that is greater than 5,000 square feet.
2. Thermal System Insulation (TSI) (i.e., pipe insulations, tank insulations, etc.) must be collected in a randomly distributed manner representing each homogenous area. Three (3) samples must be collected from each material. Also, a minimum of one (1) sample of any patching materials applied to TSI presuming the patched area is less than 6 linear or square feet should be collected.
3. Miscellaneous materials (M) (i.e., floor tile, gaskets, construction mastics, etc.) should have a minimum of two (2) samples collected for each type of homogenous material. Sample collection was conducted in a manner sufficient to determine asbestos content of the homogenous material as determined by the inspector.

The inspectors collected samples of those suspect ACM anticipated to be disturbed by proposed renovation activities, and prepared proper chain of custody forms for transmission of the samples to EMSL Analytical Inc. for analysis. EMSL is a State of Connecticut-licensed and American Industrial Hygiene Association (AIHA)-accredited asbestos laboratory. The sample locations, material type, sample identification, and asbestos content are identified by bulk sample analysis in **Table 1** attached hereto. Suspect ACM not listed in the table that may be identified at a later date at the Site, should be assumed to be ACM until sample collection and analysis indicate otherwise. Initial asbestos sample analysis was conducted using the EPA Interim Method for the Determination of Asbestos in Bulk Building Materials (EPA/600/R-93/116) via Polarized Light Microscopy with Dispersion Staining (PLM/DS).

If samples of suspect materials could not be collected or were inaccessible but observed elsewhere, these materials were assumed to contain asbestos and the inspectors approximated quantities. The roof was included in the scope of work for this inspection. Limited intrusive or destructive investigative techniques was performed at the Site to access and observe limited concealed areas in discrete locations that may have had suspect ACMs that were hidden or obstructed from normal view.

Intrusive or destructive exploratory demolition of hard enclosures or obstructed areas was not performed in occupied or high traffic areas of the school. Hard enclosures or obstructed areas typically include, but are not limited to, the following:

- Within wall cavities;
- Within pipe chases;

- spaces above fixed ceilings;
- foundation walls;
- spaces behind the brick façade;
- areas behind equipment (including freezers and refrigeration units);
- cavities within mechanical equipment (boilers, furnaces, water heaters)
- wall surfaces behind cabinet and convector type heaters;
- behind mirrors, blackboards and signage; and
- Vapor/moisture barrier under floors or on concrete foundations.

Subsurface investigations including, but not limited to, concrete foundations were not performed. Also, EnviroScience did not conduct subsurface investigations to identify suspect cementitious pipe throughout the Site.

2.2 Building and Mechanical System Description

The New London High School building complex is comprised of three buildings: the main classroom building, the auditorium/gymnasium wing, and the shop wing (S-wing), separated from the STEM School.

The main classroom building is an 84,000 square feet four-story masonry structure, reportedly constructed in 1969. The main building is utilized for classrooms, science laboratories, administrative, nurses, and guidance counseling offices on the upper floors in addition to the cafeteria/kitchen and custodial/receiving area located on the ground floor. Ceiling finishes within the main classroom building include: painted waffle slab ceiling areas, painted concrete ceiling deck, 2' x 4' acoustic ceiling tiles on a suspended ceiling grid and 12" x 12" ceiling tiles adhered directly to the concrete ceiling deck. Wall finishes throughout the main classroom building include: CMU block, glazed CMU block, structural concrete, sheetrock, wood paneling, folding partition walls and insulated metal paneling (administrative and guidance offices). Floor finishes throughout the classroom building include: 9" x 9" floor tile (various colors), 12" x 12" floor tile (various colors), carpet, quarry tile in kitchen spaces, ceramic tile in bathrooms and epoxy painted concrete in custodial closets and shipping and receiving areas.

The auditorium/gymnasium building is an 80,000 square feet two-story masonry structure, reportedly constructed in 1969, split into a Main Floor and Ground Floor. The auditorium/gymnasium building is comprised of an auditorium, a gymnasium, a lecture hall, several classrooms, faculty offices, ticket booths and storage space on the upper(Main) floor with a pool, locker rooms, storage and a former rifle firing range located on the lower(Ground) floor. Ceiling finishes within the auditorium/gymnasium building include: acoustical ceiling tiles (various sizes) on a suspended ceiling grid, 12" x 12" ceiling tiles adhered to concrete and gypsum wall board, plaster ceiling, soft and hard textured ceiling coatings and painted corrugated steel decking(underside of roof deck). Wall finishes throughout the auditorium/gymnasium building include: painted CMU block, glazed CMU block, metal paneling, sheetrock, structural concrete and folding partition walls. Floor finishes throughout the auditorium/gymnasium building include: 9" x 9" floor tile, 12" x 12" floor tile, epoxy coated concrete, quarry tile throughout the main entrance lobby and gymnasium lobby, ceramic tile and carpets.

The shop wing building(S-wing) is an 18,380 square foot, single-story building housing the culinary department with classroom space, a fitness equipment room, commercial teaching kitchen, and plant nursery with a hydroponics system. Ceiling finishes within the shop wing include acoustical ceiling tile on a suspended ceiling grid and the painted underside of the corrugated roof deck. Wall finishes throughout the S-wing include CMU block and sheet rock at interior walls and metal paneling at structural concrete at exterior walls.

A single elevator servicing the ground floor thru the third floor was observed in the main classroom building. Access to the elevator shaft, mechanical components and controls was not available at the time of the inspection.

Heating for the main classroom building, auditorium/gymnasium building and S-wing is provided by three oil-fired boilers located in the ground floor of the main classroom building plumbed to individual radiators in each room. Cooling for the main classroom building, auditorium/gymnasium building and S-wing is provided by window mounted air conditioners located in individual rooms.

Based on field observations, conversations with faculty and staff and correspondence with the Client, limited renovations to the main classroom building were conducted in specific areas including the ground floor (Booster Club Athletic Equipment Room partitions) and the science labs located on the first floor of the main classroom building.

2.3 Results

Utilizing the EPA protocol and criteria, the following materials were determined to contain asbestos above 1 Percent by EnviroScience sampling protocols and have been categorized as asbestos-containing materials (ACM):

- Soft textured ceiling surfacing material;
- Dark brown glue daubs associated with 12" x 12" ceiling tiles;
- Black mastic associated with 9" x 9" floor tiles;
- Black mastic associated with 12" x 12" floor tiles;
- Black mastic associated with light green with white dot floor tile;
- Interior expansion joint caulking;
- Tan interior caulking at exterior window;
- Black interior glazing at exterior window;
- Grey/white interior glazing at exterior window;
- Grey interior door window glazing;
- Brown door caulking;
- Grey door caulking;
- Brown duct pin glue;
- White vibration cloth/fabric at ductwork;
- White sink undercoating;
- Packing insulation; and
- Breaching insulation

The following materials have been categorized as vermiculite containing materials based on EMSL Analytical report. Surfacing materials contain 10 percent vermiculite. EPA recommends removal of vermiculite to be handled as asbestos containing materials.

- Auditorium Building Hard Textured Ceiling Surfacing Materials-Bottom Layer

The following materials have been categorized as asbestos containing materials based on previous reports documenting sampling of suspect materials by other firms:

- Joint Compound and Sheetrock in the room labeled "Vault" on the original architectural drawings provided by the Client, referred to as the Photography Room in the Eagle Environmental Report dated May 30, 2014. Two samples of the joint compound (5-13-AC-35 and 5-13-AC-36) associated with the sheetrock partition wall were reported at <1%, and 2% asbestos respectively.

Additional suspect asbestos containing materials that were identified during the hazardous materials survey have been categorized as presumed asbestos containing materials as no samples of the following materials were collected at the time of the survey due to the destructive nature of the sampling of the material. The suspect asbestos containing materials that have been categorized as presumed asbestos contain materials include:

- Galbestos metal cladding
- Roofing membranes and underlying layers of insulation, paper and vapor barriers;
- Flashing at the perimeter of the roof and curb bases for mechanical units;
- Exterior caulking at rooftop penetrations (vents, stacks, drains, termination bars, etc.);
- Sealants and caulking at Rooftop Air Handling Units and Elevator Penthouse;
- Exterior soffit and overhang surfacing materials;
- Exterior window glazing at the translucent Upper Gymnasium windows;
- Exterior window caulking at the perimeter of the Upper Gymnasium windows;
- Tar of the interior face of CMU block behind radiators at the exterior windows;
- Transite panels at the interior face of the CMU block behind exterior windows;
- Exterior caulking at louvers and vents
- Insulation behind the metal cap located between individual exterior expansion joints;
- Fabric flashing within the void behind exterior brick above weeps and peastone(as depicted on original architectural drawings);
- Vermiculite insulation within masonry wall cavities;
- Bathroom mirror adhesive;
- Chalkboard adhesives;
- Dry erase board adhesives;
- Tackboard adhesives;
- Wood wall paneling and associated adhesives;
- Plaster wall materials within the projector room;
- Projector screen fabric;
- Auditorium/Stage lighting and wiring;
- Auditorium/Stage Curtains;
- Folding partitions within the classroom building;

- Folding partitions within the cafeteria/C3 Group instruction;
- Folding partitions within the gymnasium;
- Panels located above the folding partitions;
- Paper underlay beneath wood floor at Stage in Auditorium;
- Paper underlay beneath wood floor at Stage in Lecture Hall;
- Cork at wood floor in Gymnasium(wood floor to remain per Client);
- Paper underlay/membrane in Gymnasiums(wood floor to remain per Client);
- Black speckled mat in the Fitness Center and associated underlying mastics, felts, corks;
- Ceramic tile within the restrooms and associated grouts, adhesives;
- Quarry tile throughout the Main Lobby, Gymnasium Lobby, and kitchen areas and underlying mudset, grout, and soft concretes;
- Pipe insulation within concrete slab beneath radiators (between floors);
- Vapor barriers/mastics at the slop sinks within Custodial Closets;
- Soft concrete and/or leveling compounds at ADA ramp(s);
- Felts/fillers located at the base of interior masonry walls(within slab);
- Vapor barrier/membrane beneath concrete slab;
- Insulation within Walk-In Cooler Panels;
- Transite at Laboratory Fume Hoods;
- Boiler Components (rope gaskets, fire bricks, etc.);
- Flange gaskets; and
- Pipe dope at Fire Sprinkler heads;

Refer to **Table 1** for a complete list of ACM and non-ACM sampled as part of this inspection. Refer to **Table 2** attached hereto for the ACM inventory. Refer to *Appendix C* for the asbestos laboratory report and chain of custody form. Refer to *Appendix D* for site photographs.

2.4 Discussion

The EPA, the Occupational Safety and Health Administration (OSHA), and the CTDPH define a material that contains greater than one percent ($> 1\%$) asbestos, utilizing PLM/DS, as being an ACM. Materials that are identified as "none detected" are specified as not containing asbestos.

Suspect ACM not identified during this inspection should be presumed to contain asbestos until sample collection and laboratory analysis indicate otherwise. The aforementioned list of materials categorized as Presumed Asbestos Containing Materials scheduled to be removed or disturbed as part of the proposed renovation are to be removed and segregated for disposal as Asbestos Containing Materials (ACM) until sample collection and laboratory analysis indicates otherwise.

Additionally, the EPA has suggested that materials that are non-friable organically bound (NOB) materials (e.g., asphaltic-based materials, adhesives, etc.) are recommended for further confirmatory analysis utilizing Transmission Electron Microscopy (TEM). Thirty-nine (39) of the collected samples were recommended to be analyzed by TEM. The results of TEM analysis are denoted in **Table 1**.

2.5 Conclusions and Recommendations

Based on visual observations, sample collection, and laboratory analysis, asbestos was present at the Site.

Prior to disturbance, ACM that would likely be impacted by the proposed renovation/demolition activities must first be abated by a state-licensed Asbestos Abatement Contractor. This is a requirement of CTDPH and EPA NESHAP regulations governing asbestos abatement.

Due to the inability to effectively separate some types of multi-layered ACM (e.g., floor tile/mastic, gypsum board/joint compound, mastic/plywood, etc.) from non-ACM, these materials are considered asbestos-contaminated and must be managed as ACM for the purposes of removal and disposal.

EnviroScience recommends that a comprehensive scope of work and technical specification be developed as part of renovation and demolition plans for the site. We have provided a cost to develop the specifications for inclusion in the overall renovation and demolition plans. We have also developed an opinion of cost for the complete removal of all identified asbestos under separate cover. Note the total cost is inclusive of removing all asbestos, and a more limited scope can be tailored to any specific renovation or demolition work as necessary.

Suspect materials encountered during renovation/demolition that are not identified in this report as being non-ACM should be presumed to be ACM until sample collection and laboratory analysis indicate otherwise. Prior to renovation/demolition that may disturb hidden/inaccessible areas, we recommend conducting a supplemental asbestos inspection of these areas and spaces to include:

- Exterior roof and associated materials on the main classroom building, auditorium/gymnasium building and shop wing;
- Smoke hatches and roof access points within the stage/auditorium area
- Above plaster soffits at building entrances
- Specific administrative offices and rooms (C110, C111, C112, Nurses office and School Resource office room
- Prep/conference room adjacent to ADA bathroom on first floor
- Walk-in freezer/refrigerator and food storage space (Rooms C24 and C25)
- Kitchen Storage – Room C6
- Areas behind equipment (including freezers and refrigeration units);
- Materials within the Electrical shop (S21) and Graphic Arts(S20) in the Shop Wing
- behind mirrors, blackboards and signage in interior spaces;
- wall surfaces behind cabinet and convector type heaters;
- cavities within mechanical equipment (boilers, furnaces, water heaters)
- Within wall cavities;
- Within pipe chases;
- Spaces above fixed ceilings;
- Spaces behind the brick façade;
- Vapor/moisture barrier under floors or on concrete foundations; and
- Buried pipe and conduits located throughout the site below grade.

EnviroScience recommends that if any ACM are to remain in the building following renovation/demolition activities, the ACM should be managed in-place under a written Operations and Maintenance Program in accordance with OSHA regulations.

This report is not intended to be utilized as a bidding document or as a project specification document. The report is designed to aid the building owner, architect, construction manager, general contractors, and asbestos abatement contractors in locating identified ACM.

3 Lead-Based Paint Determination

On April 26 and April 30, 2018, Ms. Rinard of EnviroScience performed a lead-based paint (LBP) determination associated with coated building components at the Site that may be disturbed during renovation/demolition activities. An X-ray fluorescence (XRF) analyzer was used to perform the LBP determination. The determination was conducted in accordance with generally-accepted industry standards for non-residential (i.e., not child-occupied) buildings.

3.1 Methodology

A Radiation Monitoring Device Model LPA-1, serial number 1157, was utilized for the LBP determination. The instrument was checked for proper calibration prior to use as detailed by the manufacturer and the Performance Characteristic Sheet (PCS) developed for the instruments.

For the purpose of this LBP determination, representative building components were tested as part of this pre-renovation study. Individual repainting efforts are not discoverable in such a limited program. LBP issues involving properties that are not residential are regulated to a limited degree for worker protection relating to paint-disturbing work activities and waste disposal.

Worker protection is regulated by OSHA regulations, as well as CTDPH regulations. These regulations involve air monitoring of workers to determine exposure levels when disturbing lead-containing paint. An LBP determination cannot determine a safe level of lead, but is intended to provide guidance for implementing industry standards for lead in paint at identified locations. Contractors may then better determine exposure of workers to airborne lead by understanding the different concentrations of LBP activities that disturb paint on representative surfaces.

The EPA Resource Conservation and Recovery Act (RCRA) regulates disposal of lead-containing waste. Lead-containing materials that will be impacted during renovation or demolition activities, and result in waste for disposal must either be analyzed using the Toxicity Characteristic Leaching Procedure (TCLP) analysis if lead is determined to be present in non-residential buildings, or be presumed as a hazardous waste. A TCLP sample is a representative sample of the intended waste stream. The results are compared to a threshold value of 5.0 milligrams per liter (mg/L); a result exceeding this value is considered hazardous lead waste. If the result is below the established level, the material is not considered hazardous and may be disposed as general construction debris.

A level of LBP exceeding 1.0 milligrams of lead per square centimeter (mg/cm²) is considered toxic or dangerous for compliance with residential standards. For purpose of this LBP determination the level of 1.0 mg/cm² has been utilized as a threshold for areas where possible worker exposures may occur.

3.2 XRF Determination Results

The LBP determination indicated consistent painting trends associated with representative building components that may be impacted by potential renovation/demolition work. The following building components were determined to contain levels of lead (greater than 1.0 mg/cm²):

- Black metal handrail and associated brackets in stairwell;
- White metal sinks in shop wing;
- Medium red locker frames; and
- Medium red fire hose enclosures;

Refer to *Appendix E* for the XRF lead determination field data sheets.

3.3 Discussion

OSHA published a Lead in Construction Standard (OSHA Lead Standard) Title 29 CFR, Part 1926.62 in May 1993. The OSHA Lead Standard has no set limit for the content of lead in paint below which the standards do not apply. The OSHA Lead Standards are task-based, and derived from airborne exposure and blood lead levels.

The results of this LBP determination are intended to provide guidance to contractors for occupational lead exposure controls. Building components coated with lead levels above industry standards may cause exposures to lead above OSHA standards during proposed demolition and renovation activities. The results of this determination are also intended to provide insight into waste disposal requirements, in accordance with EPA RCRA regulations. Based on the results for the XRF Screening during the inspection, materials coated with LBP were identified within the school and a TCLP sample to characterize the expected waste that may result from possible selective demolition and/or renovation work is required. EnviroScience has included the collection and analysis of ten (10) TCLP samples of the representative materials as stated within the proposal dated October 4, 2017

3.4 Conclusion and Recommendations

Based on our LBP determination results, LBP is present on coated building components located on and in the building.

Contractors must be made aware that OSHA has not established a level of lead in a material below which Title 29 CFR, Part 1926.62 does not apply. Contractors shall comply with exposure assessment criteria, interim worker protection, and other requirements of the regulation as necessary to protect workers during any demolition work that will impact lead paint.

If disturbed by renovation or demolition activities, LBP-coated building components should be segregated from the general waste stream for sample collection and analysis by TCLP to determine proper off-site waste disposal. If disturbed and managed off-site, non-porous LBP-coated building materials (i.e., metals) may be segregated and recycled as scrap metal. Metal LBP-coated building components cannot be subject to grinding, sawing, drilling, sanding, or torch cutting.

The building is not considered a “child-occupied facility” and therefore, it is not subject to lead safe renovation requirements.

Those surfaces which do not contain LBP are not subject to the RRP requirements. If a specific component or surface is not identified as having been tested it should be presumed to contain lead paint unless tested. Contractor's should be aware that the threshold limit of 1.0 mg/cm² for purposes of RRP requirements is not recognized by OSHA and workers exposures are still subject to lead in construction regulation 29 CFR 1926.62 regardless of paint testing results.

The building is presently characterized as commercial property, which is not subject to the State of Connecticut residential dwelling regulations. The property may be renovated using procedures required in accordance with OSHA regulation Title 29 CFR, Part 1926.62.

4 Visual Survey for Suspect Polychlorinated Biphenyls (PCBs) Source Materials

4.1 Background

EnviroScience was contracted by Antinozzi Associates to perform a limited hazardous materials survey including a visual inspection and survey of suspect source materials for PCB analysis.

PCBs were used until 1978 and are a group of compounds formed by the chlorination of biphenyl. PCBs have extremely high physical and chemical stabilities which led to their being used in many applications, including heat transfer fluids, hydraulic fluids, and dielectrics. PCBs are often found in transformers, capacitors, and hydraulic systems. PCBs were also added as a plasticizer in caulking used to seal joints between masonry units and around windows, in addition to other building material such as paints, mastics, sealants, adhesives, and specialty coatings. According to the EPA, PCBs were used in some buildings primarily between 1950 and 1980.

Sampling of building materials for PCBs is presently not mandated by the EPA. However, significant liability risk exists for improperly disposing of PCB- containing waste materials. Recent knowledge and awareness of PCBs within matrices such as caulking, glazing compounds, paints, adhesives and ceiling tiles has become more prevalent, especially amongst remediation contractors, waste haulers, and disposal facilities.

Many property owners have become subject to large changes in schedule, scope, and costs as a result of failure to identify these possible contaminants prior to renovation or demolition. We recommended this testing as part of the work. This information will serve as useful due to significant impact and potential

requirements for planning required by the EPA which must be implemented if PCBs are identified at a project site.

4.2 PCB Suspect Source Material Survey (Caulking and Glazing compounds)

Ms. Rinard of EnviroScience inspected the interior and exterior of New London High School main classroom building, auditorium/gymnasium building and shop wing for suspect PCB source materials. No samples of identified suspect source materials were collected at the time of the survey based on instructions from the Client. The following paragraphs provide a summary of the locations of the identified suspect source materials found throughout the New London High School building.

4.2.1.1 Exterior Windows

Exterior windows, original to the main classroom building and connecting airwalks, are comprised of a solid fixed glass pane, an operational vent window and rigid paneling above the glass panes with various glazings observed at the solid glass pane and rigid panel to include:

- light grey, hard glazing material at rigid panels;
- medium grey soft glazing ; and
- white glazing at solid glass panes.

A light tan/brown exterior caulking was observed at the perimeter of the exterior window frames and at the intersections of the mullions.

Replacement windows, observed on the south elevation of the main classroom building are comprised of fixed glass panels and operational vent windows set into metal frames with rubber gaskets sealing the individual windows with rigid panels with a rubber gasket seal observed at the top of the exterior windows. Caulking was observed at the intersections of the frame mullions and at the perimeter of the exterior windows and rigid panels.

Exterior caulking and glazing observed at the replacement exterior windows at the south elevation of the main classroom building include:

- Medium/dark grey or black glazing at corners of exterior windows;
- Medium/dark greyish brown caulking between exterior window frame and sill trim piece; and
- Medium/dark greyish brown caulking between exterior window sill trim piece and course of brick.

A replacement storefront window system was observed at the base of the stairwell on the ground level of the main classroom building in the vicinity of the administrative offices. Sealants and caulking compounds at this storefront window system were consistent with the replacement exterior windows narrated above.

Exterior stairwell windows above the replacement storefront window system and other stairwell locations throughout the school consisted of fixed glass panels, rigid paneling and operational windows stacked vertically. Caulking compounds and sealants observed at the upper portion of the stairwell windows are consistent with the original main classroom building exterior windows. A medium brown soft, flexible replacement caulking was observed along the vertical joints at the exterior stairwell windows over the existing caulking.

Exterior windows, original to the auditorium/gymnasium building, are comprised of an upper solid fixed glass pane, a lower operational vent window and rigid paneling beneath the operational vent windows with various glazings observed at the solid glass panes, operational vent windows and rigid panels to include:

- White, heavily weathered/chalking, slightly flexible caulking between the exterior window frame and brick facade;
- Medium grey caulking between the exterior window frame and trim;
- White, hard crumbling caulking within the horizontal joint beneath the trim;
- White, hard crumbling caulking at the upper horizontal joint between the exterior window frame and soffit; and
- A brown layer of residual caulking beneath the layers listed above.

The upper exterior windows at the perimeter of the gymnasium were inaccessible at the time of the suspect source material survey and have not been inspected at the time of this report.

4.2.1.2 Exterior Doors

Three types of different types of caulking compounds were identified at the exterior door frames throughout the original New London High School building to include a light grey caulking, medium grey caulking, and a medium brown soft caulking at exterior doors.

4.2.1.3 Exterior Louvers and Vents

Three types of caulking were observed at the exterior louvers and vents throughout the exterior façade of the original New London High School building. The caulking observed at the perimeter of the louvers and vents included a light grey hard caulking at the louvers beneath ground floor windows outside the administrative areas (and throughout) and a medium grey caulking at vents. Mortar was observed at several replacement vents and louvers.

4.2.1.4 Interior Partition Windows and Doors

One type of glazing was observed at the interior partition window frames throughout the library, locker rooms, kitchen, and storage areas. Mortar was observed within the joints at the perimeter of the interior metal partition window and door frames to the masonry walls.

One type of glazing was observed at the glass panels set within the doors throughout the school. Mortar was observed within the joints at the perimeter of the interior metal partition window and door frames to the masonry walls.

Two types of caulking were observed at interior doors, a medium brown soft caulking and a grey caulking compound.

4.2.1.5 Interior Expansion Joints

Two types of caulking, a yellowish-gray medium hard caulking and medium brown soft, flexible caulking were observed within interior expansion joints within the concrete masonry unit walls observed at the expansion joint locations specified in the provided floor plans and at various additional locations throughout the interior block walls.

4.3 Conclusions

Source materials containing PCBs may be present throughout the exterior façade and interior areas based on the list of suspect PCB source materials identified. Samples of the identified suspect source materials may be collected and submitted for PCB analysis by the EPA 8082 Method or the identified suspect PCB source materials may be classified as Presumed PCB Bulk Product Waste for disposal purposes.

Where source materials are identified in contact with porous substrates, samples of the substrate should be collected and analyzed to identify if the material was or was not contaminated. Samples of substrates that are in contact with source materials should be collected and analyzed to determine if the substrate has been impacted by the PCB-containing caulking (< 50 ppm) that may have leached throughout the years.

5 PCB-Containing Fluorescent Light Ballasts and Mercury-Containing Equipment

5.1 PCB-Containing Fluorescent Ballasts

Fluorescent light ballasts manufactured prior to 1979 may contain capacitors that contain PCBs. Light ballasts installed as late as 1985 may also contain PCB capacitors. Fluorescent light ballasts that are not labeled as "No-PCBs" must be assumed to contain PCBs, unless proven otherwise by quantitative analysis. Capacitors in fluorescent light ballasts labeled as non-PCB-containing may contain diethylhexyl phthalate (DEHP). DEHP was the primary substitute to replace PCBs for small capacitors in fluorescent light ballasts in use until 1991. DEHP is a toxic substance, a suspected carcinogen, and is listed under EPA RCRA and the Superfund law as a hazardous waste. Therefore, EPA Superfund liability exists for landfilling both PCB and DEHP-containing light ballasts. These listed materials are considered hazardous waste under EPA RCRA, and require special handling and disposal considerations.

From April 13 through April 16, 2018, EnviroScience representative Ms. Kim Rinard performed a visual inventory of representative fluorescent light fixtures to identify possible PCB-containing light ballasts. The inventory involved quantifying representative light ballasts. Labels on the individual lamps and ballasts were not inspected at the time of the inventory to identify dates of manufacture and labels indicating “No PCBs” as utilities throughout the building are still live. Ballasts manufactured after 1991 were not listed as PCB or DEHP-containing ballasts, and were not quantified for disposal.

The light ballasts without a label indicating “No PCBs” are presumed to be PCB-containing waste and must be segregated for proper removal, packaging, transport, and disposal as PCB-containing waste. Those light ballasts labeled as “No PCBs” indicating manufacture dates prior to 1991 are presumed to contain DEHP. DEHP-containing light ballasts must be segregated for proper removal, packaging, transport, and disposal as non-PCB hazardous waste. Note that disposal requirements for DEHP-containing ballasts are slightly varied, and disposal costs are slightly less than PCB-containing light ballasts. Refer to **Table 3** for the PCB/DEHP-Containing Light Ballasts Inventory.

5.2 Mercury-Containing Equipment

Fluorescent lamps/tubes are presumed to contain mercury vapor, which is a hazardous substance to both human health and the environment. Thermostatic controls and electrical switch gear may contain a vial or bulb of mercury associated with the control. Mercury-containing equipment is regulated for proper disposal by the EPA RCRA hazardous waste regulations. According to the EPA, mercury lamps are characterized as a Universal Waste. Therefore, fluorescent lamps must be either recycled, or disposed as hazardous waste.

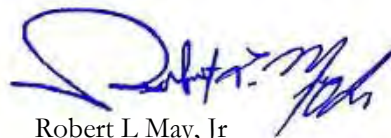
From April 13 through April 16, 2018, EnviroScience representative Ms. Kim Rinard performed an inventory of mercury equipment. No mercury containing thermostats were observed within the building, as the system is monitored with pneumatic controls. These fixtures were inventoried in-place. Refer to **Table 4** for the Mercury-Containing Equipment Inventory

Report prepared by Environmental Technician, Kim Rinard

Reviewed by:



Carlos Texidor
Senior Project Manager



Robert L. May, Jr.
Senior Vice President

Tables

Table 1
Summary of Suspect Asbestos-Containing Materials

Sample No.	Sample Location	NESHAP Category	Material Type	Asbestos Content	PLM/TEM
20180416-01A-UA	Main Classroom Bldg. – 3rd Floor –South End of Hall	Cat 2 NF	Black mastic associated with 9"x 9" floor tiles	8% Chrysotile	PLM
20180416-01B-UA	Main Classroom Bldg. – 3 rd Floor Room 308		Black mastic associated with 9"x 9" floor tiles	NA/Pos Stop	-----
20180416-01C-UA	Main Classroom Bldg. – 3 rd Floor Room 304		Black mastic associated with 9"x 9" floor tiles	NA/Pos Stop	-----
20180416-01D-UA	Main Classroom Bldg. – 3 rd Floor Room 318		Black mastic associated with 9"x 9" floor tiles	NA/Pos Stop	-----
20180416-02A-UA	Main Classroom Bldg.- 2nd Floor South End of Hall	Cat 2 NF	Black mastic associated with 9"x 9" floor tiles	4% Chrysotile	PLM
20180416-02B-UA	Main Classroom Bldg.- 2 nd F Room 203l		Black mastic associated with 9"x 9" floor tiles	NA/Pos Stop	-----
20180416-02C-UA	Main Classroom Bldg.- 2 nd Floor Room 224		Black mastic associated with 9"x 9" floor tiles	NA/Pos Stop	-----
20180416-02D-UA	Main Classroom Bldg.-2 nd Floor North End of Hall		Black mastic associated with 9"x 9" floor tiles	NA/Pos Stop	-----
20180416-03A-UA	Main Classroom Bldg.- 1st Floor Guidance office	Cat 2 NF	Black mastic associated with 9"x 9" floor tiles	4% Chrysotile	PLM
20180416-03B-UA	Main Classroom Bldg.- 1 st Floor Room 113		Black mastic associated with 9"x 9" floor tiles	NA/Pos Stop	-----
20180416-03C-UA	Main Classroom Bldg.- 1 st Floor Center of House		Black mastic associated with 9"x 9" floor tiles	NA/Pos Stop	-----
20180416-03D-UA	Main Classroom Bldg.- 1 st Floor Room 132		Black mastic associated with 9"x 9" floor tiles	NA/Pos Stop	-----
20180416-04A-UA	Main Classroom Bldg.- Ground Room C22	Cat 2 NF	Black mastic associated with 9"x 9" floor tiles	2% Chrysotile	PLM
20180416-04B-UA	Main Classroom Bldg.- Ground Hall Outside of C22		Black mastic associated with 9"x 9" floor tiles	NA/Pos Stop	-----
20180416-04C-UA	Main Classroom Bldg.- Ground East Corridor		Black mastic associated with 9"x 9" floor tiles	NA/Pos Stop	-----
20180416-04D-UA	Main Classroom Bldg.- Ground Center of Corridor		Black mastic associated with 9"x 9" floor tiles	NA/Pos Stop	-----
20180416-05A-UA	Main Building – 3 rd Floor South End of Hall		2' x 4' ceiling tiles(type 1) Big and small pin holes, large pockets	ND	PLM
20180416-05B-UA	Main Building – 2 nd Floor South End of Hall		2' x 4' ceiling tiles(type 1) Big and small pin holes, large pockets	ND	PLM
20180416-05C-UA	Main Building – 1 st Floor Assistant Principal 138		2' x 4' ceiling tiles(type 1) Big and small pin holes, large pockets	ND	PLM

Sample No.	Sample Location	NESHAP Category	Material Type	Asbestos Content	PLM/TEM
20180416-06A-UA	Main Building – 3 rd Floor South End of Hallway		2' x 4' ceiling tiles(type 2) small pin holes, streak marks	ND	PLM
20180416-06B-UA	Main Building – 2 nd Floor South End of Hallway		2' x 4' ceiling tiles(type 2) small pin holes, streak marks	ND	PLM
20180416-06C-UA	Main Building – 1 st Floor Guidance office		2' x 4' ceiling tiles(type 2) small pin holes, streak marks	ND	PLM
20180416-07A-UA	Main Building – 3rd Floor North End of Hallway	Cat 2 NF	Caulking – expansion joint	2% Chrysotile	PLM
20180416-07B-UA	Main Building – 2 nd Floor South End of Hallway		Caulking – expansion joint	NA/Pos Stop	-----
20180416-07C-UA	Main Building – 1 st Floor Guidance office Rm 46		Caulking – expansion joint	NA/Pos Stop	-----
20180416-08A-UA	Main Building – 3 rd Floor Room 332		Slate window sill (black)	ND	PLM
20180416-08B-UA	Main Building – 2 nd Floor Room 214		Slate window sill (black)	ND	PLM
20180416-08C-UA	Main Building – 1 st Floor Guidance office Rm 149		Slate window sill (black)	ND	PLM
20180416-09A-UA	Main Building – 3 rd Floor Room 332		Cove base – 4" black on wooden cabinets	ND/NAD	PLM/TEM
20180416-09B-UA	Main Building – 2 nd Floor Room 219		Cove base – 4" black on wooden cabinets	ND	PLM
20180416-09C-UA	Main Building – 1 st Floor Asst. Principal Room 138		Cove base – 4" black on wooden cabinets	ND	PLM
20180416-10A-UA	Main Building – 3 rd Floor Room 332		Adhesive–dark brown associated with 4" black cove base at cabinets	ND/NAD	PLM/TEM
20180416-10B-UA	Main Building – 2 nd Floor Room 219		Adhesive–dark brown associated with 4" black cove base at cabinets	ND	PLM
20180416-10C-UA	Main Building – 1 st Floor Guidance office Rm 149		Adhesive–dark brown associated with 4" black cove base at cabinets	ND	PLM
20180416-11A-UA	Main Building – 3rd Floor Room 332	Cat 2 NF	Window caulking – tan, interior	2% Chrysotile	PLM
20180416-11B-UA	Main Building – 2 nd Floor Room 219		Window caulking – tan, interior	NA/Pos Stop	-----
20180416-11C-UA	Main Building – 1 st Floor Guidance office Room 149		Window caulking – tan, interior	NA/Pos Stop	-----
20180416-12A-UA	Main Building – 3rd Floor Room 332	Cat 2 NF	Window glazing – interior, black	2% Chrysotile	PLM
20180416-12B-UA	Main Building – 2 nd Floor Room 219		Window glazing – interior, black	NA/Pos Stop	-----

Sample No.	Sample Location	NESHAP Category	Material Type	Asbestos Content	PLM/TEM
20180416-12C-UA	Main Building – 1 st Floor Asst. Principal Room 138		Window glazing – interior, black	NA/Pos Stop	-----
20180416-13A-UA	Main Building – 3 rd Floor Room 302		Countertop laminate – brown/tan	ND/NAD	PLM/TEM
20180416-13B-UA	Main Building – 2 nd Floor Rear		Countertop laminate – brown/tan	ND	PLM
20180416-13C-UA	Main Building – 1 st Floor Room 113		Countertop laminate – brown/tan	ND	PLM
20180416-14A-UA	Main Building – 3 rd Floor Room 302		Adhesive associated with countertop - brown	ND/NAD	PLM/TEM
20180416-14B-UA	Main Building – 2 nd Floor Room 219		Adhesive associated with countertop – brown	ND	PLM
20180416-14C-UA	Main Building – 1 st Floor Room 113		Adhesive associated with countertop - brown	ND	PLM
20180416-15A-UA	Main Building – 3 rd Floor Book Storage		Duct seam sealant – grey/tan	ND/NAD	PLM/TEM
20180416-15B-UA	Main Building – 1 st Floor Room 137		Duct seam sealant – grey/tan	ND	PLM
20180416-15C-UA	Main Building – 1 st Floor Custodial Closet		Duct seam sealant – grey/tan	ND	PLM
20180416-16A-UA	Main Building – 3 rd Floor East Stair Landing		Floor tile -12"x12" green (light green with white dots)	ND/NAD	PLM/TEM
20180416-16B-UA	Main Building – 2 nd Floor East Stair Center		Floor tile -12"x12" green (light green with white dots)	ND	PLM
20180416-16C-UA	Main Building – 1 st Floor East Stair		Floor tile -12"x12" green (light green with white dots)	ND	PLM
20180416-17A-UA	Main Building – 3rd Floor East Stair Landing	Cat 2 NF	Black mastic associated with floor tile (light green with white dots)	8% Chrysotile	PLM
20180416-17B-UA	Main Building – 2 nd Floor East Stair Center		Black mastic associated with floor tile (light green with white dots)	NA/Pos Stop	-----
20180416-17C-UA	Main Building – 1 st Floor East Stair		Black mastic associated with floor tile (light green with white dots)	NA/Pos Stop	-----
20180416-18A-UA	Main Building – South Upper Level Mechanical Room		Mudded fittings -grey	ND	PLM
20180416-18B-UA	Main Building – 2 nd Floor – South End of Hall		Mudded fittings -grey	ND	PLM
20180416-18C-UA	Not submitted		Mudded fittings -grey	Not submitted	-----
20180416-19A-UA	Main Building – South Upper Level Mechanical Room		Fabric- tan fabric over fiberglass insulation on pipes	ND	PLM

Sample No.	Sample Location	NESHAP Category	Material Type	Asbestos Content	PLM/TEM
20180416-19B-UA	Main Building – 2 nd Floor – South End of Hall		Fabric- tan fabric over fiberglass insulation on pipes	ND	PLM
20180416-19C-UA	Not Submitted				
20180416-20A-UA	Main Building – South Upper Level Mechanical Room	Cat 2 NF	Vibration fabric - white	40% Chrysotile	PLM
20180416-20B-UA	Main Building – South Upper Level Mechanical Room		Vibration fabric – white	Not submitted	-----
20180416-20C-UA	Main Building – South Upper Level Mechanical Room		Vibration fabric - white	Not submitted	-----
20180416-21A-UA	Main Building – 3 rd Floor South Upper Level Mechanical Room		Vibration fabric - black	ND	PLM
20180416-21B-UA	Main Building – 1 st Floor Guidance office Room 146		Vibration fabric – black	ND	PLM
20180416-21C-UA	Main Building – Ground Mechanical Room North of Firing Range		Vibration fabric - black	ND	PLM
20180416-22A-UA	Main Building – 3 rd Floor Staff Bathroom		Grout associated with ceramic floor tile – brown and green pattern	ND	PLM
20180416-22B-UA	Main Building – 2 nd Floor Center Women's Room		Grout associated with ceramic floor tile – brown and green pattern	ND	PLM
20180416-22C-UA	Main Building – 1 st Floor Men's Room		Grout associated with ceramic floor tile – brown and green pattern	ND	PLM
20180416-23A-UA	Main Building – 3 rd Floor Staff Bathroom		Mudset associated with ceramic floor tile – brown/green pattern	ND	PLM
20180416-23B-UA	Main Building – 2 nd Floor Center Women's Room		Mudset associated with ceramic floor tile – brown/ green pattern	ND	PLM
20180416-23C-UA	Main Building – 1 st Floor Men's Room		Mudset associated with ceramic floor tile – brown/ green pattern	ND	PLM
20180416-24A-UA	Main Building – 3 rd Floor Staff Bathroom		Tar(black) under ceramic tile floor – built up floor	ND/< 0.1% Chrysotile	PLM/TEM
20180416-24B-UA	Main Building – 2 nd Floor Center Women's Room		Tar(black) under ceramic tile floor – built up floor	ND	PLM
20180416-24C-UA	Main Building – 1 st Floor Men's Room		Tar(black) under ceramic tile floor – built up floor	ND	PLM

Sample No.	Sample Location	NESHAP Category	Material Type	Asbestos Content	PLM/TEM
20180416-25A-UA	Main Building – 3 rd Floor Custodial		Fire stop -red	Not submitted	-----
20180416-25B-UA	Main Building – 2 nd Floor East Central Stairs		Fire stop -red	ND/NAD	PLM/TEM
20180416-25C-UA	Main Building – 1 st Floor Room 137		Fire stop -red	ND	PLM
20180416-26A-UA	Main Building – Southeast Stair Ceiling		Ceiling tile - 12" x 12" loose splined, white with streak marks	ND	PLM
20180416-26B-UA	Main Building – East Center Stair Ceiling		Ceiling tile - 12" x 12" loose splined, white with streak marks	ND	PLM
20180416-26C-UA	Main Building – Ground Floor Shooting Range		Ceiling tile - 12" x 12" loose splined, white with streak marks	ND	PLM
20180416-27A-UA	Main Building – 2 nd Floor Bottom Stair Landing		Floor tile – 12"x12" tan with brown spots	ND/NAD	PLM/TEM
20180416-27B-UA	Main Building – 2 nd Floor Bottom Stair Landing		Floor tile – 12"x12" tan with brown spots	Not submitted	-----
20180416-27C-UA	Main Building – 2 nd Floor Bottom Stair Landing		Floor tile – 12"x12" tan with brown spots	Not submitted	-----
20180416-28A-UA	Main Building – 2nd Floor Bottom Stair Landing	Cat 2 NF	Black Mastic associated with 12"x12" floor tile-tan with brown dots	2% Chrysotile	PLM
20180416-28B-UA	Main Building – 2 nd Floor Bottom Stair Landing		Black Mastic associated with 12"x12" floor tile-tan with brown dots	Not submitted	-----
20180416-29A-UA	Main Building – 2nd Floor Room 219	Cat 2 NF	Door window glazing - grey	2% Chrysotile	PLM
20180416-29B-UA	Main Building – 1 st Floor Room G106		Door window glazing - grey	NA/Pos Stop	-----
20180416-29C-UA	S-Wing Room S-21		Door window glazing - grey	NA/Pos Stop	-----
20180416-30A-UA	Main Building – 2 nd Floor Center Women's Room		Grout associated with tan and brown speckled glaze blocks	ND	PLM
20180416-30B-UA	Main Building – 1 st Floor Men's Room		Grout associated with tan and brown speckled glaze blocks	ND	PLM
20180416-30C-UA	Main Building – 1 st Floor Women's Room		Grout associated with tan and brown speckled glaze blocks	ND	PLM
20180416-31A-UA	Main Building – 2 nd Floor Staff Bathroom		2' x 4' ceiling tiles – streaks and pin holes (type 3)	ND	PLM
20180416-31B-UA	Main Building – 1 st Floor Staff Bathroom		2' x 4' ceiling tiles – streaks and pin holes (type 3)	ND	PLM

Sample No.	Sample Location	NESHAP Category	Material Type	Asbestos Content	PLM/TEM
20180416-32A-UA	Main Building – 2 nd Floor Library At Entrance		Carpet adhesive – yellow with black carpet adhesive	ND/NAD	PLM/TEM
20180416-32B-UA	Main Building – 2 nd Floor Library SW Corner		Carpet adhesive – yellow with black carpet adhesive	ND	PLM
20180416-33A-UA	Main Building – 2 nd Floor Library, South Center Area		Cove base – 4” black	ND/NAD	PLM/TEM
20180416-33B-UA	Main Building – 1 st Floor Guidance office Outside of Mech. Room 146		Cove base – 4” black	ND	PLM
20180416-34A-UA	Main Building – 2 nd Floor Library South Center Area		Adhesive – yellow associated with black 4” cove base	ND/NAD	PLM/TEM
20180416-34B-UA	Main Building–1 st Floor Guidance Outside of Room 146		Adhesive – yellow associated with black 4” cove base	ND	PLM
20180416-34C-UA	Main Building–1 st Floor Room 135		Adhesive – yellow associated with black 4” cove base	ND	PLM
20180416-35A-UA	Main Building – 2 nd Floor Library South Center Area		Sheetrock – partition wall	ND	PLM
20180416-35B-UA	Main Building–1 st Floor Guidance Outside of Room 146		Sheetrock – partition wall	ND	PLM
20180416-35C-UA	Main Building–Ground Floor, Partition Wall To Storage East		Sheetrock – partition wall	ND	PLM
20180416-36A-UA	Main Building – 2 nd Floor Library South Center Area		Joint compound (white)	ND	PLM
20180416-36B-UA	Main Building–1 st Floor Guidance Outside of Room 146		Joint compound (white)	ND	PLM
20180416-36C-UA	Main Building–Ground Floor, Partition Wall To Storage East		Joint compound (white)	ND	PLM
20180416-37A-UA	Main Building – 2 nd Floor Library South Center Area		Composite - Sheetrock and Joint compound	ND	PLM
20180416-37B-UA	Main Building–1 st Floor Guidance Room 146		Composite - Sheetrock and Joint compound	ND	PLM
20180416-37C-UA	Main Building–Ground Floor, Partition Wall To Storage East		Composite - Sheetrock and Joint compound	ND	PLM
20180416-38A-UA	Main Building – 1st Floor Guidance Room 149	Cat 2 NF	Grey/white window glazing	40% Chrysotile	PLM
20180416-38B-UA	Main Building – 1 st Floor Guidance Room 149		Grey/white window glazing	Not submitted	-----
20180416-39A-UA	Main Building – 1 st Floor Asst. Principal Room 138		Cove base – 4” grey/tan	ND/NAD	PLM/TEM

Sample No.	Sample Location	NESHAP Category	Material Type	Asbestos Content	PLM/TEM
20180416-39B-UA	S-Wing Room S6 Nursery Room		Cove base – 4” grey/tan	ND	PLM
20180416-40A-UA	Main Building – 1 st Floor Asst. Principal Room 138		Adhesive – yellow associated with 4” grey/tan cove base	ND/NAD	PLM/TEM
20180416-40B-UA	S-Wing Room S6 Nursery Room		Adhesive – yellow associated with 4” grey/tan cove base	ND	PLM
20180416-41A-UA	Main Building – 1 st Floor Asst. Principal Room 138		Fire stop - grey	ND/NAD	PLM/TEM
20180416-41B-UA	Main Building – 1 st Floor Asst. Principal Room 138		Fire stop – grey	Not submitted	-----
20180416-42A-UA	Main Building – 1 st Floor Asst. Principal Room 138		Fire stop - white	ND/NAD	PLM/TEM
20180416-42B-UA	Main Building – 1 st Floor Asst. Principal Room 138		Fire stop - white	Not submitted	-----
20180416-43A-UA	Main Building – 1 st Floor Room 137 Science Lab		Floor Tile – 12”x12” tan with brown spots	ND/NAD	PLM/TEM
20180416-43B-UA	Main Building–1 st Floor Room 136 Science Lab		Floor Tile – 12”x12” tan with brown spots	ND	PLM
20180416-43C-UA	Main Building–1 st Floor Room 135		Floor Tile – 12”x12” tan with brown spots	Not submitted	-----
20180416-44A-UA	Main Building – 1 st Floor Room 137 Science Lab		Floor Tile – 12”x12” grey with brown spots	ND/NAD	PLM/TEM
20180416-44B-UA	Main Building–1 st Floor Room 136 Science Lab		Floor Tile – 12”x12” grey with brown spots	ND	PLM
20180416-44C-UA	Main Building–1 st Floor Room 135		Floor Tile – 12”x12” grey with brown spots	ND	PLM
20180416-45A-UA	Main Building – 1 st F Floor 1 Room 137 Science Lab		Black mastic associated with 43 and 44	ND/NAD	PLM/TEM
20180416-45B-UA	Main Building–1 st Floor Room 136 Science Lab		Black mastic associated with 43 and 44	ND	PLM
20180416-45C-UA	Main Building–1 st Floor Room 135		Black mastic associated with 43 and 44	ND	PLM
20180416-46A-UA	Main Building – 1 st Floor Room 137 Science Lab		2’ x 4’ ceiling tiles – white with rough back (type 4)	ND	PLM
20180416-46B-UA	Main Building–1 st Floor Room 136 Science Lab		2’ x 4’ ceiling tiles – white with rough back (type 4)	ND	PLM
20180416-46C-UA	Main Building–1 st Floor Room 135		2’ x 4’ ceiling tiles – white with rough back (type 4)	ND	PLM
20180416-47A-UA	Main Building – 1 st Floor Room 137 Science Lab		Counter top – black counter top/table	ND/NAD	PLM/TEM
20180416-47B-UA	Main Building–1 st Floor Room 136 Science Lab		Counter top – black counter top/table	ND	PLM

Sample No.	Sample Location	NESHAP Category	Material Type	Asbestos Content	PLM/TEM
20180416-47C-UA	Main Building–1 st Floor Room 135		Counter top – black counter top/table	ND	PLM
20180416-48A-UA	Main Building – 1 st Floor Staff Bathroom		Grout – associated with tan ceramic tiles	ND	PLM
20180416-48B-UA	Main Building – 1 st Floor Staff Bathroom		Grout – associated with tan ceramic tiles	ND	PLM
20180416-49A-UA	Main Building – 1 st Floor Staff Bathroom		Mudset – associated with tan ceramic tiles	ND	PLM
20180416-49B-UA	Main Building – 1 st Floor Staff Bathroom		Mudset – associated with tan ceramic tiles	ND	PLM
20180416-50A-UA	Main Building – 1 st Floor Janitor Closet		Pink fire stop compound	ND	PLM
20180416-50B-UA	Main Building – 1 st Floor Janitor Closet		Pink fire stop compound	ND	PLM
20180416-51A-UA	Main Building – 1 st Floor Lecture Hall		2' x 4' ceiling tiles – White smooth surface with pin holes (type 5)	ND	PLM
20180416-51B-UA	Main Building – 1 st Floor Lecture Hall		2' x 4' ceiling tiles – White smooth surface with pin holes (type 5)	ND	PLM
20180416-52A-UA	Auditorium Bldg. – Lecture Hall Storage		Skim coat plaster ceiling	ND	PLM
20180416-52B-UA	Auditorium Bldg. – Lecture Hall Storage		Skim coat plaster ceiling	ND	PLM
20180416-52C-UA	Auditorium Bldg. – Lecture Hall Storage		Skim coat plaster ceiling	ND	PLM
20180416-53A-UA	Auditorium Bldg. – Lecture Hall Storage		Rough coat plaster ceiling	ND	PLM
20180416-53B-UA	Auditorium Bldg. – Lecture Hall Storage		Rough coat plaster ceiling	ND	PLM
20180416-53C-UA	Auditorium Bldg. – Lecture Hall Storage		Rough coat plaster ceiling	ND	PLM
20180416-54A-UA	Auditorium Bldg. – 1 st Floor Custodial		Hard textured ceiling surfacing material – top layer	ND	PLM
20180416-54B-UA	Auditorium Bldg. – 1 st Floor Stair To Projector		Hard textured ceiling surfacing material – top layer	ND	PLM
20180416-54C-UA	Auditorium Bldg. – 1 st Floor Stair To Projector		Hard textured ceiling surfacing material – top layer	ND	PLM
20180416-54D-UA	Auditorium Bldg. – East Wall		Hard textured ceiling surfacing material – top layer	ND	PLM
20180416-54E-UA	Auditorium Bldg. – East Wall		Hard textured ceiling surfacing material – top layer	ND	PLM

Sample No.	Sample Location	NESHAP Category	Material Type	Asbestos Content	PLM/TEM
20180416-54F-UA	Auditorium Bldg. – North Center Column		Hard textured ceiling surfacing material – top layer	ND	PLM
20180416-54G-UA	Auditorium Bldg. – South Center Column		Hard textured ceiling surfacing material – top layer	ND	PLM
20180416-55A-UA	Auditorium Bldg. – 1 st Floor Custodial		Hard textured ceiling surfacing material – bottom layer	ND/Contains 10% Vermiculite	PLM
20180416-55B-UA	Auditorium Bldg. – 1 st Floor Stair To Projector		Hard textured ceiling surfacing material – bottom layer	ND/Contains 10% Vermiculite	PLM
20180416-55C-UA	Auditorium Bldg. – 1 st Floor Stair To Projector		Hard textured ceiling surfacing material – bottom layer	ND/Contains 10% Vermiculite	PLM
20180416-55D-UA	Auditorium Bldg. – East Wall		Hard textured ceiling surfacing material – bottom layer	ND/Contains 10% Vermiculite	PLM
20180416-55E-UA	Auditorium Bldg. – East Wall		Hard textured ceiling surfacing material – bottom layer	ND	PLM
20180416-55F-UA	Auditorium Bldg. – North Center Column		Hard textured ceiling surfacing material – bottom layer	ND/Contains 10% Vermiculite	PLM
20180416-55G-UA	Auditorium Bldg. – South Center Column		Hard textured ceiling surfacing material – bottom layer	ND/Contains 10% Vermiculite	PLM
20180416-56A-UA	Auditorium Bldg.–Lobby Entrance To Main office	RACM	Soft textured ceiling surfacing material – top layer	4% Chrysotile	PLM
20180416-56B-UA	Auditorium Bldg. – Lobby/Main Entrance East		Soft textured ceiling surfacing material – top layer	NA/Pos Stop	-----
20180416-56C-UA	Auditorium Bldg. – Lobby/Main Entrance Center		Soft textured ceiling surfacing material – top layer	NA/Pos Stop	-----
20180416-56D-UA	Auditorium Bldg. – Lobby/Main Entrance South		Soft textured ceiling surfacing material – top layer	NA/Pos Stop	-----
20180416-56E-UA	Auditorium Bldg. – Lobby/Main Entrance South		Soft textured ceiling surfacing material – top layer	NA/Pos Stop	-----
20180416-57A-UA	Auditorium Bldg.–Lobby Entrance To Main office		Soft textured ceiling surfacing material – bottom layer	ND	PLM
20180416-57B-UA	Auditorium Bldg. – Lobby/Main Entrance East		Soft textured ceiling surfacing material – bottom layer	ND	PLM
20180416-57C-UA	Auditorium Bldg. – Lobby/Main Entrance Center		Soft textured ceiling surfacing material – bottom layer	ND	PLM
20180416-57D-UA	Auditorium Bldg. – Lobby/Main Entrance South		Soft textured ceiling surfacing material – bottom layer	ND	PLM

Sample No.	Sample Location	NESHAP Category	Material Type	Asbestos Content	PLM/TEM
20180416-57E-UA	Auditorium Bldg. – Lobby/Main Entrance South		Soft textured ceiling surfacing material – bottom layer	ND	PLM
20180416-58A-UA	Auditorium Bldg. – 1 st Floor Front Entry		Caulking – grey caulking at window panel	ND/NAD	PLM/TEM
20180416-58B-UA	Auditorium Bldg. – 1 st Floor Front Entry South		Caulking – grey caulking at window panel	ND	PLM
20180416-58C-UA	Auditorium Bldg. – 1 st Floor Front Entry North		Caulking – grey caulking at window panel	ND	PLM
20180416-59A-UA	Auditorium Bldg. – North Exit, Single Door		Carpet glue – green/yellow carpet glue over black mastic	ND/NAD	PLM/TEM
20180416-59B-UA	Auditorium Bldg. – East Entry Double Door		Carpet glue – green/yellow carpet glue over black mastic	ND	PLM
20180416-60A-UA	Auditorium Bldg. – Auditorium North Side		Epoxy floor coating – tan with yellow and black dots	ND	PLM
20180416-60B-UA	Auditorium Bldg. – Auditorium South Side		Epoxy floor coating – tan with yellow and black dots	ND	PLM
20180416-61A-UA	Auditorium Bldg. – Auditorium North By Single Exit Door		Grey leveling compound under carpet	ND	PLM
20180416-61B-UA	Auditorium Bldg. – Auditorium East By Double Entry Door		Grey leveling compound under carpet	ND	PLM
20180416-62A-UA	Auditorium Bldg. – Auditorium Northeast Double Door	Cat 2 NF	Grey door caulking	2% Chrysotile	PLM
20180416-62B-UA	Auditorium Bldg. – Auditorium North Exit Door		Grey door caulking	NA/Pos Stop	-----
20180416-63A-UA	Auditorium Bldg. – Auditorium North Exit Door	Cat 2 NF	Brown door caulking	2% Chrysotile	PLM
20180416-63B-UA	Gym Bldg. – 1 st Floor West Entry Outside of Gym		Brown door caulking	NA/Pos Stop	-----
20180416-64A-UA	Auditorium Bldg. – Auditorium Southeast Stair Landing		Black linoleum flooring with circles	ND/NAD	PLM/TEM
20180416-64B-UA	Auditorium Bldg. – Auditorium Southeast Stair Landing		Black linoleum flooring with circles	ND	PLM
20180416-65A-UA	Auditorium Bldg. – Auditorium Southeast Stair Landing		Yellow adhesive associated with black linoleum flooring with circles	ND/NAD	PLM/TEM

Sample No.	Sample Location	NESHAP Category	Material Type	Asbestos Content	PLM/TEM
20180416-65B-UA	Auditorium Bldg. – Auditorium Southeast Stair Landing		Yellow adhesive associated with black linoleum flooring with circles	ND	PLM
20180416-66A-UA	Auditorium Bldg. Corridor Outside of Gym Storage Room		Green pipe	ND	PLM
20180416-66B-UA	Auditorium Bldg. – Ground Level Men's Locker Room		Green pipe	ND	PLM
20180416-67A-UA	Auditorium Bldg.–Gymnasium East Wall		Mudded fittings – grey mudded fitting over fiberglass insulation	ND	PLM
20180416-67B-UA	Auditorium Bldg. – Mechanical Room Outside of Gym		Mudded fittings – grey mudded fitting over fiberglass insulation	ND	PLM
20180416-68A-UA	Auditorium Bldg. – Gym East Wall		Cove base – thick black cove base	ND/NAD	PLM/TEM
20180416-68B-UA	Auditorium Bldg. – Gym East Wall		Cove base – thick black cove base	ND	PLM
20180416-69A-UA	Auditorium Bldg. – Gym East Wall		Adhesive – associated with thick black cove base	ND/NAD	PLM/TEM
20180416-69B-UA	Auditorium Bldg. – Gym East Wall		Adhesive – associated with thick black cove base	ND	PLM
20180416-69C-UA	Auditorium Bldg. – Gym East Wall		Adhesive – associated with thick black cove base	Not submitted	-----
20180416-70A-UA	Auditorium Bldg. – Gym South Wall		Adhesive – yellow adhesive behind gym wall mats	ND/NAD	PLM/TEM
20180416-70B-UA	Auditorium Bldg. – Gym South Wall		Adhesive – yellow adhesive behind gym wall mats	Not submitted	-----
20180416-71A-UA	Auditorium Bldg. – Pool		Spray On – white ceiling coating (fire proofing)	ND	PLM
20180416-71B-UA	Auditorium Bldg. – Pool		Spray On – white ceiling coating (fire proofing)	ND	PLM
20180416-71C-UA	Auditorium Bldg. – Pool		Spray On – white ceiling coating (fire proofing)	ND	PLM
20180416-71D-UA	Auditorium Bldg. – Pool		Spray On – white ceiling coating (fire proofing)	ND	PLM
20180416-71E-UA	Auditorium Bldg. – Pool		Spray On – white ceiling coating (fire proofing)	ND	PLM
20180416-72A-UA	Auditorium Bldg. – Pool		Mudset – associated with green ceramic wall tile	ND	PLM
20180416-72B-UA	Auditorium Bldg. – Pool		Mudset – associated with green ceramic wall tile	ND	PLM

Sample No.	Sample Location	NESHAP Category	Material Type	Asbestos Content	PLM/TEM
20180416-73A-UA	Auditorium Bldg. – Pool		Grout – associated with green ceramic wall	ND	PLM
20180416-73B-UA	Auditorium Bldg. – Pool		Grout – associated with green ceramic wall	ND	PLM
20180416-74A-UA	Auditorium Bldg. – Pool		Mudset – associated with white and green ceramic floor tiles	ND	PLM
20180416-74B-UA	Auditorium Bldg. – Pool		Mudset associated with white and green ceramic floor tiles	ND	PLM
20180416-75A-UA	Auditorium Bldg. – Pool		Grout associated with white and green ceramic floor tiles	ND	PLM
20180416-75B-UA	Auditorium Bldg. – Pool		Grout associated with white and green ceramic floor tiles	ND	PLM
20180416-76A-UA	Auditorium Bldg. – Pool – South Wall		Fiberglass insulation behind plywood wallboard paneling	ND	PLM
20180416-76B-UA	Auditorium Bldg. – Pool - South Wall		Fiberglass insulation behind plywood wallboard paneling	ND	PLM
20180416-77A-UA	Auditorium Bldg. – Gym Lobby At Trophy Case		Cove base – 4” light brown	ND/NAD	PLM/TEM
20180416-77B-UA	Auditorium Bldg. – Gym Lobby At Trophy Case		Cove base – 4” light brown	ND	PLM
20180416-78A-UA	Auditorium Bldg. – Gym Lobby At Trophy Case		Adhesive – brown and black associated with 4” cove base	ND/NAD	PLM/TEM
20180416-78B-UA	Auditorium Bldg. – Gym Lobby At Trophy Case		Adhesive – brown and black associated with 4” cove base	ND	PLM
20180416-79A-UA	Auditorium Bldg. – Fitness/Room 134		Glue daubs – white glue daub, painted green	ND/NAD	PLM/TEM
20180416-79B-UA	Auditorium Bldg. – Fitness/Room 134		Glue daubs – white glue daub, painted green	ND	PLM
20180416-80A-UA	Auditorium Bldg. – Ground Floor Firing Range Ceiling	Cat 2 NF	Glue daubs – dark brown, associated with 12” x 12” ceiling tiles	2% Chrysotile	PLM
20180416-80B-UA	Main Bldg. – Ground Level SE Ext Lobby		Glue daubs – dark brown, associated with 12” x 12” ceiling tiles	Not submitted	-----
20180416-80C-UA	Main Bldg. – Ground Level SE Ext Lobby		Glue daubs – dark brown, associated with 12” x 12” ceiling tiles	Not submitted	-----
20180416-81A-UA	Auditorium Bldg. – Ground Level Firing Range Wall		Glue daub- yellow associated with 12” x 12” wall tiles	Not submitted	-----
20180416-81B-UA	Auditorium Bldg. – Ground Level Firing Range Wall		Glue daub- yellow associated with 12” x 12” wall tiles	Not submitted	-----

Sample No.	Sample Location	NESHAP Category	Material Type	Asbestos Content	PLM/TEM
20180416-82A-UA	Auditorium Bldg. – Ground Level Shooting Range	Cat 2 NF	Glue – brown duct pin glue	10% Chrysotile	PLM
20180416-82B-UA	Auditorium Bldg. – Ground Level Shooting Range		Glue – brown duct pin glue	NA/Pos Stop	-----
20180416-83A-UA	Auditorium Bldg. – Ground Level Shooting Range		Adhesive- Yellow associated with white wall board	ND/NAD	PLM/TEM
20180416-83B-UA	Auditorium Bldg. – Ground Level Shooting Range		Adhesive- Yellow associated with white wall board	ND	PLM
20180416-84A-UA	Auditorium Bldg. – Ground Level Shooting Range Mechanical Room Behind Range		Yellow adhesive associated with fiberglass insulation on ductwork	Not submitted	-----
20180416-84B-UA	Auditorium Bldg. – Ground Level Shooting Range Mechanical Room Behind Range		Yellow adhesive associated with fiberglass insulation on ductwork	ND/NAD	PLM/TEM
20180416-85A-UA	Auditorium Bldg. – Ground Floor Men's Locker Room		Window paneling glazing (interior partition window)	ND/NAD	PLM/TEM
20180416-85B-UA	Auditorium Bldg. – Ground Floor Women's Locker Room		Window paneling glazing (interior partition window)	< 1% Chrysotile	PLM
20180416-86A-UA	Auditorium Bldg. – Ground Floor Men's Locker Room		White caulking associated with brown marble shower partitions	ND/< 0.1% Chrysotile	PLM/TEM
20180416-86B-UA	Auditorium Bldg. – Ground Floor Women's Locker Room		White caulking associated with brown marble shower partitions	ND	PLM
20180416-87A-UA	Main Building – Ground Floor Room C22	Cat 2 NF	White sink undercoating	6% Chrysotile	PLM
20180416-87B-UA	Main Building – Ground Floor Room C22		White sink undercoating	NA/Pos Stop	-----
20180416-88A-UA	Main Building – Ground Floor - Cafeteria Center		2' x 2' ceiling tile with rough surface	ND	PLM
20180416-88B-UA	Main Building – Ground Floor - Cafeteria Center		2' x 2' ceiling tile with rough surface	ND	PLM
20180416-89A-UA	Main Building – Ground Floor - Cafeteria North Wall		Black glue daubs	ND/NAD	PLM/TEM
20180416-89B-UA	Main Building – Ground Floor - Cafeteria North Wall		Black glue daubs	ND	PLM
20180416-90A-UA	Main Bldg. – Ground Floor – Cafeteria Room C3		Window caulking – Dark brown	ND/NAD	PLM/TEM
20180416-90B-UA	Main Bldg. – Ground Floor – Cafeteria Room C3a		Window caulking – Dark brown	ND	PLM

Sample No.	Sample Location	NESHAP Category	Material Type	Asbestos Content	PLM/TEM
20180416-91A-UA	Main Bldg. – Ground Level Kitchen Food Storage		Textured Ceiling Coating- White on Waffle Ceiling	ND	PLM
20180416-91B-UA	Main Bldg. – Ground Level Kitchen Food Storage		Textured Ceiling Coating- White on Waffle Ceiling	ND	PLM
20180416-91C-UA	Main Bldg. – Ground Level Kitchen Food Storage		Textured Ceiling Coating- White on Waffle Ceiling	Not submitted	-----
20180416-91D-UA	Main Bldg. – Ground Level Receiving Area		Textured Ceiling Coating- White on Waffle Ceiling	Not submitted	-----
20180416-91E-UA	Main Bldg. – Ground Level Receiving Area		Textured Ceiling Coating- White on Waffle Ceiling	ND	PLM
20180416-92A-UA	Main Bldg. – Upper/Lower Boiler Room		Glue Daubs – green glue daub on Styrofoam ceiling and wall panel	ND/NAD	PLM/TEM
20180416-92B-UA	Main Bldg. – Upper/Lower Boiler Room		Glue Daubs – green glue daub on Styrofoam ceiling and wall panel	ND	PLM
20180416-92C-UA	Main Bldg. – Upper/Lower Boiler Room		Glue Daubs – green glue daub on Styrofoam ceiling and wall panel	ND	PLM
20180416-93A-UA	Main Bldg. – Boiler Room Upper	Cat 1 NF	Packing insulation	10% Amosite 10% Chrysotile	PLM
20180416-93B-UA	Main Bldg. – Boiler Room Lower		Packing insulation	NA/Pos Stop	-----
20180416-93C-UA	Main Bldg. – Boiler Room Lower Separation Tank 1		Packing insulation	NA/Pos Stop	-----
20180416-94A-UA	Main Bldg. – Boiler Room Upper		Mudded fittings	ND	PLM
20180416-94B-UA	Main Bldg. – Boiler Room Lower		Mudded fittings	Not submitted	-----
20180416-95A-UA	Main Bldg. – Boiler Room Lower	RACM	Breaching insulation	15% Amosite 15% Chrysotile	PLM
20180416-95B-UA	Main Bldg. – Boiler Room Lower		Breaching insulation	NA/Pos Stop	-----
20180416-95C-UA	Main Bldg. – Boiler Room Lower		Breaching insulation	NA/Pos Stop	-----
20180416-96A-UA	Main Bldg. – Boiler Room – Boiler # 2		Boiler gasket rope	ND/0.46% Chrysotile	PLM/TEM
20180416-96B-UA	Main Bldg. – Boiler Room – Boiler # 2		Boiler gasket rope	ND	PLM
20180416-97A-UA	S-Wing Room S-6		Floor tile (12"x12") – Red & Tan dotted	ND/NAD	PLM/TEM
20180416-97B-UA	S-Wing Room S-6		Floor tile (12"x12") – Red & Tan dotted	Not submitted	-----

Sample No.	Sample Location	NESHAP Category	Material Type	Asbestos Content	PLM/TEM
20180416-98A-UA	S-Wing Room S-6	Cat 2 NF	Black mastic associated with 12"x12" Red & Tan floor tile	8% Chrysotile	PLM
20180416-98B-UA	S-Wing Room S-6		Black mastic associated with 12"x12" Red & Tan floor tile	NA/Pos Stop	-----

Cat 1 NF = Category I Non-Friable Material; Cat 2 NF = Category II Non-Friable Material

RACM = Regulated Asbestos-Containing Material; NA/Pos Stop = Not Analyzed/Positive Stop

ND = None Detected; NAD = No Asbestos Detected

Table 2
Summary of Asbestos-Containing Materials Inventory

Location	Material Type	Asbestos Content	Estimated Total Quantity	Comments
Main Classroom Bldg. – 3rd Floor – South End of Hall; Main Classroom Bldg.- 2nd Floor South End of Hall; Main Classroom Bldg.- 1st Floor Guidance office; Main Classroom Bldg.- Ground Room C22 and Throughout	Black mastic associated with 9"x9" floor tiles	2 - 8% Chrysotile	100,000 SF	
Main Building – 3rd Floor North End of Hallway and Throughout	Caulking – expansion joint	2% Chrysotile	6,000 LF	
Main Building – 3rd Floor Room 332 and Throughout	Window caulking – tan, interior	2% Chrysotile	4,000 LF	
Main Building – 3rd Floor Room 332 and Throughout	Window glazing – interior, black	2% Chrysotile	220 Windows	
	*Same material present at panels	2% Chrysotile	200 Panels	
Main Building – 3rd Floor East Stair Landing and Throughout	Black mastic associated with floor tile (light green with white dots)	8% Chrysotile		Square footage for mastic included in 100,000 SF listed above
Main Building – South Upper Level Mechanical Room	Vibration fabric - white	40% Chrysotile	20 LF	
Main Building – 2nd Floor Bottom Stair Landing and Throughout	Black Mastic associated with 12"x12" floor tile-tan with brown dots	2% Chrysotile		Square footage for mastic included in 100,000 SF listed above
Main Building – 2nd Floor Room 219 and Throughout	Door window glazing - grey	2% Chrysotile	200 Each	
Main Building – 1st Floor Guidance Rm 149 and Throughout	Grey/white window glazing	40% Chrysotile	250 Windows	Exterior Windows
			200 Panels	Rigid Window Panels

Location	Material Type	Asbestos Content	Estimated Total Quantity	Comments
Auditorium Bldg.–Lobby Entrance To Main office and Throughout The Lobby	Soft textured ceiling surfacing material – top layer	4% Chrysotile	3,500 SF	
Auditorium Bldg. – Auditorium Northeast Double Door and Throughout	Grey and Brown door caulking	2% Chrysotile	5,000 LF	
Auditorium Building – 1 st Floor Custodial, 1 st Floor Projector, East Wall, Center Column, South Center Column	Hard Textured Ceiling Surfacing Materials Bottom-layer	ND/10 Percent Vermiculite	30,000 SF	EPA Recommends to assume Vermiculite contains Asbestos
Auditorium Bldg. – Ground Floor Firing Range Ceiling	Glue daubs – dark brown, associated with 12” x 12” ceiling tiles	2% Chrysotile	7,500 SF	
Auditorium Bldg. – Ground Level Shooting Range and Throughout	Glue – brown duct pin glue	10% Chrysotile	2,000 SF	
Main Building – Ground Floor Room C22 and Throughout	White sink undercoating	6% Chrysotile	1 Each	
Main Bldg. – Boiler Room Upper	Packing insulation	10% Amosite; 10% Chrysotile	170 SF	
Main Bldg. – Boiler Room Lower	Breaching insulation	15% Amosite; 15% Chrysotile	360 SF	
S-Wing Room S-6 and Throughout	Black mastic associated with 12’x12” Red & Tan floor tile	8% Chrysotile		Square footage for mastic included in 100,000 SF listed above

LF = Linear Feet

SF = Square Feet

EA = Each

Table 3
PCB/DEHP-Containing Light Ballasts Inventory

Type	Estimated Quantity
PCB	1,000
DEHP	1,000
Total	1,000

Table 4
Mercury-Containing Equipment Inventory

Type	Estimated Quantity
4’ Light Tube	1,000
High Intensity Discharge (HID) Light	40

*High Intensity Discharge Lights in pool area

Appendix A

Limitations

APPENDIX A

New London High School

490 Jefferson Avenue, New London, Connecticut

1. This inspection report has been prepared for the exclusive use of the Antinozzi Associates, (the "Client") and is subject to, and is issued in connection with the terms and conditions of the original Agreement and all of its provisions. Any use or reliance upon information provided in this report, without the specific written authorization of the Client and Fuss & O'Neill EnviroScience, LLC (EnviroScience) shall be at the User's individual risk. This report should not be used as an abatement specification. All quantities of materials identified during this inspection are approximate.
2. EnviroScience has obtained and relied upon information from multiple sources to form certain conclusions regarding likely environmental issues at and in the vicinity of the subject property in conducting this inspection. Except as otherwise noted, no attempt has been made to verify the accuracy or completeness of such information or verify compliance by any party with federal, state or local laws or regulations.
3. EnviroScience has obtained and relied upon laboratory analytical results in conducting the inspection. This information was used to form conclusions regarding the types and quantities of ACM, LBP and PCBs that must be managed prior to renovation or demolition activities that may disturb these materials at the Site. EnviroScience has not performed an independent review of the reliability of this laboratory data.
4. Unless otherwise noted, only suspect hazardous materials associated within or located on the building (aboveground) were included in this inspection. Suspect hazardous materials may exist below the ground surface that were not included in the scope of work of this inspection. EnviroScience cannot guarantee all asbestos or suspect hazardous materials were identified within the areas included in the scope of work. Only visible and accessible areas were included in the scope of work for this inspection.
5. The findings, observations and conclusions presented in this report are limited by the scope of services outlined in our original proposal dated October 4, 2017, which reflects schedule and budgetary constraints imposed by Client. Furthermore, the assessment has been conducted in accordance with generally accepted environmental practices. No other warranty, expressed or implied, is made.
6. The conclusions presented in this report are based solely upon information gathered by EnviroScience to date. Should further environmental or other relevant information be discovered at a later date, the Client should immediately bring the information to the EnviroScience's attention. Based upon an evaluation and assessment of relevant information, EnviroScience may modify the letter report and its conclusions.
7. EnviroScience has obtained and relied upon information from multiple sources to form certain conclusions regarding likely environmental issues at and in the vicinity of the subject property in conducting this inspection. Except as otherwise noted, no attempt has been made to verify the accuracy or completeness of such information or verify compliance by any party with federal, state or local laws or regulations.

Appendix B

EnviroScience Inspector Licenses and Accreditations

Dear ULKENS AUGUSTE,

Attached you will find your validated certificate for the coming year. Should you have any questions about your certificate renewal, please do not hesitate to write or call:

Department of Public Health
P.O. Box 340308
M.S.#12MQA
Hartford, CT 06134-0308
(860) 509-7603
opic.dph@ct.gov
www.ct.gov/dph/license

Sincerely,

RAUL PINO, MD, MPH, COMMISSIONER
DEPARTMENT OF PUBLIC HEALTH

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT

THE INDIVIDUAL NAMED BELOW IS CERTIFIED
BY THIS DEPARTMENT AS A

ASBESTOS CONSULTANT-INSPECTOR

ULKENS AUGUSTE

CERTIFICATE NO.
000770
CURRENT THROUGH
09/30/18
VALIDATION NO.
03-627252

SIGNATURE

COMMISSIONER

EMPLOYER'S COPY
STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

NAME

ULKENS AUGUSTE

CERTIFICATE NO.

000770

CURRENT THROUGH
09/30/18

PROFESSION

ASBESTOS CONSULTANT-INSPECTOR

SIGNATURE

COMMISSIONER

INSTRUCTIONS:

1. Detach and sign each of the cards on this form.
2. Display the large card in a prominent place in your office or place of business.
3. The wallet card is for you to carry on your person. If you do not wish to carry the wallet card, place it in a secure place.
4. The employer's copy is for persons who must demonstrate current licensure/certification in order to retain employment or privileges. The employer's card is to be presented to the employer and kept by them as a part of your personnel file. Only one copy of this card can be supplied to you.

WALLET CARD

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

NAME

ULKENS AUGUSTE

CERTIFICATE NO.

000770

CURRENT THROUGH
09/30/18

PROFESSION

ASBESTOS CONSULTANT-INSPECTOR

SIGNATURE

COMMISSIONER

Certificate of Training

Awarded to

ULKENS AUGUSTE

*For successful completion of a 4 Hour, 1/2 Day
Asbestos Building Inspector
Annual Refresher Training*

JANUARY 9, 2018

This training was approved and given in accordance with the
Regulations for Connecticut State Agencies
RCSA 20 - 440 - 1-9 and RCSA 20 - 441 and meets the
requirements of the EPA Revised MAP under TSCA Title II of 4/4/94.

Presented by

Mystic Air Quality Consultants, Inc.

1204 North Road, Groton, CT 06340 (800) 247-7746

Certificate Number: ABIRF26386

Exam Grade: 95

Exam Date: 01/09/2018

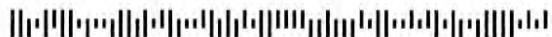
Expiration Date: 01/09/2019

Christopher J. Eident
Christopher J. Eident, CIH, CSP, RS

George Williamson
George Williamson, Training Director

Richard Haffey, Training Director

1000237 01 AB 0.400 **AUTO** 17 0 1264 01089 453276 -C01 P00239 1



KIMBERLY A RINARD
FUSS & O'NEILL
78 INTERSTATE DR
WEST SPRINGFIELD MA 01089-4532



Dear KIMBERLY A RINARD,

Attached you will find your validated certificate for the coming year. Should you have any questions about your certificate renewal, please do not hesitate to write or call:

Department of Public Health
P.O. Box 340308
M.S.#12MQA
Hartford, CT 06134-0308

(860) 509-7603
oplc.dph@ct.gov
www.ct.gov/dph/license

Sincerely,

RAUL PINO, MD, MPH, COMMISSIONER
DEPARTMENT OF PUBLIC HEALTH

EMPLOYER'S COPY		
STATE OF CONNECTICUT DEPARTMENT OF PUBLIC HEALTH		
NAME KIMBERLY A RINARD		
VALIDATION NO. 03-616060	CERTIFICATE NO. 000895	CURRENT THROUGH 08/31/18
PROFESSION ASBESTOS CONSULTANT-INSPECTOR		
 SIGNATURE	 COMMISSIONER	

INSTRUCTIONS:

1. Detach and sign each of the cards on this form
2. Display the large card in a prominent place in your office or place of business.
3. The wallet card is for you to carry on your person. If you do not wish to carry the wallet card, place it in a secure place.
4. The employer's copy is for persons who must demonstrate current licensure/certification in order to retain employment or privileges. The employer's card is to be presented to the employer and kept by them as a part of your personnel file. Only one copy of this card can be supplied to you.

STATE OF CONNECTICUT DEPARTMENT OF PUBLIC HEALTH	
PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT	
THE INDIVIDUAL NAMED BELOW IS CERTIFIED BY THIS DEPARTMENT AS A	
ASBESTOS CONSULTANT-INSPECTOR	
KIMBERLY A RINARD	CERTIFICATE NO. 000895
	CURRENT THROUGH 08/31/18
	VALIDATION NO. 03-616060
 SIGNATURE	 COMMISSIONER

WALLET CARD	
STATE OF CONNECTICUT DEPARTMENT OF PUBLIC HEALTH	
NAME KIMBERLY A RINARD	
VALIDATION NO. 03-616060	CERTIFICATE NO. 000895
	CURRENT THROUGH 08/31/18
PROFESSION ASBESTOS CONSULTANT-INSPECTOR	
 SIGNATURE	 COMMISSIONER

Certificate of Training

This program was presented at
Fuss & O'Neill EnviroScience in.
Manchester, CT with the prior
approval of the CT DPH.

Awarded to

KIM RINARD

For successful completion of a 4 Hour, 1/2 Day

**Asbestos Building Inspector
Annual Refresher Training**

AUGUST 28, 2017

This training was approved and given in accordance with the

Regulations for Connecticut State Agencies

RCSA 20 - 440 - 1-9 and RCSA 20 - 441 and meets the
requirements of the EPA Revised MAP under TSCA Title II of 4/4/94.

Presented by

Mystic Air Quality Consultants, Inc.

1204 North Road, Groton, CT 06340 (800) 247-7746

Certificate Number: ABIRF26113

Exam Grade: 100

Expiration Date: 08/28/2018

Exam Date: 08/28/2017

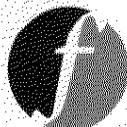
Richard Vetter
George Williamson, Training Director

Christopher J. Eident
Christopher J. Eident, CIH, CSP, RS

Richard Haffey, Training Director

Appendix C

Asbestos Laboratory Report and Chain of Custody Form



FUSS & O'NEILL
EnviroScience, LLC

146 Hartford Road, Manchester, CT 06040

Fuss & O'Neill EnviroScience EMSL Customer No. ENVI54

www.fando.com

Phone (860) 646-2469

ASBESTOS BULK SAMPLE CHAIN OF CUSTODY FORMSheet 1 of 12Project Name: New London High School Project No. 20170858.A1E. Date: 5/16/2018Site Address: 490 Jefferson Avenue New London, ConnecticutBuilding/Location: Main Classroom Building, Auditorium/Gym BuildingProject Manager: Carlos Texidor

Sample ID	Sample Location	Type of Material
20180416-01A-UA	Main Classroom Bldg - 3rd Fl - South End of Hall	Black mastic associated with 9"x 9" floor tiles
20180416-01B-UA	Main Classroom Bldg - 3rd Fl Room 308	Black mastic associated with 9"x 9" floor tiles
20180416-01C-UA	Main Classroom Bldg - 3rd Fl Room 304	Black mastic associated with 9"x 9" floor tiles
20180416-01D-UA	Main Classroom Bldg - 3rd Fl Room 318	Black mastic associated with 9"x 9" floor tiles
20180416-02A-UA	Main Classroom Bldg- 2nd Fl South end of hall	Black mastic associated with 9"x 9" floor tiles
20180416-02B-UA	Main Classroom Bldg- 2nd F Room 203l	Black mastic associated with 9"x 9" floor tiles
20180416-02C-UA	Main Classroom Bldg- 2nd Fl Room 224	Black mastic associated with 9"x 9" floor tiles
20180416-02D-UA	Main Classroom Bldg- 2nd Fl North End of Hall	Black mastic associated with 9"x 9" floor tiles
20180416-03A-UA	Main Classroom Bldg- 1st Fl Guidance Office	Black mastic associated with 9"x 9" floor tiles
20180416-03B-UA	Main Classroom Bldg- 1st Fl Room 113	Black mastic associated with 9"x 9" floor tiles
20180416-03C-UA	Main Classroom Bldg- 1st Fl Center of House	Black mastic associated with 9"x 9" floor tiles
20180416-03D-UA	Main Classroom Bldg- 1st Fl Room 132	Black mastic associated with 9"x 9" floor tiles
20180416-04A-UA	Main Classroom Bldg- Ground Room C22	Black mastic associated with 9"x 9" floor tiles
20180416-04B-UA	Main Classroom Bldg- Ground Hall outside of C22	Black mastic associated with 9"x 9" floor tiles
20180416-04C-UA	Main Classroom Bldg- Ground East corridor	Black mastic associated with 9"x 9" floor tiles
20180416-04D-UA	Main Classroom Bldg- Ground center of corridor	Black mastic associated with 9"x 9" floor tiles

Analysis Method: ☒ PLM ☐ TEM ☐ Other _____ Turnaround Time: 5 day PLM / 24 Hr TEM NOB _____

Based on the turnaround time indicated above, analyses are due to EnviroScience on or before this date: _____ Please call EnviroScience if analyses will not be completed for requested t/a/t at (860) 646-2469.

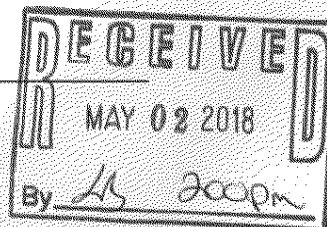
Email Results to: ctexidor@fando.com**Do Not Mail Hard Copy Report**

Total # of Samples: _____

Special Instructions: Stop analysis on first positive sample in each homogeneous set of samples unless otherwise noted. Do not layer samples unless indicated. Do Not Point Count. If NOB group sample results are 0% - < 1% by PLM, analyze only "A" group sample above by TEM NOB, per group, unless you are told otherwise. Budget of 50 TEM NOB samples, if additional TEM NOBs required, Contact Carlos Texidor for authorization.

Samples collected by: Kim Rinard Date: 5/1/2018 Time: _____Samples Sent by: [Signature] Date: 5/1/2018 Time: 18 00

Samples Received by: _____ Date: _____ Time: _____

Shipped To: ☒ EMSL State: _____ ☐ Other _____Method of Shipment: ☒ FedEx ☐ Lab Drop Off ☐ Other _____

Index 8012 8427 7283

241802203


FUSS & O'NEILL
EnviroScience, LLC

Fuss & O'Neill EnviroScience EMSL Customer No. ENV154

www.fando.com

146 Hartford Road, Manchester, CT 06040

Phone (860) 646-2469

ASBESTOS BULK SAMPLE CHAIN OF CUSTODY FORM

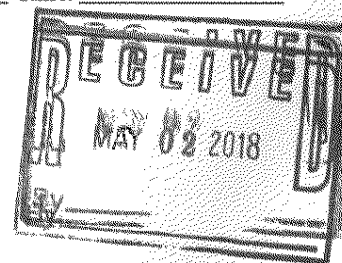
Sheet 2 of 12Project Name: New London High School Project No. 20170858.A1E. Date: 5/16/2018Site Address: 490 Jefferson Avenue New London, ConnecticutBuilding/Location: Main Classroom Building, Auditorium/Gym BuildingProject Manager: Carlos Texidor

Sample ID	Sample Location	Type of Material
20180416-05A-UA	Main Building – 3 rd floor south end of hall	2' x 4' ceiling tiles(type 1) Big and small pin holes, large pockets
20180416-05B-UA	Main Building – 2 nd floor south end of hall	2' x 4' ceiling tiles(type 1) Big and small pin holes, large pockets
20180416-05C-UA	Main Building – 1 st floor assistant principal 138	2' x 4' ceiling tiles(type 1) Big and small pin holes, large pockets
20180416-06A-UA	Main Building – 3 rd floor South end of Hallway	2' x 4' ceiling tiles(type 2) small pin holes, streak marks
20180416-06B-UA	Main Building – 2 nd floor south end of hallway	2' x 4' ceiling tiles(type 2) small pin holes, streak marks
20180416-06C-UA	Main Building – 1 st floor guidance office	2' x 4' ceiling tiles(type 2) small pin holes, streak marks
20180416-07A-UA	Main Building – 3 rd floor North end of Hallway	Caulking – expansion joint
20180416-07B-UA	Main Building – 2 nd floor south end of hallway	Caulking – expansion joint
20180416-07C-UA	Main Building – 1 st floor guidance office Rm 46	Caulking – expansion joint
20180416-08A-UA	Main Building – 3 rd floor Room 332	Slate window sill (black)
20180416-08B-UA	Main Building – 2 nd floor Room 214	Slate window sill (black)
20180416-08C-UA	Main Building – 1 st floor guidance office Rm 149	Slate window sill (black)
20180416-09A-UA	Main Building – 3 rd floor Room 332	Cove base – 4" black on wooden cabinets
20180416-09B-UA	Main Building – 2 nd floor Room 219	Cove base – 4" black on wooden cabinets
20180416-09C-UA	Main Building – 1 st floor asst principal Rm 138	Cove base – 4" black on wooden cabinets
20180416-10A-UA	Main Building – 3 rd floor Room 332	Adhesive–dark brown associated w/ 4" black cove base @ cabinets
20180416-10B-UA	Main Building – 2 nd floor Room 219	Adhesive–dark brown associated w/ 4" black cove base @ cabinets
20180416-10C-UA	Main Building – 1 st floor guidance office Rm 149	Adhesive–dark brown associated w/ 4" black cove base @ cabinets

See Page 1 for instructions

Samples collected by: Ulkens Aguste/Kim Rinard Date: 5/1/2018 Time: _____Samples Sent by: [Signature] Date: 5/1/18 Time: 1800

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ASBESTOS BULK SAMPLE CHAIN OF CUSTODY FORM
Sheet 3 of 12Project Name: New London High School Project No. 20170858.A1E. Date: 5/16/2018Site Address: 490 Jefferson Avenue New London, ConnecticutBuilding/Location: Main Classroom Building, Auditorium/Gym BuildingProject Manager: Carlos Texidor

Sample ID	Sample Location	Type of Material
20180416-11A-UA	Main Building – 3 rd floor Room 332	Window caulking – tan, interior
20180416-11B-UA	Main Building – 2 nd floor Room 219	Window caulking – tan, interior
20180416-11C-UA	Main Building – 1 st floor guidance office Rm 149	Window caulking – tan, interior
20180416-12A-UA	Main Building – 3 rd floor Room 332	Window glazing – interior, black
20180416-12B-UA	Main Building – 2 nd floor Room 219	Window glazing – interior, black
20180416-12C-UA	Main Building – 1 st floor asst principal Rm 138	Window glazing – interior, black
20180416-13A-UA	Main Building – 3 rd floor Room 302	Countertop laminate – brown/tan
20180416-13B-UA	Main Building – 2 nd floor rear	Countertop laminate – brown/tan
20180416-13C-UA	Main Building – 1 st floor Rm 113	Countertop laminate – brown/tan
20180416-14A-UA	Main Building – 3 rd floor Room 302	Adhesive associated with countertop – brown
20180416-14B-UA	Main Building – 2 nd floor Room 219	Adhesive associated with countertop – brown
20180416-14C-UA	Main Building – 1 st floor Rm 113	Adhesive associated with countertop – brown
20180416-15A-UA	Main Building – 3 rd floor Book Storage	Duct seam sealant – grey/tan
20180416-15B-UA	Main Building – 1 st floor Room 137	Duct seam sealant – grey/tan
20180416-15C-UA	Main Building – 1 st floor Custodial Closet	Duct seam sealant – grey/tan
20180416-16A-UA	Main Building – 3 rd Fl East Stair Landing	Floor tile -12"x12" green(light green with white dots)
20180416-16B-UA	Main Building – 2 nd Fl East stair center	Floor tile -12"x12" green(light green with white dots)
20180416-16C-UA	Main Building – 1 st Fl East Stair	Floor tile -12"x12" green(light green with white dots)
20180416-17A-UA	Main Building – 3 rd Fl East Stair Landing	Black mastic associated with floor tile (light green with white dots)
20180416-17B-UA	Main Building – 2 nd Fl East stair center	Black mastic associated with floor tile (light green with white dots)
20180416-17C-UA	Main Building – 1 st Fl East Stair	Black mastic associated with floor tile (light green with white dots)
20180416-18A-UA	Main Building – south upper level mech rm	Mudded fittings -grey
20180416-18B-UA	Main Building – 2 nd Fl – south end of hall	Mudded fittings -grey
20180416-18C-UA		Mudded fittings -grey

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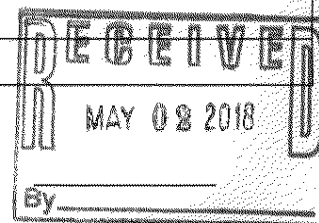
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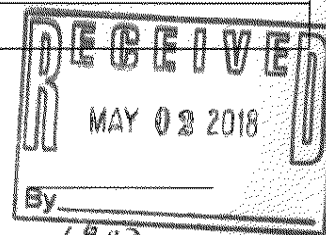
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ASBESTOS BULK SAMPLE CHAIN OF CUSTODY FORM
Sheet 4 of 12
 Project Name: New London High School Project No. 20170858.A1E. Date: 5/16/2018
Site Address: 490 Jefferson Avenue New London, ConnecticutBuilding/Location: Main Classroom Building, Auditorium/Gym BuildingProject Manager: Carlos Texidor

Sample ID	Sample Location	Type of Material
20180416-19A-UA	Main Building – south upper level mech rm	Fabric- tan fabric over fiberglass insulation on pipes
20180416-19B-UA	Main Building – 2 nd Fl – south end of hall	Fabric- tan fabric over fiberglass insulation on pipes
20180416-19C-UA		
20180416-20A-UA	Main Building – south upper level mech rm	Vibration fabric - white
20180416-20B-UA	Main Building – south upper level mech rm	Vibration fabric – white
20180416-20C-UA	Main Building – south upper level mech rm	Vibration fabric - white
20180416-21A-UA	Main Building – 3 rd Fl south upper level mech rm	Vibration fabric - black
20180416-21B-UA	Main Building – 1 st Fl Guidance officeRoom 146	Vibration fabric – black
20180416-21C-UA	Main Building – Ground Mech Rm North of Firing range	Vibration fabric - black
20180416-22A-UA	Main Building – 3 rd Fl Staff Bathroom	Grout associated with ceramic floor tile – brown and green pattern
20180416-22B-UA	Main Building – 2 nd Fl Center Womens Room	Grout associated with ceramic floor tile – brown and green pattern
20180416-22C-UA	Main Building – 1 st Fl Mens Room	Grout associated with ceramic floor tile – brown and green pattern
20180416-23A-UA	Main Building – 3 rd Fl Staff Bathroom	Mudset associated with ceramic floor tile – brown/ green pattern
20180416-23B-UA	Main Building – 2 nd Fl Center Womens Room	Mudset associated with ceramic floor tile – brown/ green pattern
20180416-23C-UA	Main Building – 1 st Fl Mens Room	Mudset associated with ceramic floor tile – brown/ green pattern
20180416-24A-UA	Main Building – 3 rd Fl Staff Bathroom	Tar(black) under ceramic tile floor – built up floor
20180416-24B-UA	Main Building – 2 nd Fl Center Womens Room	Tar(black) under ceramic tile floor – built up floor
20180416-24C-UA	Main Building – 1 st Fl Mens Room	Tar(black) under ceramic tile floor – built up floor
20180416-25A-UA	Main Building – 3 rd floor Custodial	Fire stop -red
20180416-25B-UA	Main Building – 2 nd Fl East Central Stairs	Fire stop -red
20180416-25C-UA	Main Building – 1 st Fl Room 137	Fire stop -red

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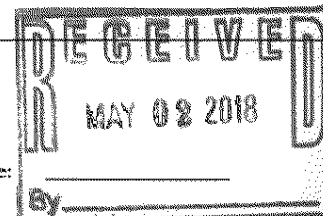
Sheet 5 of 12Project Name: New London High School Project No. 20170858.A1E. Date: 5/16/2018Site Address: 490 Jefferson Avenue New London, ConnecticutBuilding/Location: Main Classroom Building, Auditorium/Gym BuildingProject Manager: Carlos Texidor

Sample ID	Sample Location	Type of Material
20180416-26A-UA	Main Building – Southeast stair ceiling	Ceiling tile – 12" x 12" loose splined, white with streak marks
20180416-26B-UA	Main Building – East center stair ceiling	Ceiling tile – 12" x 12" loose splined, white with streak marks
20180416-26C-UA	Main Building – ground floor shooting range	Ceiling tile – 12" x 12" loose splined, white with streak marks
20180416-27A-UA	Main Building – 2nd Fl Bottom stair landing	Floor tile – 12"x12" tan with brown spots
20180416-27B-UA	Main Building – 2nd Fl Bottom stair landing	Floor tile – 12"x12" tan with brown spots
20180416-27C-UA	Main Building – 2nd Fl Bottom stair landing	Floor tile – 12"x12" tan with brown spots
20180416-28A-UA	Main Building – 2nd Fl Bottom stair landing	Black Mastic associated w/ 12"x12" floor tile-tan with brown dots
20180416-28B-UA	Main Building – 2nd Fl Bottom stair landing	Black Mastic associated w/ 12"x12" floor tile-tan with brown dots
20180416-29A-UA	Main Building – 2nd Fl Room 219	Door window glazing – grey
20180416-29B-UA	Main Building – 1st Fl Room G106	Door window glazing – grey
20180416-29C-UA	S-Wing Room S-21	Door window glazing – grey
20180416-30A-UA	Main Building – 2nd Fl Center Womens Room	Grout associated with tan and brown speckled glaze blocks
20180416-30B-UA	Main Building – 1st Fl Mens Room	Grout associated with tan and brown speckled glaze blocks
20180416-30C-UA	Main Building – 1st Fl Womens Room	Grout associated with tan and brown speckled glaze blocks
20180416-31A-UA	Main Building – 2nd Fl Staff Bathroom	2' x 4' ceiling tiles – streaks and pin holes (type 3)
20180416-31B-UA	Main Building – 1st Fl Staff Bathroom	2' x 4' ceiling tiles – streaks and pin holes (type 3)
20180416-32A-UA	Main Building – 2nd Fl Library at Entrance	Carpet adhesive – yellow/black carpet adhesive
20180416-32B-UA	Main Building – 2nd Fl Library SW Corner	Carpet adhesive – yellow/black carpet adhesive
20180416-33A-UA	Main Building – 2nd Fl Library, south center area	Cove base – 4" black
20180416-33B-UA	Main Building – 1st Fl guidance office outside of Mech Room 146	Cove base – 4" black

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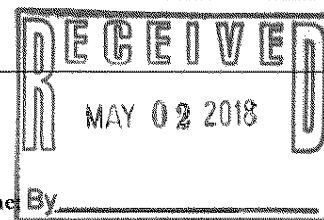
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ASBESTOS BULK SAMPLE CHAIN OF CUSTODY FORM
Sheet 6 of 12Project Name: New London High School Project No. 20170858.A1E. Date: 5/16/2018Site Address: 490 Jefferson Avenue New London, ConnecticutBuilding/Location: Main Classroom Building, Auditorium/Gym BuildingProject Manager: Carlos Texidor

Sample ID	Sample Location	Type of Material
20180416-34A-UA	Main Building – 2 nd Fl Library South center area	Adhesive – yellow associated with black 4" cove base
20180416-34B-UA	Main Building–1 st Fl Guidance outside of Rm 146	Adhesive – yellow associated with black 4" cove base
20180416-34C-UA	Main Building–1 st Fl Room 135	Adhesive – yellow associated with black 4" cove base
20180416-35A-UA	Main Building – 2 nd Fl Library South center area	Sheetrock – partition wall
20180416-35B-UA	Main Building–1 st Fl Guidance outside of Rm 146	Sheetrock – partition wall
20180416-35C-UA	Main Building–Ground floor,	Sheetrock – partition wall
20180416-36A-UA	Main Building – 2 nd Fl Library South center area	Joint compound (white)
20180416-36B-UA	Main Building–1 st Fl Guidance outside of Rm 146	Joint compound (white)
20180416-36C-UA	Main Building–Ground floor,	Joint compound (white)
20180416-37A-UA	Main Building – 2 nd Fl Library South center area	Composite - Sheetrock and Joint compound
20180416-37B-UA	Main Building–1 st Fl Guidance Rm 146	Composite - Sheetrock and Joint compound
20180416-37C-UA	Main Building–Ground floor,	Composite - Sheetrock and Joint compound
20180416-38A-UA	Main Building – 1 st Fl Guidance Rm 149	Grey/white window glazing
20180416-38B-UA	Main Building – 1 st Fl Guidance Rm 149	Grey/white window glazing
20180416-39A-UA	Main Building – 1 st Fl Asst Principal Rm 138	Cove base – 4" grey/tan
20180416-39B-UA	S-Wing Room S6 Nursery Room	Cove base – 4" grey/tan
20180416-40A-UA	Main Building – 1 st Fl Asst Principal Rm 138	Adhesive – yellow associated with 4" grey/tan cove base
20180416-40B-UA	S-Wing Room S6 Nursery Room	Adhesive – yellow associated with 4" grey/tan cove base
20180416-41A-UA	Main Building – 1 st Fl Asst Principal Rm 138	Fire stop - grey
20180416-41B-UA	Main Building – 1 st Fl Asst Principal Rm 138	Fire stop - grey
20180416-42A-UA	Main Building – 1 st Fl Asst Principal Rm 138	Fire stop - white
20180416-42B-UA	Main Building – 1 st Fl Asst Principal Rm 138	Fire stop - white



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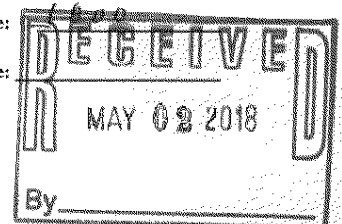
Sheet 7 of 12Project Name: New London High School Project No. 20170858.A1E. Date: 5/16/2018Site Address: 490 Jefferson Avenue New London, ConnecticutBuilding/Location: Main Classroom Building, Auditorium/Gym BuildingProject Manager: Carlos Texidor

Sample ID	Sample Location	Type of Material
20180416-43A-UA	Main Building – 1 st Fl Rm 137 Science Lab	Floor Tile – 12"x12" tan with brown spots
20180416-43B-UA	Main Building–1 st Fl Rm 136 Science Lab	Floor Tile – 12"x12" tan with brown spots
20180416-43C-UA	Main Building–1 st Fl Rm 135	Floor Tile – 12"x12" tan with brown spots
20180416-44A-UA	Main Building – 1 st Fl Rm 137 Science Lab	Floor Tile – 12"x12" grey with brown spots
20180416-44B-UA	Main Building–1 st Fl Rm 136 Science Lab	Floor Tile – 12"x12" grey with brown spots
20180416-44C-UA	Main Building–1 st Fl Rm 135	Floor Tile – 12"x12" grey with brown spots
20180416-45A-UA	Main Building – 1 st Fl Rm 137 Science Lab	Black mastic associated with 43 and 44
20180416-45B-UA	Main Building–1 st Fl Rm 136 Science Lab	Black mastic associated with 43 and 44
20180416-45C-UA	Main Building–1 st Fl Rm 135	Black mastic associated with 43 and 44
20180416-46A-UA	Main Building – 1 st Fl Rm 137 Science Lab	2' x 4' ceiling tiles – white with rough back (type 4)
20180416-46B-UA	Main Building–1 st Fl Rm 136 Science Lab	2' x 4' ceiling tiles – white with rough back (type 4)
20180416-46C-UA	Main Building–1 st Fl Rm 135	2' x 4' ceiling tiles – white with rough back (type 4)
20180416-47A-UA	Main Building – 1 st Fl Rm 137 Science Lab	Counter top – black counter top/table
20180416-47B-UA	Main Building–1 st Fl Rm 136 Science Lab	Counter top – black counter top/table
20180416-47C-UA	Main Building–1 st Fl Rm 135	Counter top – black counter top/table
20180416-48A-UA	Main Building – 1 st Fl Staff Bathroom	Grout – associated with tan ceramic tiles
20180416-48B-UA	Main Building – 1 st Fl Staff Bathroom	Grout – associated with tan ceramic tiles
20180416-49A-UA	Main Building – 1 st Fl Staff Bathroom	Mudset – associated with tan ceramic tiles
20180416-49B-UA	Main Building – 1 st Fl Staff Bathroom	Mudset – associated with tan ceramic tiles
20180416-50A-UA	Main Building – 1 st Fl Janitor Closet	Pink fire stop compound
20180416-50B-UA	Main Building – 1 st Fl Janitor Closet	Pink fire stop compound
20180416-51A-UA	Main Building – 1 st Fl Lecture Hall	2' x 4' ceiling tiles – White smooth surface with pin holes (type 5)
20180416-51B-UA	Main Building – 1 st Fl Lecture Hall	2' x 4' ceiling tiles – White smooth surface with pin holes (type 5)

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Sheet 8 of 12
 Project Name: New London High School Project No. 20170858.A1E. Date: 5/16/2018
Site Address: 490 Jefferson Avenue New London, ConnecticutBuilding/Location: Main Classroom Building, Auditorium/Gym BuildingProject Manager: Carlos Texidor

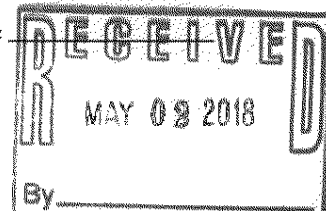
Sample ID	Sample Location	Type of Material
20180416-52A-UA	Auditorium Bldg – Lecture Hall Storage	Skim coat plaster ceiling
20180416-52B-UA	Auditorium Bldg – Lecture Hall Storage	Skim coat plaster ceiling
20180416-52C-UA	Auditorium Bldg – Lecture Hall Storage	Skim coat plaster ceiling
20180416-53A-UA	Auditorium Bldg – Lecture Hall Storage	Rough coat plaster ceiling
20180416-53B-UA	Auditorium Bldg – Lecture Hall Storage	Rough coat plaster ceiling
20180416-53C-UA	Auditorium Bldg – Lecture Hall Storage	Rough coat plaster ceiling
20180416-54A-UA	Auditorium Bldg – 1 st Fl Custodial	Hard textured ceiling surfacing material – top layer
20180416-54B-UA	Auditorium Bldg – 1 st Fl Stair to Projector	Hard textured ceiling surfacing material – top layer
20180416-54C-UA	Auditorium Bldg – 1 st Fl Stair to Projector	Hard textured ceiling surfacing material – top layer
20180416-54D-UA	Auditorium Bldg – East wall	Hard textured ceiling surfacing material – top layer
20180416-54E-UA	Auditorium Bldg – East wall	Hard textured ceiling surfacing material – top layer
20180416-54F-UA	Auditorium Bldg – North center column	Hard textured ceiling surfacing material – top layer
20180416-54G-UA	Auditorium Bldg – South center column	Hard textured ceiling surfacing material – top layer
20180416-55A-UA	Auditorium Bldg – 1 st Fl Custodial	Hard textured ceiling surfacing material – bottom layer
20180416-55B-UA	Auditorium Bldg – 1 st Fl Stair to Projector	Hard textured ceiling surfacing material – bottom layer
20180416-55C-UA	Auditorium Bldg – 1 st Fl Stair to Projector	Hard textured ceiling surfacing material – bottom layer
20180416-55D-UA	Auditorium Bldg – East wall	Hard textured ceiling surfacing material – bottom layer
20180416-55E-UA	Auditorium Bldg – East wall	Hard textured ceiling surfacing material – bottom layer
20180416-55F-UA	Auditorium Bldg – North center column	Hard textured ceiling surfacing material – bottom layer
20180416-55G-UA	Auditorium Bldg – South center column	Hard textured ceiling surfacing material – bottom layer
20180416-56A-UA	Auditorium Bldg – Lobby entrance to main office	Soft textured ceiling surfacing material – top layer
20180416-56B-UA	Auditorium Bldg – Lobby/main entrance East	Soft textured ceiling surfacing material – top layer
20180416-56C-UA	Auditorium Bldg – Lobby/main entrance Center	Soft textured ceiling surfacing material – top layer
20180416-56D-UA	Auditorium Bldg – Lobby/main entrance South	Soft textured ceiling surfacing material – top layer
20180416-56E-UA	Auditorium Bldg – Lobby/main entrance South	Soft textured ceiling surfacing material – top layer

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ASBESTOS BULK SAMPLE CHAIN OF CUSTODY FORM
Sheet 9 of 12Project Name: New London High School Project No. 20170858.A1E. Date: 5/16/2018Site Address: 490 Jefferson Avenue New London, ConnecticutBuilding/Location: Main Classroom Building, Auditorium/Gym BuildingProject Manager: Carlos Texidor

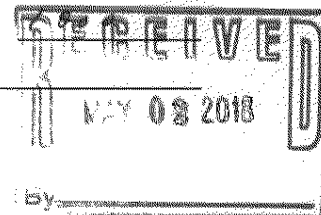
Sample ID	Sample Location	Type of Material
20180416-57A-UA	Auditorium Bldg-Lobby entrance to main office	Soft textured ceiling surfacing material – bottom layer
20180416-57B-UA	Auditorium Bldg – Lobby/main entrance East	Soft textured ceiling surfacing material – bottom layer
20180416-57C-UA	Auditorium Bldg – Lobby/main entrance Center	Soft textured ceiling surfacing material – bottom layer
20180416-57D-UA	Auditorium Bldg – Lobby/main entrance South	Soft textured ceiling surfacing material – bottom layer
20180416-57E-UA	Auditorium Bldg – Lobby/main entrance South	Soft textured ceiling surfacing material – bottom layer
20180416-58A-UA	Auditorium Bldg – 1 st Fl Front entry	Caulking – grey caulking at window panel
20180416-58B-UA	Auditorium Bldg – 1 st Fl Front entry south	Caulking – grey caulking at window panel
20180416-58C-UA	Auditorium Bldg – 1 st Fl Front entry north	Caulking – grey caulking at window panel
20180416-59A-UA	Auditorium Bldg – North exit, single door	Carpet glue – green/yellow carpet glue over black mastic
20180416-59B-UA	Auditorium Bldg – East entry double door	Carpet glue – green/yellow carpet glue over black mastic
20180416-60A-UA	Auditorium Bldg – Auditorium North side	Epoxy floor coating – tan with yellow and black dots
20180416-60B-UA	Auditorium Bldg – Auditorium South side	Epoxy floor coating – tan with yellow and black dots
20180416-61A-UA	Auditorium Bldg – Auditorium North by single exit door	Grey leveling compound under carpet
20180416-61B-UA	Auditorium Bldg – Auditorium East by double entry door	Grey leveling compound under carpet
20180416-62A-UA	Auditorium Bldg – Auditorium NE Double door	Grey door caulking
20180416-62B-UA	Auditorium Bldg – Auditorium North exit door	Grey door caulking
20180416-63A-UA	Auditorium Bldg – Auditorium North exit door	Brown door caulking
20180416-63B-UA	Gym Bldg – 1 st Fl West entry outside of gym	Brown door caulking
20180416-64A-UA	Auditorium Bldg – Auditorium SE Stair landing	Black linoleum flooring with circles
20180416-64B-UA	Auditorium Bldg – Auditorium SE Stair landing	Black linoleum flooring with circles
20180416-65A-UA	Auditorium Bldg – Auditorium SE Stair landing	Yellow adhesive associated with black linoleum flooring w/circles
20180416-65B-UA	Auditorium Bldg – Auditorium SE Stair landing	Yellow adhesive associated with black linoleum flooring w/circles
20180416-66A-UA	Auditorium Bldg Corridor outside of gym storage room	Green pipe
20180416-66B-UA	Auditorium Bldg – Ground level mens locker rm	Green pipe

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Sheet 10 of 12
 Project Name: New London High School Project No. 20170858.A1E. Date: 5/16/2018
Site Address: 490 Jefferson Avenue New London, ConnecticutBuilding/Location: Main Classroom Building, Auditorium/Gym BuildingProject Manager: Carlos Texidor

Sample ID	Sample Location	Type of Material
20180416-67A-UA	Auditorium Bldg-gymnasium east wall	Mudded fittings – grey mudded fitting over fiberglass insulation
20180416-67B-UA	Auditorium Bldg – mech rm outside of gym	Mudded fittings – grey mudded fitting over fiberglass insulation
20180416-68A-UA	Auditorium Bldg – Gym east wall	Cove base – thick black cove base
20180416-68B-UA	Auditorium Bldg – Gym east wall	Cove base – thick black cove base
20180416-69A-UA	Auditorium Bldg – Gym east wall	Adhesive – associated with thick black cove base
20180416-69B-UA	Auditorium Bldg – Gym east wall	Adhesive – associated with thick black cove base
20180416-69C-UA	Auditorium Bldg – Gym east wall	Adhesive – associated with thick black cove base
20180416-70A-UA	Auditorium Bldg – Gym south wall	Adhesive – yellow adhesive behind gym wall mats
20180416-70B-UA	Auditorium Bldg – Gym south wall	Adhesive – yellow adhesive behind gym wall mats
20180416-71A-UA	Auditorium Bldg – Pool	Spray On – white ceiling coating (fire proofing)
20180416-71B-UA	Auditorium Bldg – Pool	Spray On – white ceiling coating (fire proofing)
20180416-71C-UA	Auditorium Bldg – Pool	Spray On – white ceiling coating (fire proofing)
20180416-71D-UA	Auditorium Bldg – Pool	Spray On – white ceiling coating (fire proofing)
20180416-71E-UA	Auditorium Bldg – Pool	Spray On – white ceiling coating (fire proofing)
20180416-72A-UA	Auditorium Bldg – Pool	Mudset – associated with green ceramic wall tile
20180416-72B-UA	Auditorium Bldg – Pool	Mudset – associated with green ceramic wall tile
20180416-73A-UA	Auditorium Bldg – Pool	Grout – associated with green ceramic wall
20180416-73B-UA	Auditorium Bldg – Pool	Grout – associated with green ceramic wall
20180416-74A-UA	Auditorium Bldg – Pool	Mudset – associated with white and green ceramic floor tiles
20180416-74B-UA	Auditorium Bldg – Pool	Mudset – associated with white and green ceramic floor tiles
20180416-75A-UA	Auditorium Bldg – Pool	Grout – associated with white and green ceramic floor tiles
20180416-75B-UA	Auditorium Bldg – Pool	Grout – associated with white and green ceramic floor tiles
20180416-76A-UA	Auditorium Bldg – Pool – South wall	Fiberglass insulation behind plywood wallboard paneling
20180416-76B-UA	Auditorium Bldg – Pool – South wall	Fiberglass insulation behind plywood wallboard paneling
20180416-77A-UA	Auditorium Bldg – Gym Lobby at Trophy Case	Cove base – 4" light brown
20180416-77B-UA	Auditorium Bldg – Gym Lobby at Trophy Case	Cove base – 4" light brown

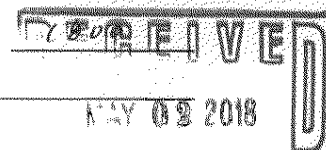
See Page 1 for instructions

 Samples collected by: Ulkens Aguste/Kim Rinard Date: 5/1/2018 Time: _____

 Samples Sent by: [Signature] Date: 5/1/18 Time: _____

Samples Received by: _____ Date: _____ Time: _____

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241802203


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ASBESTOS BULK SAMPLE CHAIN OF CUSTODY FORM

Sheet _11_ of 12_

Project Name: New London High School Project No. 20170858.A1E. Date: 5/16/2018Site Address: 490 Jefferson Avenue New London, ConnecticutBuilding/Location: Main Classroom Building, Auditorium/Gym BuildingProject Manager: Carlos Texidor

Sample ID	Sample Location	Type of Material
20180416-78A-UA	Auditorium Bldg – Gym Lobby at Trophy Case	Adhesive – brown and black associated with 4" cove base
20180416-78B-UA	Auditorium Bldg – Gym Lobby at Trophy Case	Adhesive – brown and black associated with 4" cove base
20180416-79A-UA	Auditorium Bldg – Fitness / Room 134	Glue daubs – white glue daub, painted green
20180416-79B-UA	Auditorium Bldg – Fitness / Room 134	Glue daubs – white glue daub, painted green
20180416-80A-UA	Auditorium Bldg – ground flr firing range Ceiling	Glue daubs – dark brown, associated with 12" x 12" ceiling tiles
20180416-80B-UA	Main Bldg – ground level SE ext lobby	Glue daubs – dark brown, associated with 12" x 12" ceiling tiles
20180416-80C-UA	Main Bldg – ground level SE ext lobby	Glue daubs – dark brown, associated with 12" x 12" ceiling tiles
20180416-81A-UA	Auditorium Bldg – ground level firing range wall	Glue daub- yellow associated with 12" x 12" wall tiles
20180416-81B-UA	Auditorium Bldg – ground level firing range wall	Glue daub- yellow associated with 12" x 12" wall tiles
20180416-82A-UA	Auditorium Bldg – ground level shooting range	Glue – brown duct pin glue
20180416-82B-UA	Auditorium Bldg – ground level shooting range	Glue – brown duct pin glue
20180416-83A-UA	Auditorium Bldg – ground level shooting range	Adhesive- Yellow associated with white wall board
20180416-83B-UA	Auditorium Bldg – ground level shooting range	Adhesive- Yellow associated with white wall board
20180416-84A-UA	Auditorium Bldg – ground level shooting range Mech room behind range	Yellow adhesive associated with fiberglass insulation on ductwork
20180416-84B-UA	Auditorium Bldg – ground level shooting range Mech room behind range	Yellow adhesive associated with fiberglass insulation on ductwork
20180416-85A-UA	Auditorium Bldg – ground flr mens locker rm	Window paneling glazing (interior partition window)
20180416-85B-UA	Auditorium Bldg – ground flr womens locker rm	Window paneling glazing (interior partition window)
20180416-86A-UA	Auditorium Bldg – ground flr mens locker rm	White caulking associated with brown marble shower partitions
20180416-86B-UA	Auditorium Bldg – ground flr womens locker rm	White caulking associated with brown marble shower partitions
20180416-87A-UA	Main building – ground fl Room C22	White sink undercoating
20180416-87B-UA	Main building – ground fl Room C22	White sink undercoating
20180416-88A-UA	Main building – ground fl - Cafeteria center	2' x 2' ceiling tile with rough surface
20180416-88B-UA	Main building – ground fl - Cafeteria center	2' x 2' ceiling tile with rough surface
20180416-89A-UA	Main building – ground fl - Cafeteria north wall	Black glue daubs
20180416-89B-UA	Main building – ground fl - Cafeteria north wall	Black glue daubs

See Page 1 for instructions

Samples collected by: Ulkens Aguste/Kim Rinard Date: 5/1/2018 Time: 1:00

Samples Sent by: [Signature] Date: 5/1/18 Time: 1:00

Samples Received by: _____ Date: _____ Time: _____

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ASBESTOS BULK SAMPLE CHAIN OF CUSTODY FORM
Sheet 12 of 12Project Name: New London High School Project No. 20170858.A1E Date: 5/16/2018Site Address: 490 Jefferson Avenue New London, ConnecticutBuilding/Location: Main Classroom Building, Auditorium/Gym BuildingProject Manager: Carlos Texidor

Sample ID	Sample Location	Type of Material
20180416-90A-UA	Main Bldg – ground Flr – cafeteria Rm C3	Window caulking – Dark brown
20180416-90B-UA	Main Bldg – ground Flr – cafeteria Rm C3a	Window caulking – Dark brown
20180416-91A-UA	Main Bldg – ground level kitchen food storage	Textured Ceiling Coating- White on Waffle Ceiling
20180416-91B-UA	Main Bldg – ground level kitchen food storage	Textured Ceiling Coating- White on Waffle Ceiling
20180416-91C-UA	Main Bldg – ground level kitchen food storage	Textured Ceiling Coating- White on Waffle Ceiling
20180416-91D-UA	Main Bldg – ground level receiving area	Textured Ceiling Coating- White on Waffle Ceiling
20180416-91E-UA	Main Bldg – ground level receiving area	Textured Ceiling Coating- White on Waffle Ceiling
20180416-92A-UA	Main Bldg – upper/lower boiler room	Glue Daubs – green glue daub on Styrofoam ceiling and wall panel
20180416-92B-UA	Main Bldg – upper/lower boiler room	Glue Daubs – green glue daub on Styrofoam ceiling and wall panel
20180416-92C-UA	Main Bldg – upper/lower boiler room	Glue Daubs – green glue daub on Styrofoam ceiling and wall panel
20180416-93A-UA	Main Bldg – boiler room upper	Packing insulation
20180416-93B-UA	Main Bldg – boiler room lower	Packing insulation
20180416-93C-UA	Main Bldg – boiler room lower separation tank 1	Packing insulation
20180416-94A-UA	Main Bldg – boiler room upper	Mudded fittings
20180416-94B-UA	Main Bldg – boiler room lower	Mudded fittings
20180416-95A-UA	Main Bldg – boiler room lower	Breaching insulation
20180416-95B-UA	Main Bldg – boiler room lower	Breaching insulation
20180416-95C-UA	Main Bldg – boiler room lower	Breaching insulation
20180416-96A-UA	Main Bldg – boiler room – Boiler # 2	Boiler gasket rope
20180416-96B-UA	Main Bldg – boiler room – Boiler # 2	Boiler gasket rope
20180416-97A-UA	S-Wing Room S-6	Floor tile (12"x12") – Red & Tan dotted
20180416-97B-UA	S-Wing Room S-6	Floor tile (12"x12") – Red & Tan dotted
20180416-98A-UA	S-Wing Room S-6	Black mastic associated with 12"x12" Red & Tan floor tile
20180416-98B-UA	S-Wing Room S-6	Black mastic associated with 12"x12" Red & Tan floor tile

See Page 1 for instructions

Samples collected by: Ulkens Aguste/Kim Rinard Date: 5/1/2018 Time: _____Samples Sent by: CF Date: 5/1/18 Time: 1:00

Samples Received by: _____ Date: _____ Time: _____

MAY 02 2018



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EMSL Order: 241802203

Customer ID: ENVI54

Customer PO: 20170858.A1E

Project ID:

Attention: Carlos Texidor

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Fax: (888) 838-1160

Received Date: 05/02/2018 2:00 PM

Analysis Date: 05/03/2018 - 05/09/2018

Collected Date:

Project: 20170858.A1E/ NEW LONDON HIGH SCHOOL MAIN CLASSROOM BUILDING, AUDITORIUM/GYM BUILDING

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

Sample	Description	Appearance	Non-Asbestos		Asbestos % Type
			% Fibrous	% Non-Fibrous	
20180416-01A-UA 241802203-0001	MAIN CLASSROOM BLDG- 3RD FL- SOUTH END OF HALL - BLACK MASTIC ASSOCIATED WITH 9"X9" FLOOR TILES	Black Non-Fibrous Homogeneous		92% Non-fibrous (Other)	8% Chrysotile
20180416-01BUA 241802203-0002	MAIN CLASSROOM BLDG- 3RD FL ROOM 308 - BLACK MASTIC ASSOCIATED WITH 9"X9" FLOOR TILES				Positive Stop (Not Analyzed)
20180416-01C-UA 241802203-0003	MAIN CLASSROOM BLDG- 3RD FL ROOM 304 - BLACK MASTIC ASSOCIATED WITH 9"X9" FLOOR TILES				Positive Stop (Not Analyzed)
20180416-01D-UA 241802203-0004	MAIN CLASSROOM BLDG- 3RD FL ROOM 318 - BLACK MASTIC ASSOCIATED WITH 9"X9" FLOOR TILES				Positive Stop (Not Analyzed)
20180416-2A-UA 241802203-0005	MAIN CLASSROOM BLDG- 2ND FL SOUTH END OF HALL - BLACK MASTIC ASSOCIATED WITH 9"X9" FLOOR TILES	Black Non-Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
20180416-2B-UA 241802203-0006	MAIN CLASSROOM BLDG- 2ND FL ROOM 203I - BLACK MASTIC ASSOCIATED WITH 9"X9" FLOOR TILES				Positive Stop (Not Analyzed)
20180416-2C-UA 241802203-0007	MAIN CLASSROOM BLDG- 2ND FL ROOM 224 - BLACK MASTIC ASSOCIATED WITH 9"X9" FLOOR TILES				Positive Stop (Not Analyzed)
20180416-2D-UA 241802203-0008	MAIN CLASSROOM BLDG- 2ND FL NORTH END OF HALL - BLACK MASTIC ASSOCIATED WITH 9"X9" FLOOR TILES				Positive Stop (Not Analyzed)

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EMSL Order: 241802203

Customer ID: ENVI54

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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 % Type
			% Fibrous	% Non-Fibrous	
20180416-3A-UA 241802203-0009	MAIN CLASSROOM BLDG- 1ST FL GUIDANCE OFFICE - BLACK MASTIC ASSOCIATED WITH 9"X9" FLOOR TILES	Black Non-Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
20180416-3B-UA 241802203-0010	MAIN CLASSROOM BLDG- 1ST FL ROOM 113 - BLACK MASTIC ASSOCIATED WITH 9"X9" FLOOR TILES				Positive Stop (Not Analyzed)
20180416-3C-UA 241802203-0011	MAIN CLASSROOM BLDG- 1ST FL CENTER OF HOUSE - BLACK MASTIC ASSOCIATED WITH 9"X9" FLOOR TILES				Positive Stop (Not Analyzed)
20180416-3D-UA 241802203-0012	MAIN CLASSROOM BLDG- 1ST FL ROOM 132 - BLACK MASTIC ASSOCIATED WITH 9"X9" FLOOR TILES				Positive Stop (Not Analyzed)
20180416-4A-UA 241802203-0013	MAIN CLASSROOM BLDG- GROUND ROOM C22 - BLACK MASTIC ASSOCIATED WITH 9"X9" FLOOR TILES	Black Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
20180416-4B-UA 241802203-0014	MAIN CLASSROOM BLDG- GROUND HALL OUTSIDE OF C22 - BLACK MASTIC ASSOCIATED WITH 9"X9" FLOOR TILES				Positive Stop (Not Analyzed)
20180416-4C-UA 241802203-0015	MAIN CLASSROOM BLDG- GROUND EAST CORRIDOR - BLACK MASTIC ASSOCIATED WITH 9"X9" FLOOR TILES				Positive Stop (Not Analyzed)
20180416-4D-UA 241802203-0016	MAIN CLASSROOM BLDG- GROUND CENTER OF CORRIDOR - BLACK MASTIC ASSOCIATED WITH 9"X9" FLOOR TILES				Positive Stop (Not Analyzed)
20180416-5A-UA 241802203-0017	MAIN BUILDING- 3RD FLOOR SOUTH END OF HALL - 2'X4' CEILING TILES (TYPE 1) BIG AND SMALL PIN HOLES, LARGE POCKETS	Tan/White Fibrous Homogeneous	25% Cellulose 30% Min. Wool	45% Non-fibrous (Other)	None Detected

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Customer ID: ENVI54

Customer PO: 20170858.A1E

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 % Type
			% Fibrous	% Non-Fibrous	
20180416-5B-UA 241802203-0018	MAIN BUILDING- 2ND FLOOR SOUTH END OF HALL - 2'X4' CEILING TILES (TYPE 1) BIG AND SMALL PIN HOLES, LARGE POCKETS	Tan/White Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-5C-UA 241802203-0019	MAIN BUILDING- 1ST FLOOR ASSISTANT PRINCIPAL 138 - 2'X4' CEILING TILES (TYPE 1) BIG AND SMALL PIN HOLES, LARGE POCKETS	Gray Fibrous Homogeneous	40% Cellulose 25% Min. Wool	35% Non-fibrous (Other)	None Detected
20180416-6A-UA 241802203-0020	MAIN BUILDING- 3RD FLOOR SOUTH END OF HALLWAY - 2'X4' CEILING TILES (TYPE 2) SMALL PIN HOLES, STREAK MARKS	Tan/White Fibrous Homogeneous	30% Cellulose 30% Min. Wool	40% Non-fibrous (Other)	None Detected
20180416-6B-UA 241802203-0021	MAIN BUILDING- 2ND FLOOR SOUTH END OF HALLWAY - 2'X4' CEILING TILES (TYPE 2) SMALL PIN HOLES, STREAK MARKS	Tan/White Fibrous Homogeneous	40% Cellulose 20% Min. Wool	40% Non-fibrous (Other)	None Detected
20180416-6C-UA 241802203-0022	MAIN BUILDING- 1ST FLOOR GUIDANCE OFFICE - 2'X4' CEILING TILES (TYPE 2) SMALL PIN HOLES, STREAK MARKS	Gray/White Fibrous Homogeneous	30% Cellulose 30% Min. Wool	10% Perlite 30% Non-fibrous (Other)	None Detected
20180416-7A-UA 241802203-0023	MAIN BUILDING- 3RD FLOOR NORTH END OF HALLWAY - CAULKING- EXPANSION JOINT	Gray Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
20180416-7B-UA 241802203-0024	MAIN BUILDING- 2ND FLOOR SOUTH END OF HALLWAY - CAULKING- EXPANSION JOINT				Positive Stop (Not Analyzed)
20180416-7C-UA 241802203-0025	MAIN BUILDING- 1ST FLOOR GUIDANCE OFFICE RM 46 - CAULKING- EXPANSION JOINT				Positive Stop (Not Analyzed)
20180416-8A-UA 241802203-0026	MAIN BUILDING- 3RD FLOOR ROOM 332 - SLATE WINDOW SILL (BLACK)	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-8B-UA 241802203-0027	MAIN BUILDING- 2ND FLOOR ROOM 214 - SLATE WINDOW SILL (BLACK)	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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EMSL Order: 241802203

Customer ID: ENVI54

Customer PO: 20170858.A1E

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 % Type
			% Fibrous	% Non-Fibrous	
20180416-8C-UA 241802203-0028	MAIN BUILDING- 1ST FLOOR GUIDANCE OFFICE RM 149 - SLATE WINDOW SILL (BLACK)	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-9A-UA 241802203-0029	MAIN BUILDING- 3RD FLOOR ROOM 332 - COVE BASE- 4" BLACK ON WOODEN CABINETS	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-9B-UA 241802203-0030	MAIN BUILDING- 2ND FLOOR ROOM 219 - COVE BASE- 4" BLACK ON WOODEN CABINETS	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-9C-UA 241802203-0031	MAIN BUILDING- 1ST FLOOR ASST PRINCIPAL RM 138 - COVE BASE- 4" BLACK ON WOODEN CABINETS	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-10A-UA 241802203-0032	MAIN BUILDING- 3RD FLOOR ROOM 332 - ADHESIVE- DARK BROWN ASSOCIATED W/ 4" BLACK COVE BASE @ CABINETS	Brown Non-Fibrous Homogeneous	8% Fibrous (Other)	92% Non-fibrous (Other)	None Detected
20180416-10B-UA 241802203-0033	MAIN BUILDING- 2ND FLOOR ROOM 219 - ADHESIVE- DARK BROWN ASSOCIATED W/ 4" BLACK COVE BASE @ CABINETS	Brown Non-Fibrous Homogeneous	7% Fibrous (Other)	93% Non-fibrous (Other)	None Detected
20180416-10C-UA 241802203-0034	MAIN BUILDING- 1ST FLOOR GUIDANCE OFFICE RM 149 - ADHESIVE- DARK BROWN ASSOCIATED W/ 4" BLACK COVE BASE @ CABINETS	Brown Non-Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
20180416-11A-UA 241802203-0035	MAIN BUILDING- 3RD FLOOR ROOM 332 - WINDOW CAULKING- TAN, INTERIOR	Tan Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
20180416-11B-UA 241802203-0036	MAIN BUILDING- 2ND FLOOR ROOM 219 - WINDOW CAULKING- TAN, INTERIOR				Positive Stop (Not Analyzed)

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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
20180416-11C-UA 241802203-0037	MAIN BUILDING- 1ST FLOOR GUIDANCE OFFICE RM 149 - WINDOW CAULKING- TAN, INTERIOR				Positive Stop (Not Analyzed)
20180416-12A-UA 241802203-0038	MAIN BUILDING- 3RD FLOOR ROOM 332 - WINDOW GLAZING- INTERIOR, BLACK	Black Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
20180416-12B-UA 241802203-0039	MAIN BUILDING- 2ND FLOOR ROOM 219 - WINDOW GLAZING- INTERIOR, BLACK				Positive Stop (Not Analyzed)
20180416-12C-UA 241802203-0040	MAIN BUILDING- 1ST FLOOR ASST PRINCIPAL RM 138 - WINDOW GLAZING- INTERIOR, BLACK				Positive Stop (Not Analyzed)
20180416-13A-UA 241802203-0041	MAIN BUILDING- 3RD FLOOR ROOM 302 - COUNTERTOP LAMINATE- BROWN/TAN	Brown/Tan Non-Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected
20180416-13B-UA 241802203-0042	MAIN BUILDING- 2ND FLOOR REAR - COUNTERTOP LAMINATE- BROWN/TAN	Brown/Tan Non-Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (Other)	None Detected
20180416-13C-UA 241802203-0043	MAIN BUILDING- 1ST FLOOR RM 113 - COUNTERTOP LAMINATE- BROWN/TAN	Brown Fibrous Homogeneous	75% Cellulose	25% Non-fibrous (Other)	None Detected
20180416-14A-UA 241802203-0044	MAIN BUILDING- 3RD FLOOR ROOM 302 - ASHESIVE ASSOCIATED WITH COUNTERTOP- BROWN	Brown Non-Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected
20180416-14B-UA 241802203-0045	MAIN BUILDING- 2ND FLOOR ROOM 219 - ASHESIVE ASSOCIATED WITH COUNTERTOP- BROWN	Brown Non-Fibrous Homogeneous	65% Cellulose	35% Non-fibrous (Other)	None Detected
20180416-14C-UA 241802203-0046	MAIN BUILDING- 1ST FLOOR RM 113 - ASHESIVE ASSOCIATED WITH COUNTERTOP- BROWN	Brown Fibrous Homogeneous	75% Cellulose	25% Non-fibrous (Other)	None Detected
20180416-15A-UA 241802203-0047	MAIN BUILDING- 3RD FLOOR BOOK STORAGE - DUCT SEAM SEALANT- GREY/TAN	Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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EMSL Order: 241802203

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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 % Type
			% Fibrous	% Non-Fibrous	
20180416-15B-UA 241802203-0048	MAIN BUILDING- 1ST FLOOR RM 137 - DUCT SEAM SEALANT- GREY/TAN	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-15C-UA 241802203-0049	MAIN BUILDING- 1ST FLOOR CUSTODIAL CLOSET - DUCT SEAM SEALANT- GREY/TAN	Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-16A-UA 241802203-0050	MAIN BUILDING- 3RD FL EAST STAIR LANDING - FLOOR TILE- 12"X12" GREEN (LIGHT GREEN WITH WHITE DOTS)	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-16B-UA 241802203-0051	MAIN BUILDING- 2ND FL EAST STAIR CENTER - FLOOR TILE- 12"X12" GREEN (LIGHT GREEN WITH WHITE DOTS)	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-16C-UA 241802203-0052	MAIN BUILDING- 1ST FL EAST STAIR - FLOOR TILE- 12"X12" GREEN (LIGHT GREEN WITH WHITE DOTS)	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-17A-UA 241802203-0053	MAIN BUILDING- 3RD FL EAST STAIR LANDING - BLACK MASTIC ASSOCIATED WITH FLOOR TILE (LIGHT GREEN WITH WHITE DOTS)	Tan/Black Non-Fibrous Homogeneous		92% Non-fibrous (Other)	8% Chrysotile
20180416-17B-UA 241802203-0054	MAIN BUILDING- 2ND FL EAST STAIR CENTER - BLACK MASTIC ASSOCIATED WITH FLOOR TILE (LIGHT GREEN WITH WHITE DOTS)				Positive Stop (Not Analyzed)
20180416-17C-UA 241802203-0055	MAIN BUILDING- 1ST FL EAST STAIR - BLACK MASTIC ASSOCIATED WITH FLOOR TILE (LIGHT GREEN WITH WHITE DOTS)				Positive Stop (Not Analyzed)
20180416-18A-UA 241802203-0056	MAIN BUILDING-SOUTH UPPER LEVEL MECH RM - MUDDER FITTINGS-GREY	Gray Non-Fibrous Homogeneous	40% Min. Wool	60% Non-fibrous (Other)	None Detected

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Customer PO: 20170858.A1E

Project ID:

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
20180416-18B-UA 241802203-0057	MAIN BUILDING-2ND FL- SOUTH END OF HALL - MUDDERED FITTINGS-GREY	Gray Non-Fibrous Homogeneous	50% Min. Wool	50% Non-fibrous (Other)	None Detected
20180416-18C-UA 241802203-0058	MUDDERED FITTINGS-GREY				Not Submitted
20180416-19A-UA 241802203-0059	MAIN BUILDING-SOUTH UPPER LEVEL MECH RM - FABRIC- TAN FABRIC OVER FIBERGLASS INSULATION ON PIPES	Tan Non-Fibrous Homogeneous	20% Cellulose 60% Min. Wool	20% Non-fibrous (Other)	None Detected
20180416-19B-UA 241802203-0060	MAIN BUILDING-2ND FL- SOUTH END OF HALL - FABRIC- TAN FABRIC OVER FIBERGLASS INSULATION ON PIPES	Tan Non-Fibrous Homogeneous	60% Cellulose 20% Min. Wool	20% Non-fibrous (Other)	None Detected
20180416-19C-UA 241802203-0061					Not Submitted
20180416-20A-UA 241802203-0062	MAIN BUILDING-SOUTH UPPER LEVEL MECH RM - VIBRATION FABRIC-WHITE	Gray/White Fibrous Homogeneous		60% Non-fibrous (Other)	40% Chrysotile
20180416-20B-UA 241802203-0063	MAIN BUILDING-SOUTH UPPER LEVEL MECH RM - VIBRATION FABRIC-WHITE				Not Submitted
20180416-20C-UA 241802203-0064	MAIN BUILDING-SOUTH UPPER LEVEL MECH RM - VIBRATION FABRIC-WHITE				Not Submitted
20180416-21A-UA 241802203-0065	MAIN BUILDING-3RD FL SOUTH UPPER LEVEL MECH RM - VIBRATION FABRIC-BLACK	Black Non-Fibrous Homogeneous	20% Glass	80% Non-fibrous (Other)	None Detected
20180416-21B-UA 241802203-0066	MAIN BUILDING-1ST FL GUIDANCE OFFICE ROOM 146 - VIBRATION FABRIC-BLACK	Black Fibrous Homogeneous	15% Glass	85% Non-fibrous (Other)	None Detected
20180416-21C-UA 241802203-0067	MAIN BUILDING-GROUND MECH RM NORTH OF FIRING RANGE - VIBRATION FABRIC- BLACK	Gray/White Fibrous Homogeneous	30% Glass	70% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos % Type
			% Fibrous	% Non-Fibrous	
20180416-22A-UA 241802203-0068	MAIN BUILDING- 3RD FL STAFF BATHROOM - GROUT ASSOCIATED WITH CERAMIC FLOOR TILE- BROWN AND GREEN PATTERN	Gray Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
20180416-22B-UA 241802203-0069	MAIN BUILDING- 2ND FL CENTER WOMENS ROOM - GROUT ASSOCIATED WITH CERAMIC FLOOR TILE- BROWN AND GREEN PATTERN	Gray Non-Fibrous Homogeneous		30% Quartz 70% Non-fibrous (Other)	None Detected
20180416-22C-UA 241802203-0070	MAIN BUILDING- 1ST FL MENS ROOM - GROUT ASSOCIATED WITH CERAMIC FLOOR TILE- BROWN AND GREEN PATTERN	Gray Non-Fibrous Homogeneous		15% Quartz 85% Non-fibrous (Other)	None Detected
20180416-23A-UA 241802203-0071	MAIN BUILDING- 3RD FL STAFF BATHROOM - MUDSET ASSOCIATED WITH CERAMIC FLOOR TILE- BROWN/GREEN PATTERN	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-23B-UA 241802203-0072	MAIN BUILDING- 2ND FL CENTER WOMENS ROOM - MUDSET ASSOCIATED WITH CERAMIC FLOOR TILE- BROWN/GREEN PATTERN	Gray Non-Fibrous Homogeneous		30% Quartz 70% Non-fibrous (Other)	None Detected
20180416-23C-UA 241802203-0073	MAIN BUILDING- 1ST FL MENS ROOM - MUDSET ASSOCIATED WITH CERAMIC FLOOR TILE- BROWN/GREEN PATTERN	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
20180416-24A-UA 241802203-0074	MAIN BUILDING- 3RD FL STAFF BATHROOM - TAR (BLACK) UNDER CERAMIC TILE FLOOR- BUILT UP FLOOR	Black Non-Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
20180416-24B-UA 241802203-0075	MAIN BUILDING- 2ND FL CENTER WOMENS ROOM - TAR (BLACK) UNDER CERAMIC TILE FLOOR- BUILT UP FLOOR	Black Non-Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
20180416-24C-UA 241802203-0076	MAIN BUILDING- 1ST FL MENS ROOM - TAR (BLACK) UNDER CERAMIC TILE FLOOR- BUILT UP FLOOR	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-25A-UA 241802203-0077	MAIN BUILDING- 3RD FLOOR CUSTODIAL - FIRE STOP- RED				Not Submitted
20180416-25B-UA 241802203-0078	MAIN BUILDING- 2ND FL EAST CENTRAL STAIRS - FIRE STOP- RED	Red Non-Fibrous Homogeneous	10% Cellulose 15% Glass	75% Non-fibrous (Other)	None Detected
20180416-25C-UA 241802203-0079	MAIN BUILDING- 1ST FL ROOM 137 - FIRE STOP- RED	Red Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-26A-UA 241802203-0080	MAIN BUILDING- SOUTHEAST STAIR CEILING - CEILING TILE- 12" X 12" LOOSE SPLINED, WHITE WITH STREAK MARKS	Tan/White Non-Fibrous Homogeneous	60% Min. Wool	40% Non-fibrous (Other)	None Detected
20180416-26B-UA 241802203-0081	MAIN BUILDING- EAST CENTER STAIR CEILING - CEILING TILE- 12" X 12" LOOSE SPLINED, WHITE WITH STREAK MARKS	Tan/White Non-Fibrous Homogeneous	60% Min. Wool	40% Non-fibrous (Other)	None Detected
20180416-26C-UA 241802203-0082	MAIN BUILDING- GROUND FLOOR SHOOTING RANGE - CEILING TILE- 12" X 12" LOOSE SPLINED, WHITE WITH STREAK MARKS	Gray Fibrous Homogeneous	80% Min. Wool	20% Non-fibrous (Other)	None Detected
20180416-27A-UA 241802203-0083	MAIN BUILDING- 2ND FL BOTTOM STAIR LANDING - FLOOR TILE- 12" X 12" TAN WITH BROWN SPOTS	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-27B-UA 241802203-0084	MAIN BUILDING- 2ND FL BOTTOM STAIR LANDING - FLOOR TILE- 12" X 12" TAN WITH BROWN SPOTS				Not Submitted

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
20180416-27C-UA 241802203-0085	MAIN BUILDING- 2ND FL BOTTOM STAIR LANDING - FLOOR TILE- 12" X 12" TAN WITH BROWN SPOTS				Not Submitted
20180416-28A-UA 241802203-0086	MAIN BUILDING- 2ND FL BOTTOM STAIR LANDING - BLACK MASTIC ASSOCIATED W/ 12" X 12" FLOOR TILE- TAN WITH BROWN DOTS	Black Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
20180416-28B-UA 241802203-0087	MAIN BUILDING- 2ND FL BOTTOM STAIR LANDING - BLACK MASTIC ASSOCIATED W/ 12" X 12" FLOOR TILE- TAN WITH BROWN DOTS				Not Submitted
20180416-29A-UA 241802203-0088	MAIN BUILDING- 2ND FL ROOM 219 - DOOR WINDOW GLAZING- GREY	Gray Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
20180416-29B-UA 241802203-0089	MAIN BUILDING- 2ND FL ROOM G106 - DOOR WINDOW GLAZING- GREY				Positive Stop (Not Analyzed)
20180416-29C-UA 241802203-0090	S-WING ROOM S-21 - DOOR WINDOW GLAZING- GREY				Positive Stop (Not Analyzed)
20180416-30A-UA 241802203-0091	MAIN BUILDING- 2ND FL CENTER WOMENS ROOM - GROUT ASSOCIATED WITH TAN AND BROWN SPECKLED GLAZE BLOCKS	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
20180416-30B-UA 241802203-0092	MAIN BUILDING- 1ST FL MENS ROOM - GROUT ASSOCIATED WITH TAN AND BROWN SPECKLED GLAZE BLOCKS	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
20180416-30C-UA 241802203-0093	MAIN BUILDING- 1ST FL WOMENS ROOM - GROUT ASSOCIATED WITH TAN AND BROWN SPECKLED GLAZE BLOCKS	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
20180416-31A-UA 241802203-0094	MAIN BUILDING- 2ND FL STAFF BATHROOM - 2' X 4' CEILING TILES- STREAKS AND PIN HOLES (TYPE 3)	Gray/White Non-Fibrous Homogeneous	60% Min. Wool	40% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
20180416-31B-UA 241802203-0095	MAIN BUILDING- 1ST FL STAFF BATHROOM - 2' X 4' CEILING TILES- STREAKS AND PIN HOLES (TYPE 3)	Gray Fibrous Homogeneous	80% Min. Wool	20% Non-fibrous (Other)	None Detected
20180416-32A-UA 241802203-0096	MAIN BUILDING- 2ND FL LIBRARY AT ENTRANCE - CARPET ADHESIVE- YELLOW/BLACK CARPET ADHESIVE	Tan Non-Fibrous Homogeneous	2% Synthetic	98% Non-fibrous (Other)	None Detected
20180416-32B-UA 241802203-0097	MAIN BUILDING- 2ND FL LIBRARY SW CORNER - CARPET ADHESIVE- YELLOW/BLACK CARPET ADHESIVE	Brown/Yellow Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
20180416-33A-UA 241802203-0098	MAIN BUILDING- 2ND FL LIBRARY, SOUTH CENTER AREA - COVE BASE- 4" BLACK	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-33B-UA 241802203-0099	MAIN BUILDING- 1ST FL GUIDANCE OFFICE OUTSIDE OF MECH ROOM 146 - COVE BASE- 4" BLACK	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-34A-UA 241802203-0100	MAIN BUILDING- 2ND FL LIBRARY, SOUTH CENTER AREA - ADHESIVE- YELLOW ASSOCIATED WITH BLACK 4" COVE BASE	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-34B-UA 241802203-0101	MAIN BUILDING- 1ST FL GUIDANCE OUTSIDE OF ROOM 146 - ADHESIVE- YELLOW ASSOCIATED WITH BLACK 4" COVE BASE	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-34C-UA 241802203-0102	MAIN BUILDING- 1ST FL ROOM 135 - ADHESIVE- YELLOW ASSOCIATED WITH BLACK 4" COVE BASE	Tan Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
20180416-35A-UA 241802203-0103	MAIN BUILDING- 2ND FL LIBRARY, SOUTH CENTER AREA - SHEETROCK- PARTITION WALL	Gray Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
20180416-35B-UA 241802203-0104	MAIN BUILDING- 1ST FL GUIDANCE OUTSIDE OF ROOM 146 - SHEETROCK- PARTITION WALL	Gray Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
20180416-35C-UA 241802203-0105	MAIN BUILDING- GROUND FLOOR - SHEETROCK- PARTITION WALL	Gray Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
20180416-36A-UA 241802203-0106	MAIN BUILDING- 2ND FL LIBRARY, SOUTH CENTER AREA - JOINT COMOUND (WHITE)	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-36B-UA 241802203-0107	MAIN BUILDING- 1ST FL GUIDANCE OUTSIDE OF ROOM 146 - JOINT COMOUND (WHITE)	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-36C-UA 241802203-0108	MAIN BUILDING- GROUND FLOOR - JOINT COMOUND (WHITE)	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-37A-UA 241802203-0109	MAIN BUILDING- 2ND FL LIBRARY, SOUTH CENTER AREA - COMPOSITE- SHEETROCK AND JOINT COMPOUND	Gray/White Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
20180416-37B-UA 241802203-0110	MAIN BUILDING- 1ST FL GUIDANCE RM 146 - COMPOSITE- SHEETROCK AND JOINT COMPOUND	Gray/White Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
20180416-37C-UA 241802203-0111	MAIN BUILDING- GROUND FLOOR - COMPOSITE- SHEETROCK AND JOINT COMPOUND	Gray/White Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
20180416-38A-UA 241802203-0112	MAIN BUILDING- 1ST FL GUIDANCE RM 149 - GREY/WHITE WINDOW GLAZING	Gray Fibrous Homogeneous		40% Non-fibrous (Other)	60% Chrysotile
20180416-38B-UA 241802203-0113	MAIN BUILDING- 1ST FL GUIDANCE RM 149 - GREY/WHITE WINDOW GLAZING				Not Submitted
20180416-39A-UA 241802203-0114	MAIN BUILDING- 1ST FL ASST PRINCIPAL RM 138 - COVE BASE- 4" GREY/TAN	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-39B-UA 241802203-0115	S- WING ROOM S6 NURSERY ROOM - COVE BASE- 4" GREY/TAN	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
20180416-40A-UA 241802203-0116	MAIN BUILDING- 1ST FL ASST PRINCIPAL RM 138 - ADHESIVE- YELLOW ASSOCIATED WITH 4" GREY/TAN COVE BASE	Tan Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
20180416-40B-UA 241802203-0117	S- WING ROOM S6 NURSERY ROOM - ADHESIVE- YELLOW ASSOCIATED WITH 4" GREY/TAN COVE BASE	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-41A-UA 241802203-0118	MAIN BUILDING- 1ST FL ASST PRINCIPAL RM 138 - FIRE STOP-GREY	Gray Non-Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
20180416-41B-UA 241802203-0119	MAIN BUILDING- 1ST FL ASST PRINCIPAL RM 138 - FIRE STOP-GREY				Not Submitted
20180416-42A-UA 241802203-0120	MAIN BUILDING- 1ST FL ASST PRINCIPAL RM 138 - FIRE STOP- WHITE	White Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
20180416-42B-UA 241802203-0121	MAIN BUILDING- 1ST FL ASST PRINCIPAL RM 138 - FIRE STOP- WHITE				Not Submitted
20180416-43A-UA 241802203-0122	MAIN BUILDING- 1ST FL RM 137 SCIENCE LAB - FLOOR TILE- 12" X 12" TAN WITH BROWN SPOTS	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-43B-UA 241802203-0123	MAIN BUILDING- 1ST FL RM 136 SCIENCE LAB - FLOOR TILE- 12" X 12" TAN WITH BROWN SPOTS	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-43C-UA 241802203-0124	MAIN BUILDING- 1ST FL RM 135 - FLOOR TILE- 12" X 12" TAN WITH BROWN SPOTS				Not Submitted
20180416-44A-UA 241802203-0125	MAIN BUILDING- 1ST FL RM 137 SCIENCE LAB - FLOOR TILE- 12" X 12" GREY WITH BROWN SPOTS	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-44B-UA 241802203-0126	MAIN BUILDING- 1ST FL RM 136 SCIENCE LAB - FLOOR TILE- 12" X 12" GREY WITH BROWN SPOTS	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos % Type
			% Fibrous	% Non-Fibrous	
20180416-44C-UA 241802203-0127	MAIN BUILDING- 1ST FL RM 135 - FLOOR TILE- 12" X 12" GREY WITH BROWN SPOTS	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-45A-UA 241802203-0128	MAIN BUILDING- 1ST FL RM 137 SCIENCE LAB - BLACK MASTIC ASSOCIATED WITH 43 AND 44	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-45B-UA 241802203-0129	MAIN BUILDING- 1ST FL RM 136 SCIENCE LAB - BLACK MASTIC ASSOCIATED WITH 43 AND 44	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-45C-UA 241802203-0130	MAIN BUILDING- 1ST FL RM 135 - BLACK MASTIC ASSOCIATED WITH 43 AND 44	Brown/Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-46A-UA 241802203-0131	MAIN BUILDING- 1ST FL RM 137 SCIENCE LAB - 2' X 4' CEILING TILES- WHITE WITH ROUGH BACK (TYPE 4)	Gray Fibrous Homogeneous	40% Cellulose 40% Min. Wool	20% Non-fibrous (Other)	None Detected
20180416-46B-UA 241802203-0132	MAIN BUILDING- 1ST FL RM 136 SCIENCE LAB - 2' X 4' CEILING TILES- WHITE WITH ROUGH BACK (TYPE 4)	Gray Fibrous Homogeneous	35% Cellulose 40% Min. Wool	5% Perlite 20% Non-fibrous (Other)	None Detected
20180416-46C-UA 241802203-0133	MAIN BUILDING- 1ST FL RM 135 - 2' X 4' CEILING TILES- WHITE WITH ROUGH BACK (TYPE 4)	Gray Fibrous Homogeneous	40% Cellulose 40% Min. Wool	20% Non-fibrous (Other)	None Detected
20180416-47A-UA 241802203-0134	MAIN BUILDING- 1ST FL RM 137 SCIENCE LAB - COUNTER TOP- BLACK COUNTER TOP/TABLE	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-47B-UA 241802203-0135	MAIN BUILDING- 1ST FL RM 136 SCIENCE LAB - COUNTER TOP- BLACK COUNTER TOP/TABLE	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-47C-UA 241802203-0136	MAIN BUILDING- 1ST FL RM 135 - COUNTER TOP- BLACK COUNTER TOP/TABLE	Black Non-Fibrous Homogeneous		2% Quartz 98% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
20180416-48A-UA 241802203-0137	MAIN BUILDING- 1ST FL STAFF BATHROOM - GROUT- ASSOCIATED WITH TAN CERAMIC TILES	Tan Non-Fibrous Homogeneous		2% Quartz 98% Non-fibrous (Other)	None Detected
20180416-48B-UA 241802203-0138	MAIN BUILDING- 1ST FL STAFF BATHROOM - GROUT- ASSOCIATED WITH TAN CERAMIC TILES	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
20180416-49A-UA 241802203-0139	MAIN BUILDING- 1ST FL STAFF BATHROOM - MUDSET- ASSOCIATED WITH TAN CERAMIC TILES	Tan Non-Fibrous Homogeneous		2% Quartz 98% Non-fibrous (Other)	None Detected
20180416-49B-UA 241802203-0140	MAIN BUILDING- 1ST FL STAFF BATHROOM - MUDSET- ASSOCIATED WITH TAN CERAMIC TILES	Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-50A-UA 241802203-0141	MAIN BUILDING- 1ST FL JANITOR CLOSET - PINK FIRE STOP COMPOUND	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-50B-UA 241802203-0142	MAIN BUILDING- 1ST FL JANITOR CLOSET - PINK FIRE STOP COMPOUND	Pink Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
20180416-51A-UA 241802203-0143	MAIN BUILDING- 1ST FL LECTURE HALL - 2' X 4' CEILING TILES- WHITE SMOOTH SURFACE WITH PIN HOLES (TYPE 5)	Gray/White Fibrous Homogeneous	35% Cellulose 35% Min. Wool	30% Non-fibrous (Other)	None Detected
20180416-51B-UA 241802203-0144	MAIN BUILDING- 1ST FL LECTURE HALL - 2' X 4' CEILING TILES- WHITE SMOOTH SURFACE WITH PIN HOLES (TYPE 5)	Gray Fibrous Homogeneous	30% Cellulose 50% Min. Wool	20% Non-fibrous (Other)	None Detected
20180416-52A-UA 241802203-0145	AUDITORIUM BLDG- LECTURE HALL STORAGE - SKIM COAT PLASTER CEILING	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-52B-UA 241802203-0146	AUDITORIUM BLDG- LECTURE HALL STORAGE - SKIM COAT PLASTER CEILING	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos % Type
			% Fibrous	% Non-Fibrous	
20180416-52C-UA 241802203-0147	AUDITORIUM BLDG- LECTURE HALL STORAGE - SKIM COAT PLASTER CEILING	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-53A-UA 241802203-0148	AUDITORIUM BLDG- LECTURE HALL STORAGE - ROUGH COAT PLASTER CEILING	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
20180416-53B-UA 241802203-0149	AUDITORIUM BLDG- LECTURE HALL STORAGE - ROUGH COAT PLASTER CEILING	Gray Non-Fibrous Homogeneous		5% Quartz 95% Non-fibrous (Other)	None Detected
20180416-53C-UA 241802203-0150	AUDITORIUM BLDG- LECTURE HALL STORAGE - ROUGH COAT PLASTER CEILING	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
20180416-54A-UA 241802203-0151	AUDITORIUM BLDG- 1ST FL CUSTODIAL - HARD TEXTURED CEILING SURFACING MATERIAL- TOP LAYER	White Non-Fibrous Homogeneous		2% Quartz 98% Non-fibrous (Other)	None Detected
20180416-54B-UA 241802203-0152	AUDITORIUM BLDG- 1ST FL STAIR TO PROJECTOR - HARD TEXTURED CEILING SURFACING MATERIAL- TOP LAYER	White Non-Fibrous Homogeneous		2% Quartz 98% Non-fibrous (Other)	None Detected
20180416-54C-UA 241802203-0153	AUDITORIUM BLDG- 1ST FL STAIR TO PROJECTOR - HARD TEXTURED CEILING SURFACING MATERIAL- TOP LAYER	White Non-Fibrous Homogeneous		2% Quartz 98% Non-fibrous (Other)	None Detected
20180416-54D-UA 241802203-0154	AUDITORIUM BLDG- EAST WALL - HARD TEXTURED CEILING SURFACING MATERIAL- TOP LAYER	White Non-Fibrous Homogeneous		2% Quartz 98% Non-fibrous (Other)	None Detected
20180416-54E-UA 241802203-0155	AUDITORIUM BLDG- EAST WALL - HARD TEXTURED CEILING SURFACING MATERIAL- TOP LAYER	White Non-Fibrous Homogeneous		2% Quartz 98% Non-fibrous (Other)	None Detected
20180416-54F-UA 241802203-0156	AUDITORIUM BLDG- NORTH CENTER COLUMN - HARD TEXTURED CEILING SURFACING MATERIAL- TOP LAYER	White Non-Fibrous Homogeneous		2% Quartz 98% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos % Type
			% Fibrous	% Non-Fibrous	
20180416-54G-UA 241802203-0157	AUDITORIUM BLDG- SOUTH CENTER COLUMN - HARD TEXTURED CEILING SURFACING MATERIAL- TOP LAYER	White Non-Fibrous Homogeneous		5% Quartz 95% Non-fibrous (Other)	None Detected
20180416-55A-UA 241802203-0158	AUDITORIUM BLDG- 1ST FL CUSTODIAL - HARD TEXTURED CEILING SURFACING MATERIAL- BOTTOM LAYER	Gray Non-Fibrous Homogeneous		10% Vermiculite 90% Non-fibrous (Other)	None Detected
20180416-55B-UA 241802203-0159	AUDITORIUM BLDG- 1ST FL STAIR TO PROJECTOR - HARD TEXTURED CEILING SURFACING MATERIAL- BOTTOM LAYER	Gray Non-Fibrous Homogeneous		10% Vermiculite 90% Non-fibrous (Other)	None Detected
20180416-55C-UA 241802203-0160	AUDITORIUM BLDG- 1ST FL STAIR TO PROJECTOR - HARD TEXTURED CEILING SURFACING MATERIAL- BOTTOM LAYER	Gray Non-Fibrous Homogeneous		10% Vermiculite 90% Non-fibrous (Other)	None Detected
20180416-55D-UA 241802203-0161	AUDITORIUM BLDG- EAST WALL - HARD TEXTURED CEILING SURFACING MATERIAL- BOTTOM LAYER	Gray Non-Fibrous Homogeneous		10% Vermiculite 90% Non-fibrous (Other)	None Detected
20180416-55E-UA 241802203-0162	AUDITORIUM BLDG- EAST WALL - HARD TEXTURED CEILING SURFACING MATERIAL- BOTTOM LAYER	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
20180416-55F-UA 241802203-0163	AUDITORIUM BLDG- NORTH CENTER COLUMN - HARD TEXTURED CEILING SURFACING MATERIAL- BOTTOM LAYER	Gray Non-Fibrous Homogeneous		10% Vermiculite 90% Non-fibrous (Other)	None Detected
20180416-55G-UA 241802203-0164	AUDITORIUM BLDG- SOUTH CENTER COLUMN - HARD TEXTURED CEILING SURFACING MATERIAL- BOTTOM LAYER	Gray Non-Fibrous Homogeneous		10% Vermiculite 90% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
20180416-56A-UA 241802203-0165	AUDITORIUM BLDG-LOBBY ENTRANCE TO MAIN OFFICE - SOFT TEXTURED CEILING SURFACING MATERIAL- TOP LAYER	White Non-Fibrous Homogeneous	30% Cellulose	66% Non-fibrous (Other)	4% Chrysotile
20180416-56B-UA 241802203-0166	AUDITORIUM BLDG-LOBBY/ MAIN ENTRANCE EAST - SOFT TEXTURED CEILING SURFACING MATERIAL- TOP LAYER				Positive Stop (Not Analyzed)
20180416-56C-UA 241802203-0167	AUDITORIUM BLDG-LOBBY/ MAIN ENTRANCE CENTER - SOFT TEXTURED CEILING SURFACING MATERIAL- TOP LAYER				Positive Stop (Not Analyzed)
20180416-56D-UA 241802203-0168	AUDITORIUM BLDG-LOBBY/ MAIN ENTRANCE SOUTH - SOFT TEXTURED CEILING SURFACING MATERIAL- TOP LAYER				Positive Stop (Not Analyzed)
20180416-56E-UA 241802203-0169	AUDITORIUM BLDG-LOBBY/ MAIN ENTRANCE SOUTH - SOFT TEXTURED CEILING SURFACING MATERIAL- TOP LAYER				Positive Stop (Not Analyzed)
20180416-57A-UA 241802203-0170	AUDITORIUM BLDG-LOBBY ENTRANCE TO MAIN OFFICE - SOFT TEXTURED CEILING SURFACING MATERIAL- BOTTOM LAYER	Gray Non-Fibrous Homogeneous		15% Quartz 85% Non-fibrous (Other)	None Detected
20180416-57B-UA 241802203-0171	AUDITORIUM BLDG-LOBBY/ MAIN ENTRANCE EAST - SOFT TEXTURED CEILING SURFACING MATERIAL- BOTTOM LAYER	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected

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			% Fibrous	% Non-Fibrous	
20180416-57C-UA 241802203-0172	AUDITORIUM BLDG-LOBBY/ MAIN ENTRANCE CENTER - SOFT TEXTURED CEILING SURFACING MATERIAL- BOTTOM LAYER	Gray Non-Fibrous Homogeneous		15% Quartz 85% Non-fibrous (Other)	None Detected
20180416-57D-UA 241802203-0173	AUDITORIUM BLDG-LOBBY/ MAIN ENTRANCE SOUTH - SOFT TEXTURED CEILING SURFACING MATERIAL- BOTTOM LAYER	Gray Non-Fibrous Homogeneous		15% Quartz 85% Non-fibrous (Other)	None Detected
20180416-57E-UA 241802203-0174	AUDITORIUM BLDG-LOBBY/ MAIN ENTRANCE SOUTH - SOFT TEXTURED CEILING SURFACING MATERIAL- BOTTOM LAYER	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
20180416-58A-UA 241802203-0175	AUDITORIUM BLDG- 1ST FL FRONT ENTRY - CAULKING-GREY CAULKING AT WINDOW PANEL	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-58B-UA 241802203-0176	AUDITORIUM BLDG- 1ST FL FRONT ENTRY SOUTH - CAULKING-GREY CAULKING AT WINDOW PANEL	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-58C-UA 241802203-0177	AUDITORIUM BLDG- 1ST FL FRONT ENTRY NORTH - CAULKING-GREY CAULKING AT WINDOW PANEL	Brown/Clear Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-59A-UA 241802203-0178	AUDITORIUM BLDG- NORTH EXIT, SINGLE DOOR - CARPET GLUE- GREEN/YELLOW CARPET GLUE OVER BLACK MASTIC	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-59B-UA 241802203-0179	AUDITORIUM BLDG- EAST ENTRY DOUBLE DOOR - CARPET GLUE- GREEN/YELLOW CARPET GLUE OVER BLACK MASTIC	Tan/Green Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos % Type
			% Fibrous	% Non-Fibrous	
20180416-60A-UA 241802203-0180	AUDITORIUM BLDG- AUDITORIUM NORTH SIDE - EPOXY FLOOR COATING- TAN WITH YELLOW AND BLACK DOTS	Gray/Tan/Green Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
20180416-60B-UA 241802203-0181	AUDITORIUM BLDG- AUDITORIUM SOUTH SIDE - EPOXY FLOOR COATING- TAN WITH YELLOW AND BLACK DOTS	Gray Non-Fibrous Homogeneous		15% Quartz 85% Non-fibrous (Other)	None Detected
20180416-61A-UA 241802203-0182	AUDITORIUM BLDG- AUDITORIUM NORTH BY SINGLE EXIT DOOR - GREY LEVELING COMPOUND UNDER CARPET	Gray/Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-61B-UA 241802203-0183	AUDITORIUM BLDG- AUDITORIUM EAST BY DOUBLE ENTRY DOOR - GREY LEVELING COMPOUND UNDER CARPET	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-62A-UA 241802203-0184	AUDITORIUM BLDG- AUDITORIUM NE DOUBLE DOOR - GREY DOOR CAULKING	Gray Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
20180416-62B-UA 241802203-0185	AUDITORIUM BLDG- AUDITORIUM NORTH EXIT DOOR - GREY DOOR CAULKING				Positive Stop (Not Analyzed)
20180416-63A-UA 241802203-0186	AUDITORIUM BLDG- AUDITORIUM NORTH EXIT DOOR - BROWN DOOR CAULKING	Brown/Gray Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
20180416-63B-UA 241802203-0187	GYM BLDG- 1ST FL WEST ENTRY OUTSIDE OF GYM - BROWN DOOR CAULKING				Positive Stop (Not Analyzed)
20180416-64A-UA 241802203-0188	AUDITORIUM BLDG- AUDITORIUM SE STAIR LANDING - BLACK LINOLEUM FLOORING WITH CIRCLES	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-64B-UA 241802203-0189	AUDITORIUM BLDG- AUDITORIUM SE STAIR LANDING - BLACK LINOLEUM FLOORING WITH CIRCLES	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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			% Fibrous	% Non-Fibrous	% Type
20180416-65A-UA 241802203-0190	AUDITORIUM BLDG-AUDITORIUM SE STAIR LANDING - YELLOW ADHESIVE ASSOCIATED WITH BLACK LINOLEUM FLOORING W/ CIRCLES	Gray/Tan Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
20180416-65B-UA 241802203-0191	AUDITORIUM BLDG-AUDITORIUM SE STAIR LANDING - YELLOW ADHESIVE ASSOCIATED WITH BLACK LINOLEUM FLOORING W/ CIRCLES	Gray/Tan Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
20180416-66A-UA 241802203-0192	AUDITORIUM BLDG CORRIDOR OUTSIDE OF GYM STORAGE ROOM - GREEN PIPE	Yellow/Green Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (Other)	None Detected
20180416-66B-UA 241802203-0193	AUDITORIUM BLDG-GROUND LEVEL MENS LOCKER RM - GREEN PIPE	Tan/White Fibrous Homogeneous	70% Cellulose 15% Min. Wool	15% Non-fibrous (Other)	None Detected
20180416-67A-UA 241802203-0194	AUDITORIUM BLDG-GYMNASIUM EAST WALL - MUDDED FITTINGS- GREY MUDDED FITTING OVER FIBERGLASS INSULATION	Gray Fibrous Homogeneous	80% Min. Wool	20% Non-fibrous (Other)	None Detected
20180416-67B-UA 241802203-0195	AUDITORIUM BLDG-MECH RM OUTSIDE OF GYM - MUDDED FITTINGS- GREY MUDDED FITTING OVER FIBERGLASS INSULATION	Gray Fibrous Homogeneous	40% Min. Wool	60% Non-fibrous (Other)	None Detected
20180416-68A-UA 241802203-0196	AUDITORIUM BLDG-GYM EAST WALL - COVE BASE- THICK BLACK COVE BASE	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-68B-UA 241802203-0197	AUDITORIUM BLDG-GYM EAST WALL - COVE BASE- THICK BLACK COVE BASE	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-69A-UA 241802203-0198	AUDITORIUM BLDG-GYM EAST WALL - ADHESIVE- ASSOCIATED WITH THICK BLACK COVE BASE	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-69B-UA 241802203-0199	AUDITORIUM BLDG-GYM EAST WALL - ADHESIVE- ASSOCIATED WITH THICK BLACK COVE BASE	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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			% Fibrous	% Non-Fibrous	% Type
20180416-69C-UA 241802203-0200	AUDITORIUM BLDG- GYM EAST WALL - ADHESIVE- ASSOCIATED WITH THICK BLACK COVE BASE				Not Submitted
20180416-70A-UA 241802203-0201	AUDITORIUM BLDG- GYM SOUTH WALL - ADHESIVE- YELLOW ADHESIVE BEHIND GYM WALL MATS	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-70B-UA 241802203-0202	AUDITORIUM BLDG- GYM SOUTH WALL - ADHESIVE- YELLOW ADHESIVE BEHIND GYM WALL MATS				Not Submitted
20180416-71A-UA 241802203-0203	AUDITORIUM BLDG- POOL - SPRAY ON- WHITE CEILING COATING (FIRE PROOFING)	White Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (Other)	None Detected
20180416-71B-UA 241802203-0204	AUDITORIUM BLDG- POOL - SPRAY ON- WHITE CEILING COATING (FIRE PROOFING)	White Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (Other)	None Detected
20180416-71C-UA 241802203-0205	AUDITORIUM BLDG- POOL - SPRAY ON- WHITE CEILING COATING (FIRE PROOFING)	White Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
20180416-71D-UA 241802203-0206	AUDITORIUM BLDG- POOL - SPRAY ON- WHITE CEILING COATING (FIRE PROOFING)	White Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
20180416-71E-UA 241802203-0207	AUDITORIUM BLDG- POOL - SPRAY ON- WHITE CEILING COATING (FIRE PROOFING)	White Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
20180416-72A-UA 241802203-0208	AUDITORIUM BLDG- POOL - MUDSET- ASSOCIATED WITH GREEN CERAMIC WALL TILE	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-72B-UA 241802203-0209	AUDITORIUM BLDG- POOL - MUDSET- ASSOCIATED WITH GREEN CERAMIC WALL TILE	White Non-Fibrous Homogeneous		5% Quartz 95% Non-fibrous (Other)	None Detected
20180416-73A-UA 241802203-0210	AUDITORIUM BLDG- POOL - GROUT- ASSOCIATED WITH GREEN CERAMIC WALL	Tan Non-Fibrous Homogeneous		5% Quartz 95% Non-fibrous (Other)	None Detected

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			% Fibrous	% Non-Fibrous	
20180416-73B-UA 241802203-0211	AUDITORIUM BLDG- POOL - GROUT- ASSOCIATED WITH GREEN CERAMIC WALL	White Non-Fibrous Homogeneous		2% Quartz 98% Non-fibrous (Other)	None Detected
20180416-74A-UA 241802203-0212	AUDITORIUM BLDG- POOL - MUDSET- ASSOCIATED WITH WHITE AND GREEN CERAMIC FLOOR TILES	Gray/White Non-Fibrous Homogeneous		5% Quartz 95% Non-fibrous (Other)	None Detected
20180416-74B-UA 241802203-0213	AUDITORIUM BLDG- POOL - MUDSET- ASSOCIATED WITH WHITE AND GREEN CERAMIC FLOOR TILES	Gray/White Non-Fibrous Homogeneous		5% Quartz 95% Non-fibrous (Other)	None Detected
20180416-75A-UA 241802203-0214	AUDITORIUM BLDG- POOL - GROUT- ASSOCIATED WITH WHITE AND GREEN CERAMIC FLOOR TILES	Tan Non-Fibrous Homogeneous		5% Quartz 95% Non-fibrous (Other)	None Detected
20180416-75B-UA 241802203-0215	AUDITORIUM BLDG- POOL - GROUT- ASSOCIATED WITH WHITE AND GREEN CERAMIC FLOOR TILES	Gray Non-Fibrous Homogeneous		2% Quartz 98% Non-fibrous (Other)	None Detected
20180416-76A-UA 241802203-0216	AUDITORIUM BLDG- POOL- SOUTH WALL - FIBERGLASS INSULATION BEHIND PLYWOOD WALLBOARD PANELING	Brown/Black Fibrous Homogeneous	50% Cellulose 20% Glass	30% Non-fibrous (Other)	None Detected
20180416-76B-UA 241802203-0217	AUDITORIUM BLDG- POOL- SOUTH WALL - FIBERGLASS INSULATION BEHIND PLYWOOD WALLBOARD PANELING	Tan/Pink Fibrous Homogeneous	40% Cellulose 40% Glass	20% Non-fibrous (Other)	None Detected
20180416-77A-UA 241802203-0218	AUDITORIUM BLDG- GYM LOBBY AT TROPHY CASE - COVE BASE- 4" LIGHT BROWN	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-77B-UA 241802203-0219	AUDITORIUM BLDG- GYM LOBBY AT TROPHY CASE - COVE BASE- 4" LIGHT BROWN	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-78A-UA 241802203-0220	AUDITORIUM BLDG- GYM LOBBY AT TROPHY CASE - ADHESIVE- BROWN AND BLACK ASSOCIATE WITH 4" COVE BASE	Brown Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected

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EMSL Order: 241802203

Customer ID: ENVI54

Customer PO: 20170858.A1E

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 % Type
			% Fibrous	% Non-Fibrous	
20180416-78B-UA 241802203-0221	AUDITORIUM BLDG- GYM LOBBY AT TROPHY CASE - ADHESIVE- BROWN AND BLACK ASSOCIATE WITH 4" COVE BASE	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-79A-UA 241802203-0222	AUDITORIUM BLDG- FITNESS/ ROOM 134 - GLUE DAUBS- WHITE GLUE DAUB, PAINTED GREEN	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-79B-UA 241802203-0223	AUDITORIUM BLDG- FITNESS/ ROOM 134 - GLUE DAUBS- WHITE GLUE DAUB, PAINTED GREEN	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-80A-UA 241802203-0224	AUDITORIUM BLDG- GROUND FLR FIRING RANGE CEILING - GLUE DAUBS- DARK BROWN, ASSOCIATED WITH 12" X 12" CEILING TILES	Brown Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
20180416-80B-UA 241802203-0225	MAIN BLDG- GROUND LEVEL SE EXT LOBBY - GLUE DAUBS- DARK BROWN, ASSOCIATED WITH 12" X 12" CEILING TILES				Not Submitted
20180416-80C-UA 241802203-0226	MAIN BLDG- GROUND LEVEL SE EXT LOBBY - GLUE DAUBS- DARK BROWN, ASSOCIATED WITH 12" X 12" CEILING TILES				Not Submitted
20180416-81A-UA 241802203-0227	AUDITORIUM BLDG- GROUND LEVEL FIRING RANGE WALL - GLUE DAUB- YELLOW ASSOCIATED WITH 12" X 12" WALL TILES				Not Submitted
20180416-81B-UA 241802203-0228	AUDITORIUM BLDG- GROUND LEVEL FIRING RANGE WALL - GLUE DAUB- YELLOW ASSOCIATED WITH 12" X 12" WALL TILES				Not Submitted

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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 % Type
			% Fibrous	% Non-Fibrous	
20180416-82A-UA 241802203-0229	AUDITORIUM BLDG- GROUND LEVEL SHOOTING RANGE - GLUE- BROWN DUCT PIN GLUE	Tan Non-Fibrous Homogeneous		90% Non-fibrous (Other)	10% Chrysotile
20180416-82B-UA 241802203-0230	AUDITORIUM BLDG- GROUND LEVEL SHOOTING RANGE - GLUE- BROWN DUCT PIN GLUE				Positive Stop (Not Analyzed)
20180416-83A-UA 241802203-0231	AUDITORIUM BLDG- GROUND LEVEL SHOOTING RANGE - ADHESIVE- YELLOW ASSOCIATED WITH WHITE WALL BOARD	Yellow Fibrous Homogeneous	5% Cellulose 50% Glass	45% Non-fibrous (Other)	None Detected
20180416-83B-UA 241802203-0232	AUDITORIUM BLDG- GROUND LEVEL SHOOTING RANGE - ADHESIVE- YELLOW ASSOCIATED WITH WHITE WALL BOARD	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-84A-UA 241802203-0233	AUDITORIUM BLDG- GROUND LEVEL SHOOTING RANGE MECH ROOM BEHIND RANGE - YELLOW ADHESIVE ASSOCIATED WITH FIBERGLASS INSULATION ON DUCTWORK				Not Submitted
20180416-84B-UA 241802203-0234	AUDITORIUM BLDG- GROUND LEVEL SHOOTING RANGE MECH ROOM BEHIND RANGE - YELLOW ADHESIVE ASSOCIATED WITH FIBERGLASS INSULATION ON DUCTWORK	Yellow Fibrous Homogeneous	65% Glass	35% Non-fibrous (Other)	None Detected
20180416-85A-UA 241802203-0235	AUDITORIUM BLDG- GROUND FLR MENS LOCKER RM - WINDOW PANELING GLAZING (INTERIOR PARTITION WINDOW)	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-85B-UA 241802203-0236	AUDITORIUM BLDG- GROUND FLR WOMENS LOCKER RM - WINDOW PANELING GLAZING (INTERIOR PARTITION WINDOW)	Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile

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

		Non-Asbestos		Asbestos	
Sample	Description	Appearance	% Fibrous	% Non-Fibrous	% Type
Sample group is not homogenous.					
20180416-86A-UA 241802203-0237	AUDITORIUM BLDG- GROUND FLR MENS LOCKER RM - WHITE CAULKING ASSOCIATED WITH BROWN MARBLE SHOWER PARTITIONS	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-86B-UA 241802203-0238	AUDITORIUM BLDG- GROUND FLR WOMENS LOCKER RM - WHITE CAULKING ASSOCIATED WITH BROWN MARBLE SHOWER PARTITIONS	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-87A-UA 241802203-0239	MAIN BUILDING- GROUND FL ROOM C22 - WHITE SINK UNDERCOATING	White Non-Fibrous Homogeneous		94% Non-fibrous (Other)	6% Chrysotile
20180416-87B-UA 241802203-0240	MAIN BUILDING- GROUND FL ROOM C22 - WHITE SINK UNDERCOATING				Positive Stop (Not Analyzed)
20180416-88A-UA 241802203-0241	MAIN BUILDING- GROUND FL- CAFETERIA CENTER - 2' X 2' CEILING TILE WITH ROUGH SURFACE	Gray/White Fibrous Homogeneous	45% Cellulose 45% Glass	10% Non-fibrous (Other)	None Detected
20180416-88B-UA 241802203-0242	MAIN BUILDING- GROUND FL- CAFETERIA CENTER - 2' X 2' CEILING TILE WITH ROUGH SURFACE	Gray/White Fibrous Homogeneous	40% Cellulose 40% Min. Wool	20% Non-fibrous (Other)	None Detected
20180416-89A-UA 241802203-0243	MAIN BUILDING- GROUND FL- CAFETERIA NORTH WALL - BLACK GLUE DAUBS	Brown Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
20180416-89B-UA 241802203-0244	MAIN BUILDING- GROUND FL- CAFETERIA NORTH WALL - BLACK GLUE DAUBS	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-90A-UA 241802203-0245	MAIN BUILDING- GROUND FL- CAFETERIA RM C3 - WINDOW CAULKING- DARK BROWN	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-90B-UA 241802203-0246	MAIN BUILDING- GROUND FL- CAFETERIA RM C3A - WINDOW CAULKING- DARK BROWN	Brown Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected

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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 % Type
			% Fibrous	% Non-Fibrous	
20180416-91A-UA 241802203-0247	MAIN BUILDING- GROUND LEVEL KITCHEN FOOD STORAGE - TEXTURED CEILING COATING- WHITE ON WAFFLE CEILING	Gray/White Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
20180416-91B-UA 241802203-0248	MAIN BUILDING- GROUND LEVEL KITCHEN FOOD STORAGE - TEXTURED CEILING COATING- WHITE ON WAFFLE CEILING	Gray/White Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
20180416-91C-UA 241802203-0249	MAIN BUILDING- GROUND LEVEL KITCHEN FOOD STORAGE - TEXTURED CEILING COATING- WHITE ON WAFFLE CEILING				Not Submitted
20180416-91D-UA 241802203-0250	MAIN BUILDING- GROUND LEVEL RECEIVING AREA - TEXTURED CEILING COATING- WHITE ON WAFFLE CEILING				Not Submitted
20180416-91E-UA 241802203-0251	MAIN BUILDING- GROUND LEVEL RECEIVING AREA - TEXTURED CEILING COATING- WHITE ON WAFFLE CEILING	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-92A-UA 241802203-0252	MAIN BUILDING- UPPER/LOWER BOILER ROOM - GLUE DAUBS- GREEN GLUE DAUB ON STYROFOAM CEILING AND WALL PANEL	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-92B-UA 241802203-0253	MAIN BUILDING- UPPER/LOWER BOILER ROOM - GLUE DAUBS- GREEN GLUE DAUB ON STYROFOAM CEILING AND WALL PANEL	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected



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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 % Type
			% Fibrous	% Non-Fibrous	
20180416-92C-UA 241802203-0254	MAIN BUILDING- UPPER/LOWER BOILER ROOM - GLUE DAUBS- GREEN GLUE DAUB ON STYROFOAM CEILING AND WALL PANEL	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20180416-93A-UA 241802203-0255	MAIN BUILDING- BOILER ROOM UPPER - PACKING INSULATION	Gray Fibrous Homogeneous		80% Non-fibrous (Other)	10% Amosite 10% Chrysotile
20180416-93B-UA 241802203-0256	MAIN BUILDING- BOILER ROOM LOWER - PACKING INSULATION				Positive Stop (Not Analyzed)
20180416-93C-UA 241802203-0257	MAIN BUILDING- BOILER ROOM LOWER SEPERATION TANK 1 - PACKING INSULATION				Positive Stop (Not Analyzed)
20180416-94A-UA 241802203-0258	MAIN BUILDING- BOILER ROOM UPPER - MUDDED FITTINGS	Gray Fibrous Homogeneous	65% Min. Wool	35% Non-fibrous (Other)	None Detected
20180416-94B-UA 241802203-0259	MAIN BUILDING- BOILER ROOM LOWER - MUDDED FITTINGS				Not Submitted
20180416-95A-UA 241802203-0260	MAIN BUILDING- BOILER ROOM LOWER - BREACHING INSULATION	Gray Non-Fibrous Homogeneous		70% Non-fibrous (Other)	15% Amosite 15% Chrysotile
20180416-95B-UA 241802203-0261	MAIN BUILDING- BOILER ROOM LOWER - BREACHING INSULATION				Positive Stop (Not Analyzed)
20180416-95C-UA 241802203-0262	MAIN BUILDING- BOILER ROOM LOWER - BREACHING INSULATION				Positive Stop (Not Analyzed)
20180416-96A-UA 241802203-0263	MAIN BUILDING- BOILER ROOM- BOILER #2 - BOILER GASKET ROPE	Tan Fibrous Homogeneous	40% Cellulose 25% Glass	35% Non-fibrous (Other)	None Detected
20180416-96B-UA 241802203-0264	MAIN BUILDING- BOILER ROOM- BOILER #2 - BOILER GASKET ROPE	Gray/Tan Fibrous Homogeneous	20% Cellulose 70% Glass	10% Non-fibrous (Other)	None Detected
20180416-97A-UA 241802203-0265	S-WING ROOM S-6 - FLOOR TILE (12" X 12")- RED & TAN DOTTED	Red Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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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 % Type
			% Fibrous	% Non-Fibrous	
20180416-97B-UA 241802203-0266	S-WING ROOM S-6 - FLOOR TILE (12" X 12")- RED & TAN DOTTED				Not Submitted
20180416-98A-UA 241802203-0267	S-WING ROOM S-6 - BLACK MASTIC ASSOCIATED WITH 12' X 12" RED & TAN FLOOR TILE	Black Non-Fibrous Homogeneous		92% Non-fibrous (Other)	8% Chrysotile
20180416-98B-UA 241802203-0268	S-WING ROOM S-6 - BLACK MASTIC ASSOCIATED WITH 12' X 12" RED & TAN FLOOR TILE				Positive Stop (Not Analyzed)

Analyst(s)

Almedina Hodzic (81)

Lauren Brennan (23)

Lauren Buffone (9)

Quetcy Castro Romero (97)

Lauren Brennan, Asbestos Lab Manager
or Other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Wallingford, CT NVLAP Lab Code 200700-0.

Initial report from: 05/09/2018 12:10:48



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EMSL Order: 241802203

Customer ID: ENV154

Customer PO: 20170858.A1E

Project ID:

Attention: Carlos Texidor
Fuss & O'Neill EnviroScience, LLC
146 Hartford Road
Manchester, CT 06040

Phone: (860) 510-4365
Fax: (888) 838-1160
Received Date: 05/02/2018 2:00 PM
Analysis Date: 05/08/2018
Collected Date:

Project: 20170858.A1E/ NEW LONDON HIGH SCHOOL MAIN CLASSROOM BUILDING, AUDITORIUM/GYM BUILDING

Test Report: Asbestos Analysis of Non-Friable Organically Bound Materials by TEM via EPA/600/R-93/116 Section 2.5.5.1

Sample ID	Description	Appearance	% Matrix Material	% Non-Asbestos Fibers	Asbestos Types
20180416-9A-UA 241802203-0029	MAIN BUILDING- 3RD FLOOR ROOM 332 - COVE BASE- 4" BLACK ON WOODEN CABINETS	Black Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-10A-UA 241802203-0032	MAIN BUILDING- 3RD FLOOR ROOM 332 - ADHESIVE- DARK BROWN ASSOCIATED W/ 4" BLACK COVE BASE @ CABINETS	Brown Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-13A-UA 241802203-0041	MAIN BUILDING- 3RD FLOOR ROOM 302 - COUNTERTOP LAMINATE- BROWN/TAN	Brown/Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-14A-UA 241802203-0044	MAIN BUILDING- 3RD FLOOR ROOM 302 - ASHESIVE ASSOCIATED WITH COUNTERTOP- BROWN	Brown Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-15A-UA 241802203-0047	MAIN BUILDING- 3RD FLOOR BOOK STORAGE - DUCT SEAM SEALANT- GREY/TAN	Gray/White Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-16A-UA 241802203-0050	MAIN BUILDING- 3RD FL EAST STAIR LANDING - FLOOR TILE- 12"X12" GREEN (LIGHT GREEN WITH WHITE DOTS)	Green Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-24A-UA 241802203-0074	MAIN BUILDING- 3RD FL STAFF BATHROOM - TAR (BLACK) UNDER CERAMIC TILE FLOOR- BUILT UP FLOOR	Black Non-Fibrous Homogeneous	100	None	<0.1% Chrysotile
20180416-25B-UA 241802203-0078	MAIN BUILDING- 2ND FL EAST CENTRAL STAIRS - FIRE STOP- RED	Red Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-27A-UA 241802203-0083	MAIN BUILDING- 2ND FL BOTTOM STAIR LANDING - FLOOR TILE- 12" X 12" TAN WITH BROWN SPOTS	Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected

This laboratory is not responsible for % asbestos in total sample when the residue only is submitted for analysis. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Wallingford, CT

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EMSL Order: 241802203

Customer ID: ENV154

Customer PO: 20170858.A1E

Project ID:

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Received Date: 05/02/2018 2:00 PM

Analysis Date: 05/08/2018

Collected Date:

Project: 20170858.A1E/ NEW LONDON HIGH SCHOOL MAIN CLASSROOM BUILDING, AUDITORIUM/GYM BUILDING

Test Report: Asbestos Analysis of Non-Friable Organically Bound Materials by TEM via EPA/600/R-93/116 Section 2.5.5.1

Sample ID	Description	Appearance	% Matrix Material	% Non-Asbestos Fibers	Asbestos Types
20180416-32A-UA 241802203-0096	MAIN BUILDING- 2ND FL LIBRARY AT ENTRANCE - CARPET ADHESIVE- YELLOW/BLACK CARPET ADHESIVE	Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-33A-UA 241802203-0098	MAIN BUILDING- 2ND FL LIBRARY, SOUTH CENTER AREA - COVE BASE- 4" BLACK	Black Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-34A-UA 241802203-0100	MAIN BUILDING- 2ND FL LIBRARY, SOUTH CENTER AREA - ADHESIVE- YELLOW ASSOCIATED WITH BLACK 4" COVE BASE	Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-39A-UA 241802203-0114	MAIN BUILDING- 1ST FL ASST PRINCIPAL RM 138 - COVE BASE- 4" GREY/TAN	Gray Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-40A-UA 241802203-0116	MAIN BUILDING- 1ST FL ASST PRINCIPAL RM 138 - ADHESIVE- YELLOW ASSOCIATED WITH 4" GREY/TAN COVE BASE	Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-41A-UA 241802203-0118	MAIN BUILDING- 1ST FL ASST PRINCIPAL RM 138 - FIRE STOP-GREY	Gray Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-42A-UA 241802203-0120	MAIN BUILDING- 1ST FL ASST PRINCIPAL RM 138 - FIRE STOP- WHITE	White Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-43A-UA 241802203-0122	MAIN BUILDING- 1ST FL RM 137 SCIENCE LAB - FLOOR TILE- 12" X 12" TAN WITH BROWN SPOTS	Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-44A-UA 241802203-0125	MAIN BUILDING- 1ST FL RM 137 SCIENCE LAB - FLOOR TILE- 12" X 12" GREY WITH BROWN SPOTS	Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-45A-UA 241802203-0128	MAIN BUILDING- 1ST FL RM 137 SCIENCE LAB - BLACK MASTIC ASSOCIATED WITH 43 AND 44	Black Non-Fibrous Homogeneous	100	None	No Asbestos Detected

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Project: 20170858.A1E/ NEW LONDON HIGH SCHOOL MAIN CLASSROOM BUILDING, AUDITORIUM/GYM BUILDING

Test Report: Asbestos Analysis of Non-Friable Organically Bound Materials by TEM via EPA/600/R-93/116 Section 2.5.5.1

Sample ID	Description	Appearance	% Matrix Material	% Non-Asbestos Fibers	Asbestos Types
20180416-47A-UA 241802203-0134	MAIN BUILDING- 1ST FL RM 137 SCIENCE LAB - COUNTER TOP- BLACK COUNTER TOP/TABLE	Black Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-58A-UA 241802203-0175	AUDITORIUM BLDG- 1ST FL FRONT ENTRY - CAULKING-GREY CAULKING AT WINDOW PANEL	Gray Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-59A-UA 241802203-0178	AUDITORIUM BLDG- NORTH EXIT, SINGLE DOOR - CARPET GLUE- GREEN/YELLOW CARPET GLUE OVER BLACK MASTIC	Green Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-64A-UA 241802203-0188	AUDITORIUM BLDG- AUDITORIUM SE STAIR LANDING - BLACK LINOLEUM FLOORING WITH CIRCLES	Black Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-65A-UA 241802203-0190	AUDITORIUM BLDG- AUDITORIUM SE STAIR LANDING - YELLOW ADHESIVE ASSOCIATED WITH BLACK LINOLEUM FLOORING W/ CIRCLES	Gray/Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-68A-UA 241802203-0196	AUDITORIUM BLDG- GYM EAST WALL - COVE BASE- THICK BLACK COVE BASE	Black Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-69A-UA 241802203-0198	AUDITORIUM BLDG- GYM EAST WALL - ADHESIVE- ASSOCIATED WITH THICK BLACK COVE BASE	Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-70A-UA 241802203-0201	AUDITORIUM BLDG- GYM SOUTH WALL - ADHESIVE- YELLOW ADHESIVE BEHIND GYM WALL MATS	Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-77A-UA 241802203-0218	AUDITORIUM BLDG- GYM LOBBY AT TROPHY CASE - COVE BASE- 4" LIGHT BROWN	Brown Non-Fibrous Homogeneous	100	None	No Asbestos Detected

This laboratory is not responsible for % asbestos in total sample when the residue only is submitted for analysis. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Wallingford, CT

Initial report from: 05/09/2018 12:10:43



EMSL Analytical, Inc.

29 North Plains Highway, Unit # 4 Wallingford, CT 06492

Tel/Fax: (203) 284-5948 / (203) 284-5978

http://www.EMSL.com / wallingfordlab@emsl.com

EMSL Order: 241802203

Customer ID: ENV154

Customer PO: 20170858.A1E

Project ID:

Attention: Carlos Texidor
Fuss & O'Neill EnviroScience, LLC
146 Hartford Road
Manchester, CT 06040

Phone: (860) 510-4365

Fax: (888) 838-1160

Received Date: 05/02/2018 2:00 PM

Analysis Date: 05/08/2018

Collected Date:

Project: 20170858.A1E/ NEW LONDON HIGH SCHOOL MAIN CLASSROOM BUILDING, AUDITORIUM/GYM BUILDING

Test Report: Asbestos Analysis of Non-Friable Organically Bound Materials by TEM via EPA/600/R-93/116 Section 2.5.5.1

Sample ID	Description	Appearance	% Matrix Material	% Non-Asbestos Fibers	Asbestos Types
20180416-78A-UA 241802203-0220	AUDITORIUM BLDG- GYM LOBBY AT TROPHY CASE - ADHESIVE- BROWN AND BLACK ASSOCIATE WITH 4" COVE BASE	Brown Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-79A-UA 241802203-0222	AUDITORIUM BLDG- FITNESS/ ROOM 134 - GLUE DAUBS- WHITE GLUE DAUB, PAINTED GREEN	White Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-83A-UA 241802203-0231	AUDITORIUM BLDG- GROUND LEVEL SHOOTING RANGE - ADHESIVE- YELLOW ASSOCIATED WITH WHITE WALL BOARD	Yellow Non-Fibrous Homogeneous	97.7	2.3 Fibrous_Other	No Asbestos Detected
20180416-84B-UA 241802203-0234	AUDITORIUM BLDG- GROUND LEVEL SHOOTING RANGE MECH ROOM BEHIND RANGE - YELLOW ADHESIVE ASSOCIATED WITH FIBERGLASS INSULATION ON DUCTWORK	Yellow Non-Fibrous Homogeneous	99.5	0.50 Fibrous_Other	No Asbestos Detected
20180416-85A-UA 241802203-0235	AUDITORIUM BLDG- GROUND FLR MENS LOCKER RM - WINDOW PANELING GLAZING (INTERIOR PARTITION WINDOW)	White Non-Fibrous Homogeneous	99.6	0.37 Fibrous_Other	No Asbestos Detected
20180416-86A-UA 241802203-0237	AUDITORIUM BLDG- GROUND FLR MENS LOCKER RM - WHITE CAULKING ASSOCIATED WITH BROWN MARBLE SHOWER PARTITIONS	White Non-Fibrous Homogeneous	100	None	<0.1% Chrysotile
20180416-89A-UA 241802203-0243	MAIN BUILDING- GROUND FL- CAFETERIA NORTH WALL - BLACK GLUE DAUBS	Brown Non-Fibrous Homogeneous	100	None	No Asbestos Detected

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Samples analyzed by EMSL Analytical, Inc. Wallingford, CT

Initial report from: 05/09/2018 12:10:43



EMSL Analytical, Inc.

29 North Plains Highway, Unit # 4 Wallingford, CT 06492

Tel/Fax: (203) 284-5948 / (203) 284-5978

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EMSL Order: 241802203

Customer ID: ENV154

Customer PO: 20170858.A1E

Project ID:

Attention: Carlos Texidor
Fuss & O'Neill EnviroScience, LLC
146 Hartford Road
Manchester, CT 06040

Phone: (860) 510-4365

Fax: (888) 838-1160

Received Date: 05/02/2018 2:00 PM

Analysis Date: 05/08/2018

Collected Date:

Project: 20170858.A1E/ NEW LONDON HIGH SCHOOL MAIN CLASSROOM BUILDING, AUDITORIUM/GYM BUILDING

Test Report: Asbestos Analysis of Non-Friable Organically Bound Materials by TEM via EPA/600/R-93/116 Section 2.5.5.1

Sample ID	Description	Appearance	% Matrix Material	% Non-Asbestos Fibers	Asbestos Types
20180416-90A-UA 241802203-0245	MAIN BUILDING- GROUND FL- CAFETERIA RM C3 - WINDOW CAULKING- DARK BROWN	Brown Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-92A-UA 241802203-0252	MAIN BUILDING- UPPER/LOWER BOILER ROOM - GLUE DAUBS- GREEN GLUE DAUB ON STYROFOAM CEILING AND WALL PANEL	Green Non-Fibrous Homogeneous	100	None	No Asbestos Detected
20180416-96A-UA 241802203-0263	MAIN BUILDING- BOILER ROOM- BOILER #2 - BOILER GASKET ROPE	Tan Non-Fibrous Homogeneous	99.5	None	0.46% Chrysotile
20180416-97A-UA 241802203-0265	S-WING ROOM S-6 - FLOOR TILE (12" X 12")- RED & TAN DOTTED	Red Non-Fibrous Homogeneous	100	None	No Asbestos Detected

Analyst(s)

Almedina Hodzic (39)

Lauren Brennan, Asbestos Lab Manager
or other approved signatory

This laboratory is not responsible for % asbestos in total sample when the residue only is submitted for analysis. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Wallingford, CT

Initial report from: 05/09/2018 12:10:43

Appendix D

Site Photographs



Photo depicting Replacement Exterior Windows at Administrative office

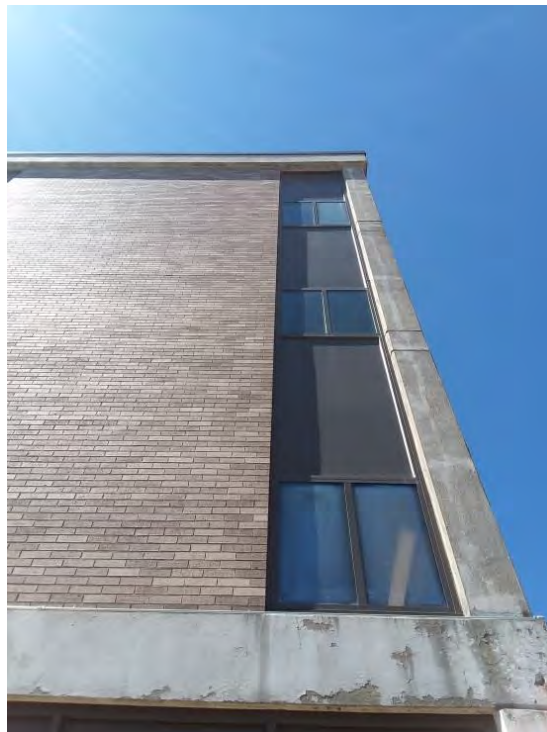


Photo depicting Lower Replacement Exterior Doors at stairwell and Upper Original Exterior Windows and panels within stairwell

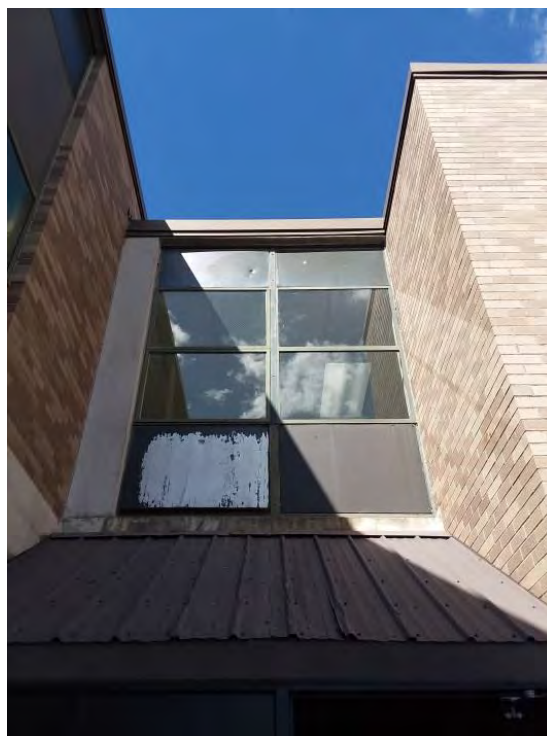


Photo depicting Connecting Airwalk Original Exterior Windows (Typical) and Original Exterior Classroom Windows (Typical)



Photo depicting Exterior Vent beneath Exterior Windows (Typical)



Photo depicting Storefront Window System at Main Entrance to New London High School



Photo depicting Storefront Window System and Concrete Sidewalk with Expansion Joint Caulking



Photo depicting Auditorium/Gymnasium Exterior Window (Typical)



Photo depicting rear elevation of Gymnasium with Upper Exterior Windows and Vertical Expansion Joints



Photo depicting Exterior Doors at rear elevation of Gymnasium



Photo depicting Greenhouse on rear elevation



Photo depicting Exterior Windows and Doors and Corrugated Metal Panel Exterior Walls at Shop Wing



Photos depicting Tan Quarry Tile, Soft Textured Ceiling Material, and Interior Brick Walls throughout Lobby of Main Entrance.



Photo depicting Interior Doors to Auditorium and Soft Textured Ceiling Materials



Photo depicting Carpet and Epoxy Paint flooring finishes in auditorium



Photo depicting dimpled floor mat and brick wall at base of auditorium

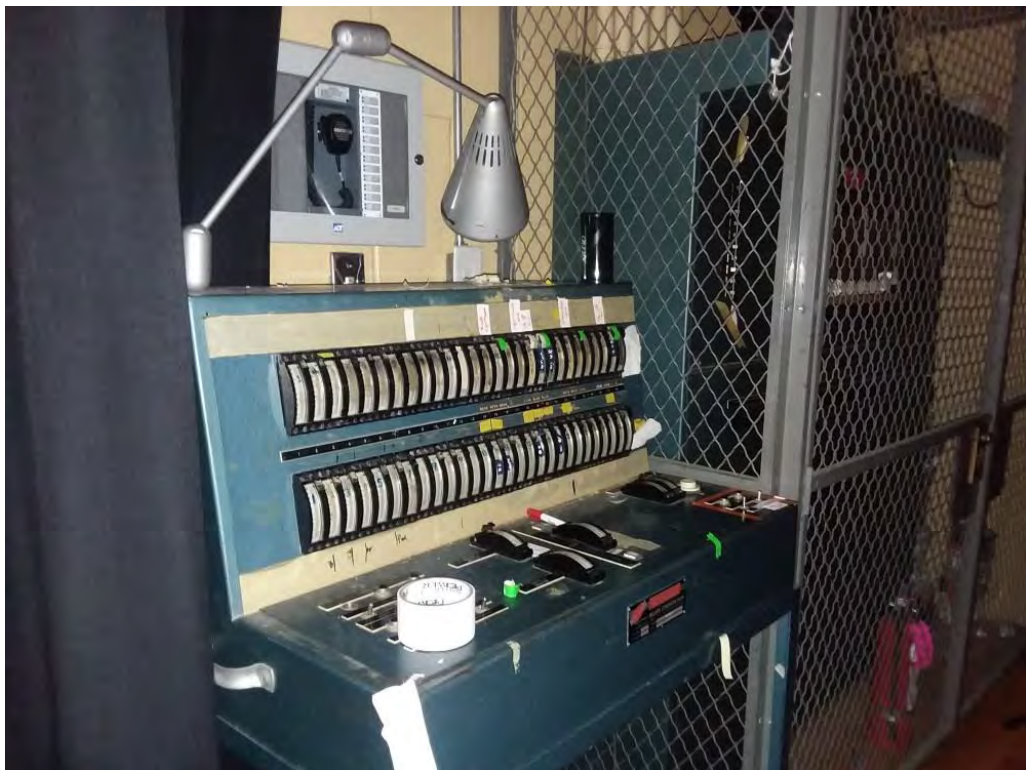


Photo depicting existing Stage Lighting Equipment

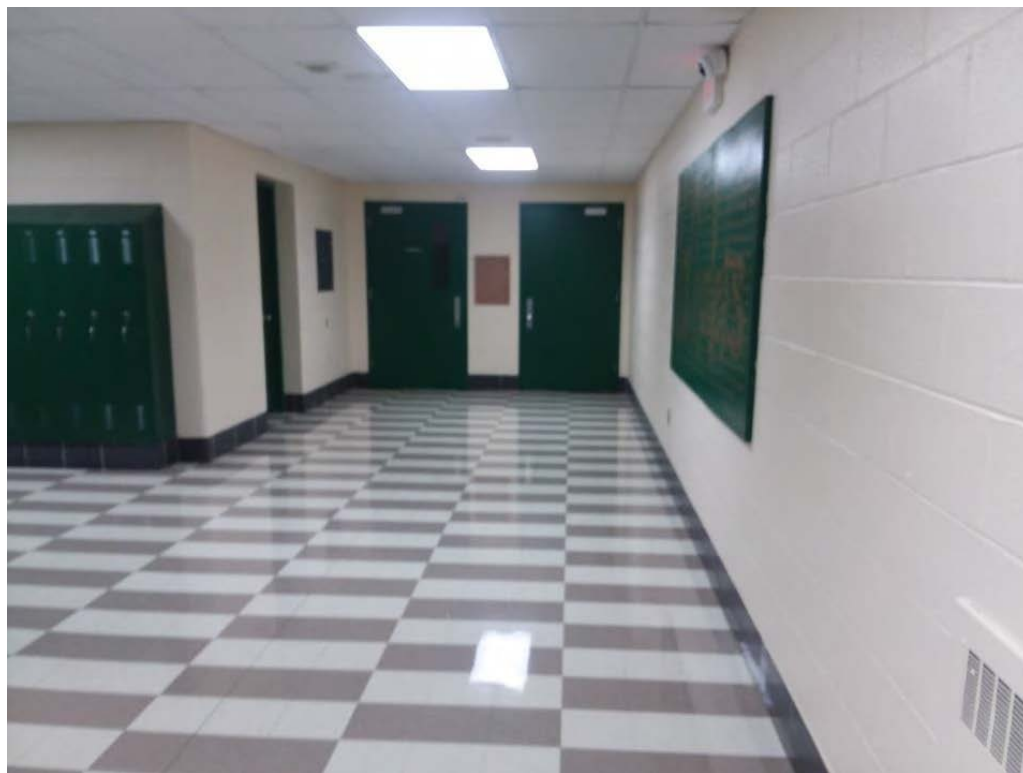


Photo depicting flooring, wall and ceiling finishes in Auditorium/Gymnasium building hallways (typical)



Photo depicting Underside of Corrugated Steel Roof Deck (above ceiling grid)
No mastics or spray-on present. (Typical)

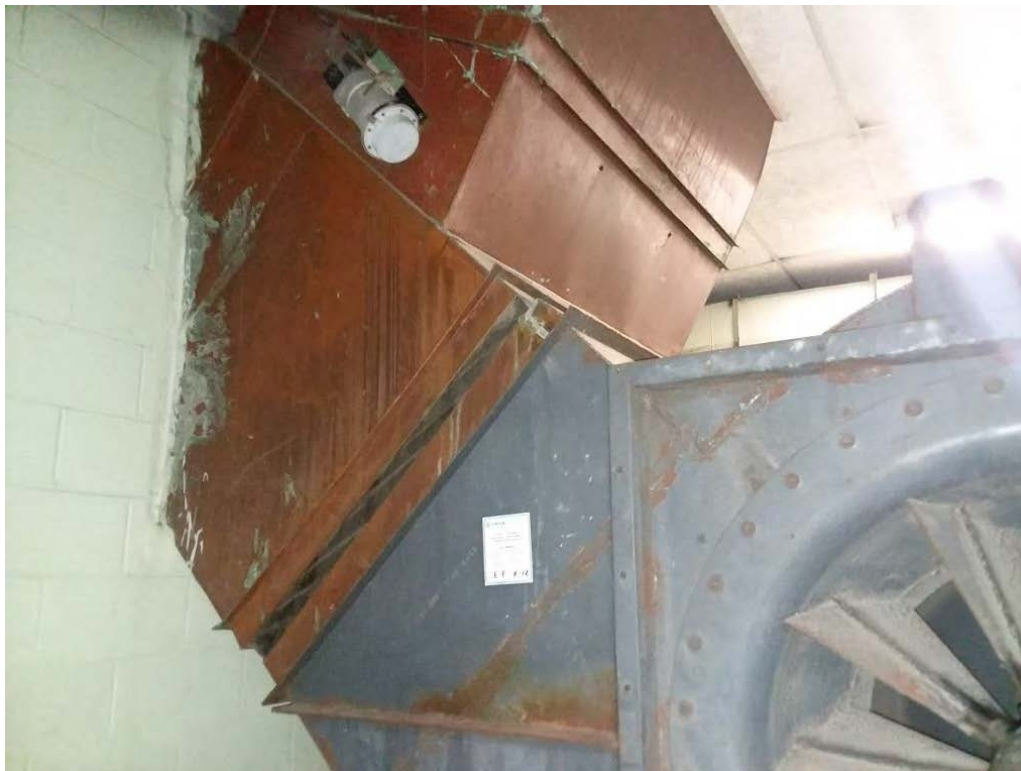


Photo depicting ductwork at air handling unit; Vibration Dampening Cloth present; no seam sealants.



Photo depicting pipe insulation beneath ceiling grid



Photo sequence depicting finishes in the Gymnasium
Ceiling – Painted Underside of Corrugated Steel Roof Deck, Wall – Painted Block
Bleachers – Hardwood with plastic seating and metal hand rails,
Floor – Hardwood (NEWER), existing HW floor extends under bleachers



Photo depicting Vertical Ductwork and Ceramic Tile Floor and Wall Finish at Pool Area

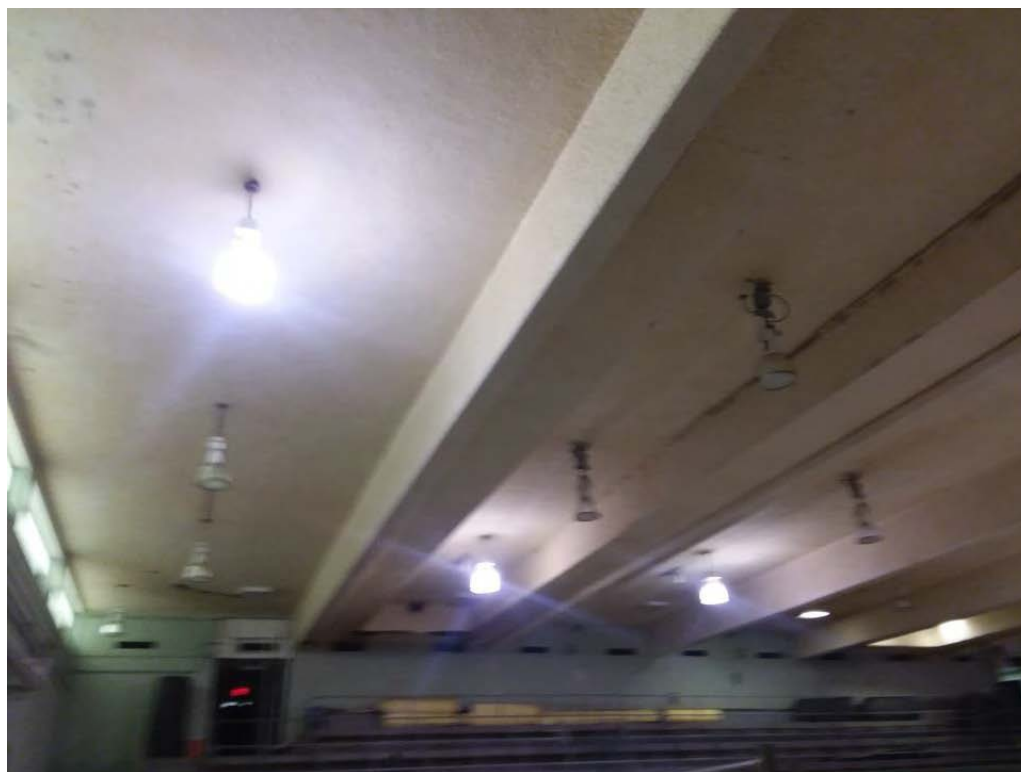
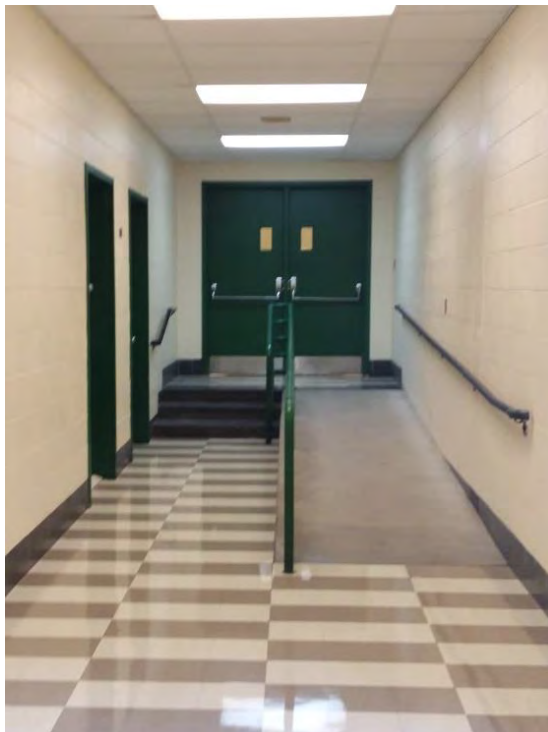


Photo depicting Surfacing Materials on Structural Tees at Pool Ceiling



Photo depicting Surfacing Materials on Structural Tees at Pool Ceiling



Photos depicting Ceiling, Wall, and Flooring Finishes in Shop Wing (Typical)
Ceiling- Painted Underside of Corrugated Steel Roof Deck – No Spray-On Observed
Walls- Painted CMU Block
Floors- 12" x 12" and 9" x 9" Floor Tile Various Colors

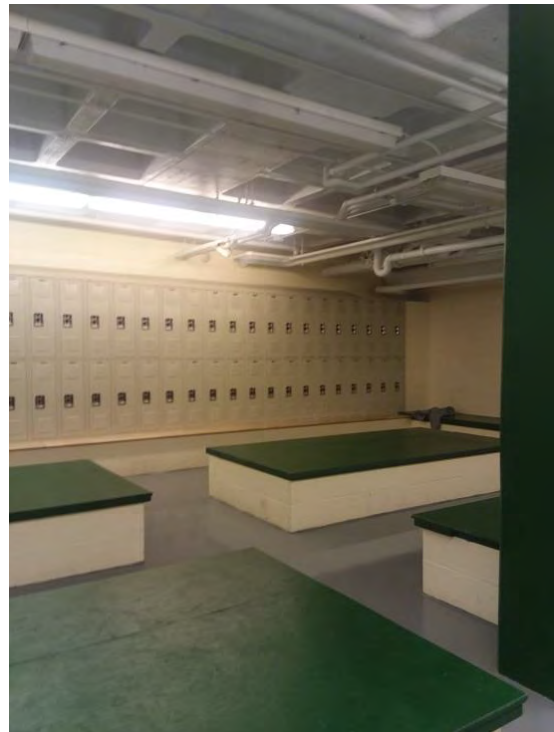


Photo depicting Mechanicals and Finishes within the Locker Room and Laundry Spaces



Photos depicting Tank and Insulation in Boiler Room



Photos depicting Interior Door and Garage Door in Boiler Room



Photos depicting 3 Individual Boilers Located in Boiler Room



Photos depicting Ceiling, Wall and Floor Finishes throughout Administrative office (Typical)



Photo depicting Ceiling, Wall and Floor Finishes in Classroom (Typical)



Photo depicting Wood Cabinet with Cove Base in Classroom (Typical)

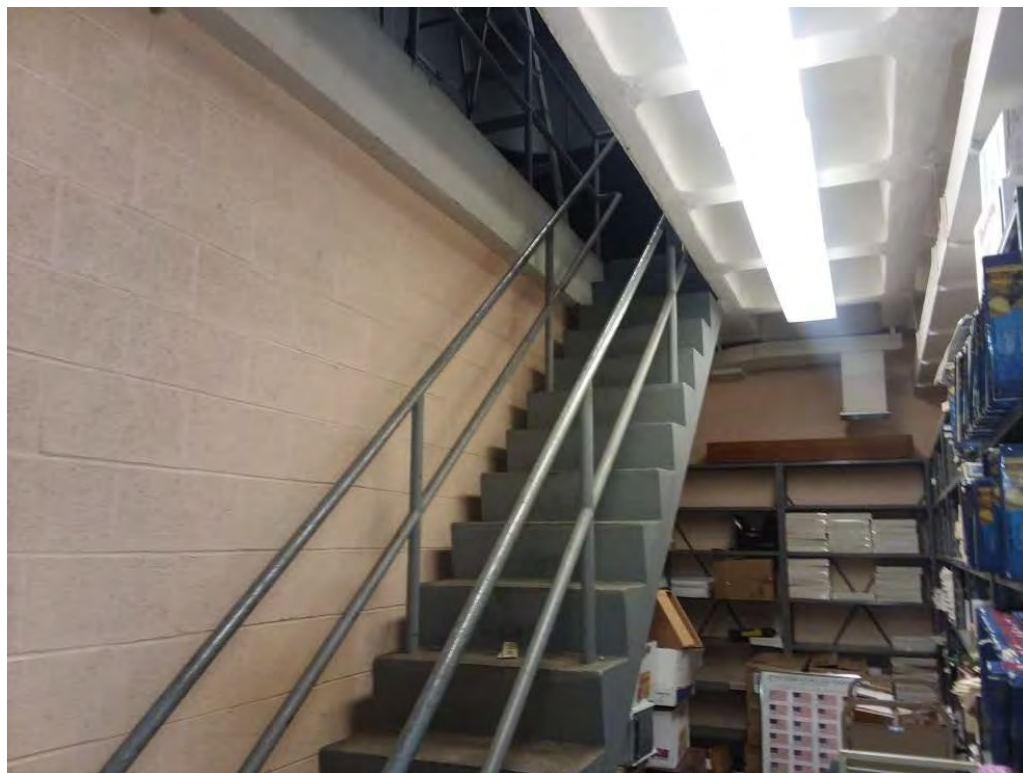


Photo depicting Stairwell to Elevator Penthouse and Painted Waffle Deck

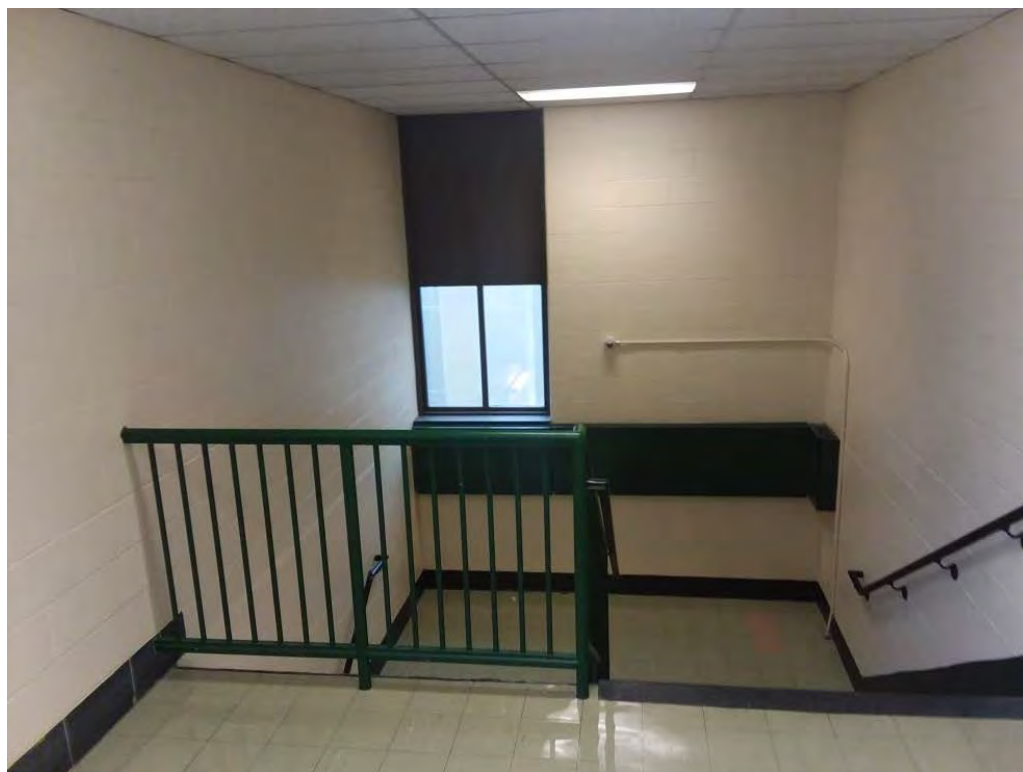


Photo depicting 12" x 12" Ceiling Tiles (with glue daubs) in Stairwell (Typical)

Appendix E

XRF Lead Determination Field Data Sheets



XRF LEAD DETERMINATION FIELD DATA SHEET

Inspector Name: Kim Rinard / Ulkens Auguste Inspector License #: _____

Date: 4/26/2018 XRF Model: RMD Serial: 1157

Project Name: Antinozzi Associates New London High School Project Number: 20170858.A1E

Address: 490 Jefferson Avenue New London Connecticut Project PM: C Texidor

XRF Calibration Check-RMD (0.7 to 1.3 mg/cm² inclusive)

	Hour	First Reading	Second Reading	Third Reading	Average
First Check	1450	0.9	1.0	0.9	0.93
Second Check	1450	1.0	1.0	0.9	0.97
Third Check					
Fourth Check					

Side	Surface/Component	Substrate/Color	XRF Reading	Positive (√)	Comments/Notes
BUILDING: 5-Wing					
	Hand Rail - ADA ramp	m - black	~0.2		tube steel
		m - med green	0.2		
	Door Frames	m - med green	0.0		
	↓ Slabs	m - med green	0.0		
	Vent-set in doors	m - brown/black	~0.1		
	HVAC Panel	m - white	~0.1		
	Locker	m - light yellow	~0.0		
	Locker door	m - light yellow	~0.1		
	Wall - partition	S/R - light green	~0.3		(SE) + Halway
	Wall	CMU - light green	~0.2		(typical throughout)
	Door trim	wood - light yellow	0.3		
	Door frame	m - light yellow	~0.2		
	Floor	C - med green	~0.1		Art
	Cabinets	W - white	~0.0		↓
	Door frame	m - light yellow	~0.1		Art
	↓ slab	m - light yellow	~0.1		↓

* Substrate Type: Metal = M, Wood = W, Plaster = P, Sheetrock = S, Concrete = C, Brick = B
N/A: Not Accessible; N/C: Not Coated; COV: Covered; VR - Vinyl Replacement



XRF LEAD DETERMINATION FIELD DATA SHEET

Inspector Name: Kim Rinard / Ulkens Auguste Inspector License #: _____

Date: _____ XRF Model: RMD Serial: 1157

Project Name: Antinozzi Associates New London High School Project Number: 20170858.A1E

Address: 490 Jefferson Avenue New London Connecticut Project PM: C Texidor

Side	Surface/Component	Substrate/Color	XRF Reading	Positive (✓)	Comments/Notes
BUILDING: <u>S-Wing</u>					
	Birth room partition	m - light green	0.1		
	Partition Door	m - light green	-0.1		
	Exh vent	m - light tan			
	Panel - beneath window	Unk - light green	0.1		(S18)
	Cabinet	W - light cream	0.1		↓
	Study carrel (4 pc)	W - white	-0.1		
	Fire hose cabinet	M - bright red	1.1		
	Str. Column <u>Corrector - wood trim</u>	C - light green	-0.4		(S19)
MAIN WING BUILDING					
	Stairwell wall	cmu - beige	0.0		(Main to S-wing)
	Hand rail	m - black	0.0		↓ ↓
	Stair trim	cmu - black	0.3		
	Heater	M - med green	-0.1		
	Heater / Radiator Cover	m - med green	-0.1		
	Underside of stairs	Unk - white	0.1		concrete
	Hand rail	M - med green	1.1		
	Str. Concrete	C - beige	0.2		Upper slab
	Elec panel	M - med green	0.0		
	Elec panel door	M - med green	-0.2		
	Brickst (Stairwell)	M - black	1.1		Handrail to slab

• r = Type: Metal = M, Wood = W, Plaster = P, Sheetrock = S, Concrete = C, Brick = B
• t = Accessible; N/C: Not Coated; COV: Covered; VR - Vinyl Replacement



XRF LEAD DETERMINATION FIELD DATA SHEET

Inspector Name: Kim Rinard / Ulkens Auguste Inspector License #: _____

Date: _____ XRF Model: RMD Serial: 1157

Project Name: Antinozzi Associates New London High School Project Number: 20170858.A1E

Address: 490 Jefferson Avenue New London Connecticut Project PM: C Texidor

Side	Surface/Component	Substrate/Color	XRF Reading	Positive (✓)	Comments/Notes
BUILDING: S-Wing					
	Wall	CMU - white	-0.1		(S6)
	Str. Steel	M - white			joists
	↓ ↓	M - white			beams ↓
	Elec panel	M - Dark grey	-0.1		
	Window Frame	M - white	0.2		(S6)
	Sash	M - white	0.1		
	Glass	G - white	-0.2		(painted panel) ↓
	Ceiling (Roof Deck)	M - white			
	Wall	CMU - yellow/green	-0.1		
	Wall	CMU - pale blue	-0.1		Hydroponics Lab
	Wall	SR - pale blue	0.0		↓ ↓
	Door frame	M - yellow	-0.3		
	Slab	M - yellow	-0.2		
	Sink	M - white	79.9		
	Partitions - Wall	SR/Ply - white	0.0		Culinary / Fitness
	Wall	CMU - pale blue	-0.2		Custodial
	Cabinets	W - pale med green	0.0		(S20)
	Wall	CMU - med blue	0.3		↓
	Wall	CMU - light green	0.4		
	Wall	SR - light green	0.1		
	Window Frame	M - light green	0.3		(S20)
	↓ Sash	M - ↓ ↓	-0.2		↓
	Door Frame	M - light green	0.7		(S20)
	↓ Slab	M - ↓ ↓	-0.1		↓

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N/A: Not Accessible; N/C: Not Coated; COV: Covered; VR - Vinyl Replacement



XRF LEAD DETERMINATION FIELD DATA SHEET

Inspector Name: Kim Rinard / Ulkens Auguste Inspector License #: _____

Date: 7/30/2018 XRF Model: RMD Serial: 1157

Project Name: Antinozzi Associates New London High School Project Number: 20170858.A1E

Address: 490 Jefferson Avenue New London Connecticut Project PM: C Texidor

XRF Calibration Check-RMD (0.7 to 1.3 mg/cm² inclusive)

	Hour	First Reading	Second Reading	Third Reading	Average
First Check	1500	0.9	0.9	1.0	0.93
Second Check	1740	1.1	1.1	0.9	1.03
Third Check	1955	0.9	0.9	1.1	0.97
Fourth Check					

Side	Surface/Component	Substrate/Color	XRF Reading	Positive (✓)	Comments/Notes
BUILDING: MAIN CLASS ROOM BUILDING 3rd Floor					
	Wall - Hallway	CMU / semigloss beige	0.2		303
	Classroom Door Slab	M / medium red	0.1		
	Classroom Door Frame	m / medium red	0.1		
	Lockers (Frame)	m / Medium Red	1.1		
	Locker Door	m / Medium Red	0.3		C225
	Fire Hose Enclosure	m / Medium Red	1.1		
	Stairwell Door Frame	m / Medium Red	0.1		
	Stairwell Door Slab	m / Medium Red	0.4		
	Heater panel	m / Light Beige	0.0		
	Structural Hazard Block	cmu / Black	2.0		Continuous 100% of Hall
	Wall - Classroom	cmu / semigloss beige	0.2		
	HVAC panel Rm 303	M / Medium red	0.1		
	Wall - Classroom Rm 304	cmu / pale yellow	0.0		
	Folding Partition Rm 313	VRK / Flat white	0.1		Frame - wood (barr)
	Wall - Storage (Books)	cmu / pale green	0.3		
	Wall - Hallway	cmu / semigloss white	0.0		@ storage / elev.
	Wall Custodial	cmu / semi. gloss pale blue	0.1		@ storage / elev.

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N/A: Not Accessible; N/C: Not Coated; COV: Covered; VR - Vinyl Replacement



XRF LEAD DETERMINATION FIELD DATA SHEET

Inspector Name: Kim Rinard / Ulkens Auguste Inspector License #: _____

Date: 4/30/2016 XRF Model: RMD Serial: 1157

Project Name: Antinozzi Associates New London High School Project Number: 20170858.A1E

Address: 490 Jefferson Avenue New London Connecticut Project PM: C Texidor

3rd
4th
↓

Side	Surface/Component	Substrate/Color	XRF Reading	Positive (✓)	Comments/Notes
BUILDING: MAIN BUILDING					
	Heater panel	m/ semigloss white	-0.0		Rm 327
	Waffle Ceiling	CONC/semigloss white	0.3		Storage Areas
	Window - Sash (330)	m/ black	0.0		Original windows
	Window - Frame (330)	m/ black	0.0		↓ ↓
	Str. Column - Hallway	Conc - white	-0.1		
MAIN BUILDING 3rd Floor					
	Wall - Hallway (2nd)	cmu/semigloss white	-0.3		
	Str. Column - Hallway	conc/semigloss white			
	Locker Door	m/ light blue	-0.1		
	Locker	m/ light blue	0.2		
	Door Frame	m/ light blue	-0.3		
	Door slab	m/ light blue	-0.1		
	Wall - Classroom	cmu/semigloss pink	0.2		(205)(206)(209)(214)
					(25)(218)(223)(224)
	HVAC Unit (in classroom)	m/ pale blue	-0.3		
	Wall - Classroom	cmu/ pale green	-0.1		(219)
	Wall - Storage / Office	cmu/ pale yellow/beige	0.0		(222)
	Str. Column - Classroom	Conc/semigloss pink	0.2		
	Wall - Library	cmu/ pale yellow	0.1		
	Wall -	S/R - pale yellow	-0.0		1/2 partition
	HVAC Unit (@ windows)	m/ pale blue	-0.1		
	Partition Window / Door	m/ pale blue	-0.1		Frame
		m/ pale blue	0.1		Door slab
	Str. Glazed Block	cmu/ Black	1.9		
	Wall - Classroom	cmu/ beige (516)	-0.1		(231)

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N/A: Not Accessible; N/C: Not Coated; COV: Covered; VR - Vinyl Replacement

(516 - semigloss)



XRF LEAD DETERMINATION FIELD DATA SHEET

Inspector Name: Kim Rinard / Ulkens Auguste Inspector License #: _____

Date: 4/30/2016 XRF Model: RMD Serial: 1157

Project Name: Antinozzi Associates New London High School Project Number: 20170858.A1E

Address: 490 Jefferson Avenue New London Connecticut Project PM: C Texidor

Side	Surface/Component	Substrate/Color	XRF Reading	Positive (✓)	Comments/Notes
BUILDING:					
	Door frame	m / med green	-0.2		(202)
	Wall (partition)	s/r - off white	-0.0		(202)
	MAIN BUILDING - 1st FLOOR				
	Wall - Hallway	cmv / s-b ^{beige} pale blue	0.0		
	Wall - Classroom	cmv / s-b pale blue	-0.1		(122)(121)(116)
					ALL ROOMS (CLASSROOMS)
	Locker	m / dark green	-0.1		
	Locker Door	m / dark green	-0.1		
	HVAC unit	m / dark green	-0.2		
	Str. Column - Classroom	conc / pale blue	-0.1		
	Conduit	m / light beige	-0.1		(121)
	Wall - Classroom	cmv / s-b purple blue	-0.0		(113)
	* MUST INSPECT IN MAIN OFFICES, SRD OFFICE, ADMIN SPACE				
	Wall panel - Guidance	m / s-b beige	0.1		
	Door frame	m / s-b beige	-0.2		
	Door slab	m / med green	-0.2		
	Wall - Guidance	cmv / s-b beige	-0.1		
	Wall - Guidance / Mech Room	s/r - s-b white	-0.1		(Rm 146)
	↓ ↓	s/r - med beige	-0.0		
	Wall - Asst Princip	s/r / s-b white / beige	-0.0		(134)
	Wall	cmv / purple blue	-0.2		(137)
	Door frame	m / med green	-0.2		
	Door slab	m / med green	-0.1		
	Bench / Casework	m / high gloss white	-0.2		(127)
	Str. Glazed Block	cmv / Black	2.9		

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XRF LEAD DETERMINATION FIELD DATA SHEET

Inspector Name: Kim Rinard / Ulkens Auguste Inspector License #: _____

Date: 4/30/2016 XRF Model: RMD Serial: 1157

Project Name: Antinozzi Associates New London High School Project Number: 20170858.A1E

Address: 490 Jefferson Avenue New London Connecticut Project PM: C Texidor

Side	Surface/Component	Substrate/Color	XRF Reading	Positive (✓)	Comments/Notes
BUILDING: main Building - Ground Floor					
	Str. Column - Cafeteria	Conc Dark blue	0.0		
		Med orange	0.3		
		Med red/purple	-0.1		
		Med yellow	-0.2		
		Med green	-0.0		
		Light blue	0.1		
	Wall - Cafeteria	CMU light beige	-0.0		
	Folding Partition	Unk / light beige	-0.4		
	Wall - Cafeteria	CMU / off white	-0.0		
	HVAC Unit - Cafeteria	M / med green	0.1		
	Window Frame - Cafeteria	M / black	-0.1		
	Window Transom Panel	Unk / white	-0.2		
	Waffle Slab (@ Recess)	Conc / white			Not reachable
	Str. Glazed Block	CMU / Black	2.5		
	Door frame - Cafeteria	M / Dark blue	0.3		
	↓ ↓	M / Black	-0.1		
	Door slabs - Cafeteria	M / Dark blue	-0.1		
	↓ ↓	M / Black	0.0		
	Partition Walls - Kitchen	M / Med Green	0.2		* Office
	Door frame - Kitchen	M / Black	-0.1		
	Door frame - Bathroom	M / Med purple	-0.2		Kitchen bathroom
	Door frame - Kitchen	M / light green	-0.2		Doors to Custodial
	↓ Slab - Kitchen	M / light green	0.0		↓ ↓
	Floor (epoxy)	C / light grey	-0.1		Custodial
	Waffle slab	C / white			↓ ↓

* Substrate Type: Metal = M, Wood = W, Plaster = P, Sheetrock = S, Concrete = C, Brick = B
N/A: Not Accessible; N/C: Not Coated; COV: Covered; VR - Vinyl Replacement



XRF LEAD DETERMINATION FIELD DATA SHEET

Inspector Name: Kim Rinard / Ulkens Auguste Inspector License #: _____

Date: 4/30/2018 XRF Model: RMD Serial: 1157

Project Name: Antinozzi Associates New London High School Project Number: 20170858.A1E

Address: 490 Jefferson Avenue New London Connecticut Project PM: C Texidor

XRF Calibration Check-RMD (0.7 to 1.3 mg/cm² inclusive)

	Hour	First Reading	Second Reading	Third Reading	Average
First Check					
Second Check					
Third Check					
Fourth Check					

Side	Surface/Component	Substrate/Color	XRF Reading	Positive (✓)	Comments/Notes
BUILDING: MAIN BUILDING - Ground					
	Str Column	C / light tan	-0.1		Custodial/Storage
		C / medium tan	0.0		↓ ↓
	Str Glazed Block	C / light grey	0.4		Custodial/Storage
	Wgn Bathroom	Cm / light blue	-0.1		↓ ↓
	Garage Garage Door	m / glass black	0.4		
	Elec panel	m / med tan	0.5		
	Elevator door frame	m / med grey	-0.2		
	door (only)	m / med grey	-0.1		
	Locker	m / med blue	-0.1		
	Locker	m / med grey	-0.1		
	Locker door	m / med blue	-0.0		
	Locker door	m / med grey	-0.0		

* Substrate Type: Metal = M, Wood = W, Plaster = P, Sheetrock = S, Concrete = C, Brick = B
N/A: Not Accessible; N/C: Not Coated; COV: Covered; VR - Vinyl Replacement



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Inspector Name: Kim Rinard / Ulkens Auguste **Inspector License #:** _____

Date: 4/30/2018 XRF Model: RMD Serial: 1157

Project Name: Antinozzi Associates New London High School **Project Number:** 20170858.A1E

Address: 490 Jefferson Avenue New London Connecticut **Project PM:** C Texidor



XRF LEAD DETERMINATION FIELD DATA SHEET

Inspector Name: Kim Rinard / Ulkens Auguste Inspector License #: _____

Date: 4/30/2018 XRF Model: RMD Serial: 1157

Project Name: Antinozzi Associates New London High School Project Number: 20170858.A1E

Address: 490 Jefferson Avenue New London Connecticut Project PM: C Texidor

Side	Surface/Component	Substrate/Color	XRF Reading	Positive (✓)	Comments/Notes
BUILDING: Auditorium / Gym wing					
	Hand Rail -	m / med green	-0.1		
	Str. Column	conc / beige	0.3		
	Wall	cmu / med orange	0.3		Aud - bottom right
	Steel lintel	M / med orange	-0.0		Aud - ↓
	Stairs	w / Black	-0.1		Aud - stage left
	Hand rail (@ stairs)	w / Black	0.2		Aud - ↓ ↓
	Elec conduit	M / white	-0.1		front of stage
*	Stair trim	cmu / Black	0.3		(* Hand rail @ exits
4/30/18	Door Frame (A-12)	m / Bright Red	-0.1		brushed stainless)
↓	↓ Slab ↓	m / Bright Red	-0.1		
↓	Door Frame (A-13)	m / Yellow	-0.1		
↓	↓ Slab	m / Yellow	-0.1		
	Wall	cmu / Purple Blue	0.1		Band / Storage / Music
	Lintel @ partition window	m / Purple Blue	-0.2		Band Office
x	_____	x _____	x _____		x _____
	Gym - Door Frames	m / Med green	-0.1		
	Door Slab	m / Med green	-0.1		
	HVAC	m / med beige			
	Entry Doors - Frame	m / Black	-0.4		S/F type
	Entry Doors - Inset Panel	m / Black	-0.4		↓ ↓
	Entry Door - Transom	m / Black	-0.2		↓ ↓
	Interior Door Frame	m / Black	-0.2		Vestibule
	↓ ↓ Slab	m / Black	-0.2		↓ ↓
	Wall	cmu / Med Green	-0.1		Fitness (Former Art)
	Elec Breaker Panel	m / light grey	0.1		

* Substrate Type: Metal = M, Wood = W, Plaster = P, Sheetrock = S/Concrete = C, Brick = B
N/A: Not Accessible; N/C: Not Coated; COV: Covered; VR - Vinyl Replacement



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XRF LEAD DETERMINATION FIELD DATA SHEET

Inspector Name: Kim Rinard / Ulkens Auguste **Inspector License #:** _____

Date: 4/30/2018 XRF Model: RMD Serial: 1157

Project Name: Antinozzi Associates New London High School **Project Number:** 20170858.A1E

Address: 490 Jefferson Avenue New London Connecticut **Project PM:** C Texidor

[illegible]

* Substrate Type: Metal = M, Wood = W, Plaster = P, Sheetrock = S, Concrete = C, Brick = B
N/A: Not Accessible; N/C: Not Coated; COV: Covered; VR - Vinyl Replacement



XRF LEAD DETERMINATION FIELD DATA SHEET

Inspector Name: Kim Rinard / Ulkens Auguste Inspector License #: _____

Date: 4/30/2018 XRF Model: RMD Serial: 1157

Project Name: Antinozzi Associates New London High School Project Number: 20170858.A1E

Address: 490 Jefferson Avenue New London Connecticut Project PM: C Texidor

Side	Surface/Component	Substrate/Color	XRF Reading	Positive (✓)	Comments/Notes
BUILDING: Auditorium / Lobby 1st Fl.					
	HVAC unit	m / DK brown / Black	-0.2		
	Str. Column	C / Med Green Brown	0.3		
	Panel above doors	Unk / Med Brown	not reachable		@ auditorium doors
	Fire Hose enclosure	m / Med Red	1.1		
	Door frame	m / med green	0.1		
	Door slab	m / med green	0.1		
	Wall - Hallway	cmu / white	-0.1		
	Mural	Unk / gold	-0.0		
	Mural	Unk / green	-0.2		
	HVAC panel - hallway	m / white	-0.2		
	Window frame	m / black	-0.1		
	Window sash	m / black	-0.1		
	Locker	m / med green	-0.2		
	Locker Door	m / med green	-0.1		
	Wall - Classroom	cmu - light blue	0.2		
	Door frame	m / med green	-0.1		
	Door slab	m / med green	-0.1		
	Window (in wall) Frame	m / white	-0.1		(6104)
	Wall - Lecture Hall	cmu / white	-0.1		(Stage (ins shellac))
	Chair / Desk pedestal bases	m / black	0.7		Lecture Hall
	Chair	m / med green	0.2		Auditorium
	Floor	C / White (speckled)	0.1		↓
	Textured Ceiling	Unk / white	not reachable		↓
	Wall	cmu / white	-0.3		↓
	Chair frame / base	m / med green	-0.0		Auditorium

* Substrate Type: Metal = M, Wood = W, Plaster = P, Sheetrock = S, Concrete = C, Brick = B
N/A: Not Accessible; N/C: Not Coated; COV: Covered; VR - Vinyl Replacement

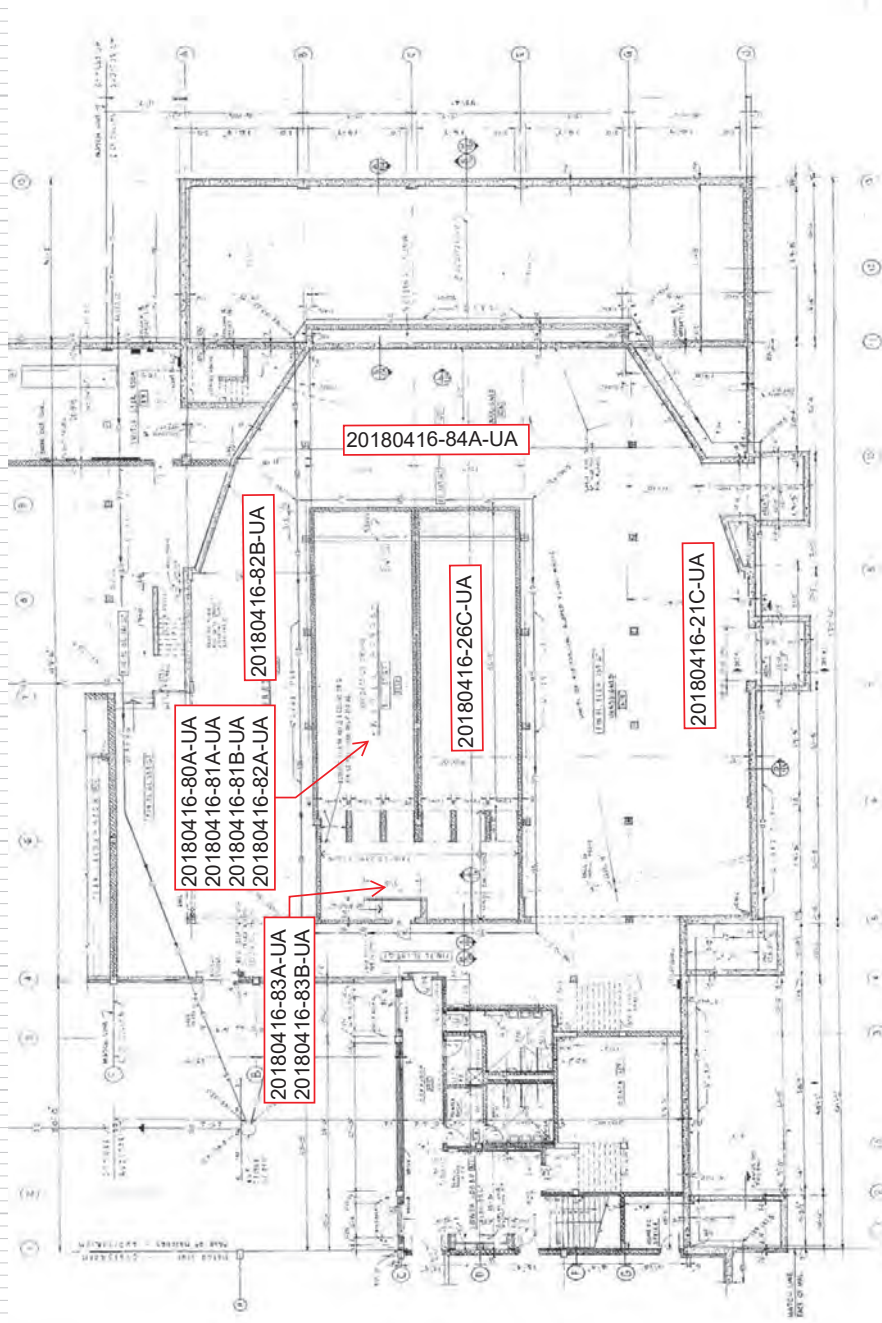
Appendix F

Asbestos Sample Location Diagrams

Figure 1
Auditorium Building - Ground Floor

New London High School
490 Jefferson Avenue
New London, Connecticut

CLIENT	Antinuzzi Associates
PROJECT	New London High School
SITE ADDRESS	490 Jefferson Avenue New London, Connecticut
FIELD TECH	K. Rind / J. Auguste
PROJECT NO.	20170858.A1E
	DATE
	SHEET NO. OF



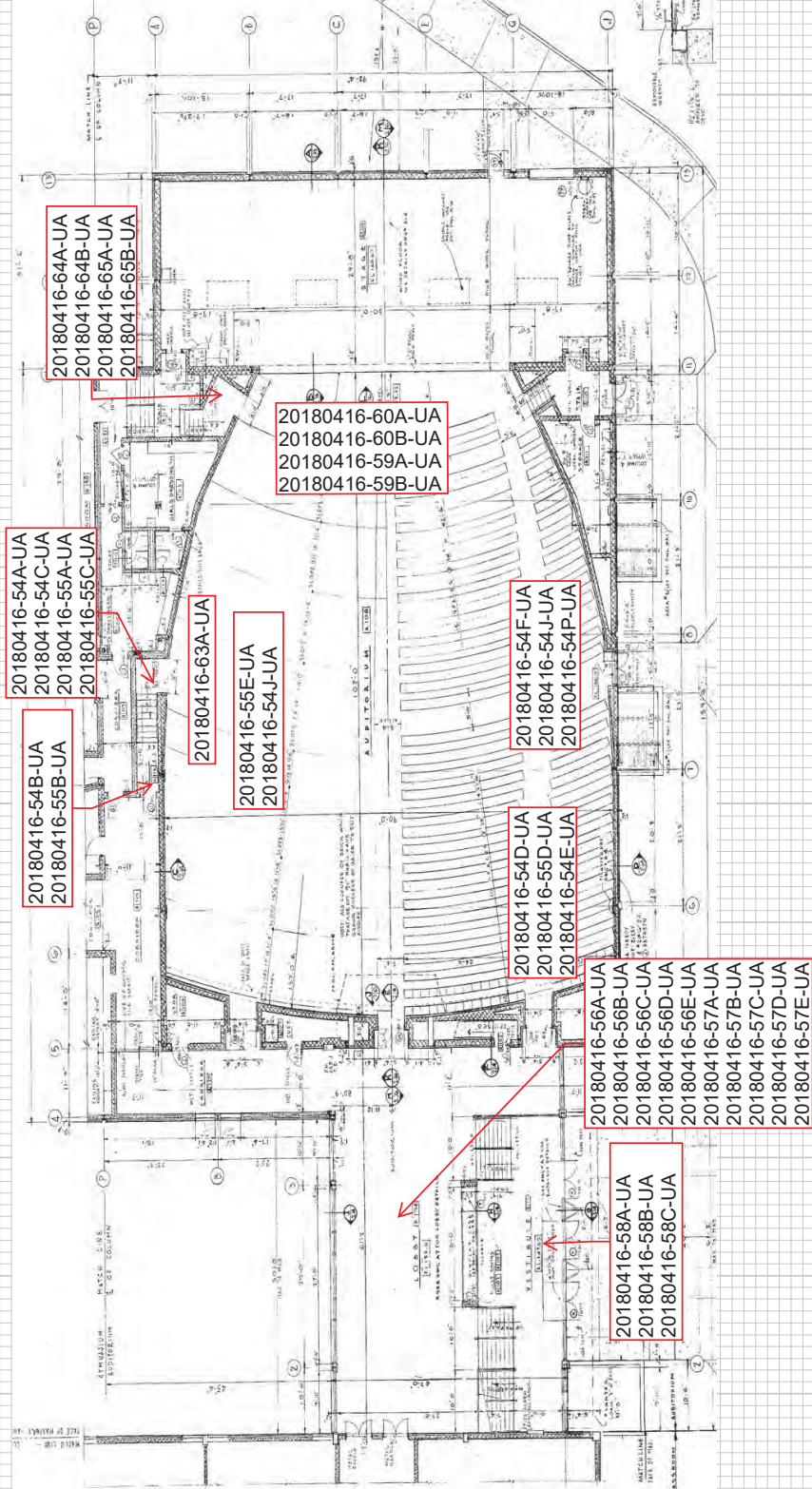


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Figure 2
Auditorium Building - First Floor

New London High School
490 Jefferson Avenue
New London, Connecticut

CLIENT	Antinuzzi Associates
PROJECT	New London High School
SITE ADDRESS	490 Jefferson Avenue New London, Connecticut
FIELD TECH	K Rimad / U Auguste
PROJECT NO.	20170858.A1E
SHEET NO.	OF





FUSS & O'NEILL
EnviroScience, LLC

Figure 3
Main Classroom Building - Ground Floor

New London High School
490 Jefferson Avenue
New London, Connecticut

CLIENT	Antinuzzi Associates
PROJECT	New London High School
SITE ADDRESS	490 Jefferson Avenue New London, Connecticut
FIELD TECH	K Rimad / U Auguste
PROJECT NO.	20170858.A1E
SHEET NO.	OF

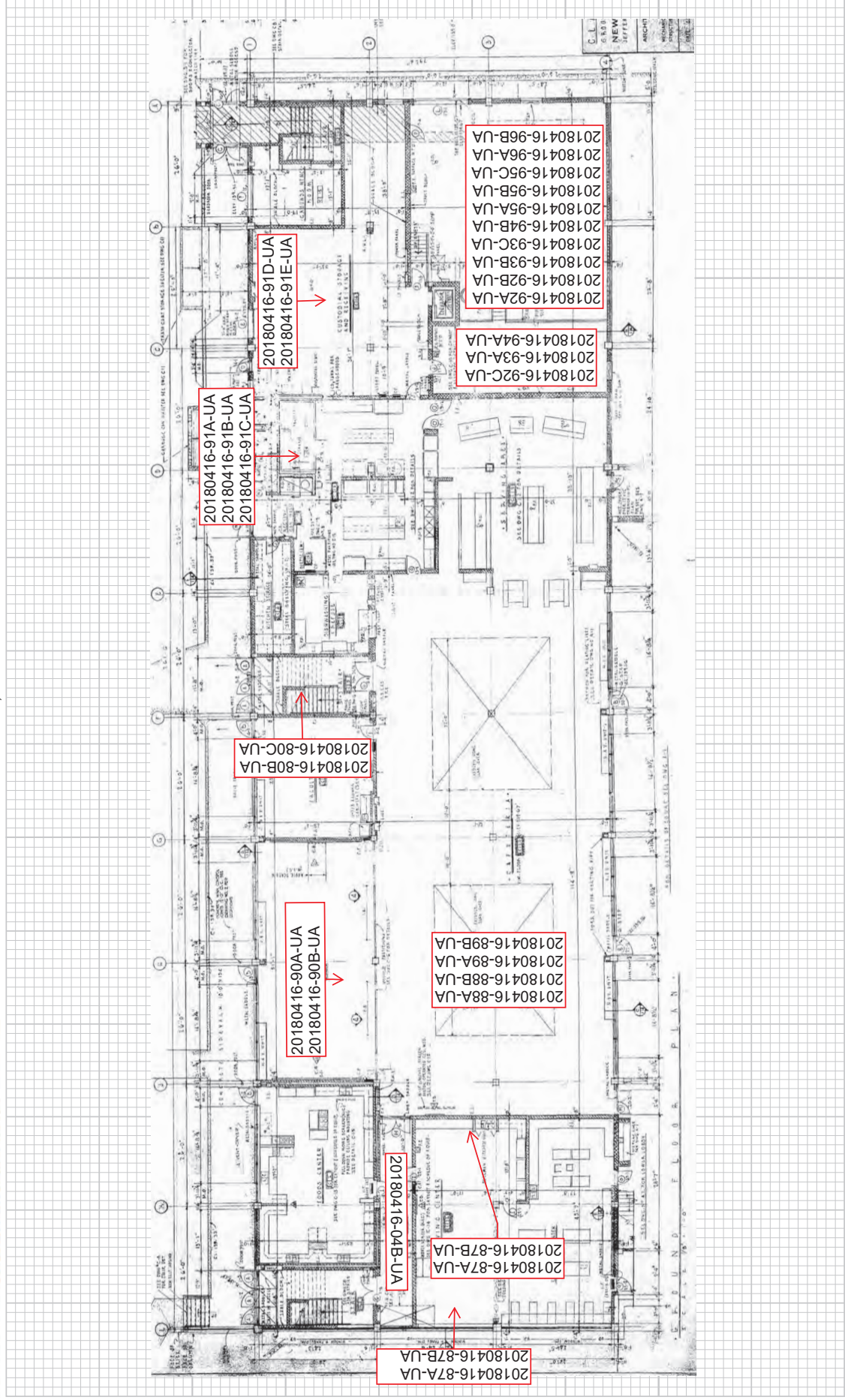


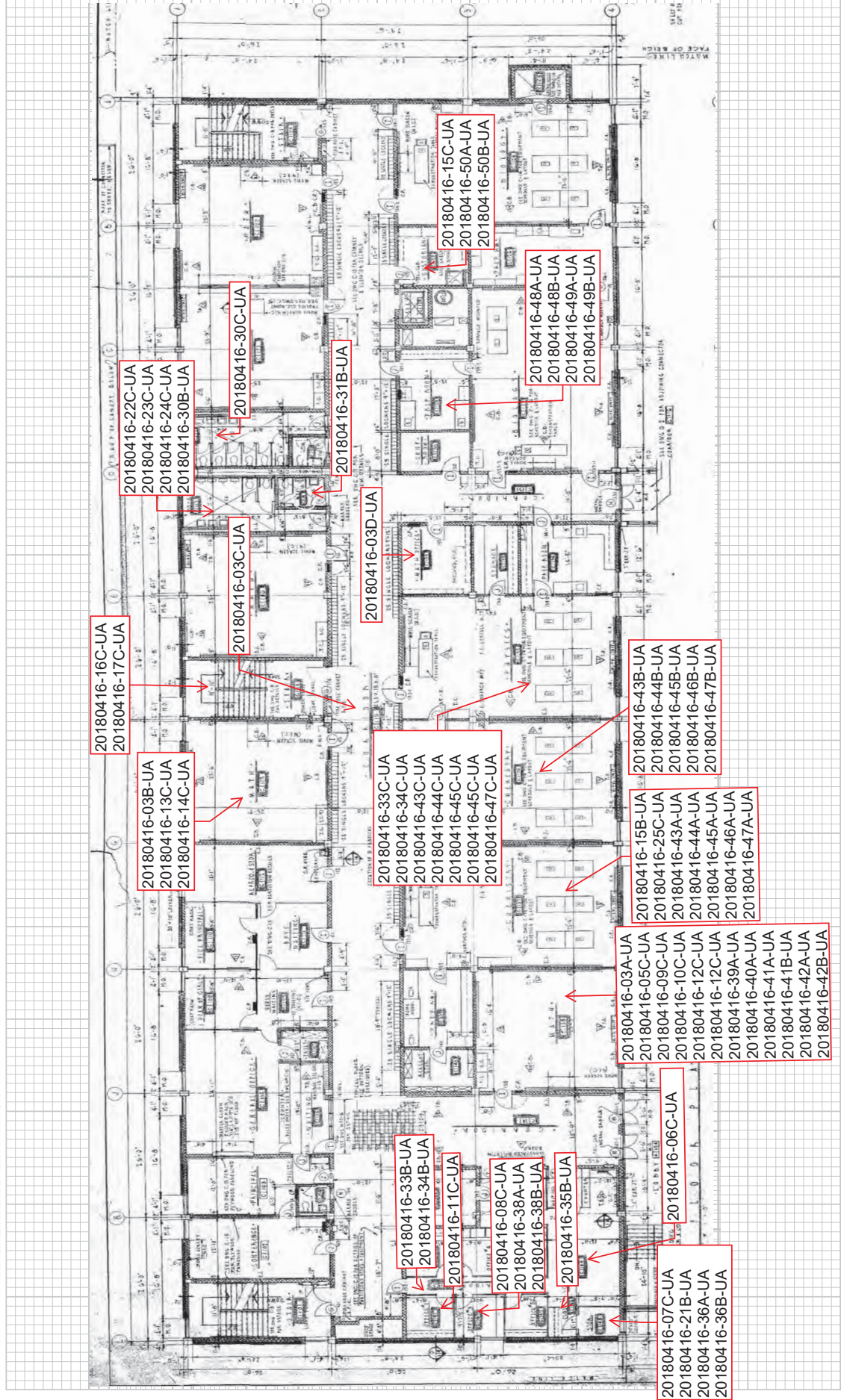
Figure 4
Main Classroom Building - First Floor

New London High School
490 Jefferson Avenue
New London, Connecticut

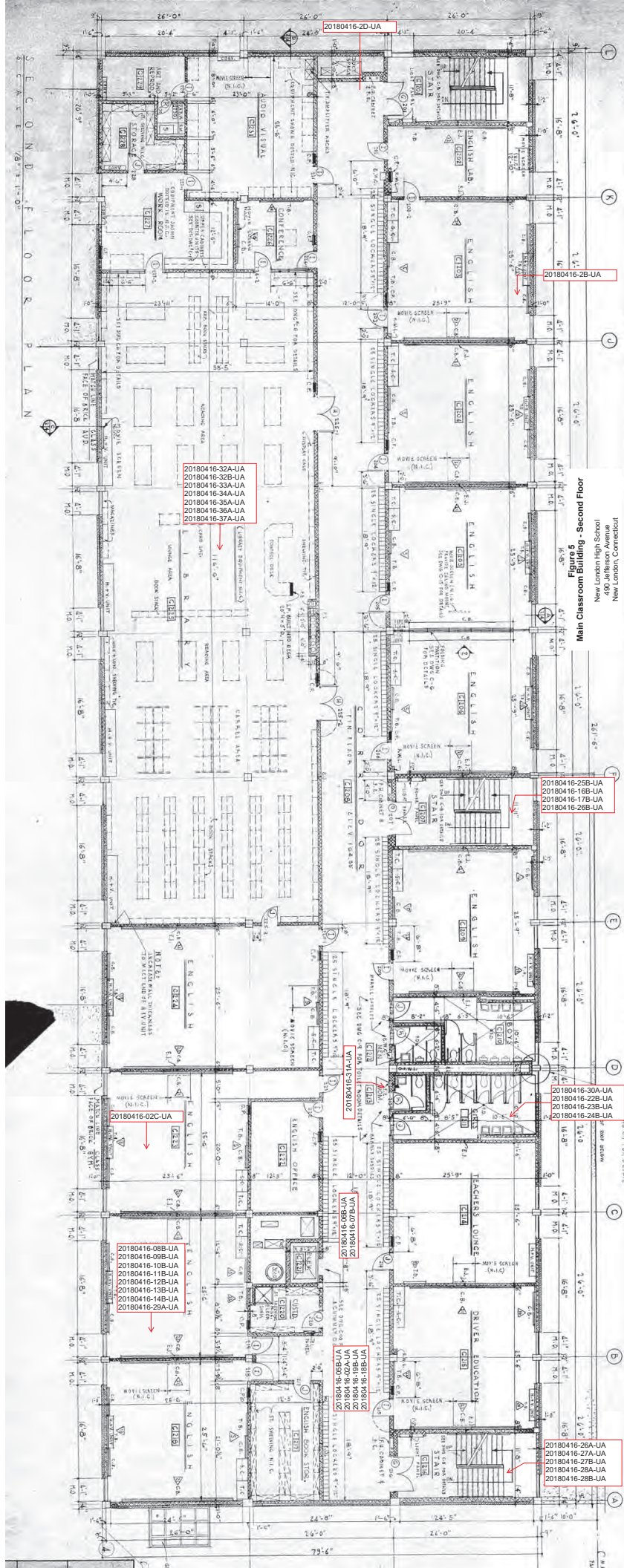
CLIENT
PROJECT
SITE ADDRESS
FIELD TECH
PROJECT NO.

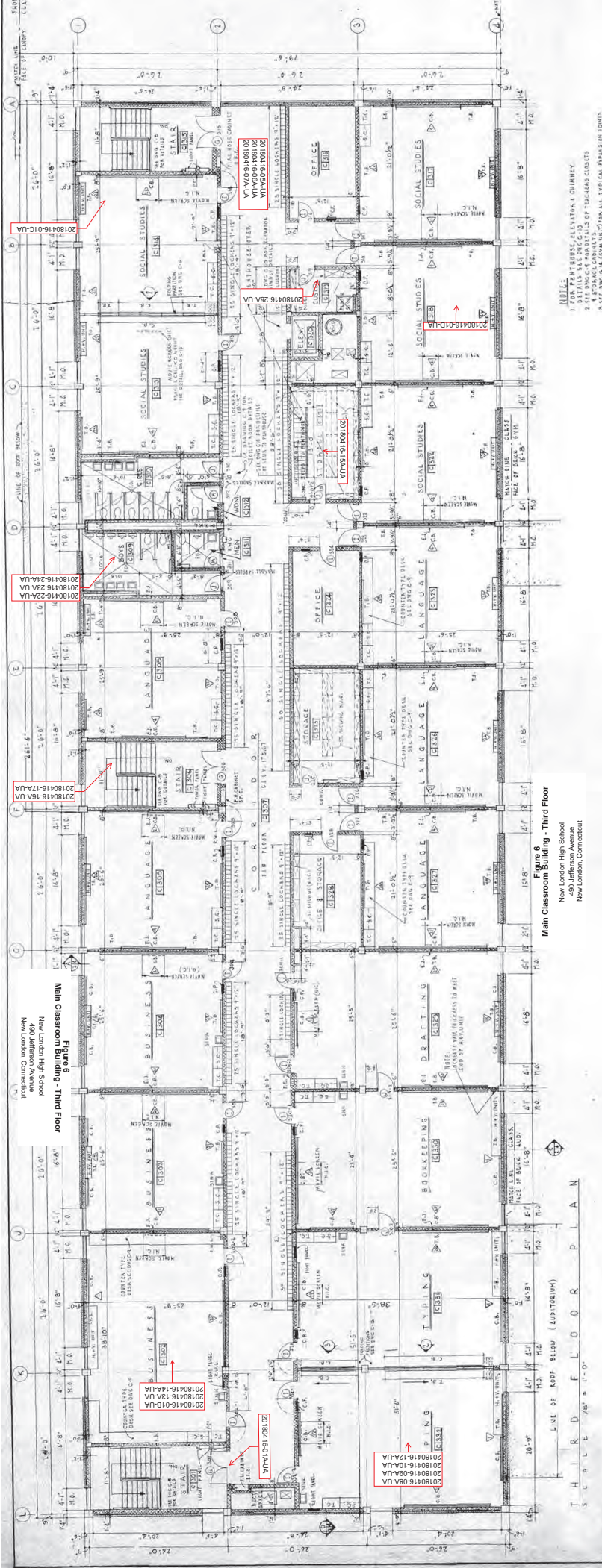
Antinozzi Associates
New London High School
490 Jefferson Avenue New London, Connecticut
K Rinaldi / U Auguste
20170858.A1E

DATE
SHEET NO. OF



SECOND FLOOR PLAN





THIRD FLOOR PLAN

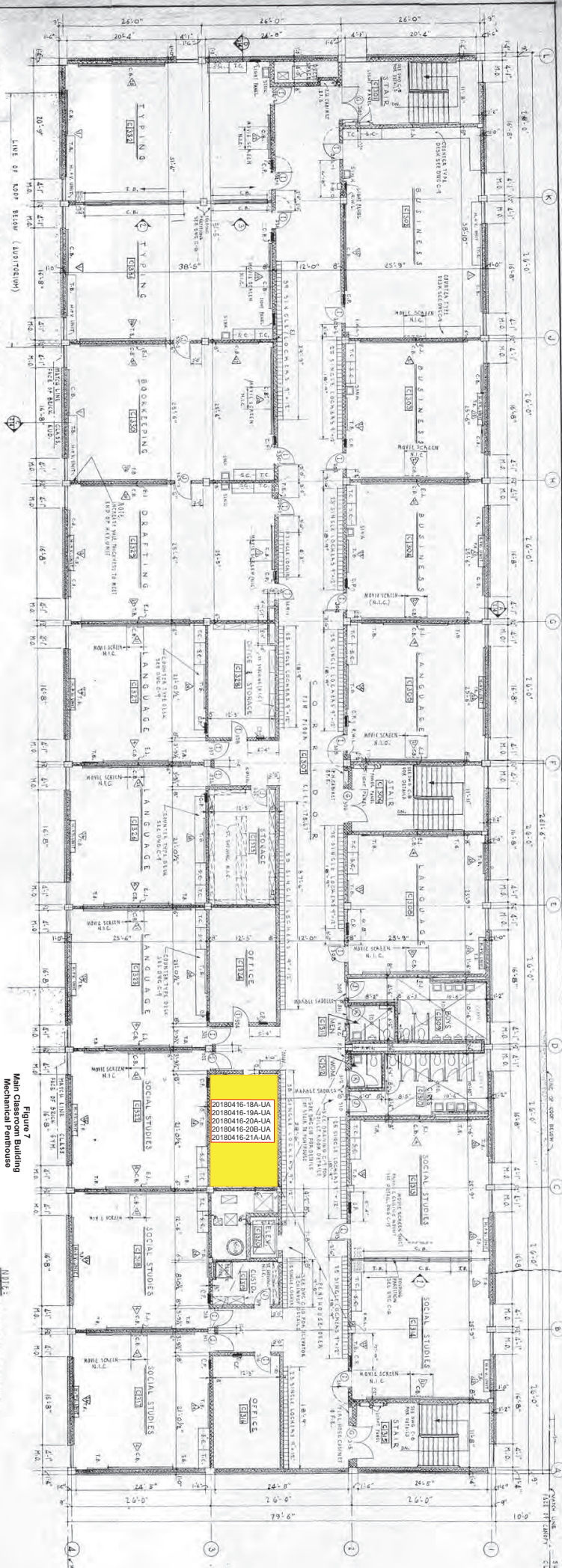


Figure 7
Main Classroom Building
Mechanical Penthouse
New London High School
480 Jefferson Avenue
New London, Connecticut

NOTE:
1. FOR K&T ROOMS, ALL EXISTING & CHANGES.
2. SEE PNC-C-4 FOR DETAILS OF TYPICAL CLASSROOMS.
3. SEE PNC-C-4 FOR DETAILS OF TYPICAL CLASSROOMS.
4. SEE PNC-C-4 FOR DETAILS OF TYPICAL CLASSROOMS.
5. SEE PNC-C-4 FOR DETAILS OF TYPICAL CLASSROOMS.

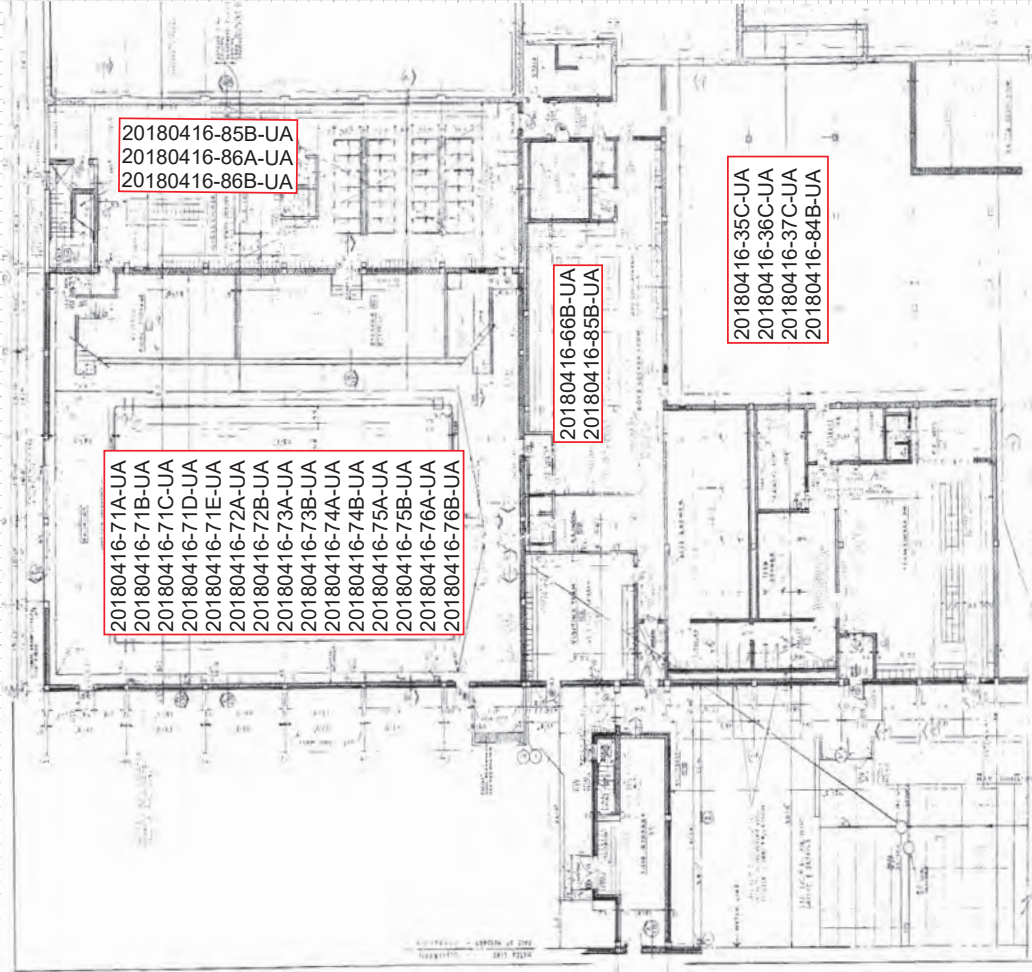


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EnviroScience, LLC

Figure 8 Gymnasium Building - Ground Floor

New London High School
490 Jefferson Avenue
New London, Connecticut

CLIENT	Antinozzi Associates
PROJECT	New London High School
SITE ADDRESS	490 Jefferson Avenue New London, Connecticut
FIELD TECH	K Rimad / U Auguste
PROJECT NO.	20170858.A1E
	SHEET NO. _____ OF _____



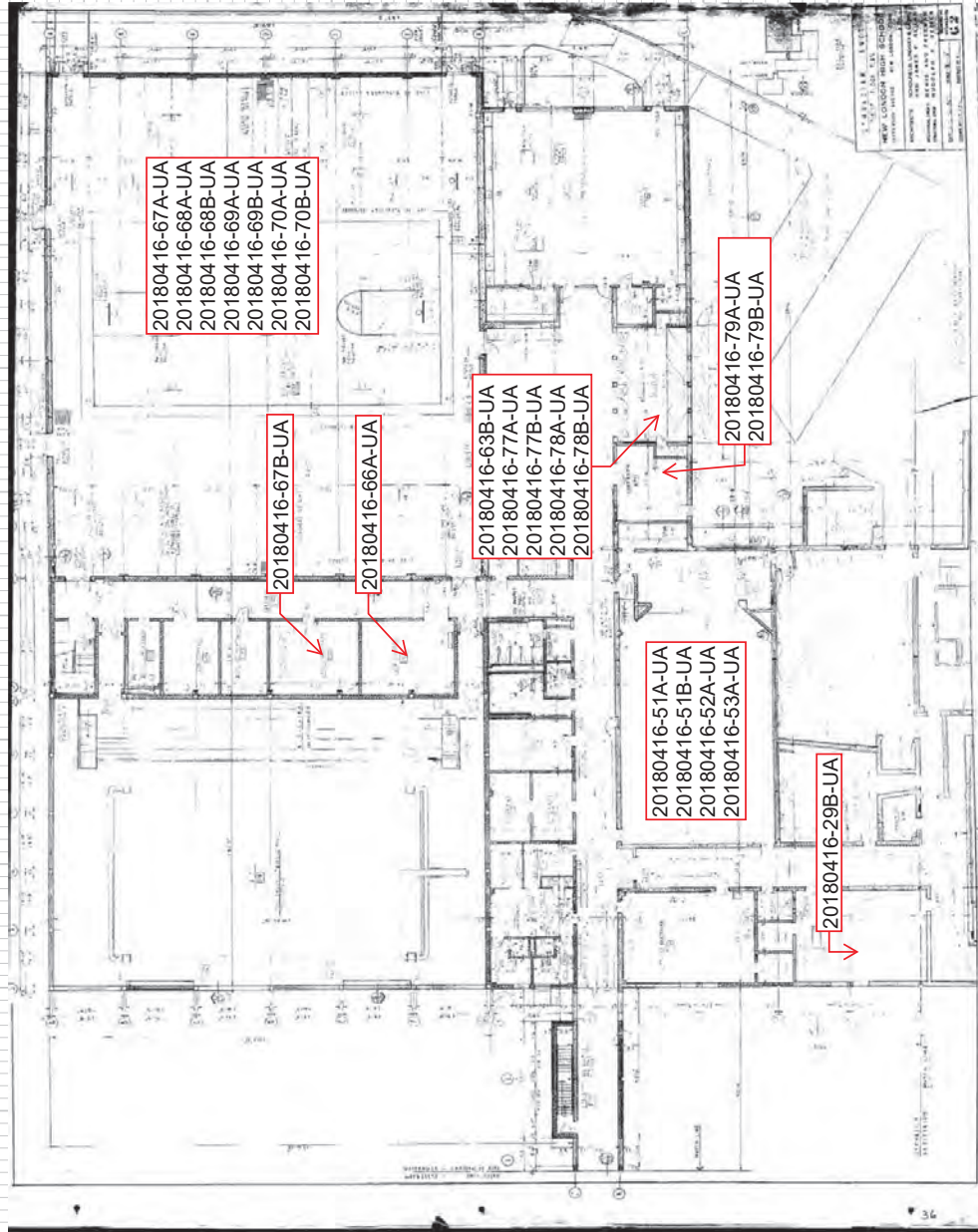


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Figure 9
Gymnasium Building - First Floor

New London High School
490 Jefferson Avenue
New London, Connecticut

CLIENT	Antinocz Associates
PROJECT	New London High School
SITE ADDRESS	490 Jefferson Avenue New London, Connecticut
FIELD TECH	K Rimad / U Auguste
PROJECT NO.	20170858.A1E
	SHEET NO. _____ OF _____

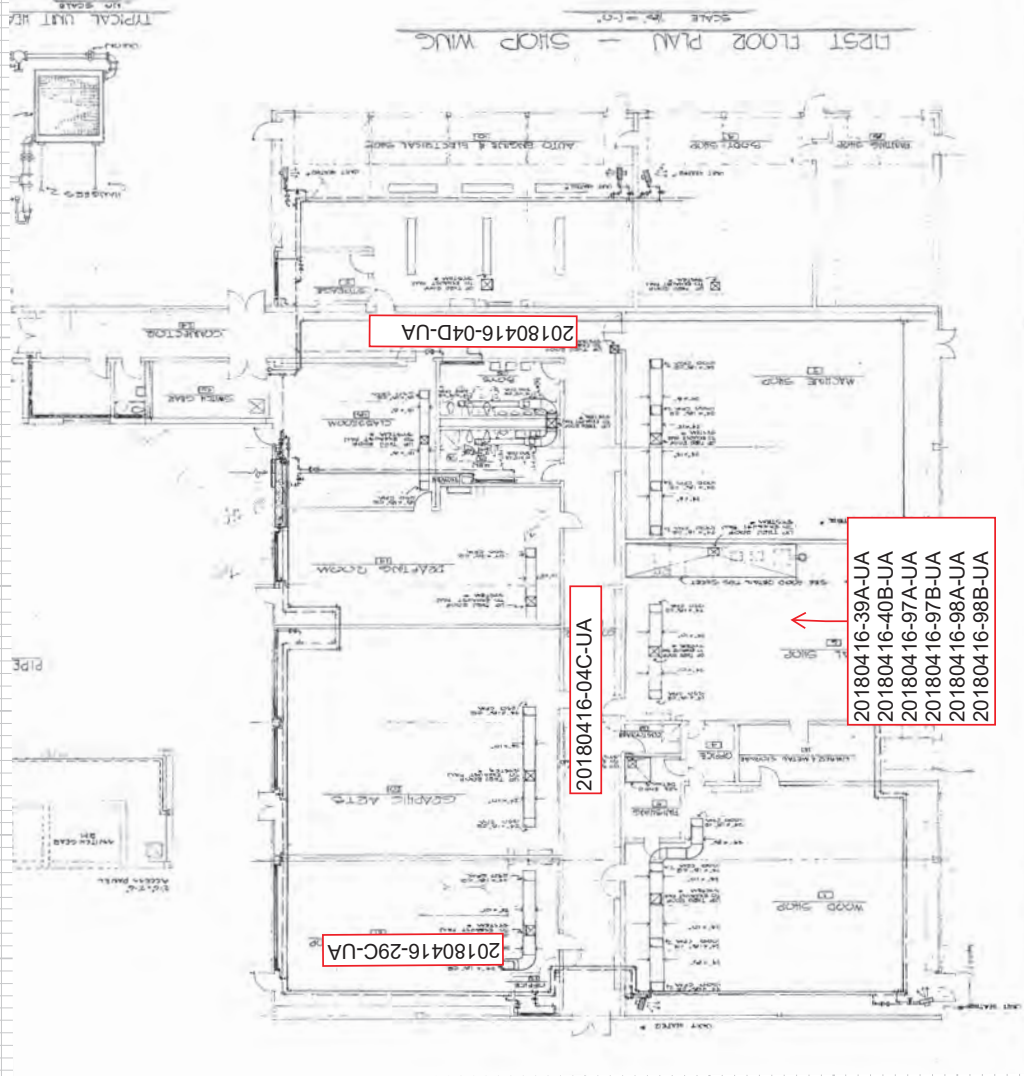




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EnviroScience, LLC

Figure 10
Shop Wing
New London High School
490 Jefferson Avenue
New London, Connecticut

CLIENT	Antinozzi Associates
PROJECT	New London High School
SITE ADDRESS	490 Jefferson Avenue New London, Connecticut
FIELD TECH	K Rimad / U Auguste
PROJECT NO.	20170858.A1E
	DATE
	SHEET NO. OF



APPENDIX B

Limited Hazardous Building Materials Inspection Report dated January 8, 2019

Limited Hazardous Building Materials Inspection

November 30, 2018 and December 19, 2018
New London High School
490 Jefferson Avenue
New London, CT

Antinozzi Associates
Bridgeport, CT

January 8, 2019



FUSS & O'NEILL

Fuss & O'Neill, Inc.
146 Hartford Road
Manchester, CT 06040



FUSS & O'NEILL

January 8, 2019

Mr. Paul Antinozzi, AIA
Antinozzi Associates
271 Fairfield Avenue
Bridgeport, CT 06604

Re: Limited Hazardous Building Materials Inspection
November 30, 2018 and December 29, 2018
New London High School
Fuss & O'Neill Project No. 20170858.A10

Dear Mr. Antinozzi:

Enclosed is the report for the limited hazardous building materials inspection conducted in response to proposed renovations for New London High School located at 490 Jefferson Avenue, New London, Connecticut (the "Site"). The work was conducted for Antinozzi Associates and the City of New London (the "Client").

The services were performed on November 30, 2018 and December 19, 2018 by Fuss & O'Neill licensed inspectors and included a limited asbestos-containing material (ACM) inspection. The information summarized in this report is for the above-mentioned materials only. The work was performed in accordance with our written proposal dated October 25, 2018.

If you should have any questions regarding the contents of this report, please do not hesitate to contact me at (860) 646-2469, extension 5570. Thank you for this opportunity to have served your environmental needs.

Sincerely,

Carlos Texidor
Senior Project Manager

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2.2	Building and Mechanical System Description.....	3
2.3	Results	5
2.4	Discussion	5
2.5	Conclusions and Recommendations.....	5

Tables

End of Report

1. Summary of Suspect Asbestos-Containing Materials
2. Summary of Asbestos-Containing Materials Inventory

Appendices

End of Report

APPENDIX A	LIMITATIONS
APPENDIX B	INSPECTOR LICENSES AND ACCREDITATIONS
APPENDIX C	ASBESTOS LABORATORY REPORTS AND CHAIN OF CUSTODY FORMS
APPENDIX D	SITE PHOTOGRAPHS
APPENDIX E	SAMPLE DIAGRAMS
APPENDIX F	ROOF CROSS SECTION DIAGRAM

1 Introduction

On November 30, 2018, Fuss & O'Neill, Inc. (Fuss & O'Neill) representatives Steven Douglas and Kristina Snurkowski performed a limited hazardous building materials inspection for proposed roof replacement and renovations at New London High School located at 490 Jefferson Avenue, New London, Connecticut (the "Site"). On December 19, 2018, Fuss & O'Neill representatives Ulkens August and Matt Walker performed an additional limited hazardous building materials inspection for proposed renovations at the Site. The work was conducted for Antinozzi Associates and the City of New London (the "Client") in accordance with our written scope of services dated October 10, 2018 and is subject to the limitations included in *Appendix A*.

These limited asbestos-containing material (ACM) inspections included the following areas:

- Roof except for S-Wing and the STEM building;
- Exterior walls to determine if there is waterproofing/vapor barrier or vermiculite insulation;
- Core boring of the concrete slab to check for suspect asbestos containing vapor/damp proofing barriers; and
- The pool and gym areas.

The roofing inspection conducted on November 20, 2018 was limited to non-invasive and discrete sampling techniques. Specific areas that were not inspected include the following:

- Beneath window and door frames;
- Spaces within solid walls and
- Concealed pipe chases.

The supplemental inspection of additional areas conducted on December 19, 2018 was not limited to discrete sampling and included limited destructive sampling techniques to investigate beneath the concrete slab and inside exterior walls.

We have excluded analysis of building materials for PCBs. Sampling for PCBs is presently not mandated by the Environmental Protection Agency (EPA); however, significant liability risk for disposing of PCB-containing wastes exists. Recent knowledge of PCBs within these matrices has become more prevalent, especially with remediation contractors, waste haulers, and disposal facilities. Many property Owners have become subject to large changes in schedule, scope, and costs as a result of failure to identify this possible contaminant prior to renovation or demolition.

2 Asbestos Inspection

On November 30, 2018, Mr. Douglas and Ms. Snurkowski of Fuss & O'Neill conducted the roofing inspection and On December 19, 2018, Mr. August and Mr. Walker conducted the exterior walls, concrete slab, pool, and gym inspection. Mr. Douglas, Ms. Snurkowski, Mr. August, and Mr. Walker are all State of Connecticut Department of Public Health (CTDPH) - licensed Asbestos Inspectors. Refer to *Appendix B* for the Asbestos Inspector licenses and accreditations.

2.1 Methodology

The inspections were conducted by visually inspecting for suspect ACM and touching each of the suspect materials. The suspect materials were categorized into three EPA NESHAP groups: friable and non-friable Category I and Category II type ACM.

- A Friable Material is defined as material that contains greater than 1 percent ($> 1\%$) asbestos that when dry **can** be crumbled, pulverized, or reduced to powder by hand pressure.
- A Category I Non-Friable Material refers to material that contains $> 1\%$ asbestos (i.e., packings, gaskets, resilient floor coverings, and asphalt roofing products) that when dry **cannot** be crumbled, pulverized, or reduced to powder by hand pressure.
- A Category II Non-Friable Material refers to any non-friable material excluding Category I materials that contain $> 1\%$ asbestos that when dry, **cannot** be crumbled, pulverized, or reduced to powder by hand pressure.

The suspect ACM were also categorized into their applications including Thermal System Insulation (TSI), Surfacing ACM (S), and Miscellaneous ACM (M). TSI includes those materials used to prevent heat loss/gain or water condensation on mechanical systems. Examples of TSI are pipe insulation, boiler insulation, duct insulation, and mudded pipe fitting insulations. Surfacing ACM includes those ACM that are applied by spray, trowel, or otherwise applied to an existing surface. Surfacing ACM is commonly used for fireproofing, decorative, and acoustical applications. Miscellaneous materials include those ACM not listed as thermal or surfacing, such as linoleum, vinyl asbestos flooring, ceiling tiles, caulking, glues, construction adhesives, etc.

The EPA recommends collecting suspect ACM samples in a manner sufficient to determine asbestos content and to segregate each suspect type of homogenous (similar in color, texture, and date of application) materials. The EPA NESHAP regulation does not specifically identify a minimum number of samples to be collected for each homogeneous material, but the NESHAP regulation does recommend the use of sampling protocols included in Title 40 CFR, Part 763, Subpart E: Asbestos Hazard Emergency Response Act (AHERA).

The EPA AHERA regulation requires a specific number of samples be collected based on the type of material and quantity present. This regulation includes the following protocol:

1. Surfacing Materials (S) (i.e., plasters, spray-applied fireproofing, etc.) must be collected in a randomly distributed manner representing each homogenous area based on the overall quantity represented by the sampling as follows:
 - a. Three (3) samples collected from each homogenous area that is less than or equal to 1,000 square feet.
 - b. Five (5) samples collected from each homogenous area that is greater than 1,000 square feet but less than or equal to 5,000 square feet.
 - c. Seven (7) samples collected from each homogenous area that is greater than 5,000 square feet.

2. Thermal System Insulation (TSI) (i.e., pipe insulations, tank insulations, etc.) must be collected in a randomly distributed manner representing each homogenous area. Three (3) samples must be collected from each material. Also, a minimum of one (1) sample of any patching materials applied to TSI presuming the patched area is less than 6 linear or square feet should be collected.
3. Miscellaneous materials (M) (i.e., floor tile, gaskets, construction mastics, etc.) should have a minimum of two (2) samples collected for each type of homogenous material. Sample collection was conducted in a manner sufficient to determine asbestos content of the homogenous material as determined by the inspector.

The inspectors collected samples of those suspect ACM anticipated to be disturbed by proposed roof replacement for the school and demolition of Building S, and prepared a proper chain of custody form for transmission of the samples to EMSL Analytical, Inc. for analysis. EMSL is a State of Connecticut-licensed and American Industrial Hygiene Association (AIHA)-accredited asbestos laboratory. The sample locations, material type, sample identification, and asbestos content are identified by bulk sample analysis in **Table 1** attached hereto. Suspect ACM not listed in the table that may be identified at a later date at the Site, should be assumed to be ACM until sample collection and analysis indicate otherwise. Initial asbestos sample analysis was conducted using the EPA Interim Method for the Determination of Asbestos in Bulk Building Materials (EPA/600/R-93/116) via Polarized Light Microscopy with Dispersion Staining (PLM/DS).

If samples of suspect materials could not be collected or were inaccessible but observed elsewhere, these materials were assumed to contain asbestos and the inspectors approximated quantities. Silktown Roofing assisted Fuss & O'Neill in obtaining and repairing roof sample locations. Limited intrusive or destructive investigative techniques were performed at the Site to access and observe concealed areas that may have had suspect ACMs that were hidden or obstructed from normal view. Hard enclosures or obstructed areas that were investigated included spaces beneath the concrete slab and within exterior walls.

Fuss & O'Neill did not conduct subsurface investigations to identify suspect cementitious pipe throughout the Site.

2.2 Building and Mechanical System Description

The New London High School building complex is comprised of three buildings: the main classroom building, the auditorium/gymnasium wing, and the shop wing (S-wing), separated from the STEM School.

The main classroom building is an 84,000 square feet four-story masonry structure, reportedly constructed in 1969. The main building is utilized for classrooms, science laboratories, administrative, nurses, and guidance counseling offices on the upper floors in addition to the cafeteria/kitchen and custodial/receiving area located on the ground floor. Ceiling finishes within the main classroom building include: painted waffle slab ceiling areas, painted concrete ceiling deck, 2' x 4' acoustic ceiling

tiles on a suspended ceiling grid and 12" x 12" ceiling tiles adhered directly to the concrete ceiling deck. Wall finishes throughout the main classroom building include: CMU block, glazed CMU block, structural concrete, sheetrock, wood paneling, folding partition walls and insulated metal paneling (administrative and guidance offices). Floor finishes throughout the classroom building include: 9" x 9" floor tile (various colors), 12" x 12" floor tile (various colors), carpet, quarry tile in kitchen spaces, ceramic tile in bathrooms and epoxy painted concrete in custodial closets and shipping and receiving areas.

The auditorium/gymnasium building is an 80,000 square foot two-story masonry structure, reportedly constructed in 1969, split into a Main Floor and Ground Floor. The auditorium/gymnasium building is comprised of an auditorium, a gymnasium, a lecture hall, several classrooms, faculty offices, ticket booths and storage space on the upper(Main) floor with a pool, locker rooms, storage and a former rifle firing range located on the lower(Ground) floor. Ceiling finishes within the auditorium/gymnasium building include: acoustical ceiling tiles (various sizes) on a suspended ceiling grid, 12" x 12" ceiling tiles adhered to concrete and gypsum wall board, plaster ceiling, soft and hard textured ceiling coatings and painted corrugated steel decking(underside of roof deck). Wall finishes throughout the auditorium/gymnasium building include: painted CMU block, glazed CMU block, metal paneling, sheetrock, structural concrete and folding partition walls. Floor finishes throughout the auditorium/gymnasium building include: 9" x 9" floor tile, 12" x 12" floor tile, epoxy coated concrete, quarry tile throughout the main entrance lobby and gymnasium lobby, ceramic tile and carpets.

The shop wing building(S-wing) is an 18,380 square foot, single-story building housing the culinary department with classroom space, a fitness equipment room, commercial teaching kitchen, and plant nursery with a hydroponics system. Ceiling finishes within the shop wing include acoustical ceiling tile on a suspended ceiling grid and the painted underside of the corrugated roof deck. Wall finishes throughout the S-wing include CMU block and sheet rock at interior walls and metal paneling at structural concrete at exterior walls.

A single elevator servicing the ground floor thru the third floor was observed in the main classroom building. Access to the elevator shaft, mechanical components and controls was not available at the time of the inspection.

Heating for the main classroom building, auditorium/gymnasium building and S-wing is provided by three oil-fired boilers located in the ground floor of the main classroom building plumbed to individual radiators in each room. Cooling for the main classroom building, auditorium/gymnasium building and S-wing is provided by window mounted air conditioners located in individual rooms.

According to the Client, they are planning a full roofing replacement for the school. All roof areas were included in the inspection with the exception of the Roof of S-Wing. On the day of the inspection, snow began to fall in the late afternoon and Silktown Roofing informed Fuss & O'Neill staff that they could not make any more roof cuts that day due to the roof being too wet.

2.3 Results

Utilizing the EPA protocol and criteria, the following materials were determined to contain asbestos:

- Coating associated with corrugated metal siding on Wing-S

The following materials were determined to contain trace amounts of asbestos:

- Black roofing cement used to seal round duct for stacks on Roof 2
- Black lap sealant on Roof 4

Refer to **Table 1** for a complete list of ACM and non-ACM sampled as part of this inspection. Refer to **Table 2** attached hereto for the ACM inventory. Refer to *Appendix C* for the asbestos laboratory report and chain of custody forms. Refer to *Appendix D* for site photographs. Refer to *Appendix E* for the sample diagrams. Refer to *Appendix F* for a diagram of the roofing layers for each roof tested.

2.4 Discussion

The EPA, the Occupational Safety and Health Administration (OSHA), and the CTDPH, define a material that contains greater than one percent ($> 1\%$) asbestos, utilizing PLM/DS, as being an ACM. Materials that are identified as "none detected" are specified as not containing asbestos.

Suspect ACM not identified during this inspection should be presumed to contain asbestos until sample collection and laboratory analysis indicate otherwise.

Additionally, the EPA has suggested that materials that are non-friable organically bound (NOB) materials (e.g., asphaltic-based materials, adhesives, etc.) are recommended for further confirmatory analysis utilizing Transmission Electron Microscopy (TEM). Eighteen of the collected samples were recommended to be analyzed by TEM. The results of TEM analysis are denoted in **Table 1**.

2.5 Conclusions and Recommendations

Based on visual observations, sample collection, and laboratory analysis, **asbestos was present in materials tested at the Site.**

Additionally materials are present at the Site where concentrations of asbestos are less than 1% ($< 1\%$). While the EPA and the CTDPH identify materials containing $< 1\%$ as a non-asbestos containing material, Occupation Safety and Health Administration (OSHA) worker protection regulations apply to materials containing any amount of asbestos.

Prior to disturbance, ACM that would likely be impacted by the proposed renovation/demolition activities must first be abated by a state-licensed Asbestos Abatement Contractor. This is a requirement of CTDPH and EPA NESHAP regulations governing asbestos abatement.

Due to the inability to effectively separate some types of multi-layered ACM (e.g., floor tile/mastic, gypsum board/joint compound, mastic/plywood, etc.) from non-ACM, these materials are considered asbestos-contaminated and must be managed as ACM for the purposes of removal and disposal.

Fuss & O'Neill recommends that a comprehensive scope of work and technical specification be developed as part of renovation/demolition plans for the site. We have provided a cost to develop the specifications for inclusion in the overall renovation/demolition plans. We have also developed an opinion of cost for the complete removal of all identified asbestos under separate cover. Note the total cost is inclusive of removing all asbestos, and a more limited scope can be tailored to any specific renovation/demolition work as necessary.

Suspect materials encountered during renovation/demolition that are not identified in this report as being non-ACM should be presumed to be ACM until sample collection and laboratory analysis indicate otherwise.

Fuss & O'Neill recommends that if any ACM are to remain in the building following renovation/demolition activities, the ACM should be managed in-place under a written Operations and Maintenance Program in accordance with OSHA regulations.

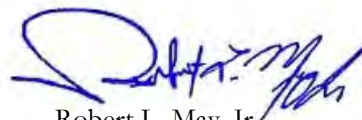
This report is not intended to be utilized as a bidding document or as a project specification document. The report is designed to aid the building owner, architect, construction manager, general contractors, and asbestos abatement contractors in locating identified ACM.

Report prepared by Environmental Technician, Kristina Snurkowski.

Reviewed by:



Carlos Texidor
Senior Project Manager



Robert L. May, Jr.
Senior Vice President

Tables

Table 1
Summary of Suspect Asbestos-Containing Materials

Sample No.	Sample Location	Material Type	Asbestos Content	PLM/TEM
November 30, 2018				
113018-01A	Roof 2 Cut 1	Bottom Black Tar Layer On Roof Deck	ND/ND	PLM/TEM
113018-01B	Roof 2 Cut 2	Bottom Black Tar Layer On Roof Deck	ND	PLM
113018-02A	Roof 2 Cut 1	Black Paper associated with Pale Yellow Iso Foam	ND/ND	PLM/TEM
113018-02B	Roof 2 Cut 2	Black Paper associated with Pale Yellow Iso Foam	ND	PLM
113018-03A	Roof 2 Cut 1	Brown Fiberboard with Black Paper	ND	PLM
113018-03B	Roof 2 Cut 2	Brown Fiberboard with Black Paper	ND	PLM
113018-04A	Roof 2 Cut 1	Black Asphalt Layer	ND/ND	PLM/TEM
113018-04B	Roof 2 Cut 2	Black Asphalt Layer	ND	PLM
113018-05A	Roof 2 Cut 1	Top Layer Rolled Asphalt	ND/ND	PLM/TEM
113018-05B	Roof 2 Cut 2	Top Layer Rolled Asphalt	ND	PLM
113018-06A	Roof 2 Cut 1	Lap Sealant	ND/ND	PLM/TEM
113018-06B	Roof 2 Cut 2	Lap Sealant	ND	PLM
113018-07A	Roof 2 Flashing	Adhesive under Rubber associated with Flashing	ND/ND	PLM/TEM
113018-07B	Roof 2 Flashing	Adhesive under Rubber associated with Flashing	ND	PLM
113018-08A	Roof 2 Flashing	Asphalt Layer under Membrane associated with Flashing	ND/ND	PLM/TEM
113018-08B	Roof 2 Flashing	Asphalt Layer under Membrane associated with Flashing	ND	PLM
113018-09A	Roof 2 Flashing	Roofing Cement and Paper Composite Layer associated with Flashing	ND/ND	PLM/TEM
113018-09B	Roof 2 Flashing	Roofing Cement and Paper Composite Layer associated with Flashing	ND	PLM
113018-10A	Roof 2 Flashing	Gray Patch Caulking associated with Metal Flashing	ND/ND	PLM/TEM
113018-10B	Roof 2 Flashing	Gray Patch Caulking associated with Metal Flashing	ND	PLM

Sample No.	Sample Location	Material Type	Asbestos Content	PLM/TEM
113018-11A	Roof 2	Black Roofing Cement used to Seal Round Duct for Stacks	<1% Chrysotile/<0.21% Chrysotile	PLM/TEM
113018-11B	Roof 2	Black Roofing Cement used to Seal Round Duct for Stacks	<1% Chrysotile	PLM
113018-12A	Roof 2	Tar In Pitch Pocket	ND/ND	PLM/TEM
113018-12B	Roof 2	Tar In Pitch Pocket	ND	PLM
113018-13A	Roof 2 Round Vents	Black Caulk associated with Round Vents	ND/ND	PLM/TEM
113018-13B	Roof 2 Round Vents	Black Caulk associated with Round Vents	ND	PLM
113018-14A	Roof 3 Cut 2	Gypsum Board	ND	PLM
113018-14B	Roof 3 Cut 2	Gypsum Board	ND	PLM
113018-15A	Roof 3 Cut 1	Black Lap Sealant	ND/ND	PLM/TEM
113018-15B	Roof 3 Cut 2	Black Lap Sealant	ND	PLM
113018-16A	Roof 3 Flashing – By Wall Adjacent Roof 6 On Parking Lot Side	Black Patch Flashing Caulking associated with Darker Metal Patch Flashing	ND/ND	PLM/TEM
113018-16B	Roof 3 Flashing – By Wall Adjacent Roof 6 On Parking Lot Side	Black Patch Flashing Caulking associated with Darker Metal Patch Flashing	ND	PLM
113018-17A	Roof 4 Cut 1	Brown Fiberboard and Dark Brown Paper	ND	PLM
113018-17B	Roof 4 Cut 1	Brown Fiberboard and Dark Brown Paper	ND	PLM
113018-18A	Roof 4 Cut 1	White Gypsum Board	ND	PLM
113018-18B	Roof 4 Cut 1	White Gypsum Board	ND	PLM
113018-19A	Roof 4 Cut 1	Black Lap Sealant	ND/0.47% Chrysotile	PLM/TEM
113018-19B	Roof 4 Cut 1	Black Lap Sealant	ND	PLM
113018-20A	Roof 5 Cut 1	White Gypsum Board	ND	PLM
113018-20B	Roof 5 Cut 2	White Gypsum Board	ND	PLM
113018-21A	Roof 5 Cut 1	Brown Fiberboard	ND	PLM
113018-21B	Roof 5 Cut 2	Brown Fiberboard	ND	PLM
113018-22A	Roof 5	Black Lap Sealant	ND/ND	PLM/ND
113018-22B	Roof 5	Black Lap Sealant	ND	PLM
113018-23A	Roof 5 Flashing	Black Caulking associated with Flashing	ND/ND	PLM/ND
113018-23B	Roof 5 Flashing	Black Caulking associated with Flashing	ND	PLM
113018-24A	Roof 6 Cut 1	White Gypsum Board	ND	PLM

Sample No.	Sample Location	Material Type	Asbestos Content	PLM/TEM
113018-24B	Roof 6 Cut 3	White Gypsum Board	ND	PLM
113018-25A	Roof 6	Black Lap Sealant	ND/ND	PLM/ND
113018-25B	Roof 6	Black Lap Sealant	ND	PLM
113018-26A	Building S Exterior Wall Northwest	Coating associated with Corrugated Wall	30% Chrysotile	PLM
113018-26B	Building S Exterior Wall East	Coating associated with Corrugated Wall	NA/Pos Stop	-
113018-26C	Building S Exterior Wall South	Coating associated with Corrugated Wall	NA/Pos Stop	-
12192018UA-01A	Location #1 - Ground Floor Storage Room By North Stair Case Outside of Cafeteria	Black Tar Between Concrete Slabs	ND/ND	PLM/TEM
12192018UA-01B	Location #1 - Ground Floor Storage Room By North Stair Case Outside of Cafeteria	Black Tar Between Concrete Slabs	ND	PLM
12192018UA-02A	Location #1 - Ground Floor Storage Room By North Stair Case Outside of Cafeteria	Gray Cement Like/Leveling Compound under Concrete On Top Of Soil	ND	PLM
12192018UA-02B	Location #1 - Ground Floor Storage Room By North Stair Case Outside of Cafeteria	Gray Cement Like/Leveling Compound under Concrete On Top Of Soil	ND	PLM
12192018UA-03A	Location #3 - Pool Area Adjacent To Bleachers	Black Vapor Barrier under Ceramic Tile under 1" Concrete	ND/ND	PLM/TEM
12192018UA-03B	Location #3 - Pool Area Adjacent To Bleachers	Black Vapor Barrier under Ceramic Tile under 1" Concrete	ND	PLM
12192018UA-04A	Location #4 - Pool Area, South Storage Room	Black Vapor Barrier under Concrete Slap On Top Of Soil	ND/ND	PLM/TEM
12192018UA-04B	Location #6 - S Wing Room S-10 Southwest Corner	Black Vapor Barrier under Concrete Slap On Top Of Soil	ND	PLM
12192018UA-05A	Pool Area	Slate Black Board	ND	PLM
12192018UA-05B	Pool Area	Slate Black Board	ND	PLM
12192018UA-06A	Gym	Canvas Brown Paper associated with Wooden Partition Walls/Curtains	ND	PLM

Sample No.	Sample Location	Material Type	Asbestos Content	PLM/TEM
12192018UA-06B	Gym	Canvas Brown Paper associated with Wooden Partition Walls/Curtains	ND	PLM
12192018UA-07A	Gym	Brown Paper Insulation Inside Wooden Curtain Partition Walls	ND	PLM
12192018UA-07B	Gym	Brown Paper Insulation Inside Wooden Curtain Partition Walls	ND	PLM
12192018UA-08A	Exterior Wall Cavity Outside Of Boiler Room Between Bricks and CMU Block	Black Rubber Membrane	ND/ND	PLM/TEM
12192018UA-08B	Exterior Wall Cavity Outside Of Boiler Room Between Bricks and CMU Block	Black Rubber Membrane	ND	PLM

NA/Pos Stop = Not Analyzed/Positive Stop

ND = None Detected

Table 2
Summary of Asbestos-Containing Materials Inventory

Location	Material Type	Asbestos Content	Estimated Total Quantity	Comments
Building S	Coating associated with corrugated wall	30% Chrysotile	10,800 SF	Building is approximately 160' by 110'

SF = Square Feet

Appendix A

Limitations

APPENDIX A

New London High School, 490 Jefferson Avenue New London, CT

1. This inspection report has been prepared for the exclusive use of Antinozzi Associates (the "Client") and is subject to, and is issued in connection with the terms and conditions of the original Agreement and all of its provisions. Any use or reliance upon information provided in this report, without the specific written authorization of the Client and Fuss & O'Neill, Inc. (Fuss & O'Neill) shall be at the User's individual risk. This report should not be used as an abatement specification. All quantities of materials identified during this inspection are approximate.
2. Fuss & O'Neill has obtained and relied upon information from multiple sources to form certain conclusions regarding likely environmental issues at and in the vicinity of the subject property in conducting this inspection. Except as otherwise noted, no attempt has been made to verify the accuracy or completeness of such information or verify compliance by any party with federal, state or local laws or regulations.
3. Fuss & O'Neill has obtained and relied upon laboratory analytical results in conducting the inspection. This information was used to form conclusions regarding the types and quantities of ACM that must be managed prior to renovation or demolition activities that may disturb these materials at the Site. Fuss & O'Neill has not performed an independent review of the reliability of this laboratory data.
4. Unless otherwise noted, only suspect hazardous materials associated within or located on the building (aboveground) were included in this inspection. Suspect hazardous materials may exist below the ground surface that were not included in the scope of work of this inspection. Fuss & O'Neill cannot guarantee all asbestos or suspect hazardous materials were identified within the areas included in the scope of work. Only visible and accessible areas were included in the scope of work for this inspection.
5. The findings, observations and conclusions presented in this report are limited by the scope of services outlined in our original Agreement (October 25, 2018), which reflects schedule and budgetary constraints imposed by Client. Furthermore, the assessment has been conducted in accordance with generally accepted environmental practices. No other warranty, expressed or implied, is made.
6. The conclusions presented in this report are based solely upon information gathered by Fuss & O'Neill to date. Should further environmental or other relevant information be discovered at a later date, the Client should immediately bring the information to the Fuss & O'Neill's attention. Based upon an evaluation and assessment of relevant information, Fuss & O'Neill may modify the letter report and its conclusions.

Appendix B

Fuss & O'Neill Inspector Licenses and Accreditations

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT

THE INDIVIDUAL NAMED BELOW IS CERTIFIED
BY THIS DEPARTMENT AS A

ASBESTOS CONSULTANT-INSP/MGMT PLANNER

STEVEN M DOUGLAS

CERTIFICATE NO.
000287

CURRENT THROUGH
09/30/19

VALIDATION NO.
03-702357


SIGNATURE


COMMISSIONER

CERTIFICATE OF ACHIEVEMENT

This certifies that

Steven Douglas

has successfully completed the

**8 Hour Asbestos Site Inspector/Management Planner Refresher Training
Asbestos Accreditation Under TSCA Title II
40 CFR Part 763**

conducted by

ATC Group Services, LLC
73 William Franks Drive
West Springfield, MA 01089
(413) 781-0070

Edward Kolodziej

Principal Instructor: Edward Kolodziej

February 15, 2018

Date of Course

February 15, 2019

Expiration Date

Gregory Morsch

Regional Training Manager: Gregory Morsch

MP AR-3139

Certificate Number

February 15, 2018

Examination Date

1000584 01 AB 0.405 **AUTO T2 0 1264 06040-599246 -C01-P00586 I



KRISTINA M SNURKOWSKI
FUSS & O'NEILL INC
146 HARTFORD RD
MANCHESTER CT 06040-5992



Dear KRISTINA M SNURKOWSKI,

Attached you will find your validated certificate for the coming year. Should you have any questions about your certificate renewal, please do not hesitate to write or call:

Department of Public Health
P.O. Box 340308
M.S.#12MQA
Hartford, CT 06134-0308

(860) 509-7603
oplc.dph@ct.gov
www.ct.gov/dph/license

Sincerely,

RAUL PINO, MD, MPH, COMMISSIONER
DEPARTMENT OF PUBLIC HEALTH

EMPLOYER'S COPY		
STATE OF CONNECTICUT DEPARTMENT OF PUBLIC HEALTH		
NAME KRISTINA M SNURKOWSKI		
VALIDATION NO. 03-691589	CERTIFICATE NO. 000978	CURRENT THROUGH 08/31/19
PROFESSION ASBESTOS CONSULTANT-INSPECTOR		
 SIGNATURE	 COMMISSIONER	

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT

THE INDIVIDUAL NAMED BELOW IS CERTIFIED
BY THIS DEPARTMENT AS A
ASBESTOS CONSULTANT-INSPECTOR

KRISTINA M SNURKOWSKI

CERTIFICATE NO.

000978

CURRENT THROUGH

08/31/19

VALIDATION NO.

03-691589

SIGNATURE
COMMISSIONER

INSTRUCTIONS:

1. Detach and sign each of the cards on this form.
2. Display the large card in a prominent place in your office or place of business.
3. The wallet card is for you to carry on your person. If you do not wish to carry the wallet card, place it in a secure place.
4. The employer's copy is for persons who must demonstrate current licensure/certification in order to retain employment or privileges. The employer's card is to be presented to the employer and kept by them as a part of your personnel file. Only one copy of this card can be supplied to you.

WALLET CARD		
STATE OF CONNECTICUT DEPARTMENT OF PUBLIC HEALTH		
NAME KRISTINA M SNURKOWSKI		
VALIDATION NO. 03-691589	CERTIFICATE NO. 000978	CURRENT THROUGH 08/31/19
PROFESSION ASBESTOS CONSULTANT-INSPECTOR		
 SIGNATURE	 COMMISSIONER	

Certificate of Training

Awarded to

KRISTINA M SNURKOWSKI

*For successful completion of a 4 Hour, 1/2 Day
Asbestos Building Inspector
Annual Refresher Training
JANUARY 9, 2018*

This training was approved and given in accordance with the
Regulations for Connecticut State Agencies
RCSA 20 - 440 - 1-9 and RCSA 20 - 441 and meets the
requirements of the EPA Revised MAP under TSCA Title II of 4/4/94.

Presented by

Mystic Air Quality Consultants, Inc.

1204 North Road, Groton, CT 06340 (800) 247-7746

Certificate Number: ABIRF26383

Exam Grade: 100

Exam Date: 01/09/2018

Expiration Date: 01/09/2019

C. Eiden

Christopher J. Eiden, CIH, CSP, RS

George Williamson

George Williamson, Training Director

Richard Haffey, Training Director

1001379 01 AB 0.403 **AUTO T4 0 1364 06095-450730 C01 P01382-1



ULKENS AUGUSTE
130 BECKER CIR
WINDSOR CT 06095-4507

Dear ULKENS AUGUSTE,

Attached you will find your validated certificate for the coming year. Should you have any questions about your certificate renewal, please do not hesitate to write or call:

Department of Public Health
P.O. Box 340308
M.S.#12MQA
Hartford, CT 06134-0308

(860) 509-7603
oplc.dph@ct.gov
www.ct.gov/dph/license

Sincerely,

RAUL PINO, MD, MPH, COMMISSIONER
DEPARTMENT OF PUBLIC HEALTH

EMPLOYER'S COPY		
STATE OF CONNECTICUT DEPARTMENT OF PUBLIC HEALTH		
NAME ULKENS AUGUSTE		
VALIDATION NO. 03-702366	CERTIFICATE NO. 000770	CURRENT THROUGH 09/30/19
PROFESSION ASBESTOS CONSULTANT-INSPECTOR		
SIGNATURE	COMMISSIONER	

INSTRUCTIONS:

1. Detach and sign each of the cards on this form.
2. Display the large card in a prominent place in your office or place of business.
3. The wallet card is for you to carry on your person. If you do not wish to carry the wallet card, place it in a secure place.
4. The employer's copy is for persons who must demonstrate current licensure/certification in order to retain employment or privileges. The employer's card is to be presented to the employer and kept by them as a part of your personnel file. Only one copy of this card can be supplied to you.

STATE OF CONNECTICUT DEPARTMENT OF PUBLIC HEALTH	
PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT	
THE INDIVIDUAL NAMED BELOW IS CERTIFIED BY THIS DEPARTMENT AS A ASBESTOS CONSULTANT-INSPECTOR	
ULKENS AUGUSTE	CERTIFICATE NO. 000770
	CURRENT THROUGH 09/30/19
	VALIDATION NO. 03-702366
SIGNATURE	COMMISSIONER

WALLET CARD		
STATE OF CONNECTICUT DEPARTMENT OF PUBLIC HEALTH		
NAME ULKENS AUGUSTE		
VALIDATION NO. 03-702366	CERTIFICATE NO. 000770	CURRENT THROUGH 09/30/19
PROFESSION ASBESTOS CONSULTANT-INSPECTOR		
SIGNATURE	COMMISSIONER	

Certificate of Training

Awarded to

ULKENS AUGUSTE

*For successful completion of a 4 Hour, 1/2 Day
Asbestos Building Inspector
Annual Refresher Training
JANUARY 9, 2018*

This training was approved and given in accordance with the
Regulations for Connecticut State Agencies
RCSA 20 - 440 - 1-9 and RCSA 20 - 441 and meets the
requirements of the EPA Revised MAP under TSCA Title II of 4/4/94.

Presented by

Mystic Air Quality Consultants, Inc.

1204 North Road, Groton, CT 06340 (800) 247-7746

Certificate Number: ABIRF26386

Exam Grade: 95

Exam Date: 01/09/2018

Expiration Date: 01/09/2019

Christopher J. Eident
Christopher J. Eident, CIH, CSP, RS

George Williamson
George Williamson, Training Director

Richard Haffey, Training Director

1003088 01 AB 0.400 **AUTO T7 0 0564 06489-244281 -C01-P03093-I



MATTHEW K WALKER

181 HART ST

SOUTHINGTON CT 06489-2442



Dear MATTHEW K WALKER,

Attached you will find your validated certificate for the coming year. Should you have any questions about your certificate renewal, please do not hesitate to write or call:

Department of Public Health
P.O. Box 340308
M.S.#12MQA
Hartford, CT 06134-0308
(860) 509-7603
opl.c.dph@ct.gov
www.ct.gov/dph/license

Sincerely,

RAUL PINO, MD, MPH, COMMISSIONER
DEPARTMENT OF PUBLIC HEALTH

EMPLOYER'S COPY

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

MATTHEW K WALKER
NAME

CERTIFICATE NO. 000966
PROFESSION

CURRENT THROUGH 02/28/19

VALIDATION NO. 03-649949

ASBESTOS CONSULTANT-INSPECTOR

SIGNATURE: COMMISSIONER

INSTRUCTIONS:

1. Detach and sign each of the cards on this form
2. Display the large card in a prominent place in your office or place of business.
3. The wallet card is for you to carry on your person. If you do not wish to carry the wallet card, place it in a secure place.
4. The employer's copy is for persons who must demonstrate current licensure/certification

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT

Certificate of Training

This program was presented at
Fuss & O'Neill Inc located in.
Manchester, CT with the prior
approval of the CT DPH.

Awarded to

MATTHEW WALKER

For successful completion of a 4 Hour, 1/2 Day

**Asbestos Building Inspector
Annual Refresher Training**

AUGUST 28, 2018

This training was approved and given in accordance with the
Regulations for Connecticut State Agencies

RCSA 20 - 440 - 1-9 and RCSA 20 - 441 and meets the
requirements of the EPA Revised MAP under TSCA Title II of 4/4/94.

Presented by

Mystic Air Quality Consultants, Inc.

1204 North Road, Groton, CT 06340 (800) 247-7746

Certificate Number: ABIRF26946

Exam Grade: 100

Expiration Date: 08/28/2019

Exam Date: 08/28/2018

C. Eiden
Christopher J. Eident, CIH, CSP, RS

Richard Haffey
George Williamson, Training Director

Richard Haffey, Training Director

Appendix C

Asbestos Laboratory Reports and Chain of Custody Forms

**FUSS & O'NEILL**

146 Hartford Road, Manchester, CT 06040

Fuss & O'Neill EMSL Customer No. ENVI54

041835740

RECEIVED
www.fando.com
CINNAMIS
Phone (860) 646-2469
2018 DEC -11
Page 1 of 3
11:27

ASBESTOS BULK SAMPLE CHAIN OF CUSTODY FORM

Project Name: New London High School Roof Project No. 20170858.A10 Date: 11/30/18
 Site Address: 490 Jefferson Avenue, New London CT Location: Roof & Exterior Project Manager: Carlos Texidor

Sample ID	Sample Location	Type of Material
ROOF 2		
STOP AT FIRST POSITIVE RESULT FOR ROOF 2 – ex: if 01A or B is positive, do not test the rest of Roof 2 Samples and proceed to next section		
113018-01A	Roof 2 Cut 1	Bottom black tar layer on roof deck
113018-01B	Roof 2 Cut 2	Bottom black tar layer on roof deck
113018-02A	Roof 2 Cut 1	Black paper associated with pale yellow Iso foam
113018-02B	Roof 2 Cut 2	Black paper associated with pale yellow Iso foam
113018-03A	Roof 2 Cut 1	Brown fiberboard with black paper
113018-03B	Roof 2 Cut 2	Brown fiberboard with black paper
113018-04A	Roof 2 Cut 1	Black asphalt layer
113018-04B	Roof 2 Cut 2	Black asphalt layer
113018-05A	Roof 2 Cut 1	Top Layer Rolled Asphalt
113018-05B	Roof 2 Cut 2	Top Layer Rolled Asphalt
113018-06A	Roof 2 Cut 1	Lap Sealant
113018-06B	Roof 2 Cut 2	Lap Sealant
113018-07A	Roof 2 Flashing	Adhesive under rubber associated with flashing
113018-07B	Roof 2 Flashing	Adhesive under rubber associated with flashing
113018-08A	Roof 2 Flashing	Asphalt layer under membrane associated with flashing
113018-08B	Roof 2 Flashing	Asphalt layer under membrane associated with flashing
113018-09A	Roof 2 Flashing	Roofing cement and paper composite layer associated with flashing
113018-09B	Roof 2 Flashing	Roofing cement and paper composite layer associated with flashing
113018-10A	Roof 2 Flashing	Gray patch caulking associated with metal flashing
113018-10B	Roof 2 Flashing	Gray patch caulking associated with metal flashing
ROOF 2 MISC. SAMPLES		
113018-11A	Roof 2	Black roofing cement used to seal round duct for stacks
113018-11B	Roof 2	Black roofing cement used to seal round duct for stacks

53

**FUSS & O'NEILL**

146 Hartford Road, Manchester, CT 06040

Fuss & O'Neill EMSL Customer No. ENVI54

041835740

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 EMSL
 CINNATI, NJ
 Phone (860) 349-2469

 2018 DEC - 4
 Page 2 of 3
 11:28

Sample ID	Sample Location	Type of Material
113018-12A	Roof 2	Tar in Pitch pocket
113018-12B	Roof 2	Tar in Pitch pocket
113018-13A	Roof 2 Round Vents	Black caulk associated with round vents
113018-13B	Roof 2 Round Vents	Black caulk associated with round vents
ROOF 3		
113018-14A	Roof 3 Cut 2	Gypsum board
113018-14B	Roof 3 Cut 2	Gypsum board
113018-15A	Roof 3 Cut 1	Black lap sealant
113018-15B	Roof 3 Cut 2	Black lap sealant
113018-16A	Roof 3 Flashing -- by wall adj Roof 6 on parking lot side	Black patch flashing caulking associated with darker metal patch flashing
113018-16B	Roof 3 Flashing -- by wall adj Roof 6 on parking lot side	Black patch flashing caulking associated with darker metal patch flashing
ROOF 4		
STOP AT FIRST POSITIVE RESULT FOR ROOF 4 -- ex: if 17A or B is positive, do not test the rest of Roof 4 Samples and proceed to next section		
113018-17A	Roof 4 Cut 1	Brown fiberboard and dark brown paper
113018-17B	Roof 4 Cut 1	Brown fiberboard and dark brown paper
113018-18A	Roof 4 Cut 1	White gypsum board
113018-18B	Roof 4 Cut 1	White gypsum board
113018-19A	Roof 4 Cut 1	Black lap sealant
113018-19B	Roof 4 Cut 1	Black lap sealant
ROOF 5		
STOP AT FIRST POSITIVE RESULT FOR ROOF 4 -- ex: if 20A or B is positive, do not test the rest of Roof 4 Samples and proceed to next section		
113018-20A	Roof 5 Cut 1	White gypsum board
113018-20B	Roof 5 Cut 2	White gypsum board
113018-21A	Roof 5 Cut 1	Brown fiberboard
113018-21B	Roof 5 Cut 2	Brown fiberboard
113018-22A	Roof 5	Black lap sealant
113018-22B	Roof 5	Black lap sealant
113018-23A	Roof 5 Flashing	Black caulking associated with flashing
113018-23B	Roof 5 Flashing	Black caulking associated with flashing

**FUSS & O'NEILL**

146 Hartford Road, Manchester, CT 06040

Fuss & O'Neill EMSL Customer No. ENVI54

041835740

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 CINCINNATI
 Phone (800) 646-2469
 www.fando.com

2018 DEC -4 Page 3 of 8

Sample ID	Sample Location	Type of Material
Roof 6		
113018-24A	Roof 6 Cut 1	White gypsum board
113018-24B	Roof 6 Cut 3	White gypsum board
113018-25A	Roof 6	Black lap sealant
113018-25B	Roof 6	Black lap sealant
EXTERIOR BUILDING SAMPLES		
113018-26A	Building S exterior wall Northwest	Coating associated with corrugated wall
113018-26B	Building S exterior wall East	Coating associated with corrugated wall
113018-26C	Building S exterior wall South	Coating associated with corrugated wall

Analysis Method: ☒ PLM ☐ TEM ☐ Other _____

Turnaround Time: 5 Days _____

Based on the turnaround time indicated above, analyses are due to Fuss & O'Neill on or before this date: 12/9/18 Please call Fuss & O'Neill if analyses will not be completed for requested t/a/t at (860) 646-2469.

FAX Results to: 888-838-1160

Email Results to: ctexidor@fando.com**Do Not Mail Hard Copy Report**Total # of Samples: 53

Special Instructions: Stop analysis on first positive sample in each homogeneous set of samples unless otherwise noted. Do not layer samples unless indicated. Do Not Point Count. If NOB group sample results are 0% - < 1% by PLM, analyze only "A" group sample above by TEM NOB, per group, unless you are told otherwise. **SEE ADDITIONAL INSTRUCTIONS HIGHLIGHTED ON COC TABLE.**

Samples collected by: Steven Douglass and Kristina Snurkowski Date: 11/30/18 Time: 9 am -3 pmSamples Sent by: Kristina Snurkowski Date: 12/3/18 Time: 4 PMSamples Received by: [Signature] Date: 12-4-18 Time: 10:20Shipped To: ☒ EMSL ☐ Other _____Method of Shipment: ☒ FedEx ☐ Lab Drop Off ☐ Other _____



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EMSL Order ID: 041835740
 Customer ID: ENVI54
 Customer PO:
 Project ID:

Attn: Carlos Texidor
 Fuss & O'Neill EnviroScience, LLC
 146 Hartford Road
 Manchester, CT 06040

Phone: (860) 646-2469
Fax: (888) 838-1160
Collected: 11/30/2018
Received: 12/04/2018
Analyzed: 12/18/2018

Proj: New London High School Roof / 20170858.A10 / 490 Jefferson Avenue, New London, CT / Roof and Exterior

Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 113018-01A

Lab Sample ID: 041835740-0001

Sample Description: Roof 2 Cut 1/Bottom Black Tar Layer on Roof Deck

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/10/2018	Black	12.0%	88.0%	None Detected	
TEM Grav. Reduction	12/18/2018	Black	0.0%	100.0%	None Detected	

Client Sample ID: 113018-01B

Lab Sample ID: 041835740-0002

Sample Description: Roof 2 Cut 2/Bottom Black Tar Layer on Roof Deck

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/11/2018	Black	5.0%	95.0%	None Detected	

Client Sample ID: 113018-02A

Lab Sample ID: 041835740-0003

Sample Description: Roof 2 Cut 1/Black Paper associated with Pale Yellow Iso Foam

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/10/2018	Black	60.0%	40.0%	None Detected	
TEM Grav. Reduction	12/18/2018	Black	0.0%	100.0%	None Detected	

Client Sample ID: 113018-02B

Lab Sample ID: 041835740-0004

Sample Description: Roof 2 Cut 2/Black Paper associated with Pale Yellow Iso Foam

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/11/2018	Black	60.0%	40.0%	None Detected	

Client Sample ID: 113018-03A-Fiberboard

Lab Sample ID: 041835740-0005

Sample Description: Roof 2 Cut 1/Brown Fiberboard

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/10/2018	Brown	80.0%	20.0%	None Detected	

Client Sample ID: 113018-03A-Paper

Lab Sample ID: 041835740-0005A

Sample Description: Roof 2 Cut 1/Black Paper

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/10/2018	Black	0.0%	100.0%	None Detected	

Client Sample ID: 113018-03B-Fiberboard

Lab Sample ID: 041835740-0006

Sample Description: Roof 2 Cut 2/Brown Fiberboard

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/11/2018	Brown	80.0%	20.0%	None Detected	



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 Customer ID: ENVI54
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Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 113018-03B-Paper **Lab Sample ID:** 041835740-0006A

Sample Description: Roof 2 Cut 2/Black Paper

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/11/2018	Black	25.0%	75.0%	None Detected	

Client Sample ID: 113018-04A

Lab Sample ID: 041835740-0007

Sample Description: Roof 2 Cut 1/Black Asphalt Layer

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/10/2018	Black	0.0%	100.0%	None Detected	
TEM Grav. Reduction	12/18/2018	Black	0.0%	100.0%	None Detected	

Client Sample ID: 113018-04B

Lab Sample ID: 041835740-0008

Sample Description: Roof 2 Cut 2/Black Asphalt Layer

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/11/2018	Black	0.0%	100.0%	None Detected	

Client Sample ID: 113018-05A

Lab Sample ID: 041835740-0009

Sample Description: Roof 2 Cut 1/Top Layer Rolled Asphalt

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/11/2018	Black	20.0%	80.0%	None Detected	
TEM Grav. Reduction	12/18/2018	White/Black	0.0%	100.0%	None Detected	

Client Sample ID: 113018-05B

Lab Sample ID: 041835740-0010

Sample Description: Roof 2 Cut 2/Top Layer Rolled Asphalt

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/11/2018	Black	20.0%	80.0%	None Detected	

Client Sample ID: 113018-06A

Lab Sample ID: 041835740-0011

Sample Description: Roof 2 Cut 1/Lap Sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/10/2018	Black	0.0%	100.0%	None Detected	
TEM Grav. Reduction	12/18/2018	Black	0.0%	100.0%	None Detected	

Client Sample ID: 113018-06B

Lab Sample ID: 041835740-0012

Sample Description: Roof 2 Cut 2/Lap Sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/14/2018	Black	0.0%	100.0%	None Detected	

Client Sample ID: 113018-07A

Lab Sample ID: 041835740-0013

Sample Description: Roof 2 Flashing/Adhesive under Rubber associated with Flashing

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/10/2018	Brown	0.0%	100.0%	None Detected	
TEM Grav. Reduction	12/18/2018	Brown	0.0%	100.0%	None Detected	



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Project ID:

Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 113018-07B

Lab Sample ID: 041835740-0014

Sample Description: Roof 2 Flashing/Adhesive under Rubber associated with Flashing

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/14/2018	Brown	0.0%	100.0%	None Detected	

Client Sample ID: 113018-08A

Lab Sample ID: 041835740-0015

Sample Description: Roof 2 Flashing/Asphalt Layer under Membrane associated with Flashing

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/10/2018	Black	0.0%	100.0%	None Detected	
TEM Grav. Reduction	12/18/2018	Black	0.0%	100.0%	None Detected	

Client Sample ID: 113018-08B

Lab Sample ID: 041835740-0016

Sample Description: Roof 2 Flashing/Asphalt Layer under Membrane associated with Flashing

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/14/2018	Black	0.0%	100.0%	None Detected	

Client Sample ID: 113018-09A

Lab Sample ID: 041835740-0017

Sample Description: Roof 2 Flashing/Roofing Cement and Paper Composite Layer associated with Flashing

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/10/2018	Black	40.0%	60.0%	None Detected	
TEM Grav. Reduction	12/18/2018	Black	0.0%	100.0%	None Detected	

Client Sample ID: 113018-09B

Lab Sample ID: 041835740-0018

Sample Description: Roof 2 Flashing/Roofing Cement and Paper Composite Layer associated with Flashing

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/14/2018	Black	25.0%	75.0%	None Detected	

Client Sample ID: 113018-10A

Lab Sample ID: 041835740-0019

Sample Description: Roof 2 Flashing/Gray Patch Caulking associated with Metal Flashing

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/10/2018	Brown	0.0%	100.0%	None Detected	
TEM Grav. Reduction	12/18/2018	Brown	0.0%	100.0%	None Detected	

Client Sample ID: 113018-10B

Lab Sample ID: 041835740-0020

Sample Description: Roof 2 Flashing/Gray Patch Caulking associated with Metal Flashing

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/14/2018	Brown	0.0%	100.0%	None Detected	

Client Sample ID: 113018-11A

Lab Sample ID: 041835740-0021

Sample Description: Roof 2/Black Roofing Cement used to Seal Round Duct for Stacks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/10/2018	Black	10.0%	90.0%	<1% Chrysotile	
TEM Grav. Reduction	12/18/2018	Black	0.0%	100.0%	<0.21% Chrysotile	



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Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 113018-11B

Lab Sample ID: 041835740-0022

Sample Description: Roof 2/Black Roofing Cement used to Seal Round Duct for Stacks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/17/2018	Black	10.0%	90.0%	<1% Chrysotile	

Client Sample ID: 113018-12A

Lab Sample ID: 041835740-0023

Sample Description: Roof 2/Tar in Pitch Pocket

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/17/2018	Black	0.0%	100.0%	None Detected	
TEM Grav. Reduction	12/18/2018	Black	0.0%	100.0%	None Detected	

Client Sample ID: 113018-12B

Lab Sample ID: 041835740-0024

Sample Description: Roof 2/Tar in Pitch Pocket

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/17/2018	Black	0.0%	100.0%	None Detected	

Client Sample ID: 113018-13A

Lab Sample ID: 041835740-0025

Sample Description: Roof 2 Round Vents/Black Caulk associated with Round Vents

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/17/2018	Black	15.0%	85.0%	None Detected	
TEM Grav. Reduction	12/18/2018	Black	0.0%	100.0%	None Detected	

Client Sample ID: 113018-13B

Lab Sample ID: 041835740-0026

Sample Description: Roof 2 Round Vents/Black Caulk associated with Round Vents

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/17/2018	Black	10.0%	90.0%	None Detected	

Client Sample ID: 113018-14A

Lab Sample ID: 041835740-0027

Sample Description: Roof 3 Cut 2/Gypsum Board

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/10/2018	Brown/White	20.0%	80.0%	None Detected	

Client Sample ID: 113018-14B

Lab Sample ID: 041835740-0028

Sample Description: Roof 3 Cut 2/Gypsum Board

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/17/2018	Brown/White	30.0%	70.0%	None Detected	

Client Sample ID: 113018-15A

Lab Sample ID: 041835740-0029

Sample Description: Roof 3 Cut 1/Black Lap Sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/10/2018	Black	0.0%	100.0%	None Detected	
TEM Grav. Reduction	12/18/2018	Black	0.0%	100.0%	None Detected	



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Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 113018-15B		Lab Sample ID: 041835740-0030				
Sample Description: Roof 3 Cut 1/Black Lap Sealant						
TEST	Analyzed		Non-Asbestos		Asbestos	Comment
	Date	Color	Fibrous	Non-Fibrous		
PLM	12/17/2018	Black	0.0%	100.0%	None Detected	
Client Sample ID: 113018-16A		Lab Sample ID: 041835740-0031				
Sample Description: oof 3 Flashing - By Wall adjacent Roof 6 on Parking Lot Side/Black Patch Flashing Caulking associated with Darker Metal Patch Flashing						
TEST	Analyzed		Non-Asbestos		Asbestos	Comment
	Date	Color	Fibrous	Non-Fibrous		
PLM	12/10/2018	Black	0.0%	100.0%	None Detected	
TEM Grav. Reduction	12/18/2018	Black	0.0%	100.0%	None Detected	
Client Sample ID: 113018-16B		Lab Sample ID: 041835740-0032				
Sample Description: oof 3 Flashing - By Wall adjacent Roof 6 on Parking Lot Side/Black Patch Flashing Caulking associated with Darker Metal Patch Flashing						
TEST	Analyzed		Non-Asbestos		Asbestos	Comment
	Date	Color	Fibrous	Non-Fibrous		
PLM	12/17/2018	Black	0.0%	100.0%	None Detected	
Client Sample ID: 113018-17A-Fiberboard		Lab Sample ID: 041835740-0033				
Sample Description: Roof 4 Cut 1/Brown Fiberboard						
TEST	Analyzed		Non-Asbestos		Asbestos	Comment
	Date	Color	Fibrous	Non-Fibrous		
PLM	12/10/2018	Brown	70.0%	30.0%	None Detected	
Client Sample ID: 113018-17A-Paper		Lab Sample ID: 041835740-0033A				
Sample Description: Roof 4 Cut 1/Dark Brown Paper						
TEST	Analyzed		Non-Asbestos		Asbestos	Comment
	Date	Color	Fibrous	Non-Fibrous		
PLM	12/10/2018	Brown	40.0%	60.0%	None Detected	
Client Sample ID: 113018-17B-Fiberboard		Lab Sample ID: 041835740-0034				
Sample Description: Roof 4 Cut 1/Brown Fiberboard						
TEST	Analyzed		Non-Asbestos		Asbestos	Comment
	Date	Color	Fibrous	Non-Fibrous		
PLM	12/17/2018	Brown/Black	95.0%	5.0%	None Detected	
Client Sample ID: 113018-17B-Paper		Lab Sample ID: 041835740-0034A				
Sample Description: Roof 4 Cut 1/Dark Brown Paper						
TEST	Analyzed		Non-Asbestos		Asbestos	Comment
	Date	Color	Fibrous	Non-Fibrous		
PLM	12/17/2018	Brown/Black	95.0%	5.0%	None Detected	
Client Sample ID: 113018-18A		Lab Sample ID: 041835740-0035				
Sample Description: Roof 4 Cut 1/White Gypsum Board						
TEST	Analyzed		Non-Asbestos		Asbestos	Comment
	Date	Color	Fibrous	Non-Fibrous		
PLM	12/10/2018	Brown/White	20.0%	80.0%	None Detected	



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Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 113018-18B **Lab Sample ID:** 041835740-0036

Sample Description: Roof 4 Cut 1/White Gypsum Board

TEST	Analyzed	Color	Non-Asbestos		Asbestos	Comment
	Date		Fibrous	Non-Fibrous		
PLM	12/17/2018	Brown/White	20.0%	80.0%	None Detected	

Client Sample ID: 113018-19A **Lab Sample ID:** 041835740-0037

Sample Description: Roof 4 Cut 1/Black Lap Sealant

TEST	Analyzed	Color	Non-Asbestos		Asbestos	Comment
	Date		Fibrous	Non-Fibrous		
PLM	12/10/2018	Black	0.0%	100.0%	None Detected	
TEM Grav. Reduction	12/18/2018	Black	0.00%	99.53%	0.47% Chrysotile	

Client Sample ID: 113018-19B **Lab Sample ID:** 041835740-0038

Sample Description: Roof 4 Cut 1/Black Lap Sealant

TEST	Analyzed	Color	Non-Asbestos		Asbestos	Comment
	Date		Fibrous	Non-Fibrous		
PLM	12/17/2018	Black	0.0%	100.0%	None Detected	

Client Sample ID: 113018-20A **Lab Sample ID:** 041835740-0039

Sample Description: Roof 5 Cut 1/White Gypsum Board

TEST	Analyzed	Color	Non-Asbestos		Asbestos	Comment
	Date		Fibrous	Non-Fibrous		
PLM	12/10/2018	Brown/White	20.0%	80.0%	None Detected	

Client Sample ID: 113018-20B **Lab Sample ID:** 041835740-0040

Sample Description: Roof 5 Cut 2/White Gypsum Board

TEST	Analyzed	Color	Non-Asbestos		Asbestos	Comment
	Date		Fibrous	Non-Fibrous		
PLM	12/17/2018	Brown/White	20.0%	80.0%	None Detected	

Client Sample ID: 113018-21A **Lab Sample ID:** 041835740-0041

Sample Description: Roof 5 Cut 1/Brown Fiberboard

TEST	Analyzed	Color	Non-Asbestos		Asbestos	Comment
	Date		Fibrous	Non-Fibrous		
PLM	12/10/2018	Brown	0.0%	100.0%	None Detected	

Client Sample ID: 113018-21B **Lab Sample ID:** 041835740-0042

Sample Description: Roof 5 Cut 2/Brown Fiberboard

TEST	Analyzed	Color	Non-Asbestos		Asbestos	Comment
	Date		Fibrous	Non-Fibrous		
PLM	12/17/2018	Brown	95.0%	5.0%	None Detected	

Client Sample ID: 113018-22A **Lab Sample ID:** 041835740-0043

Sample Description: Roof 5/Black Lap Sealant

TEST	Analyzed	Color	Non-Asbestos		Asbestos	Comment
	Date		Fibrous	Non-Fibrous		
PLM	12/10/2018	Black	0.0%	100.0%	None Detected	
TEM Grav. Reduction	12/18/2018	Black	0.0%	100.0%	None Detected	



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Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 113018-22B **Lab Sample ID:** 041835740-0044
Sample Description: Roof 5/Black Lap Sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/17/2018	Black	0.0%	100.0%	None Detected	

Client Sample ID: 113018-23A **Lab Sample ID:** 041835740-0045
Sample Description: Roof 5 Flashing/Black Caulking associated with Flashing

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/10/2018	Black	0.0%	100.0%	None Detected	
TEM Grav. Reduction	12/18/2018	Black	0.0%	100.0%	None Detected	

Client Sample ID: 113018-23B **Lab Sample ID:** 041835740-0046
Sample Description: Roof 5 Flashing/Black Caulking associated with Flashing

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/17/2018	Black	0.0%	100.0%	None Detected	

Client Sample ID: 113018-24A **Lab Sample ID:** 041835740-0047
Sample Description: Roof 6 Cut 1/White Gypsum Board

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/10/2018	Brown/White	20.0%	80.0%	None Detected	

Client Sample ID: 113018-24B **Lab Sample ID:** 041835740-0048
Sample Description: Roof 6 Cut 3/White Gypsum Board

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/17/2018	Brown/White	30.0%	70.0%	None Detected	

Client Sample ID: 113018-25A **Lab Sample ID:** 041835740-0049
Sample Description: Roof 6/Black Lap Sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/10/2018	Black	0.0%	100.0%	None Detected	
TEM Grav. Reduction	12/18/2018	Black	0.0%	100.0%	None Detected	

Client Sample ID: 113018-25B **Lab Sample ID:** 041835740-0050
Sample Description: Roof 6/Black Lap Sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/17/2018	Black	0.0%	100.0%	None Detected	

Client Sample ID: 113018-26A **Lab Sample ID:** 041835740-0051
Sample Description: Building S Exterior Wall Northwest/Coating associated with Currugated Wall

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/10/2018	Brown/Black	0.0%	70.0%	30% Chrysotile	



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Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 113018-26B

Lab Sample ID: 041835740-0052

Sample Description: Building S Exterior Wall East/Coating associated with Corrugated Wall

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/17/2018				Positive Stop (Not Analyzed)	

Client Sample ID: 113018-26C

Lab Sample ID: 041835740-0053

Sample Description: Building S Exterior Wall South/Coating associated with Corrugated Wall

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/17/2018				Positive Stop (Not Analyzed)	

Analyst(s):

Alexis Kum PLM (16)
 Christopher Richardson PLM (25)
 Edward Zambrano PLM (2)
 Garret Vliet TEM Grav. Reduction (18)
 John Flanagan PLM (5)
 Nancy Stalter PLM (7)

Reviewed and approved by:

Benjamin Ellis, Laboratory Manager
 or Other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NYS ELAP 10872, NJ DEP 03036

Initial report from: 12/10/2018 22:48:47



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LABORATORY PRODUCTS TRAINING

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

241806558

EMSL ANALYTICAL, INC.
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FAX: (203) 284-5878

Company Name: <u>Juss & O'Neill, Inc</u>		EMSL Customer ID:	
Street: <u>146 HARTFORD RD</u>		City: <u>MANCHESTER</u>	State/Province: <u>CT</u>
Zip/Postal Code: <u>06040</u>	Country: <u>USA</u>	Telephone #: <u>860-646-2469</u>	Fax #:
Report To (Name): <u>Carlos Texidor</u>		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email	
Email Address: <u>CTexidor@fando.com</u>		Purchase Order:	
Project Name/Number: <u>20170858-A10</u>		EMSL Project ID (Internal Use Only):	
U.S. State Samples Taken: <u>CT</u>		CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt	
EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different - If Bill to is Different note instructions in Comments**			
Third Party Billing requires written authorization from third party			
Turnaround Time (TAT) Options* - Please Check			
<input type="checkbox"/> 3 Hour <input type="checkbox"/> 6 Hour <input checked="" type="checkbox"/> 24 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 72 Hour <input type="checkbox"/> 96 Hour <input type="checkbox"/> 1 Week <input type="checkbox"/> 2 Week			
*For TEM Air 3 hr through 6 hr, please call ahead to schedule. *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.			
PCM - Air <input type="checkbox"/> Check if samples are from NY <input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> w/ OSHA 8hr. TWA PLM - Bulk (reporting limit) <input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%) <input type="checkbox"/> PLM EPA NOB (<1%) Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) <input type="checkbox"/> NYS 198.1 (friable in NY) <input type="checkbox"/> NYS 198.6 NOB (non-friable-NY) <input type="checkbox"/> NYS 198.8 SOF-V <input type="checkbox"/> NIOSH 9002 (<1%)		TEM - Air <input type="checkbox"/> 4-4.5hr TAT (AHERA only) <input type="checkbox"/> AHERA 40 CFR, Part 763 <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> EPA Level II <input type="checkbox"/> ISO 10312 TEM - Bulk <input checked="" type="checkbox"/> TEM EPA NOB <input type="checkbox"/> NYS NOB 198.4 (non-friable-NY) <input type="checkbox"/> Chatfield SOP <input type="checkbox"/> TEM Mass Analysis-EPA 600 sec. 2.5 TEM - Water: EPA 100.2 Fibers >10µm <input type="checkbox"/> Waste <input type="checkbox"/> Drinking All Fiber Sizes <input type="checkbox"/> Waste <input type="checkbox"/> Drinking	
TEM - Dust <input type="checkbox"/> Microvac - ASTM D 5755 <input type="checkbox"/> Wipe - ASTM D6480 <input type="checkbox"/> Carpet Sonication (EPA 600/J-93/167)		Soil/Rock/Vermiculite <input type="checkbox"/> PLM EPA 600/R-93/116 with milling prep (<1%) <input type="checkbox"/> PLM EPA 600/R-93/116 with milling prep (<0.25%) <input type="checkbox"/> TEM EPA 600/R-93/116 with milling prep (<0.1%) <input type="checkbox"/> TEM Qualitative via Filtration Prep <input type="checkbox"/> TEM Qualitative via Drop Mount Prep <input type="checkbox"/> Cincinnati Method EPA 600/R-04/004 - PLM/TEM (BC only)	
<input checked="" type="checkbox"/> Check For Positive Stop - Clearly Identify Homogenous Group		Filter Pore Size (Air Samples): <input type="checkbox"/> 0.8µm <input type="checkbox"/> 0.45µm	
Samplers Name:		Samplers Signature:	
Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
12/19/2018 UA - 01A	LOCATION #1 - Ground Floor Storage Room by with Skin Case - outside of cab. Black top between concrete slabs		
↓ - 01B	↓ - Gray Cement like/leveling under concrete on top of soil		
12/19/2018 UA - 02A			
↓ - 02B			
12/19/2018 UA - 03A	LOCATION #3 - POOL AREA, ADS TO BLEACHERS - Black Vapor Barrier under Ceramic tile under 1" concrete		
Client Sample # (s):		Total # of Samples:	
Relinquished (Client):		Date:	Time:
Received (Lab):		Date: <u>12/19/18</u>	Time: <u>11:45am</u>
Comments/Special Instructions:			



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Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

24/80/558

EMSL ANALYTICAL, INC
29 NORTH PLAINS HWY UNIT #4
WALLINGFORD, CT 06492

PHONE: (203) 284-5948

FAX: (203) 284-5978

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

[illegible]



EMSL Analytical, Inc.

29 North Plains Highway, Unit # 4 Wallingford, CT 06492

Tel/Fax: (203) 284-5948 / (203) 284-5978

http://www.EMSL.com / wallingfordlab@emsl.com

EMSL Order: 241806558

Customer ID: ENVI54

Customer PO: 20170858.A1O

Project ID:

Attention: Carlos Texidor

Fuss & O'Neill EnviroScience, LLC

146 Hartford Road

Manchester, CT 06040

Phone: (860) 510-4365

Fax: (888) 838-1160

Received Date: 12/19/2018 11:45 AM

Analysis Date: 12/19/2018 - 12/20/2018

Collected Date:

Project: 20170858.A1O

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

Sample	Description	Appearance	Non-Asbestos		Asbestos % Type
			% Fibrous	% Non-Fibrous	
12192018UA-01A 241806558-0001	Location #1-ground floor storage room by north staircase-outside of caf. - black tar between concrete slab	Black Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
12192018UA-01B 241806558-0002	Location #1-ground floor storage room by north staircase-outside of caf. - black tar between concrete slab	Black Non-Fibrous Homogeneous		15% Quartz 85% Non-fibrous (Other)	None Detected
12192018UA-02A 241806558-0003	Location #1-ground floor storage room by north staircase-outside of caf. - gray cement like/leveling under concrete on top of soil	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
12192018UA-02B 241806558-0004	Location #1-ground floor storage room by north staircase-outside of caf. - gray cement like/leveling under concrete on top of soil	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
12192018UA-03A 241806558-0005	Location #3-pool area, adj to bleachers - black vapor barrier under ceramic tile under 1" concrete	Black Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
12192018UA-03B 241806558-0006	Location #3-pool area, adj to bleachers - black vapor barrier under ceramic tile under 1" concrete	Gray/Black Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (Other)	None Detected
12192018UA-04A 241806558-0007	Location #4-pool area, south storage room - black vapor barrier under concrete slab on top of soil	Black Fibrous Homogeneous	10% Glass	10% Quartz 80% Non-fibrous (Other)	None Detected
12192018UA-04B 241806558-0008	Location #6-S wing room S-10 sw corner - black vapor barrier under concrete slab on top of soil	Black Non-Fibrous Homogeneous	10% Glass	5% Quartz 85% Non-fibrous (Other)	None Detected
12192018UA-05A 241806558-0009	Pool area - slate block board	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 12/20/2018 11:29:36



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29 North Plains Highway, Unit # 4 Wallingford, CT 06492

Tel/Fax: (203) 284-5948 / (203) 284-5978

http://www.EMSL.com / wallingfordlab@emsl.com

EMSL Order: 241806558

Customer ID: ENVI54

Customer PO: 20170858.A1O

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 % Type
			% Fibrous	% Non-Fibrous	
12192018UA-05B 241806558-0010	Pool area - slate block board	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
12192018UA-06A 241806558-0011	Gym - (canvas paper brown) assoc w/wooden partition wall/curtains	Brown Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
12192018UA-06B 241806558-0012	Gym - (canvas paper brown) assoc w/wooden partition wall/curtains	Brown Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected
12192018UA-07A 241806558-0013	Gym - brown paper insulation inside wooden/curtain partition walls	Brown Fibrous Homogeneous	85% Cellulose	15% Non-fibrous (Other)	None Detected
12192018UA-07B 241806558-0014	Gym - brown paper insulation inside wooden/curtain partition walls	Brown Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
12192018UA-08A 241806558-0015	Exterior wall cavity outside of boiler room between bricks & cmu - block rubber membrane	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
12192018UA-08B 241806558-0016	Exterior wall cavity outside of boiler room between bricks & cmu - block rubber membrane	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Analyst(s)

Almedina Hodzic (8)

Kelsey Witik (3)

Lauren Butkus (5)

Almedina Hodzic, Asbestos Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method"), but augmented with procedures outlined in the 1993 ("final") version of the method. 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 or analytical method limitations. Interpretation and use of test results are the responsibility of the client. All samples received in acceptable condition unless otherwise noted. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. EMSL recommends gravimetric reduction for all non-friable organically bound materials prior to analysis. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Wallingford, CT NVLAP Lab Code 200700-0.

Initial report from: 12/20/2018 11:29:36



EMSL Analytical, Inc.

29 North Plains Highway, Unit # 4 Wallingford, CT 06492

Tel/Fax: (203) 284-5948 / (203) 284-5978

http://www.EMSL.com / wallingfordlab@emsl.com

EMSL Order: 241806558
Customer ID: ENVI54
Customer PO: 20170858.A1O
Project ID:

Attention: Carlos Texidor
 Fuss & O'Neill EnviroScience, LLC
 146 Hartford Road
 Manchester, CT 06040

Phone: (860) 510-4365
Fax: (888) 838-1160
Received Date: 12/19/2018 11:45 AM
Analysis Date: 12/21/2018
Collected Date:

Project: 20170858.A1O

Test Report: Asbestos Analysis of Non-Friable Organically Bound Materials by TEM via EPA/600/R-93/116 Section 2.5.5.1

Sample ID	Description	Appearance	% Matrix Material	% Non-Asbestos Fibers	Asbestos Types
12192018UA-01A 241806558-0001	Location #1-ground floor storage room by north staircase-outside of caf. - black tar between concrete slab	Black Fibrous Heterogeneous	100.0	None	No Asbestos Detected
12192018UA-03A 241806558-0005	Location #3-pool area, adj to bleachers - black vapor barrier under ceramic tile under 1" concrete	Black Fibrous Heterogeneous	100.0	None	No Asbestos Detected
12192018UA-04A 241806558-0007	Location #4-pool area, south storage room - black vapor barrier under concrete slab on top of soil	Black Fibrous Heterogeneous	100.0	None	No Asbestos Detected
12192018UA-08A 241806558-0015	Exterior wall cavity outside of boiler room between bricks & cmu - block rubber membrane	Black Fibrous Heterogeneous	100.0	None	No Asbestos Detected

Analyst(s)

Almedina Hodzic (4)

Almedina Hodzic, Asbestos Laboratory
 Manager
 or other approved signatory

This laboratory is not responsible for % asbestos in total sample when the residue only is submitted for analysis. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Wallingford, CT

Initial report from: 12/21/2018 11:41:40

Appendix D

Site Photographs



Roof 2



Roof 2 Cross Section



Roof 2 Flashing



Roof 3



Roof 3



Darker patch flashing on roof 3



Roof 4



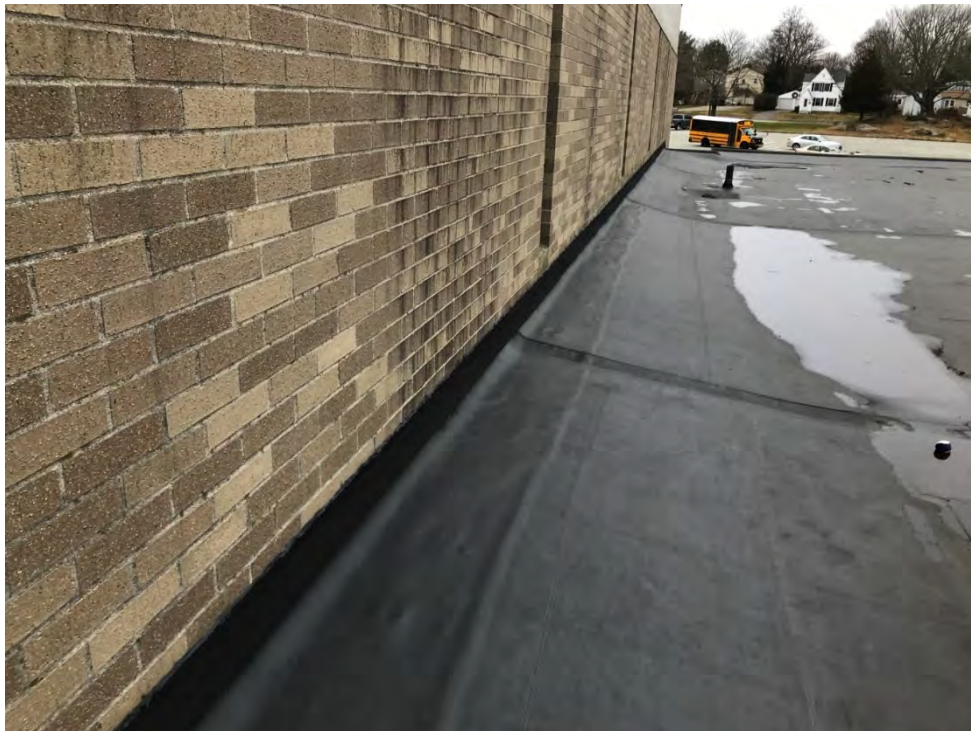
Roof 4 Cross section



Roof 4 Flashing



Roof 5



Roof 5 Flashing



Roof 5



Upper portion of roof 6



Roof 6 Lower Portion



Roof 6



Building S



Building S Corrugated Siding



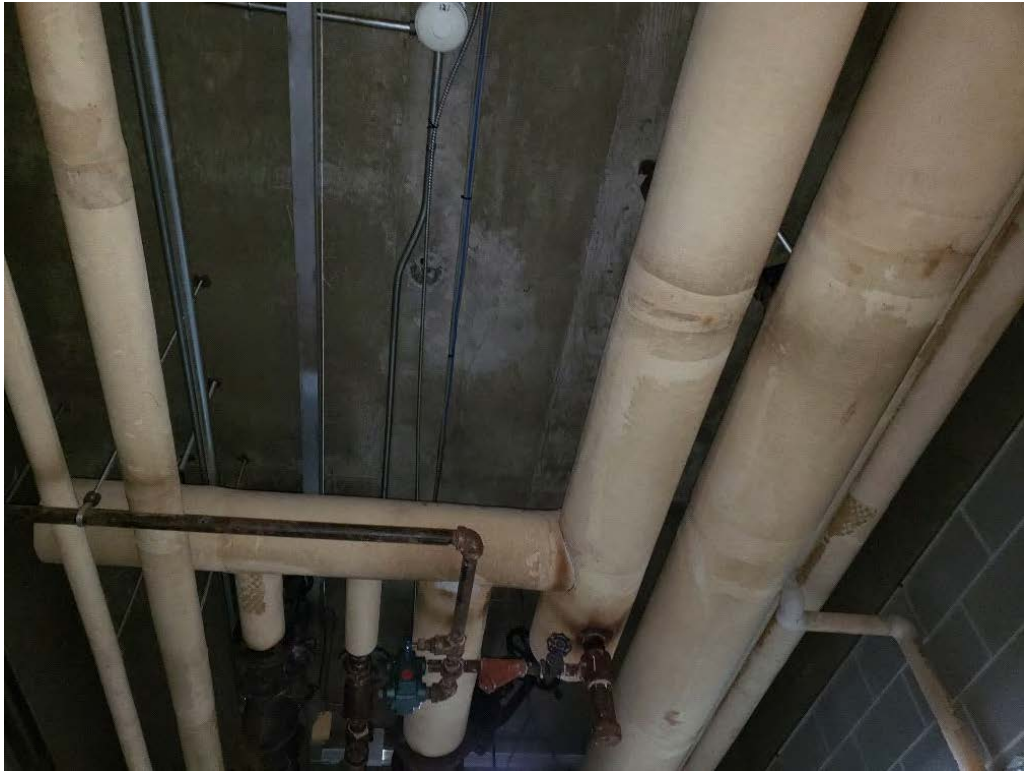
Corrugated metal siding with thick paint coating



Boiler Room



Boiler Room Behind Brick – Black membrane



Boiler Room Pipes



Coring Location 1 - Storage



Location 1 - Poly



Coring Location 3 - Materials



Coring Location 3 – Pool deck



Coring Location 4- Pool Side Room



Coring Location 4



Coring Location 5 – Room S10



Storage Room behind brick wall – no paper observed

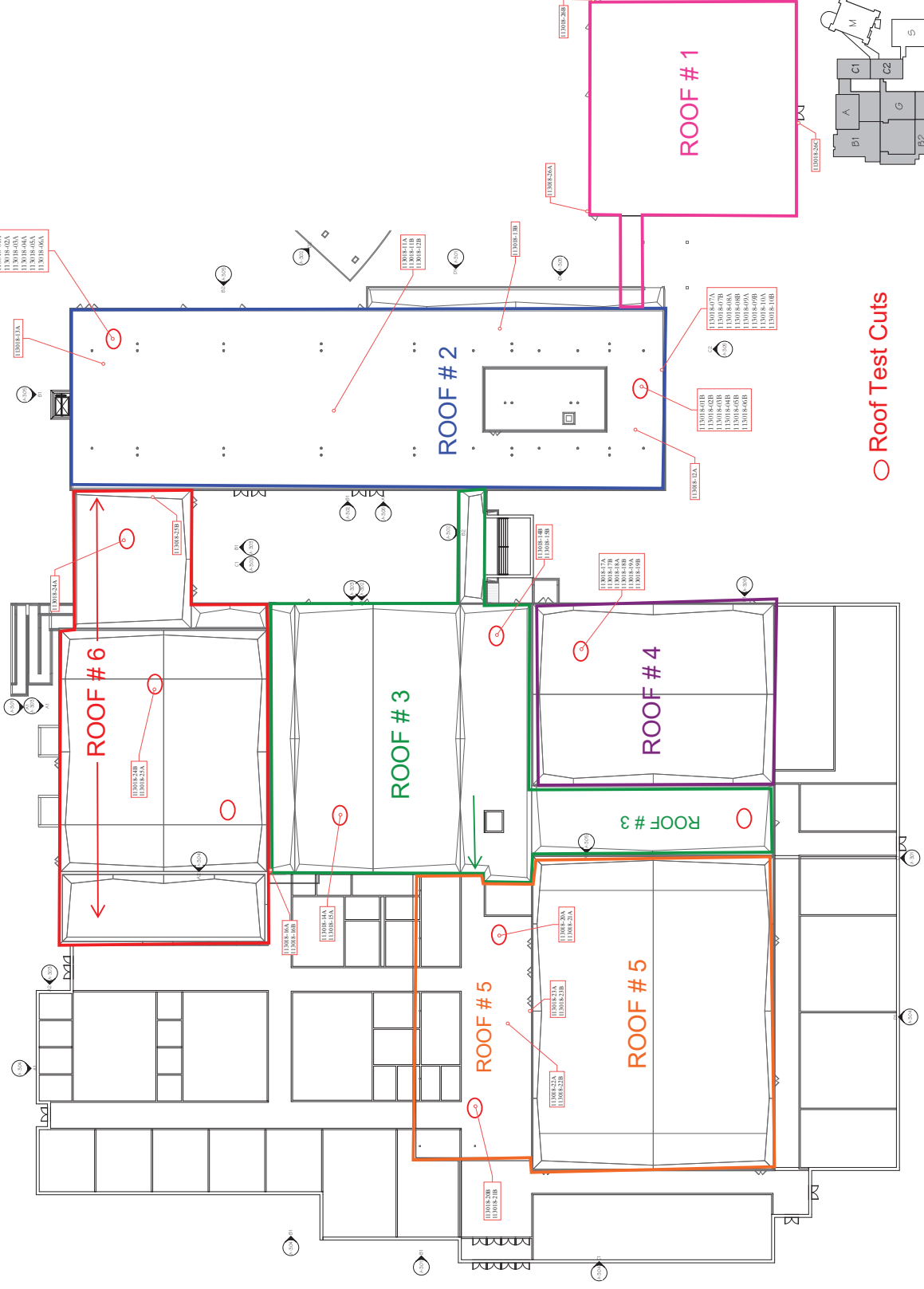
Appendix E

Sample Diagrams

NO.	DATE	DESCRIPTION
1	01/15/10	ISSUED FOR PERMIT
2	02/15/10	REVISION
3	03/15/10	REVISION
4	04/15/10	REVISION
5	05/15/10	REVISION
6	06/15/10	REVISION
7	07/15/10	REVISION
8	08/15/10	REVISION
9	09/15/10	REVISION
10	10/15/10	REVISION
11	11/15/10	REVISION
12	12/15/10	REVISION

NEW LONDON HIGH SCHOOL
PHASE 1: TRACK RESURFACING
JEFFERSON AVE & CHESTER ST. NEW LONDON, CT 06320
STATE PROJECT #095-0090 M4/G/N

DATE	1/15/10
PROJECT	NEW LONDON HIGH SCHOOL
SCALE	1/8" = 1'-0"
DESIGNED BY	ANTINOZZI ASSOCIATES
CHECKED BY	ANTINOZZI ASSOCIATES
APPROVED BY	ANTINOZZI ASSOCIATES
PROJECT NO.	A-1R1



○ Roof Test Cuts



1 ROOF PLAN
SCALE: 1/8" = 1'-0"

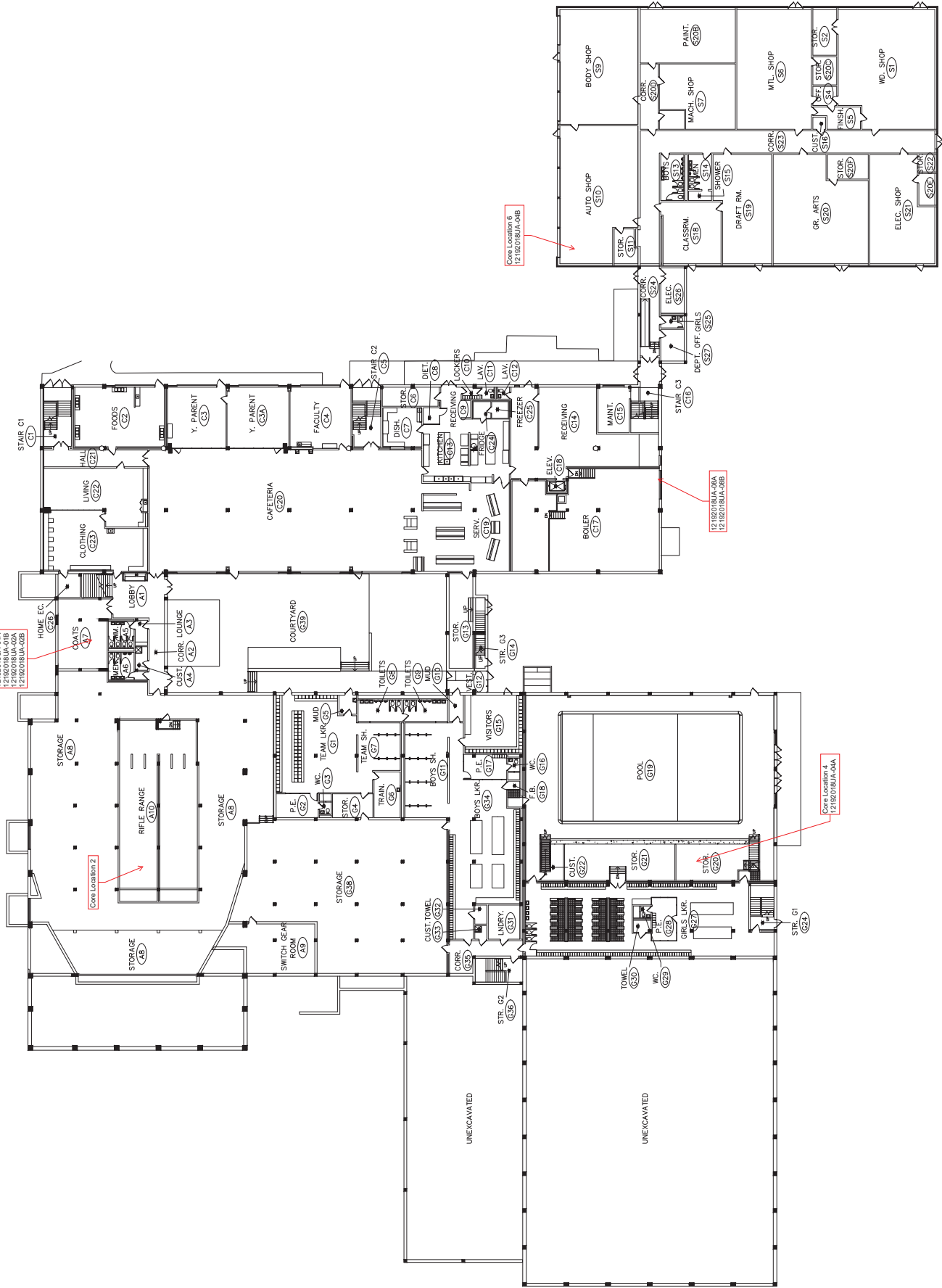
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12182018UA-02A
12182018UA-03A
12182018UA-04A

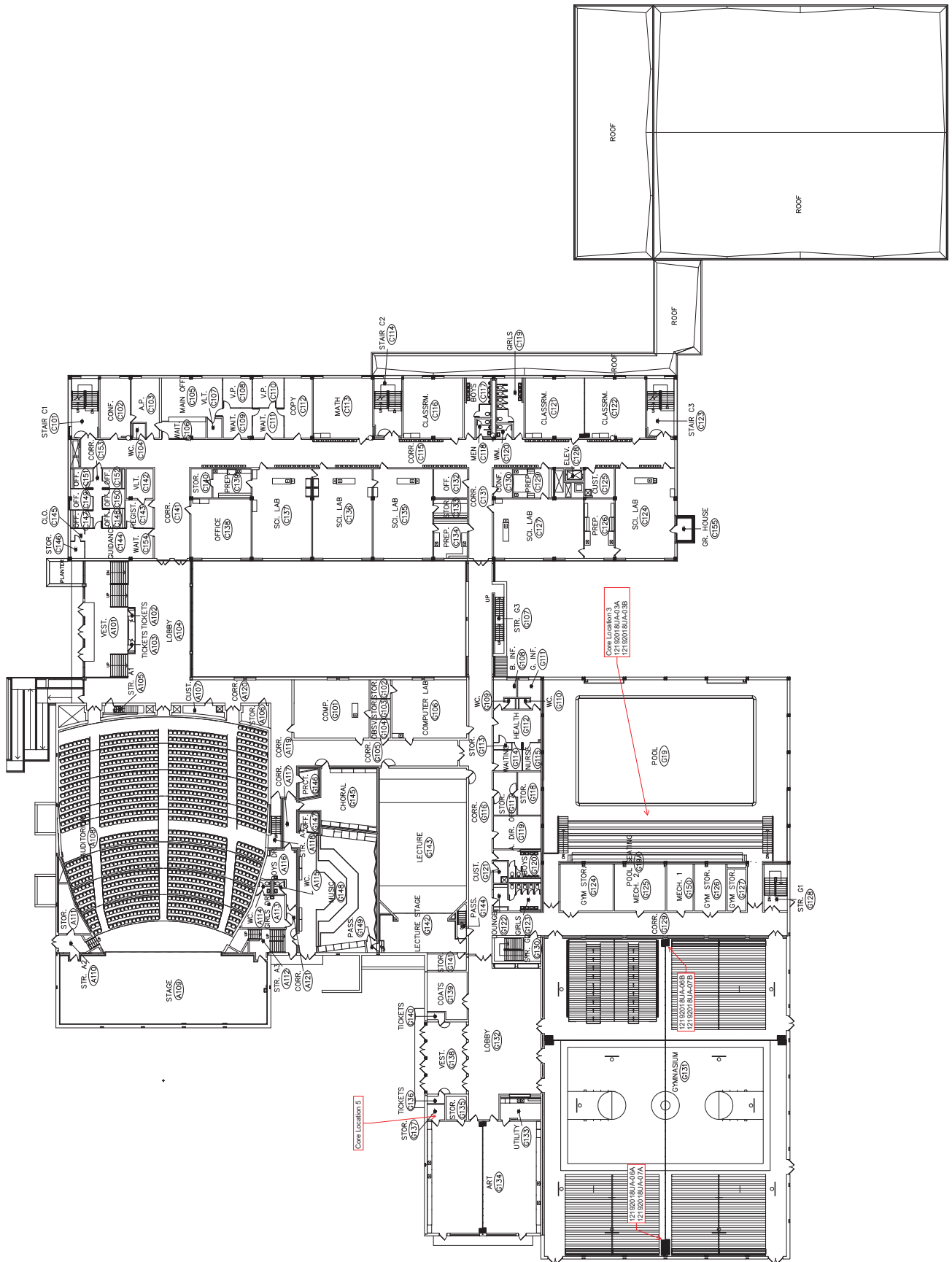
Core Location 2
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12182018UA-06A
12182018UA-07A
12182018UA-08A

Core Location 6
12182018UA-09A
12182018UA-10A
12182018UA-11A
12182018UA-12A

Core Location 3
12182018UA-01A
12182018UA-02A
12182018UA-03A
12182018UA-04A

Core Location 4
12182018UA-05A
12182018UA-06A
12182018UA-07A
12182018UA-08A

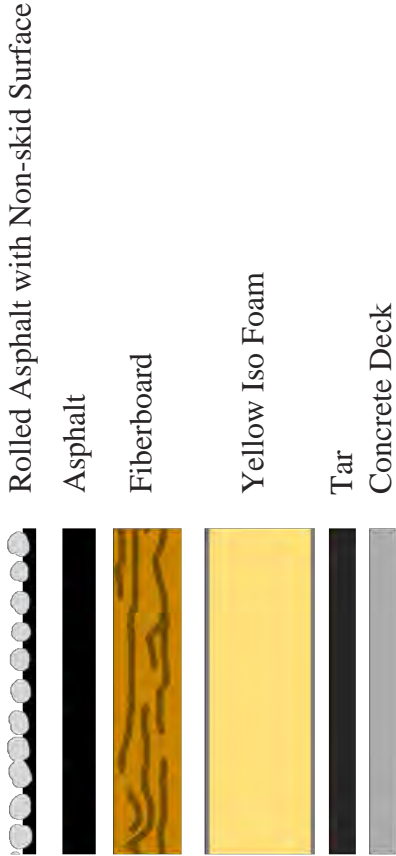




Appendix F

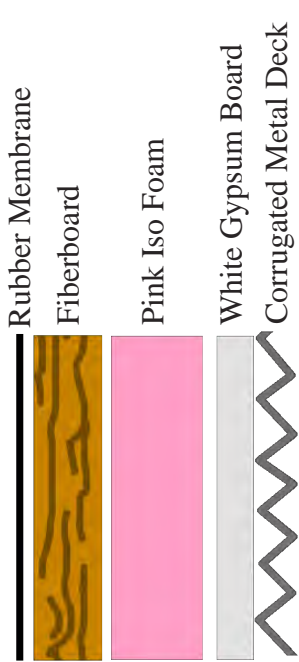
Roof Cross Section Diagram

Roof 2



New London High School
Roofing Inspection
20170858.A10

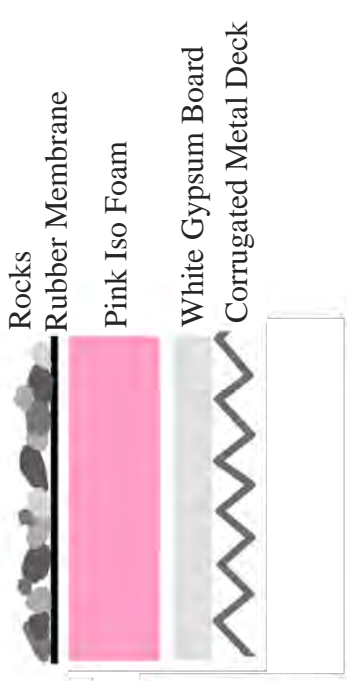
Roof 5



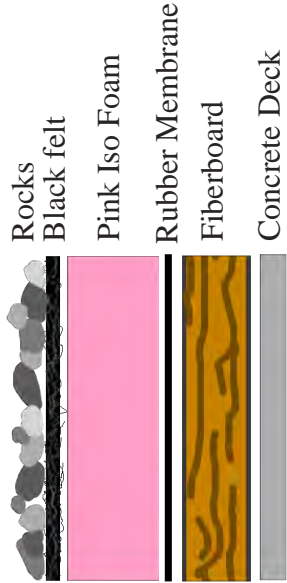
Roof 3



Roof 6



Roof 4



APPENDIX C

Lead in Dust Determination Report Former Rifle Range dated May 7, 2018

Lead in Dust and Soil Determination

New London High School
Former Firing Range on Ground Level
New London, Connecticut

Antinozzi Associates

Bridgeport, Connecticut

May 7, 2018



Fuss & O'Neill EnviroScience, LLC
146 Hartford Road
Manchester, CT 06040



FUSS & O'NEILL
EnviroScience, LLC

May 7, 2018

Mr. Bill Mead, AIA
Antinozzi Associates
271 Fairfield Avenue
Bridgeport, CT 06604
Email: BMead@Antinozzi.com

RE: Lead in Dust and Soil Determination
New London High School - Former Rifle Firing Range
490 Jefferson Avenue, New London, CT
Fuss & O'Neill EnviroScience Project No. 20170858.A1E

Dear Mr. Mead:

Enclosed is the report for the lead characterization sampling and survey performed at the former rifle firing range on the ground level of the existing New London High School located at 490 Jefferson Avenue in New London, Connecticut.

The survey was performed on April 20, 2018 by a Fuss & O'Neill EnviroScience, LLC licensed inspector and included a screening for lead concentrations in settled dust on cabinets in the immediate vicinity of the firing range, lead concentrations in the sand located within the bullet/projectile catch bin located down range, and lead concentrations in residue deposited on deflector panels located above the bullet/projectile catch bin, on CMU block walls, the concrete floor and the ceiling surfaces within the firing range.

The information summarized in this document is for the above-mentioned materials only. It does not include information on other hazardous materials that may exist on the property (such as asbestos, underground storage tanks, PCB-containing ballasts, and possible mercury hazards).

If you have any questions regarding the contents of this report, please do not hesitate to contact me at (860) 646-2469, ext. 5570. Thank you for this opportunity to have served your environmental needs.

Sincerely,

Carlos Texidor
Senior Project Manager

CT/kr

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Manchester, CT
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f 860.533.5143

www.fando.com

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F:\P2017\0858\A1E\Deliverables\Report\LeadDetermination_NewLondonHSFiringRange_20180504.docx

Table of Contents

Lead Determination New London High School – Former Rifle Firing Range Antinozzi Associates

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2	Characterization Survey for Lead	1
2.1	Results	1
2.2	Conclusion.....	3

Appendices

End of Report

APPENDIX A -	FUSS & O'NEILL ENVIROSCIENCE CERTIFICATIONS
APPENDIX B -	FLOOR PLAN IDENTIFYING THE AREAS INSPECTED
APPENDIX C -	LEAD PAINT TESTING PROCEDURES AND EQUIPMENT
APPENDIX D -	LEAD WIPE AND LEAD IN SOIL LABORATORY REPORTS AND CHAIN OF CUSTODY FORMS

1 Introduction

Fuss & O'Neill EnviroScience, LLC (EnviroScience) was retained to perform a lead characterization survey of the former rifle firing range located on the ground floor underneath the auditorium of the existing New London High School at 490 Jefferson Avenue New London Connecticut. EnviroScience's Environmental Analyst Ulkens Auguste, a State of Connecticut Licensed Lead Paint Inspector, inspected these areas on April 20, 2018. Please refer to *Appendix A* for a copy of EnviroScience's certifications.

This inspection was performed in response to the proposed renovation of the building and consisted of a lead determination of painted surfaces for lead throughout the New London High School. Characterization sampling of settled dust and residue within the former rifle firing range and sampling of the sand located within the catch bin located down range was also conducted. A copy of the marked-up floor plan depicting characterization sample locations is attached as *Appendix B*.

The inspection was completed in accordance with EnviroScience's written proposal dated October 4, 2017.

2 Characterization Survey for Lead

A characterization survey of settled dust, residue, and sand within the catch bin for lead associated ammunition and firing range activities was performed in the former firing range and temporary storage area within the vicinity of the former firing range on the ground level underneath the auditorium.

For the purpose of this screen, sands within the bull/projectile catch bin and settled dust and residue on various interior walls, floor and ceiling finishes and fixtures and furnishings representing the exposed surfaces within the former firing range area and the storage within the former firing range were tested. Settled dust within the former firing range and the storage room immediately within the firing range and the sands within the catch pit were tested. The purpose of this lead determination was to identify contamination of surfaces and soils for decommissioning and decontamination of the former firing range.

The former firing range area is comprised of two individual rectangular 3-lane shooting galleries enclosed with CMU block walls, a concrete floor and a concrete ceiling deck. Acoustic ceiling tiles were observed in limited quantities on the concrete ceiling deck and upper portion of the wall located at the shooter's station. A partition wall located between the former firing range and the storage room is comprised of wall paneling and CMU block. Ceilings and floor finishings throughout the storage area adjacent to the firing range are concrete.

2.1 Results

The screen indicated consistent levels of lead above the established EPA residential regulatory limits (**for reference and comparison only; the High School is not subject to these standards**) in the sand in the bullet/projectile catch bin and consistent levels of lead above the established regulatory limits in the settled dust and residue located within the former firing range and the storage area immediately adjacent to it. The firing range is located at a High School and is not subject to the Lead Poisoning Prevention

Program. Lead was found on concrete ceilings, concrete floors, CMU block walls, metal deflector panels, metal filing cabinets and within the sand located in the catch pit located down range beneath the deflector panel.

Table 1
Catch Pit Sand Characterization Testing Results

Sample ID	Location	Reading (mg/Kg)
04202018UA-01 Soil	Lanes 1,2 and 3	200,000
04202018UA-11 Soil	Lanes 4, 5, and 6	230,000

Bold denotes analytical results above the established regulatory threshold of 400 mg/Kg. (40 CFR 745.65(c) **(for reference and comparison only; the High School is not subject to these standards)**
Lead in Soils by Flame ASS (Sw 846 3050B/7000B)

Table 2
Settled Dust and Residue Wipe Testing Results

Sample ID	Substrate	Location	Result (µg/ft²)
04202018UA-02 Wipe	Concrete Floor	Lanes 1,2 and 3	9,800
04202018UA-03 Wipe	Concrete Floor	Lanes 1,2 and 3	27,000
04202018UA-04 Wipe	Concrete Floor	Lanes 1,2 and 3	28,000
04202018UA-05 Wipe	Concrete Floor	Lanes 1,2 and 3	28,000
04202018UA-06 Wipe	Metal	Lane 1 Deflector Panel	10,000
04202018UA-07 Wipe	Metal	Lane 3 Deflector Panel	10,000
04202018UA-08 Wipe	Concrete Ceiling	Lanes 1,2 and 3	70
04202018UA-08 Wipe Duplicate	Concrete Ceiling	Lanes 1,2 and 3	30
04202018UA-09 Wipe	CMU Block Wall	Lanes 1,2 and 3 - Wall A	790
04202018UA-10 Wipe	CMU Block Wall	Lanes 1,2 and 3 - Wall B	1,100
04202018UA-12 Wipe	Concrete Floor	Lanes 4, 5, and 6	4,500
04202018UA-13 Wipe	Concrete Floor	Lanes 4, 5, and 6	17,000
04202018UA-14 Wipe	Concrete Floor	Lanes 4, 5, and 6	72,000
04202018UA-15 Wipe	Concrete Floor	Lanes 4, 5, and 6	49,000
04202018UA-16 Wipe	Metal	Lane 4 Deflector Panel	20,000
04202018UA-17 Wipe	Metal	Lane 6 Deflector Panel	16,000
04202018UA-18 Wipe	Concrete Ceiling	Lanes 4, 5, and 6	66
04202018UA-19 Wipe	CMU Block Wall	Lanes 4,5 and 6 - Wall C	1,300
04202018UA-20 Wipe	CMU Block Wall	Lanes 4,5 and 6 - Wall D	1,600
04202018UA-21 Wipe	Concrete Floor	Entry at Top of Steps	480
04202018UA-22 Wipe	Metal	Top of Filing Cabinet	680
04202018UA-23 Wipe	N/A	Field Blank	< 10

Bold denotes wipe analytical results above the regulatory threshold of 40 µg/ ft² Floors (carpeted and uncarpeted) **(for reference and comparison only; the High School is not subject to these standards)**

Lead in Dust by Flame AAS (SW 846 3050B/7000B)

Collection of the wipe samples and soil samples was performed in accordance with the protocol outlined in the attached document: Testing Procedures and Equipment (*Appendix C*). Field QA/QC sampling

was comprised of duplicate wipe sample and a field blank submitted with the primary characterization wipe samples.

Please see *Appendix D* for the lead wipe and lead in soil laboratory reports and chain of custody forms.

2.2 Conclusion

The lead determination of the former firing range indicated that levels of lead are present above the established Federal Lead and State of Connecticut Standards for residential properties threshold of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in settled dust on horizontal surfaces and in residues deposited on ceiling and walls within the former firing range shooting galleries and the adjacent storage room. These standards are being used for comparison purposes only; the High School is not obligated to these standards. However, this standard should be used for decontamination purposes.

Characterization samples for the soils/sand located within the bullet/projectile catch pit were also reported above the established (Federal and State of Connecticut) threshold of 400 part per million (ppm) with reported concentrations of 200,000 and 230,000 parts per million for the two soil samples collected.

Based on the reported concentrations of lead within the wipe samples collected from the concrete ceiling, concrete floor, CMU block wall and deflection panel, EnviroScience recommends a TCLP testing of the waste streams applicable to any demolition of the concrete floor, concrete ceiling and CMU block walls. Metal components within the former firing range, determined to be coated with lead containing dust, residue, or lead-based paint scheduled to be removed must be cleaned prior to going to a recycling facility that is permitted to handle lead. Concrete floors, concrete ceilings, and CMU block wall surfaces to remain in place following the completion of the proposed renovation and demolition are to be properly decontaminated, inspected, and sampled to confirm the completion of the decontamination.

EnviroScience recommends the former firing range area remain locked and no one should be allowed inside the firing range or any items removed from the former firing range until it can be decontaminated and cleared for occupancy. The heating, ventilation, and air conditioning (HVAC) inside the former firing range should be turned off and confirmed it is a closed loop system that services the firing range only. Further evaluation of the HVAC system in the former firing range is recommended prior to disposal of the system. There is the possibility lead dust has been tracked outside of the firing range into the storage area and beyond outside of the firing range.

Disclaimer: The information contained in this report concerning the presence or absence of lead contaminated materials or lead paint does not constitute a comprehensive lead inspection under Connecticut regulations, Section 19a-111-1 to 11. The surfaces tested represent only a portion of those surfaces that would be tested to determine whether the premises are in compliance with Connecticut regulations.

The Contractor shall be aware that OSHA has not established a level of lead in a material below which 29 CFR 1926.62 does not apply. The Contractor shall comply with exposure assessment criteria, interim

worker protection, and other requirements of the regulation as necessary to protect workers and building occupants.

Report prepared by Environmental Technician Kim Rinard.

Reviewed by:



Carlos Texidor
Senior Project Manager



Robert L. May Jr
President

Appendix A

Fuss & O'Neill EnviroScience Certifications

Dear ULKENS AUGUSTE,

Attached you will find your validated certificate for the coming year. Should you have any questions about your certificate renewal, please do not hesitate to write or call:

Department of Public Health
P.O. Box 340308
M.S.#12MQA
Hartford, CT 06134-0308
(860) 509-7603
opl.c.dph@ct.gov
www.ct.gov/dph/license

Sincerely,

RAUL PINO, MD, MPH, COMMISSIONER
DEPARTMENT OF PUBLIC HEALTH

EMPLOYER'S COPY
STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

NAME
ULKENS AUGUSTE

CERTIFICATE NO.
002234

CURRENT THROUGH
09/30/18

PROFESSION
LEAD INSPECTOR RISK ASSESSOR

SIGNATURE

COMMISSIONER

INSTRUCTIONS:

1. Detach and sign each of the cards on this form
2. Display the large card in a prominent place in your office or place of business.
3. The wallet card is for you to carry on your person. If you do not wish to carry the wallet card, place it in a secure place.
4. The employer's copy is for persons who must demonstrate current licensure/certification in order to retain employment or privileges. The employer's card is to be presented to the employer and kept by them as a part of your personnel file. Only one copy of this card can be supplied to you.

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT
THE INDIVIDUAL NAMED BELOW IS CERTIFIED
BY THIS DEPARTMENT AS A
LEAD INSPECTOR RISK ASSESSOR

ULKENS AUGUSTE

CERTIFICATE NO.
002234

CURRENT THROUGH
09/30/18

VALIDATION NO.
03-627251

SIGNATURE

COMMISSIONER

WALLET CARD
STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

NAME
ULKENS AUGUSTE

CERTIFICATE NO.
002234

CURRENT THROUGH
09/30/18

PROFESSION
LEAD INSPECTOR RISK ASSESSOR

SIGNATURE

COMMISSIONER

CERT#: L-600-927

**CHEMSCOPE TRAINING DIVISION
LEAD INSPECTOR/RISK ASSESSOR REFRESHER
8 HOUR TRAINING CERTIFICATE**

Ulkens Augustine

146 Hartford Road, Manchester CT


Has attended an 8 hour course on the subject discipline on
2/5/2018 & 2/6/2018 and has passed a written examination.

The above individual has successfully completed the above training course approved in accordance with the Department of Public Health Standards established pursuant to Section 20-477 of the Connecticut General Statutes.

Course topics include all required topics of State of Connecticut DPH and EPA.

Under civil and criminal penalties of law for the making or submission of false or fraudulent statements or representations (U.S.C. 1001 and 15 U.S.C. 2615), I certify that this training complies with all applicable requirements of Title IV of TSCA, 40 CFR part 745 and any other applicable Federal, State or local requirements.

**Examination Score: 80%
Exam Date: 2/6/2018
Expiration Date: 2/6/2019**


Ronald D. Arena
Training Manager

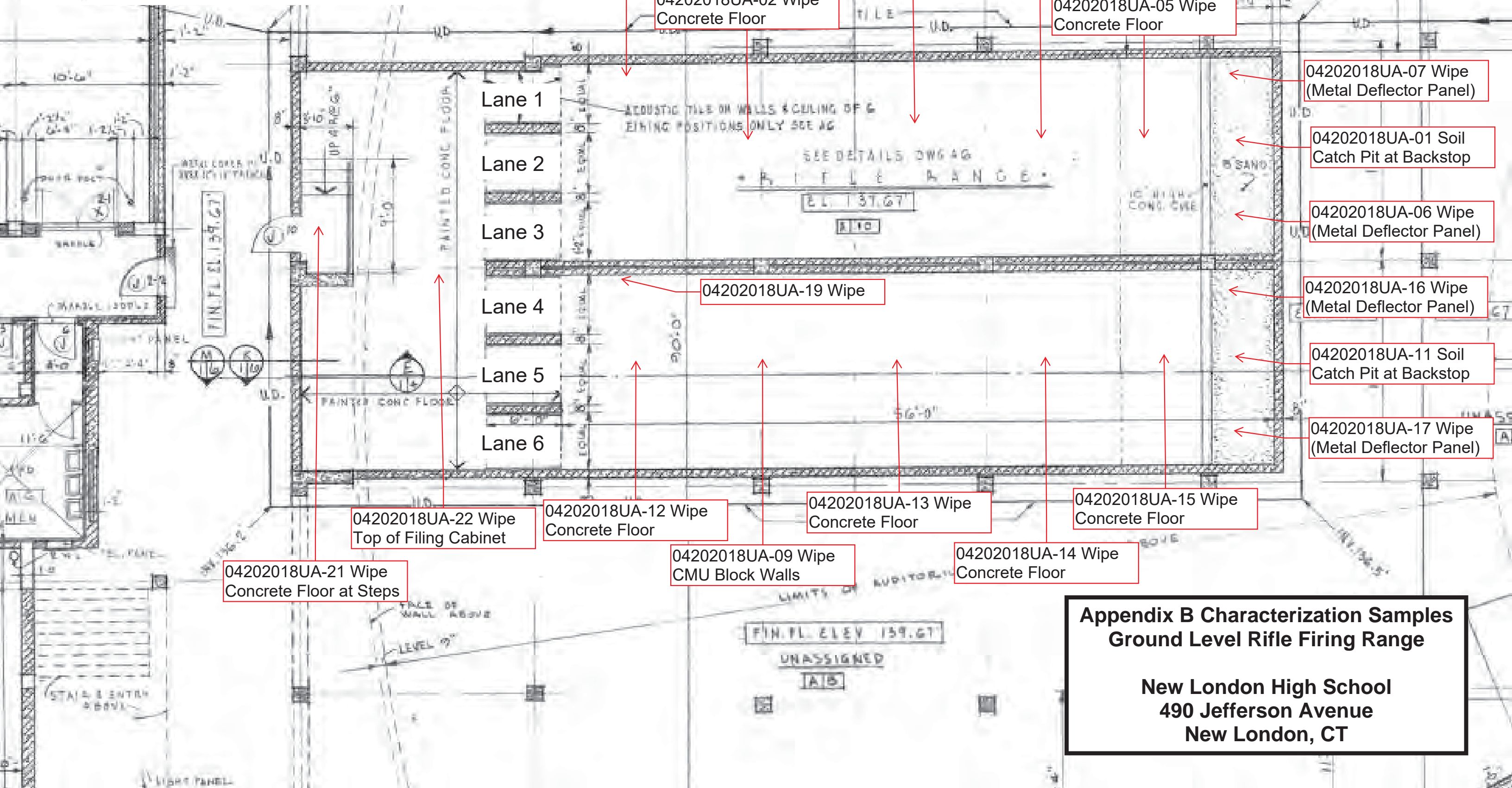
Chem Scope, Inc.
15 Moulthrop Street
North Haven CT 06473
Phone: 203.865.5605
www.chem-scope.com

Appendix B

Floor Plan Identifying the Areas Inspected



FUSS & O'NEILL
EnviroScience, LLC



Appendix C

Lead Paint Testing Procedures and Equipment

STANDARD OPERATING PROCEDURES LEAD-BASED PAINT LIMITED SCREENINGS

TESTING PROCEDURES AND EQUIPMENT

The U. S. Department of Housing and Urban Development (HUD) "Guidelines for the Evaluation and Control of Lead Hazards in Housing, September 1997," were consulted for this lead paint screening. HUD has been the agency at the federal level with responsibility for the establishment of national lead-based paint standards for testing and abatement. The HUD document will be referenced as the Guidelines in this document. The HUD Guidelines are specific to child occupied dwelling units or target housing and are not wholly applicable to limited screenings. Additionally, most New England States have regulations and standards with regard to lead paint testing and abatement in child occupied facilities. EnviroScience shall consult these regulations and standards prior to beginning testing. Some states have reporting requirements if certain threshold values for lead paint are found and certain conditions exist. EnviroScience reports any specific testing results required by State laws as licensed inspectors and consultants in these circumstances.

This lead evaluation was a Lead Based Paint Limited Screening. Both the proposed scope of work and the final report will note this type of evaluation was done. A Lead Paint Limited Screening is performed in order to determine through representative testing the lead paint history of a property. However, conclusions about untested areas cannot be reliably determined based on the limited testing that was done. Comprehensive inspections involve testing of representative components in each and every room of a building. A Lead Based Paint Limited Screening is conducted in representative locations and not necessarily every room. The intent is to collect a sufficient number of readings using field instrumentation to characterize a given component or surface. Representative components are classified as testing combinations. The age and use of the functional space, component type, and substrate type are used to characterize a testing combination for purposes of a Lead Based Paint Limited Screening. Considering age of the structure inspectors determine original dates of construction and any major renovations to the original building. Interior spaces where major renovation has occurred are also treated as separate spaces. A functional space is a room or group of rooms used for similar purposes where painting is presumed to be uniform.

Inspectors perform Lead Based Paint Limited Screening on representative components ensuring randomization in the selection of components. EnviroScience utilizes a protocol of a minimum of three (3) rooms with similar building components and surfaces are comprehensively tested similar to inspections for HUD compliance or state regulated inspections. (For example, living room, kitchen, and a bedroom may be comprehensively tested in a 6-room apartment). In this protocol specific unique components are tested in any other locations in the dwelling. Inspectors shall record readings utilizing portable field instrumentation.

Conclusions in a Lead Based Paint Limited Screening are made based on consistent findings in the limited number of readings collected for a given testing combination. Inspectors conduct more readings if trends or similar findings are not found during such a limited screening process. In reporting findings and use in cost estimating, EnviroScience shall use limited screening information to extrapolate (or presume) that the untested areas have similar paint history as to those areas where limited screenings were conducted. (For example if in the three locations tested, all window sashes

contained threshold values of lead paint above HUD or other State regulatory levels, then EnviroScience would detail in the report that all such components in the dwelling should be presumed to contain lead paint or recommend them to be tested further).

Lead-based paint surfaces and components were identified by utilizing on-site x-ray fluorescence (XRF) instruments. Fuss & O'Neill EnviroScience, LLC owns and maintains XRFs for testing for lead-based paint. These instruments are four Radiation Monitoring Devices LPA-1 (RMD). Each of these instruments is operated in accordance with state and federal and manufacturer standards on the use of the instruments. State and federal protocols provide, with the exception of wall surfaces, one reading with the instrument on a representative component in each room, i.e., baseboard, chair rail, etc., as sufficient to establish the lead paint classification of all the representatives of that component type in a room. In the case of walls, because of the large spacial areas involved and the variability in lead content in paint over such large areas, the federal and state governments want a reading on each wall surface in a room. Therefore, representative testing is not permitted for walls.

The federal government has developed Performance Characteristic Sheets (PCS) for each of the types of instruments cited above. Each instrument must be calibrated in accordance with these PCSs on a 1.0-milligram lead standard. Each of EnviroScience's instruments has one of these standards assigned to it. Some of the standards were purchased directly from the government and the others from the manufacturers of the instruments.

Each of the instruments has federal government-determined positive and negative ranges for the definition of lead-based paint. XRF results are classified using either the threshold or the inconclusive range. For the threshold, results are classified as positive if they are greater than or equal to the threshold and negative if they are less than the threshold. There is no inconclusive classification when using the threshold. For the inconclusive range, results are classified as positive if they are greater than the upper limit of the inconclusive range and negative if they are less than the lower limit of the inconclusive range. The ranges for each of the types of instruments and their various operating modes are as follows:

Radiation Monitoring Device LPA Analyzer 1

30-Second Standard Mode Reading Description	Substrate	Threshold (mg/cm²)
Results corrected for substrate bias on metal substrate only.	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	0.9
	Plaster	1.0
	Wood	1.0

Quick Mode Reading Description	Substrate	Threshold (mg/cm ²)	Inconclusive Range (mg/cm ²)
Readings not corrected for substrate bias on any substrate.	Brick	1.0	None
	Concrete	1.0	None
	Drywall	1.0	None
	Metal	1.0	None
	Plaster	1.0	None
	Wood	1.0	None

If a reading falls in the inconclusive range, either the lead inspector should be authorized by the client to take a paint chip sample to determine whether the final result is either positive or negative after laboratory analysis, or the result can be categorized as suspect positive and treated accordingly. If it is not confirmed with laboratory analysis, it cannot be assumed to be negative for toxic levels of lead. If it is assumed to be positive, it can either be abated as a positive if the condition of the surface and/or location of the component requires this treatment under Connecticut and/or HUD regulations, or it can be managed in place as a positive component in accordance with the requirements of Connecticut and HUD regulations.

Prior to the start of any testing, a sketch of the building is drawn, and side designations are given to help identify exactly where readings were taken. Drawings depicting the room-numbering scheme are located on the cover page(s) for the building(s) inspected. Each side of the building was labeled A, B, C, or D. The wall "A" side of the unit is generally the side of primary entrance into a dwelling, and this room is always Room 1. Areas in the units include rooms, hallways, and closets. Areas are numbered in a clockwise fashion as building construction allows. This allows the inspector to indicate which substrate surface was tested. The condition of the surface is described by a check mark in the appropriate column, under the heading "condition of surface" on the testing form.

When more than one surface type was present on a side, the component tested was indicated with a number. If two windows were present on a building side, they were numbered left to right. Closet shelves and shelf supports were numbered top to bottom.

It is understood that the room layouts presented in the report are in conformance with the conditions that exist at the time the testing is performed. EnviroScience avoids labeling a room solely by its current functional use (i.e., living room, bedroom, etc.) since this use can change over time. Similarly, room layouts can change dramatically as dwellings are renovated and additions are built, incorporating existing rooms, or existing interior walls are moved or eliminated altogether.

Appendix D

Lead Wipe and Lead in Soil Laboratory Reports and Chain of Custody Forms



FUSS & O'NEILL
EnviroScience, LLC

Fuss & O'Neill EnviroScience EMSL Customer No. ENVI54

www.fando.com

146 Hartford Road, Manchester, CT 06040

(860) 646-2469 Fax (860) 649-6883

SAMPLE LOG FOR LEAD WIPES

Sheet 1-2Project Name: New London High SchoolProject No. 20170858.A1EDate: 4/20/2018Site Address: 490 Jefferson Ave, New London, CTLocation: Ground Level Shooting RangeProject Manager: Carlos Texidor

Sample ID Number	Sample Location/Building	Surface		Result (ug/ft)	Lab Number
		Component	Sq. Ft		
04202018UA-02 wipe	Shooting range - lane 1,2 &3	Concrete floor	1		
04202018UA-03 wipe	Shooting range - lane 1,2 &3	Concrete floor	1		
04202018UA-04 wipe	Shooting range - lane 1,2 &3	Concrete floor	1		
04202018UA-05 wipe	Shooting range - lane 1,2 &3	Concrete floor	1		
04202018UA-06 wipe	Shooting range - lane 1,2 &3- Deflector panel	Metal	1		
04202018UA-07 wipe	Shooting range - lane 1,2 &3- Deflector panel	Metal	1		
04202018UA-08 wipe	Shooting range - lane 1,2 &3- Ceiling	Concrete	1		
04202018UA-08 wipe- Dup	Shooting range - lane 1,2 &3- Ceiling	Concrete	1		
04202018UA-09 wipe	Shooting range - lane 1,2 &3 A-wall	CMU	1		
04202018UA-10 wipe	Shooting range - lane 1,2 &3 B-wall	CMU	1		
04202018UA-12 wipe	Shooting range - lane 4,5 &6	Concrete floor	1		
04202018UA-13 wipe	Shooting range - lane 4,5 &6	Concrete floor	1		
04202018UA-14 wipe	Shooting range - lane 4,5 &6	Concrete floor	1		
04202018UA-15 wipe	Shooting range - lane 4,5 &6	Concrete floor	1		
04202018UA-16 wipe	Shooting range - lane 4,5 &6 Deflector panel	Metal	1		
04202018UA-17 wipe	Shooting range - lane 4,5 &6 Deflector panel	Metal	1		
04202018UA-18 wipe	Shooting range - lane 4,5 &6- Ceiling	Concrete	1		
04202018UA-19 wipe	Shooting range - lane 4,5 &6 C-wall	CMU	1		
04202018UA-20 wipe	Shooting range - lane 4,5 &6 D-wall	CMU	1		
04202018UA-21 wipe	Shooting range- entry @ top of stairs	Concrete	1		
04202018UA-22 wipe	Shooting range- top of filing cabinet @ entrv to lane 4.5&6	Metal	1		
04202018UA-23 wipe	Field blank	N/A	N/A		

2018 APR 24 A 9:27

RECEIVED
EMSL ANALYTICAL INC.
CARLE PLACE, NY

061807755

Pb - *[Signature]* 4/30/18

OrderID: 061807755


FUSS & O'NEILL
 EnviroScience, LLC

Fuss & O'Neill EnviroScience EMSL Customer No. ENVI54

 Page 2-2
 www.fando.com

146 Hartford Road, Manchester, CT 06040

(860) 646-2469 Fax (860) 649-6883

 Analysis Method: EPA-SW-846-3050 (MOD.)
 Wipe Media ☒ ASTM ☐ Non ASTM

Turnaround Time 5 - Day

 Based on the turnaround time indicated above, analyses are due to Fuss & O'Neill EnviroScience on or before this date: 4/27/2018.
 Please call the Fuss & O'Neill EnviroScience laboratory at 860-646-2469 if analyses will be late.

Fax Results To: Fuss & O'Neill EnviroScience Laboratory at 888-838-1160

Special Instructions: _____

 Samples Collected By: Ulkens Auguste Date: 04/20/18 Time: AM

Samples Sent By: _____ Date: _____ Time: _____

 Samples Received By: C. Fante Date: 4/24/18 Time: 9:57am

 Shipped To: ☒ EMSL (State) NY ☐ Other _____

 Method of Shipment: ☒ Fed Ex. ☐ UPS Overnight ☐ UPS Ground ☐ Other _____

061807755

 RECEIVED
 EHSL ANALYTICAL, INC.
 CARLE PLACE, NY
 2018 APR 24 A 9:27

 Pb - Amber 4/30/18


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: 061807755
 CustomerID: ENVI54
 CustomerPO: 20170858.A1E
 ProjectID:

 Attn: **Carlos Texidor**
Fuss & O'Neill EnviroScience, LLC
146 Hartford Road
Manchester, CT 06040

 Phone: (860) 646-2469
 Fax: (888) 838-1160
 Received: 04/24/18 9:27 AM
 Collected: 4/20/2018

 Project: **New London High School, 490 Jefferson Ave, New London, CT, Project No: 20170858.A1E, Ground Level Shooting Range**
Test Report: Lead in Dust by Flame AAS (SW 846 3050B/7000B)*

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Area Sampled</i>	<i>Lead Concentration</i>
04202018UA-02 wipe Site: Shooting Range-lane 1, 2 & 3 Desc: Concrete Floor	061807755-0001	4/20/2018	4/30/2018	144 in ²	9800 µg/ft ²
04202018UA-03 wipe Site: Shooting Range-lane 1, 2 & 3 Desc: Concrete Floor	061807755-0002	4/20/2018	4/30/2018	144 in ²	27000 µg/ft ²
04202018UA-04wipe Site: Shooting Range-lane 1, 2 & 3 Desc: Concrete Floor	061807755-0003	4/20/2018	4/30/2018	144 in ²	28000 µg/ft ²
04202018UA-05 wipe Site: Shooting Range-lane 1, 2 & 3 Desc: Concrete Floor	061807755-0004	4/20/2018	4/30/2018	144 in ²	28000 µg/ft ²
04202018UA-06 wipe Site: Shooting Range-lane 1, 2 & 3-Deflector Panel Desc: Metal	061807755-0005	4/20/2018	4/30/2018	144 in ²	10000 µg/ft ²
04202018UA-07 wipe Site: Shooting Range-lane 1, 2 & 3-Deflector Panel Desc: Metal	061807755-0006	4/20/2018	4/30/2018	144 in ²	10000 µg/ft ²
04202018UA-08 wipe Site: Shooting Range-lane 1,2 & 3-Ceiling Desc: Concrete	061807755-0007	4/20/2018	4/30/2018	144 in ²	70 µg/ft ²
04202018UA-08wipe-DUP Site: Shooting Range-lane 1,2 & 3-Ceiling Desc: Concrete	061807755-0008	4/20/2018	4/30/2018	144 in ²	30 µg/ft ²
04202018UA-09 wipe Site: Shooting Range-lane 1,2 & 3-A-wall Desc: CMU	061807755-0009	4/20/2018	4/30/2018	144 in ²	790 µg/ft ²
04202018UA-10 wipe Site: Shooting Range-lane 1,2 & 3-B-wall Desc: CMU	061807755-0010	4/20/2018	4/30/2018	144 in ²	1100 µg/ft ²

 Michelle McGowan, Laboratory Manager
 or other approved signatory

*Analysis following Lead in Dust by EMSL SOP/ Determination of Environmental Lead by FLAA. Reporting limit is 10 ug/wipe. ug/wipe = ug/ft² x area sampled in ft². 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 (such as volume sampled) or analytical method limitations. Samples received in good condition unless otherwise noted. The lab is not responsible for data reported in µg/ft² which is dependent on the area provided by non-lab personnel. The test results contained within this report meet the requirements of NELAC unless otherwise noted. "<" (less than) results 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 accred. program for Lead in Dust, CT PH-0249, NYS ELAP 11469, CA 2339

Initial report from 04/30/2018 12:59:27


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: 061807755
 CustomerID: ENVI54
 CustomerPO: 20170858.A1E
 ProjectID:

 Attn: **Carlos Texidor**
Fuss & O'Neill EnviroScience, LLC
146 Hartford Road
Manchester, CT 06040

 Phone: (860) 646-2469
 Fax: (888) 838-1160
 Received: 04/24/18 9:27 AM
 Collected: 4/20/2018

 Project: **New London High School, 490 Jefferson Ave, New London, CT, Project No: 20170858.A1E, Ground Level Shooting Range**
Test Report: Lead in Dust by Flame AAS (SW 846 3050B/7000B)*

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Area Sampled</i>	<i>Lead Concentration</i>
04202018UA-12 wipe Site: Shooting Range-lane 4, 5 & 6 Desc: Concrete Floor	061807755-0011	4/20/2018	4/30/2018	144 in ²	4500 µg/ft ²
04202018UA-13 wipe Site: Shooting Range-lane 4, 5 & 6 Desc: Concrete Floor	061807755-0012	4/20/2018	4/30/2018	144 in ²	17000 µg/ft ²
04202018UA-14 wipe Site: Shooting Range-lane 4, 5 & 6 Desc: Concrete Floor	061807755-0013	4/20/2018	4/30/2018	144 in ²	72000 µg/ft ²
04202018UA-15 wipe Site: Shooting Range-lane 4, 5 & 6 Desc: Concrete Floor	061807755-0014	4/20/2018	4/30/2018	144 in ²	49000 µg/ft ²
04202018UA-16 wipe Site: Shooting Range-lane 4, 5 & 6-Deflector Panel Desc: Metal	061807755-0015	4/20/2018	4/30/2018	144 in ²	20000 µg/ft ²
04202018UA-17 wipe Site: Shooting Range-lane 4, 5 & 6-Deflector Panel Desc: Metal	061807755-0016	4/20/2018	4/30/2018	144 in ²	16000 µg/ft ²
04202018UA-18 wipe Site: Shooting Range-lane 4, 5 & 6-Ceiling Desc: Concrete	061807755-0017	4/20/2018	4/30/2018	144 in ²	66 µg/ft ²
04202018UA-19 wipe Site: Shooting Range-lane 4, 5 & 6-C-wall Desc: CMU	061807755-0018	4/20/2018	4/30/2018	144 in ²	1300 µg/ft ²
04202018UA-20 wipe Site: Shooting Range-lane 4, 5 & 6-D-wall Desc: CMU	061807755-0019	4/20/2018	4/30/2018	144 in ²	1600 µg/ft ²
04202018UA-21 wipe Site: Shooting Range-entry @ top of stairs Desc: Concrete	061807755-0020	4/20/2018	4/30/2018	144 in ²	480 µg/ft ²
04202018UA-22 wipe Site: Shooting Range-top of filing cabinet @ entry to lane 4, 5 & 6 Desc: Metal	061807755-0021	4/20/2018	4/30/2018	144 in ²	680 µg/ft ²

 Michelle McGowan, Laboratory Manager
 or other approved signatory

*Analysis following Lead in Dust by EMSL SOP/ Determination of Environmental Lead by FLAA. Reporting limit is 10 ug/wipe. ug/wipe = ug/ft² x area sampled in ft². 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 (such as volume sampled) or analytical method limitations. Samples received in good condition unless otherwise noted. The lab is not responsible for data reported in µg/ft² which is dependent on the area provided by non-lab personnel. The test results contained within this report meet the requirements of NELAC unless otherwise noted. "<" (less than) results 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 accred. program for Lead in Dust, CT PH-0249, NYS ELAP 11469, CA 2339

Initial report from 04/30/2018 12:59:27


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: 061807755
 CustomerID: ENVI54
 CustomerPO: 20170858.A1E
 ProjectID:

 Attn: **Carlos Texidor**
Fuss & O'Neill EnviroScience, LLC
146 Hartford Road
Manchester, CT 06040

 Phone: (860) 646-2469
 Fax: (888) 838-1160
 Received: 04/24/18 9:27 AM
 Collected: 4/20/2018

 Project: **New London High School, 490 Jefferson Ave, New London, CT, Project No: 20170858.A1E, Ground Level Shooting Range**
Test Report: Lead in Dust by Flame AAS (SW 846 3050B/7000B)*

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Area Sampled</i>	<i>Lead Concentration</i>
04202018UA-23 wipe	061807755-0022	4/20/2018	4/30/2018	n/a	<10 µg/wipe
Site: Field Blank					

 Michelle McGowan, Laboratory Manager
 or other approved signatory

*Analysis following Lead in Dust by EMSL SOP/ Determination of Environmental Lead by FLAA. Reporting limit is 10 µg/wipe. µg/wipe = µg/ft² x area sampled in ft². 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 (such as volume sampled) or analytical method limitations. Samples received in good condition unless otherwise noted. The lab is not responsible for data reported in µg/ft² which is dependent on the area provided by non-lab personnel. The test results contained within this report meet the requirements of NELAC unless otherwise noted. "<" (less than) results 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 accred. program for Lead in Dust, CT PH-0249, NYS ELAP 11469, CA 2339

Initial report from 04/30/2018 12:59:27

OrderID: 061807588

Fuss & O'Neill EnviroScience EMSL Customer No. ENVI54


FUSS & O'NEILL
EnviroScience, LLC

www.fando.com

146 Hartford Road, Manchester, CT 06040

061807588

(860) 646-2469 Fax (860) 649-6883

SAMPLE LOG FOR LEAD SOIL

Sheet No. 1 of 1

Project Name: New London High SchoolProject Number: 20170858.A1EBuilding: Ground Level Shooting RangeProject Manager: Carlos Texidor

Sample ID Number	Sample Location/Building	Soil Condition	Result (%)
04202018UA-01Soil	Catch pit from shooting range - lane 1,2 &3	Loose soil	
04202018UA-11Soil	Catch pit from shooting range - lane 4,5 &6	Loose soil	

RECEIVED
 EMSL ANALYTICAL, INC.
 CARLE PLACE, NY
 2018 APR 24 A 9:26

Analysis Method: EPA-SW-846-3050-7420

Turnaround Time 5 Days

____ Date: _____ Time: _____
 _____ Date: _____ Time: _____

Based on the turnaround time indicated above, analyses are due to Fuss & O'Neill EnviroScience on or before this date: 4/27/2018.
 Please call the Fuss & O'Neill EnviroScience laboratory at 860-646-2469 if analyses will be late.

Fax Results To: Fuss & O'Neill EnviroScience Laboratory at 888-838-1160

Special Instructions: _____

Samples Collected By: U. Auguste Date: 4/20/2018 Time: AM

Samples Rec'd/Sent By: _____ Date: _____/____ Time: _____/____

Samples Received By: Katherine Viau Date: 4/20/18 Time: 9:26 AMShipped To: ☒ EMSL (State) NY _____ ☐ Other _____Method of Shipment: ☒ Fed Ex. ☐ UPS Overnight ☐ UPS Ground ☐ Other _____

(SEE NEXT PAGE FOR DIAGRAM)

Q:\EnviroScience\Admin\FORMS\Lead\Lead Soil_Sample Log rev 0611.docx

Fb - Auguste 4/28/18


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: 061807588
 CustomerID: ENVI54
 CustomerPO: 20170858.A1E
 ProjectID:

 Attn: **Carlos Texidor**
Fuss & O'Neill EnviroScience, LLC
146 Hartford Road
Manchester, CT 06040

 Phone: (860) 646-2469
 Fax: (888) 838-1160
 Received: 04/24/18 9:26 AM
 Collected: 4/20/2018

 Project: **New London High School, Ground Level Shooting Range, Project :20170858.A1E**
Test Report: Lead in Soils 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>
04202018UA-01Soil	061807588-0001	4/20/2018	4/28/2018	200000 mg/Kg
Site: Catch Pit from Shooting Range - Lane 1, 2 & 3				
04202018UA-11Soil	061807588-0002	4/20/2018	4/28/2018	230000 mg/Kg
Site: Catch Pit from Shooting Range - Lane 4, 5 & 6				

 Michelle McGowan, Laboratory Manager
 or other approved signatory

*Analysis following Lead in Soil/Solids by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 40 mg/kg 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. Results reported based on dry weight. "<" (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 accred. program for Lead in Soil, CT PH-0249, NYS ELAP 11469, CA 2339

Initial report from 04/28/2018 11:59:10

APPENDIX D

Lead in Dust Determination Report Auditorium on First Level dated May 23, 2018

Lead in Dust Determination

New London High School
Auditorium on First Level
New London, Connecticut

Antinozzi Associates

Bridgeport, Connecticut

May 23, 2018



FUSS & O'NEILL
EnviroScience, LLC

Fuss & O'Neill EnviroScience, LLC
146 Hartford Road
Manchester, CT 06040



FUSS & O'NEILL
EnviroScience, LLC

May 23, 2018

Mr. Bill Mead, AIA
Antinozzi Associates
271 Fairfield Avenue
Bridgeport, CT 06604
Email: BMead@Antinozzi.com

RE: Lead in Dust Determination
New London High School - Auditorium
490 Jefferson Avenue, New London, CT
Fuss & O'Neill EnviroScience Project No. 20170858.A1E

Dear Mr. Mead:

Enclosed is the report for the lead characterization sampling and survey performed in the auditorium on the first level of the existing New London High School located at 490 Jefferson Avenue in New London, Connecticut.

The survey was performed on May 18, 2018 by a Fuss & O'Neill EnviroScience, LLC licensed Lead/Risk Assessor inspector and included a screening for lead concentrations in settled dust on carpets, concrete, rubber floors and wooden chair arm-rest(s) within the first level and projection room of the auditorium.

The information summarized in this document is for the above-mentioned materials only. It does not include information on other hazardous materials that may exist on the property (such as asbestos, underground storage tanks, PCB-containing ballasts, and possible mercury hazards).

If you have any questions regarding the contents of this report, please do not hesitate to contact me at (860) 646-2469, ext. 5570. Thank you for this opportunity to have served your environmental needs.

Sincerely,

Carlos Texidor
Senior Project Manager

CT/kr

146 Hartford Road
Manchester, CT
06040
t 860.646.2469
800.286.2469
f 860.533.5143

www.fando.com

California
Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island

Table of Contents

Lead in Dust Determination New London High School – First Level Auditorium Antinozzi Associates

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Appendices

End of Report

APPENDIX A -	FUSS & O'NEILL ENVIROSCIENCE CERTIFICATIONS
APPENDIX B -	FLOOR PLAN IDENTIFYING THE AREAS INSPECTED
APPENDIX C -	LEAD PAINT TESTING PROCEDURES AND EQUIPMENT
APPENDIX D -	LEAD DUST WIPE LABORATORY REPORT AND CHAIN OF CUSTODY FORM

1 Introduction

Fuss & O'Neill EnviroScience, LLC (EnviroScience) was retained to perform a dust characterization for lead of the auditorium located on the first floor level of the existing New London High School at 490 Jefferson Avenue, New London, Connecticut. EnviroScience's Environmental Analyst Ulkens Auguste, a State of Connecticut Licensed Lead Paint Inspector Risk Assessor, performed the work on May 19, 2018. Please refer to *Appendix A* for a copy of EnviroScience's certifications.

This work was performed in response to the high levels of lead in dust in the former firing range underneath the auditorium, and to determine if lead was present in settled dust potentially related to the former firing range underneath the auditorium. Characterization sampling of settled dust and residue within the auditorium was also conducted. A copy of the marked-up floor plan depicting characterization sample locations is attached as *Appendix B*.

The work was completed in accordance with EnviroScience's written proposal dated October 4, 2017.

2 Dust Characterization Survey for Lead

A characterization of settled dust, associated with the former firing range activities was performed in auditorium on the first floor level.

For the purpose of this work, settled dust on various interior floor and chair armrests representing the exposed surfaces within the auditorium area and the projection room were tested. Settled dusts within the auditorium were tested. The purpose of this work was to identify potential contamination of surfaces within the auditorium due to high levels of settled dust and high levels of lead in soil in the former firing range which is located under the auditorium. There are HVAC duct systems that service the auditorium and pass through and are located within the former firing range.

2.1 Results

The sampling indicated consistent levels of lead in dust the majority of which are below the established EPA and State of Connecticut residential regulatory limits for lead in dust of 40 micrograms per square foot (**for reference and comparison only; the High School is not subject to these standards.** The auditorium is located at a High School and is not subject to the CT Lead Poisoning Prevention Program or the EPA Renovate, Repair and Painting (RRP) lead safe work practices. Lead dust was found on two of the auditorium chair armrests. Not all chairs were sampled.

Table 1
Settled Dust and Residue Wipe Testing Results

Sample ID	Substrate	Location	Result (µg/ft²)
05172018UA-01	Carpet Floor	Northeast Entry	1.20
05172018UA-02	Concrete Floor	Northeast behind seat 16	2.40
05172018UA-03	Concrete Floor	Northeast behind seat 6	3.10
05172018UA-04	Concrete Floor	Southeast Center behind seats DD&CC	6.20

Sample ID	Substrate	Location	Result (µg/ft²)
05172018UA-05	Wood	Armrest of seat 3	2.00
05172018UA-06	Wood	Armrest of seat 8	116
05172018UA-07	Wood	Armrest of seat 13 & 15	136
05172018UA-08	Rubber Floor	Southeast Exit	2.90
05172018UA-09	Wood Floor	Stage- North area	1.60
05172018UA-10	Wood Floor	Stage-South area	1.10
05172018UA-11	Wood Floor	Stage-West area	1.90
05172018UA-12	Floor	Upper Level Projection Room	2.40
DUPLICATE SAMPLE	Floor	Upper Level Projection Room	2.20
05172018UA-13	Field Blank	N/A	<0.50

Bold denotes wipe analytical results above EPA and CT regulatory threshold of 40 µg/ ft². For Floors (carpeted and uncarpeted) **(for reference and comparison only; the High School is not subject to these standards)**

Lead in Dust by Flame AAS (SW 846 3050B/7000B)

Collection of the wipe samples were performed in accordance with the protocol outlined in the attached document: Testing Procedures and Equipment (*Appendix C*). Field QA/QC sampling was comprised of duplicate wipe sample and a field blank submitted with the primary characterization wipe samples.

Please see *Appendix D* for the lead wipe laboratory report and chain of custody form.

2.2 Conclusion


The sampling of dust in representative locations in the auditorium indicated that in two samples only; levels of lead are present above the established Federal Lead and State of Connecticut Standards for residential properties threshold of 40 micrograms per square foot (µg/ft²) in settled dust on horizontal surfaces within the auditorium. These standards are being used for comparison purposes only; the High School is not obligated to these standards. However, it is recommended this standard should be used for decontamination purposes.

Based on the reported concentrations of lead within the wipe samples collected from the auditorium chair armrests, they are to be properly decontaminated, inspected, and sampled to confirm the completion of the decontamination.

Report prepared by and reviewed by.



Carlos Texidor
Senior Project Manager



Robert L. May Jr
President

Appendix A

Fuss & O'Neill EnviroScience Certifications

Dear ULKENS AUGUSTE,

Attached you will find your validated certificate for the coming year. Should you have any questions about your certificate renewal, please do not hesitate to write or call:

Department of Public Health
P.O. Box 340308
M.S.#12MQA
Hartford, CT 06134-0308
(860) 509-7603
opl.c.dph@ct.gov
www.ct.gov/dph/license

Sincerely,

RAUL PINO, MD, MPH, COMMISSIONER
DEPARTMENT OF PUBLIC HEALTH

EMPLOYER'S COPY
STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

NAME
ULKENS AUGUSTE

CERTIFICATE NO.
002234

CURRENT THROUGH
09/30/18

PROFESSION
LEAD INSPECTOR RISK ASSESSOR

SIGNATURE

COMMISSIONER

INSTRUCTIONS:

1. Detach and sign each of the cards on this form
2. Display the large card in a prominent place in your office or place of business.
3. The wallet card is for you to carry on your person. If you do not wish to carry the wallet card, place it in a secure place.
4. The employer's copy is for persons who must demonstrate current licensure/certification in order to retain employment or privileges. The employer's card is to be presented to the employer and kept by them as a part of your personnel file. Only one copy of this card can be supplied to you.

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT
THE INDIVIDUAL NAMED BELOW IS CERTIFIED
BY THIS DEPARTMENT AS A
LEAD INSPECTOR RISK ASSESSOR

ULKENS AUGUSTE

CERTIFICATE NO.
002234

CURRENT THROUGH
09/30/18

VALIDATION NO.
03-627251

SIGNATURE

COMMISSIONER

WALLET CARD
STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

NAME
ULKENS AUGUSTE

CERTIFICATE NO.
002234

CURRENT THROUGH
09/30/18

PROFESSION
LEAD INSPECTOR RISK ASSESSOR

SIGNATURE

COMMISSIONER

CERT#: L-600-927

**CHEMSCOPE TRAINING DIVISION
LEAD INSPECTOR/RISK ASSESSOR REFRESHER
8 HOUR TRAINING CERTIFICATE**

Ulkens Augustine

146 Hartford Road, Manchester CT


Has attended an 8 hour course on the subject discipline on
2/5/2018 & 2/6/2018 and has passed a written examination.

The above individual has successfully completed the above training course approved in accordance with the Department of Public Health Standards established pursuant to Section 20-477 of the Connecticut General Statutes.

Course topics include all required topics of State of Connecticut DPH and EPA.

Under civil and criminal penalties of law for the making or submission of false or fraudulent statements or representations (U.S.C. 1001 and 15 U.S.C. 2615), I certify that this training complies with all applicable requirements of Title IV of TSCA, 40 CFR part 745 and any other applicable Federal, State or local requirements.

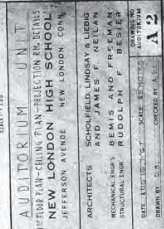
**Examination Score: 80%
Exam Date: 2/6/2018
Expiration Date: 2/6/2019**


Ronald D. Arena
Training Manager

Chem Scope, Inc.
15 Moulthrop Street
North Haven CT 06473
Phone: 203.865.5605
www.chem-scope.com

Appendix B

Floor Plan Identifying the Areas Sampled



Appendix C

Lead Paint Testing Procedures and Equipment

STANDARD OPERATING PROCEDURES LEAD-BASED PAINT LIMITED SCREENINGS

TESTING PROCEDURES AND EQUIPMENT

The U. S. Department of Housing and Urban Development (HUD) "Guidelines for the Evaluation and Control of Lead Hazards in Housing, September 1997," were consulted for this lead paint screening. HUD has been the agency at the federal level with responsibility for the establishment of national lead-based paint standards for testing and abatement. The HUD document will be referenced as the Guidelines in this document. The HUD Guidelines are specific to child occupied dwelling units or target housing and are not wholly applicable to limited screenings. Additionally, most New England States have regulations and standards with regard to lead paint testing and abatement in child occupied facilities. EnviroScience shall consult these regulations and standards prior to beginning testing. Some states have reporting requirements if certain threshold values for lead paint are found and certain conditions exist. EnviroScience reports any specific testing results required by State laws as licensed inspectors and consultants in these circumstances.

This lead evaluation was a Lead Based Paint Limited Screening. Both the proposed scope of work and the final report will note this type of evaluation was done. A Lead Paint Limited Screening is performed in order to determine through representative testing the lead paint history of a property. However, conclusions about untested areas cannot be reliably determined based on the limited testing that was done. Comprehensive inspections involve testing of representative components in each and every room of a building. A Lead Based Paint Limited Screening is conducted in representative locations and not necessarily every room. The intent is to collect a sufficient number of readings using field instrumentation to characterize a given component or surface. Representative components are classified as testing combinations. The age and use of the functional space, component type, and substrate type are used to characterize a testing combination for purposes of a Lead Based Paint Limited Screening. Considering age of the structure inspectors determine original dates of construction and any major renovations to the original building. Interior spaces where major renovation has occurred are also treated as separate spaces. A functional space is a room or group of rooms used for similar purposes where painting is presumed to be uniform.

Inspectors perform Lead Based Paint Limited Screening on representative components ensuring randomization in the selection of components. EnviroScience utilizes a protocol of a minimum of three (3) rooms with similar building components and surfaces are comprehensively tested similar to inspections for HUD compliance or state regulated inspections. (For example, living room, kitchen, and a bedroom may be comprehensively tested in a 6-room apartment). In this protocol specific unique components are tested in any other locations in the dwelling. Inspectors shall record readings utilizing portable field instrumentation.

Conclusions in a Lead Based Paint Limited Screening are made based on consistent findings in the limited number of readings collected for a given testing combination. Inspectors conduct more readings if trends or similar findings are not found during such a limited screening process. In reporting findings and use in cost estimating, EnviroScience shall use limited screening information to extrapolate (or presume) that the untested areas have similar paint history as to those areas where limited screenings were conducted. (For example if in the three locations tested, all window sashes

contained threshold values of lead paint above HUD or other State regulatory levels, then EnviroScience would detail in the report that all such components in the dwelling should be presumed to contain lead paint or recommend them to be tested further).

Lead-based paint surfaces and components were identified by utilizing on-site x-ray fluorescence (XRF) instruments. Fuss & O'Neill EnviroScience, LLC owns and maintains XRFs for testing for lead-based paint. These instruments are four Radiation Monitoring Devices LPA-1 (RMD). Each of these instruments is operated in accordance with state and federal and manufacturer standards on the use of the instruments. State and federal protocols provide, with the exception of wall surfaces, one reading with the instrument on a representative component in each room, i.e., baseboard, chair rail, etc., as sufficient to establish the lead paint classification of all the representatives of that component type in a room. In the case of walls, because of the large spacial areas involved and the variability in lead content in paint over such large areas, the federal and state governments want a reading on each wall surface in a room. Therefore, representative testing is not permitted for walls.

The federal government has developed Performance Characteristic Sheets (PCS) for each of the types of instruments cited above. Each instrument must be calibrated in accordance with these PCSs on a 1.0-milligram lead standard. Each of EnviroScience's instruments has one of these standards assigned to it. Some of the standards were purchased directly from the government and the others from the manufacturers of the instruments.

Each of the instruments has federal government-determined positive and negative ranges for the definition of lead-based paint. XRF results are classified using either the threshold or the inconclusive range. For the threshold, results are classified as positive if they are greater than or equal to the threshold and negative if they are less than the threshold. There is no inconclusive classification when using the threshold. For the inconclusive range, results are classified as positive if they are greater than the upper limit of the inconclusive range and negative if they are less than the lower limit of the inconclusive range. The ranges for each of the types of instruments and their various operating modes are as follows:

Radiation Monitoring Device LPA Analyzer 1

30-Second Standard Mode Reading Description	Substrate	Threshold (mg/cm²)
Results corrected for substrate bias on metal substrate only.	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	0.9
	Plaster	1.0
	Wood	1.0

Quick Mode Reading Description	Substrate	Threshold (mg/cm²)	Inconclusive Range (mg/cm²)
Readings not corrected for substrate bias on any substrate.	Brick	1.0	None
	Concrete	1.0	None
	Drywall	1.0	None
	Metal	1.0	None
	Plaster	1.0	None
	Wood	1.0	None

If a reading falls in the inconclusive range, either the lead inspector should be authorized by the client to take a paint chip sample to determine whether the final result is either positive or negative after laboratory analysis, or the result can be categorized as suspect positive and treated accordingly. If it is not confirmed with laboratory analysis, it cannot be assumed to be negative for toxic levels of lead. If it is assumed to be positive, it can either be abated as a positive if the condition of the surface and/or location of the component requires this treatment under Connecticut and/or HUD regulations, or it can be managed in place as a positive component in accordance with the requirements of Connecticut and HUD regulations.

Prior to the start of any testing, a sketch of the building is drawn, and side designations are given to help identify exactly where readings were taken. Drawings depicting the room-numbering scheme are located on the cover page(s) for the building(s) inspected. Each side of the building was labeled A, B, C, or D. The wall "A" side of the unit is generally the side of primary entrance into a dwelling, and this room is always Room 1. Areas in the units include rooms, hallways, and closets. Areas are numbered in a clockwise fashion as building construction allows. This allows the inspector to indicate which substrate surface was tested. The condition of the surface is described by a check mark in the appropriate column, under the heading "condition of surface" on the testing form.

When more than one surface type was present on a side, the component tested was indicated with a number. If two windows were present on a building side, they were numbered left to right. Closet shelves and shelf supports were numbered top to bottom.

It is understood that the room layouts presented in the report are in conformance with the conditions that exist at the time the testing is performed. EnviroScience avoids labeling a room solely by its current functional use (i.e., living room, bedroom, etc.) since this use can change over time. Similarly, room layouts can change dramatically as dwellings are renovated and additions are built, incorporating existing rooms, or existing interior walls are moved or eliminated altogether.

Appendix D

Lead Dust Wipe Laboratory Report and Chain of Custody Form



Monday, May 21, 2018

Attn: Carlos Texidor
Fuss & O'Neill EnviroScience, LLC
145 Hartford Road
Manchester, CT 06040

Project ID: NEW LONDON HIGH SCHOOL AUDITORIUM
Sample ID#s: CA49586 - CA49599

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext. 200.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Phyllis Shiller".

Phyllis Shiller

Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B

NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
UT Lab Registration #CT00007
VT Lab Registration #VT11301



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

May 21, 2018

FOR: Attn: Carlos Texidor
Fuss & O'Neill EnviroScience, LLC
145 Hartford Road
Manchester, CT 06040

Sample Information

Matrix: WIPE
Location Code: F&OENVIR
Rush Request: 24 Hour
P.O.#: 20170858.A1E

Custody Information

Collected by: UA
Received by: DL
Analyzed by: see "By" below

Date

05/17/18

Time

21:51

Laboratory Data

SDG ID: GCA49586
Phoenix ID: CA49586

Project ID: NEW LONDON HIGH SCHOOL AUDITORIUM
Client ID: 05172018UA-01

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Lead, Wipe per ft ²	1.20	0.50	ug/ft ²	1	05/17/18	MA	SW6010C
Total Metal Digestion	Completed				05/17/18	AG/BF	SW846
Sample Area	1		ft ²	1	05/17/18	UA	PEL

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

If there are any questions regarding this data, please call Phoenix Client Services.
This report must not be reproduced except in full as defined by the attached chain of custody.

Phyllis Shiller, Laboratory Director

May 21, 2018

Reviewed and Released by: Greg Lawrence, Assistant Lab Director



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

May 21, 2018

FOR: Attn: Carlos Texidor
Fuss & O'Neill EnviroScience, LLC
145 Hartford Road
Manchester, CT 06040

Sample Information

Matrix: WIPE
Location Code: F&OENVIR
Rush Request: 24 Hour
P.O.#: 20170858.A1E

Custody Information

Collected by: UA
Received by: DL
Analyzed by: see "By" below

Date

05/17/18

Time

21:51

Laboratory Data

SDG ID: GCA49586
Phoenix ID: CA49587

Project ID: NEW LONDON HIGH SCHOOL AUDITORIUM
Client ID: 05172018UA-02

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Lead, Wipe per ft ²	2.40	0.50	ug/ft ²	1	05/17/18	MA	SW6010C
Total Metal Digestion	Completed				05/17/18	AG/BF	SW846
Sample Area	1		ft ²	1	05/17/18	UA	PEL

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

If there are any questions regarding this data, please call Phoenix Client Services.
This report must not be reproduced except in full as defined by the attached chain of custody.

Phyllis Shiller, Laboratory Director

May 21, 2018

Reviewed and Released by: Greg Lawrence, Assistant Lab Director



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

May 21, 2018

FOR: Attn: Carlos Texidor
Fuss & O'Neill EnviroScience, LLC
145 Hartford Road
Manchester, CT 06040

Sample Information

Matrix: WIPE
Location Code: F&OENVIR
Rush Request: 24 Hour
P.O.#: 20170858.A1E

Custody Information

Collected by: UA
Received by: DL
Analyzed by: see "By" below

Date

05/17/18

Time

21:51

Laboratory Data

SDG ID: GCA49586
Phoenix ID: CA49588

Project ID: NEW LONDON HIGH SCHOOL AUDITORIUM
Client ID: 05172018UA-03

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Lead, Wipe per ft ²	3.10	0.50	ug/ft ²	1	05/17/18	MA	SW6010C
Total Metal Digestion	Completed				05/17/18	AG/BF	SW846
Sample Area	1		ft ²	1	05/17/18	UA	PEL

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

If there are any questions regarding this data, please call Phoenix Client Services.
This report must not be reproduced except in full as defined by the attached chain of custody.

Phyllis Shiller, Laboratory Director

May 21, 2018

Reviewed and Released by: Greg Lawrence, Assistant Lab Director



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

May 21, 2018

FOR: Attn: Carlos Texidor
Fuss & O'Neill EnviroScience, LLC
145 Hartford Road
Manchester, CT 06040

Sample Information

Matrix: WIPE
Location Code: F&OENVIR
Rush Request: 24 Hour
P.O.#: 20170858.A1E

Custody Information

Collected by: UA
Received by: DL
Analyzed by: see "By" below

Date

05/17/18

Time

21:51

Laboratory Data

SDG ID: GCA49586
Phoenix ID: CA49589

Project ID: NEW LONDON HIGH SCHOOL AUDITORIUM
Client ID: 05172018UA-04

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Lead, Wipe per ft ²	6.20	0.50	ug/ft ²	1	05/17/18	MA	SW6010C
Total Metal Digestion	Completed				05/17/18	AG/BF	SW846
Sample Area	1		ft ²	1	05/17/18	UA	PEL

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

If there are any questions regarding this data, please call Phoenix Client Services.
This report must not be reproduced except in full as defined by the attached chain of custody.

Phyllis Shiller, Laboratory Director

May 21, 2018

Reviewed and Released by: Greg Lawrence, Assistant Lab Director



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

May 21, 2018

FOR: Attn: Carlos Texidor
Fuss & O'Neill EnviroScience, LLC
145 Hartford Road
Manchester, CT 06040

Sample Information

Matrix: WIPE
Location Code: F&OENVIR
Rush Request: 24 Hour
P.O.#: 20170858.A1E

Custody Information

Collected by: UA
Received by: DL
Analyzed by: see "By" below

Date

05/17/18

Time

21:51

Laboratory Data

SDG ID: GCA49586
Phoenix ID: CA49590

Project ID: NEW LONDON HIGH SCHOOL AUDITORIUM
Client ID: 05172018UA-05

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Lead, Wipe per ft ²	29.2	2.00	ug/ft ²	1	05/17/18	MA	SW6010C
Total Metal Digestion	Completed				05/17/18	AG/BF	SW846
Sample Area	0.25		ft ²	1	05/17/18	UA	PEL

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

If there are any questions regarding this data, please call Phoenix Client Services.
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Phyllis Shiller, Laboratory Director

May 21, 2018

Reviewed and Released by: Greg Lawrence, Assistant Lab Director



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

May 21, 2018

FOR: Attn: Carlos Texidor
Fuss & O'Neill EnviroScience, LLC
145 Hartford Road
Manchester, CT 06040

Sample Information

Matrix: WIPE
Location Code: F&OENVIR
Rush Request: 24 Hour
P.O.#: 20170858.A1E

Custody Information

Collected by: UA
Received by: DL
Analyzed by: see "By" below

Date

05/17/18

Time

21:51

Laboratory Data

SDG ID: GCA49586
Phoenix ID: CA49591

Project ID: NEW LONDON HIGH SCHOOL AUDITORIUM
Client ID: 05172018UA-06

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Lead, Wipe per ft ²	116	2.00	ug/ft ²	1	05/17/18	MA	SW6010C
Total Metal Digestion	Completed				05/17/18	AG/BF	SW846
Sample Area	0.25		ft ²	1	05/17/18	UA	PEL

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

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Phyllis Shiller, Laboratory Director

May 21, 2018

Reviewed and Released by: Greg Lawrence, Assistant Lab Director



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

May 21, 2018

FOR: Attn: Carlos Texidor
Fuss & O'Neill EnviroScience, LLC
145 Hartford Road
Manchester, CT 06040

Sample Information

Matrix: WIPE
Location Code: F&OENVIR
Rush Request: 24 Hour
P.O.#: 20170858.A1E

Custody Information

Collected by: UA
Received by: DL
Analyzed by: see "By" below

Date

05/17/18

Time

21:51

Laboratory Data

SDG ID: GCA49586
Phoenix ID: CA49592

Project ID: NEW LONDON HIGH SCHOOL AUDITORIUM
Client ID: 05172018UA-07

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Lead, Wipe per ft ²	136	2.00	ug/ft ²	1	05/17/18	MA	SW6010C
Total Metal Digestion	Completed				05/17/18	AG/BF	SW846
Sample Area	0.25		ft ²	1	05/17/18	UA	PEL

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

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Phyllis Shiller, Laboratory Director

May 21, 2018

Reviewed and Released by: Greg Lawrence, Assistant Lab Director



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

May 21, 2018

FOR: Attn: Carlos Texidor
Fuss & O'Neill EnviroScience, LLC
145 Hartford Road
Manchester, CT 06040

Sample Information

Matrix: WIPE
Location Code: F&OENVIR
Rush Request: 24 Hour
P.O.#: 20170858.A1E

Custody Information

Collected by: UA
Received by: DL
Analyzed by: see "By" below

Date

05/17/18

Time

21:51

Laboratory Data

SDG ID: GCA49586
Phoenix ID: CA49593

Project ID: NEW LONDON HIGH SCHOOL AUDITORIUM
Client ID: 05172018UA-08

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Lead, Wipe per ft ²	2.90	0.50	ug/ft ²	1	05/17/18	MA	SW6010C
Total Metal Digestion	Completed				05/17/18	AG/BF	SW846
Sample Area	1		ft ²	1	05/17/18	UA	PEL

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

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Phyllis Shiller, Laboratory Director

May 21, 2018

Reviewed and Released by: Greg Lawrence, Assistant Lab Director



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

May 21, 2018

FOR: Attn: Carlos Texidor
Fuss & O'Neill EnviroScience, LLC
145 Hartford Road
Manchester, CT 06040

Sample Information

Matrix: WIPE
Location Code: F&OENVIR
Rush Request: 24 Hour
P.O.#: 20170858.A1E

Custody Information

Collected by: UA
Received by: DL
Analyzed by: see "By" below

Date

05/17/18

Time

21:51

Laboratory Data

SDG ID: GCA49586
Phoenix ID: CA49594

Project ID: NEW LONDON HIGH SCHOOL AUDITORIUM
Client ID: 05172018UA-09

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Lead, Wipe per ft ²	1.60	0.50	ug/ft ²	1	05/17/18	MA	SW6010C
Total Metal Digestion	Completed				05/17/18	AG/BF	SW846
Sample Area	1		ft ²	1	05/17/18	UA	PEL

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

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Phyllis Shiller, Laboratory Director

May 21, 2018

Reviewed and Released by: Greg Lawrence, Assistant Lab Director



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

May 21, 2018

FOR: Attn: Carlos Texidor
Fuss & O'Neill EnviroScience, LLC
145 Hartford Road
Manchester, CT 06040

Sample Information

Matrix: WIPE
Location Code: F&OENVIR
Rush Request: 24 Hour
P.O.#: 20170858.A1E

Custody Information

Collected by: UA
Received by: DL
Analyzed by: see "By" below

Date

05/17/18

Time

21:51

Laboratory Data

SDG ID: GCA49586
Phoenix ID: CA49595

Project ID: NEW LONDON HIGH SCHOOL AUDITORIUM
Client ID: 05172018UA-10

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Lead, Wipe per ft ²	1.10	0.50	ug/ft ²	1	05/17/18	MA	SW6010C
Total Metal Digestion	Completed				05/17/18	AG/BF	SW846
Sample Area	1		ft ²	1	05/17/18	UA	PEL

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

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Phyllis Shiller, Laboratory Director

May 21, 2018

Reviewed and Released by: Greg Lawrence, Assistant Lab Director



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

May 21, 2018

FOR: Attn: Carlos Texidor
Fuss & O'Neill EnviroScience, LLC
145 Hartford Road
Manchester, CT 06040

Sample Information

Matrix: WIPE
Location Code: F&OENVIR
Rush Request: 24 Hour
P.O.#: 20170858.A1E

Custody Information

Collected by: UA
Received by: DL
Analyzed by: see "By" below

Date

05/17/18

Time

21:51

Laboratory Data

SDG ID: GCA49586
Phoenix ID: CA49596

Project ID: NEW LONDON HIGH SCHOOL AUDITORIUM
Client ID: 05172018UA-11

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Lead, Wipe per ft ²	1.90	0.50	ug/ft ²	1	05/17/18	MA	SW6010C
Total Metal Digestion	Completed				05/17/18	AG/BF	SW846
Sample Area	1		ft ²	1	05/17/18	UA	PEL

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

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Phyllis Shiller, Laboratory Director

May 21, 2018

Reviewed and Released by: Greg Lawrence, Assistant Lab Director



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Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

May 21, 2018

FOR: Attn: Carlos Texidor
Fuss & O'Neill EnviroScience, LLC
145 Hartford Road
Manchester, CT 06040

Sample Information

Matrix: WIPE
Location Code: F&OENVIR
Rush Request: 24 Hour
P.O.#: 20170858.A1E

Custody Information

Collected by: UA
Received by: DL
Analyzed by: see "By" below

Date

05/17/18

Time

21:51

Laboratory Data

SDG ID: GCA49586
Phoenix ID: CA49597

Project ID: NEW LONDON HIGH SCHOOL AUDITORIUM
Client ID: 05172018UA-12

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Lead, Wipe per ft ²	2.40	0.50	ug/ft ²	1	05/17/18	MA	SW6010C
Total Metal Digestion	Completed				05/17/18	AG/BF	SW846
Sample Area	1		ft ²	1	05/17/18	UA	PEL

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

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Phyllis Shiller, Laboratory Director

May 21, 2018

Reviewed and Released by: Greg Lawrence, Assistant Lab Director



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Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

May 21, 2018

FOR: Attn: Carlos Texidor
Fuss & O'Neill EnviroScience, LLC
145 Hartford Road
Manchester, CT 06040

Sample Information

Matrix: WIPE
Location Code: F&OENVIR
Rush Request: 24 Hour
P.O.#: 20170858.A1E

Custody Information

Collected by: UA
Received by: DL
Analyzed by: see "By" below

Date

05/17/18

Time

21:51

Laboratory Data

SDG ID: GCA49586
Phoenix ID: CA49598

Project ID: NEW LONDON HIGH SCHOOL AUDITORIUM
Client ID: 05172018UA-12DUP

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Lead, Wipe per ft ²	2.20	0.50	ug/ft ²	1	05/17/18	MA	SW6010C
Total Metal Digestion	Completed				05/17/18	AG/BF	SW846
Sample Area	1		ft ²	1	05/17/18	UA	PEL

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

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Phyllis Shiller, Laboratory Director

May 21, 2018

Reviewed and Released by: Greg Lawrence, Assistant Lab Director



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Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

May 21, 2018

FOR: Attn: Carlos Texidor
Fuss & O'Neill EnviroScience, LLC
145 Hartford Road
Manchester, CT 06040

Sample Information

Matrix: WIPE
Location Code: F&OENVIR
Rush Request: 24 Hour
P.O.#: 20170858.A1E

Custody Information

Collected by: UA
Received by: DL
Analyzed by: see "By" below

Date

05/17/18

Time

21:51

Laboratory Data

SDG ID: GCA49586
Phoenix ID: CA49599

Project ID: NEW LONDON HIGH SCHOOL AUDITORIUM
Client ID: 05172018UA-13

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Lead, Wipe per ft ²	< 0.50	0.50	ug/ft ²	1	05/17/18	MA	SW6010C
Total Metal Digestion	Completed				05/17/18	AG/BF	SW846
Sample Area	1		ft ²	1	05/17/18	UA	PEL

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

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Phyllis Shiller, Laboratory Director

May 21, 2018

Reviewed and Released by: Greg Lawrence, Assistant Lab Director



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

May 21, 2018


QA/QC Data

SDG I.D.: GCA49586

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 431085 (ug), QC Sample No: CA49101 (CA49586, CA49587, CA49588, CA49589, CA49590, CA49591, CA49592, CA49593, CA49594, CA49595, CA49596, CA49597, CA49598, CA49599)													
<u>ICP Metals - Surface, Air Media</u>													
Lead	BRL	0.50				93.6	95.3	1.8				75 - 125	30

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference


Phyllis Shiller, Laboratory Director
May 21, 2018

Monday, May 21, 2018

Criteria: None

State: CT

Sample Criteria Exceedances Report

GCA49586 - FOENVIR

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL	Analysis Units
--------	-------	-----------------	----------	--------	----	----------	----	----------------

*** No Data to Display ***

Phoenix Laboratories does not assume responsibility for the data contained in this report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.



REASONABLE CONFIDENCE PROTOCOL LABORATORY ANALYSIS QA/QC CERTIFICATION FORM

Laboratory Name: Phoenix Environmental Labs, Inc.

Client: Fuss & O'Neill EnviroScience, LL

Project Location: NEW LONDON HIGH SCHOOL AUDIT **Project Number:**

Laboratory Sample ID(s): CA49586-CA49599

Sampling Date(s): 5/17/2018

List RCP Methods Used (e.g., 8260, 8270, et cetera) 6010

1	For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed, including the requirement to explain any criteria falling outside of acceptable guidelines, as specified in the CT DEP method-specific Reasonable Confidence Protocol documents?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1A	Were the method specified preservation and holding time requirements met?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1B	<u>VPH and EPH methods only:</u> Was the VPH or EPH method conducted without significant modifications (see section 11.3 of respective RCP methods)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
2	Were all samples received by the laboratory in a condition consistent with that described on the associated Chain-of-Custody document(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
3	Were samples received at an appropriate temperature (< 6 Degrees C)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
4	Were all QA/QC performance criteria specified in the CTDEP Reasonable Confidence Protocol documents achieved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5	a) Were reporting limits specified or referenced on the chain-of-custody? b) Were these reporting limits met?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6	For each analytical method referenced in this laboratory report package, were results reported for all constituents identified in the method-specific analyte lists presented in the Reasonable Confidence Protocol documents?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
7	Are project-specific matrix spikes and laboratory duplicates included in the data set?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Notes: For all questions to which the response was "No" (with the exception of question #7), additional information must be provided in an attached narrative. If the answer to question #1, #1A or 1B is "No", the data package does not meet the requirements for "Reasonable Confidence". This form may not be altered and all questions must be answered.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete.

Authorized Signature:

Position: Assistant Lab Director

Printed Name: Greg Lawrence

Date: Monday, May 21, 2018

Name of Laboratory Phoenix Environmental Labs, Inc.

This certification form is to be used for RCP methods only.



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823



RCP Certification Report

May 21, 2018

SDG I.D.: GCA49586

SDG Comments

Metals Analysis:

The client requested a shorter list of elements than the 6010 RCP list. Only Lead is reported as requested on the chain of custody.

Temperature Narration

The samples were received at 20C with cooling initiated.

(Note acceptance criteria for relevant matrices is above freezing up to 6°C)



FUSS & O'NEILL
EnviroScience, LLC

146 Hartford Road, Manchester, CT 06040

Fuss & O'Neill EnviroScience EMSL Customer No. ENVI54

www.fando.com

(860) 646-2469 Fax (860) 649-6883

SAMPLE LOG FOR LEAD WIPES

Sheet No. 1 of

Project Name: New London High School
Building: Auditorium

Project Number: 20170858 AIE
Project Manager: C. Texidor

Sample ID Number	Sample Location/Building	Surface		Result (ug/ft)	Lab Number
		Component	Sq. Ft		
05172018 Lit-01	NE Entry	Carpet/Floor	144		49586
-02	NE Center - behind Seat #16	Concrete Floor	144		49587
-03	SE Center behind Seat #6	Concrete Floor	144		49588
-04	SE - between seats 004	Concrete floor	144		49589
-05	Arm of Seat #3	Wood	36		49590
-06	Arm of Seat #8	Wood	36		49591
-07	Arm of Seats #13 & 15	Wood	36		49592
-08	SE Exit	Rubber Floor	144		49593
-09	Stage - North area	Wood floor	144		49594
-10	Stage - South area	Wood floor	144		49595
-11	Stage - West ^{Original} Production	Wood Floor	144		49596
-12	Upper Level - Lighting ^{Room}	Floor	144		49597

Analysis Method: EPA-SW-846-3050(MOD.)
Wipe Media ☒ ASTM ☐ Non ASTM

Turnaround Time 3 hours

Based on the turnaround time indicated above, analyses are due to Fuss & O'Neill EnviroScience on or before this date: 5-18-18
Please call the Fuss & O'Neill EnviroScience laboratory at 860-646-2469 if analyses will be late.

Fax Results To: Fuss & O'Neill EnviroScience Laboratory at 888-838-1160

Special Instructions: Results are due to Carlos Texidor by 1200PM
on 5-18-18

Samples Collected By: Ulrich August E Date: 5-17-18 Time: PM
Samples Rec'd/Sent By: 1 Date: 1 Time: 1
Samples Received By: D. J. Fair Date: 5-17-18 Time: 2151

Shipped To: ☐ EMSL (State) ☒ Other Phoenix Lab

Method of Shipment: ☐ Fed Ex. ☐ UPS Overnight ☐ UPS Ground ☒ Other Drop off



FUSS & O'NEILL
EnviroScience, LLC

Fuss & O'Neill EnviroScience EMSL Customer No. ENVI54

www.fando.com

146 Hartford Road, Manchester, CT 06040

(860) 646-2469 Fax (860) 649-6883

SAMPLE LOG FOR LEAD WIPES

Sheet No. 1 of

Project Name: New London High School
Building: Auditorium

Project Number: 20170858 AIE
Project Manager: C. Texidor

Sample ID Number	Sample Location/Building	Surface		Result (ug/ft)	Lab Number
		Component	^{inches} Sq. Ft.		
05172018YA-12 sup	Upper Level Projection Room	FLOOR	144		49598
↓ -13	Field Blank	N/A	—		49599

Analysis Method: EPA-SW-846-3050(MOD.)
Wipe Media ☒ ASTM ☐ Non ASTM

Turnaround Time 3 hours

Based on the turnaround time indicated above, analyses are due to Fuss & O'Neill EnviroScience on or before this date: 5-18-18
Please call the Fuss & O'Neill EnviroScience laboratory at 860-646-2469 if analyses will be late.

Fax Results To: Fuss & O'Neill EnviroScience Laboratory at 888-838-1160

Special Instructions: Results are due to Carla Texidor by 1200pm on 5-18-18

Samples Collected By: Ulrena Augusta Date: 5-17-18 Time: Pm
Samples Rec'd/Sent By: Date: Time:
Samples Received By: Dora Ayala Date: 5-17-18 Time: 2151

Shipped To: ☐ EMSL (State) ☒ Other Phoenix Lab

Method of Shipment: ☐ Fed Ex. ☐ UPS Overnight ☐ UPS Ground ☒ Other Drop off

APPENDIX E

Lead in Dust Determination Report Storage Area (Former Rifle Range) dated June 27, 2018

Lead in Dust Determination
New London High School
Storage Area Outside of Former Firing Range
New London, Connecticut

Antinozzi Associates
Bridgeport, Connecticut

June 27, 2018



Fuss & O'Neill EnviroScience, LLC
146 Hartford Road
Manchester, CT 06040



FUSS & O'NEILL
EnviroScience, LLC

June 27, 2018

Mr. Bill Mead, AIA
Antinozzi Associates
271 Fairfield Avenue
Bridgeport, CT 06604
Email: BMead@Antinozzi.com

**RE: Lead in Dust Determination
New London High School
Unassigned Spaces - Storage Areas Outside of Former Firing Range
490 Jefferson Avenue, New London, CT
Fuss & O'Neill EnviroScience Project No. 20170858.A1E**

Dear Mr. Mead:

Enclosed is the report for the lead characterization sampling and survey performed in the unassigned spaces - storage areas outside of the former firing range, team locker room, and switch gear room on the ground level of the existing New London High School located at 490 Jefferson Avenue in New London, Connecticut.

The survey was performed on May 23, 2018 by a Fuss & O'Neill EnviroScience, LLC licensed Lead/Risk Assessor inspector and included a screening for lead concentrations in settled dust on interior concrete floor(s), wooden desks, book shelves, file cabinets, and books.

The information summarized in this document is for the above-mentioned materials only. It does not include information on other hazardous materials that may exist on the property (such as asbestos, underground storage tanks, PCB-containing ballasts, and possible mercury hazards).

If you have any questions regarding the contents of this report, please do not hesitate to contact me at (860) 646-2469, ext. 5570. Thank you for this opportunity to have served your environmental needs.

Sincerely,

Carlos Texidor
Senior Project Manager

CT/kr

146 Hartford Road
Manchester, CT
06040
t 860.646.2469
800.286.2469
f 860.533.5143

www.fando.com

California
Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island

Table of Contents

Lead in Dust Determination New London High School – Storage Areas Outside Firing Range Antinozzi Associates

1	Introduction	1
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Appendices

End of Report

APPENDIX A -	FUSS & O'NEILL ENVIROSCIENCE CERTIFICATIONS
APPENDIX B -	FLOOR PLAN IDENTIFYING THE AREAS INSPECTED
APPENDIX C -	LEAD PAINT TESTING PROCEDURES AND EQUIPMENT
APPENDIX D -	LEAD DUST WIPE LABORATORY REPORT AND CHAIN OF CUSTODY FORM

1 Introduction

Fuss & O'Neill EnviroScience, LLC (EnviroScience) was retained to perform a dust characterization for lead of the storage space outside of the former firing range located in the ground level of the existing New London High School at 490 Jefferson Avenue, New London, Connecticut. EnviroScience's Environmental Analyst Ulkens Auguste, a State of Connecticut Licensed Lead Paint Inspector-Risk Assessor, performed the work on May 23, 2018. Please refer to *Appendix A* for a copy of EnviroScience's certifications.

This work was performed in response to the high levels of lead in dust in the former firing range, and to determine if lead was present in settled dust potentially related to the former firing range. The areas sampled are the unassigned spaces which are being used as storage, and the team locker room areas adjacent to the former firing range. Characterization sampling of settled dust and residue within the switch-gear space was also conducted. A copy of the marked-up floor plan depicting characterization sample locations is attached as *Appendix B*.

The work was completed in accordance with EnviroScience's written proposal dated October 4, 2017.

2 Dust Characterization Survey for Lead

A characterization of settled dust, associated with the former firing range activities was performed in auditorium on the first floor level.

For the purpose of this work, settled dust on various interior floor(s) desks, book shelves, file cabinets, and books representing the exposed surfaces within the unassigned spaces, team locker room and the switch gear room were tested. Settled dusts within the spaces outside of the former firing range were tested. The purpose of this work was to identify potential contamination of surfaces within the unassigned spaces, team locker room, and switch gear room due to high levels of settled dust and high levels of lead in soil in the former firing range which is located under the auditorium. There are HVAC duct systems that service the auditorium and pass through and are located within the former firing range.

2.1 Results

The sampling indicated consistent levels of lead in dust the majority of which are below the established EPA and State of Connecticut residential regulatory limits for lead in dust of 40 micrograms per square foot (**for reference and comparison only; the High School is not subject to these standards.** The auditorium is located at a High School and is not subject to the CT Lead Poisoning Prevention Program or the EPA Renovate, Repair and Painting (RRP) lead safe work practices. Lead dust was found on two of the auditorium chair armrests. Not all chairs were sampled.

Table 1
Settled Dust and Residue Wipe Testing Results

Sample ID	Substrate	Location	Result (µg/ft²)
05232018UA-01	Metal	Northeast Mechanical Room/Fan Room	13

Sample ID	Substrate	Location	Result (µg/ft²)
05232018UA-02	Concrete	Northeast Mechanical Room/Fan Room next to Filter Storage Area	5500
05232018UA-03	Concrete	Northeast Mechanical Room/Fan Room by the 4 th Column – West	1500
05232018UA-04	Book	Northeast Mechanical Room by Entry on Bookshelf	30
05232018UA-05	Plastic	Northeast Mechanical Room – Black Chair next to Duct	15
05232018UA-06	Concrete	Southeast Storage Area next to Exit Double Doors	120
05232018UA-07	Wood	Southeast Storage Area – Wooden Storage Cabinet	27
05232018UA-08	Concrete	Southwest Storage Area	68
05232018UA-09	Plastic	Southwest Storage Area – Tan & Orange Chair	< 10
05232018UA-10	Concrete	West Storage Area	710
05232018UA-11	Concrete	Outside of Entry to Shooting Range	140
05232018UA-12	Wood	Top of Wooden Cabinet outside of Shooting Range	120
05232018UA-13	Metal	Southeast Storage Area – Black TV Stand	< 10
05232018UA-14	Cardboard	South/Southeast Storage Space – Storage Boxes	< 10
05232018UA-15	Book	South/Southeast Storage Area on Bookshelf	< 10
05232018UA-16	Wood	Southeast Storage Area	< 10
05232018UA-17	Metal	Southwest Storage Area – Green & Yellow Seats	490
05232018UA-18	Plastic	Southwest Storage Area – TV	< 10
05232018UA-19	Plastic	Southwest Storage Area	< 10
05232018UA-20	Gray flood lighting-Metal	Southwest Storage Area	15
05232018UA-20DUP	Gray flood lighting-Metal	Southwest Storage Area	< 10
05232018UA-21	Black bags - Plastic	Southwest Storage Area	< 10
05232018UA-22	Gym equipment seat - Plastic	Southwest Storage Area	180
05232018UA-23	Concrete	Southwest Storage Area – Raised Concrete Floor	1100
05232018UA-24	Wood	Northeast Mechanical Room/Fan Room	200
05232018UA-25	Wood	Northeast Mechanical Room/Fan Room	16
05232018UA-26	Cardboard	Northeast Mechanical Room/Fan Room	140

Sample ID	Substrate	Location	Result (µg/ft²)
05232018UA-27	Plastic	Northeast Mechanical Room/Fan Room	92
05232018UA-28	Wood	Northeast Mechanical Room/Fan Room	77
05232018UA-29	Concrete	Open Area outside of Training Room – North	55
05232018UA-30	Concrete	Open Area Outside of Training Room – Southwest Entry	< 10
05232018UA-31	Concrete	Open Area outside of Training Room – East Entry	21
05232018UA-32	Concrete	Open Area outside of Training Room – Center	82
05232018UA-33	Wood	Open Area outside of Training Room	< 10
05232018UA-34	Gray-student desk-Wood/Metal	Open Area outside of Training Room	< 10
05232018UA-35	Leather	Open Area outside of Training Room	< 10
05232018UA-36	Wood	Open Area outside of Training Room	< 10
05232018UA-37	Wood	Open Area outside of Training Room	120
05232018UA-38	Metal	Open Area outside of Training Room – South	< 10
05232018UA-39	Wood	Open Area outside of Training Room – West	35
05232018UA-40	Concrete	Training Room	< 10
05232018UA-40DUP	Concrete	Training Room	< 10
05232018UA-41	Metal	Training Room	< 10
05232018UA-42	Metal	Training Room	< 10
05232018UA-43	Wood	Training Room next to Locker #6	< 10
05232018UA-44	Wood	Training Room next to Locker #69	< 10
05232018UA-45	Wood	Team Jersey Storage Room	< 10
05232018UA-46	Metal	Team Jersey Storage Room	76
05232018UA-47	Concrete	Team Jersey Locker Room	46
05232018UA-48	Concrete	Electrical/Switch Gear Room	620
05232018UA-49	Field Blank		< 10 µg/wipe
05232018UA-50	Field Blank		< 10 µg/wipe

Bold denotes wipe analytical results above EPA and CT regulatory threshold of 40 µg/ ft² for Floors (carpeted and uncarpeted) **(for reference and comparison only; the High School is not subject to these standards); Meeting held on June 15, 2018 with Mayor, Board of Education, and Owner's representative has set the clearance standard at 40 µg/ft².**

Lead in Dust by Flame AAS (SW 846 3050B/7000B)

Collection of the wipe samples were performed in accordance with the protocol outlined in the attached document: Testing Procedures and Equipment (*Appendix C*). Field QA/QC sampling was comprised of duplicate wipe sample and a field blank submitted with the primary characterization wipe samples.

Please see *Appendix D* for the lead wipe laboratory report and chain of custody form.

2.2 Conclusion

The sampling of dust in representative locations in the storage areas adjacent to the former firing range indicated that in nineteen samples only; levels of lead are present above the established Federal Lead and State of Connecticut Standards for residential properties threshold of 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in settled dust on horizontal surfaces within the storage space. These standards are being used for comparison purposes only; the High School is not obligated to these standards. However, it is recommended this standard should be used for decontamination purposes, and confirmed in a meeting held on June 15, 2018 that the clearance samples will need to be below 40 micrograms per square foot.

Based on the reported concentrations of lead within the wipe samples collected from the unassigned areas adjacent to the former firing range, they are to be properly decontaminated, inspected, and sampled to confirm the completion of the decontamination. The unassigned areas, switch gear room, and team locker room should be secured and no access should be allowed to any staff members or students. All ventilation (HVAC) should be locked out and tagged out in those sections of the building. Proper personal protection respirators and proactive clothing shall be worn by anyone entering the space.

Report prepared by and reviewed by.



Carlos Texidor
Senior Project Manager



Robert L. May Jr
President

Appendix A

Fuss & O'Neill EnviroScience License and Certification

Dear ULKENS AUGUSTE,

Attached you will find your validated certificate for the coming year. Should you have any questions about your certificate renewal, please do not hesitate to write or call:

Department of Public Health
P.O. Box 340308
M.S.#12MQA
Hartford, CT 06134-0308
(860) 509-7603
opl.c.dph@ct.gov
www.ct.gov/dph/license

Sincerely,

RAUL PINO, MD, MPH, COMMISSIONER
DEPARTMENT OF PUBLIC HEALTH

EMPLOYER'S COPY
STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

NAME
ULKENS AUGUSTE

CERTIFICATE NO.
002234

CURRENT THROUGH
09/30/18

PROFESSION
LEAD INSPECTOR RISK ASSESSOR

SIGNATURE

COMMISSIONER
Raul Pino

INSTRUCTIONS:

1. Detach and sign each of the cards on this form
2. Display the large card in a prominent place in your office or place of business.
3. The wallet card is for you to carry on your person. If you do not wish to carry the wallet card, place it in a secure place.
4. The employer's copy is for persons who must demonstrate current licensure/certification in order to retain employment or privileges. The employer's card is to be presented to the employer and kept by them as a part of your personnel file. Only one copy of this card can be supplied to you.

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT
THE INDIVIDUAL NAMED BELOW IS CERTIFIED
BY THIS DEPARTMENT AS A
LEAD INSPECTOR RISK ASSESSOR

NAME
ULKENS AUGUSTE

CERTIFICATE NO.
002234

CURRENT THROUGH
09/30/18

VALIDATION NO.
03-627251

SIGNATURE

COMMISSIONER
Raul Pino

WALLET CARD
STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

NAME
ULKENS AUGUSTE

CERTIFICATE NO.
002234

CURRENT THROUGH
09/30/18

PROFESSION
LEAD INSPECTOR RISK ASSESSOR

SIGNATURE

COMMISSIONER
Raul Pino

CERT#: L-600-927

**CHEMSCOPE TRAINING DIVISION
LEAD INSPECTOR/RISK ASSESSOR REFRESHER
8 HOUR TRAINING CERTIFICATE**

Ulkens Augustine

146 Hartford Road, Manchester CT


Has attended an 8 hour course on the subject discipline on
2/5/2018 & 2/6/2018 and has passed a written examination.

The above individual has successfully completed the above training course approved in accordance with the Department of Public Health Standards established pursuant to Section 20-477 of the Connecticut General Statutes.

Course topics include all required topics of State of Connecticut DPH and EPA.

Under civil and criminal penalties of law for the making or submission of false or fraudulent statements or representations (U.S.C. 1001 and 15 U.S.C. 2615), I certify that this training complies with all applicable requirements of Title IV of TSCA, 40 CFR part 745 and any other applicable Federal, State or local requirements.

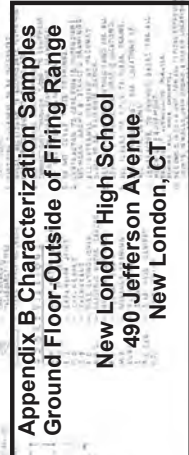
**Examination Score: 80%
Exam Date: 2/6/2018
Expiration Date: 2/6/2019**


Ronald D. Arena
Training Manager

Chem Scope, Inc.
15 Moulthrop Street
North Haven CT 06473
Phone: 203.865.5605
www.chem-scope.com

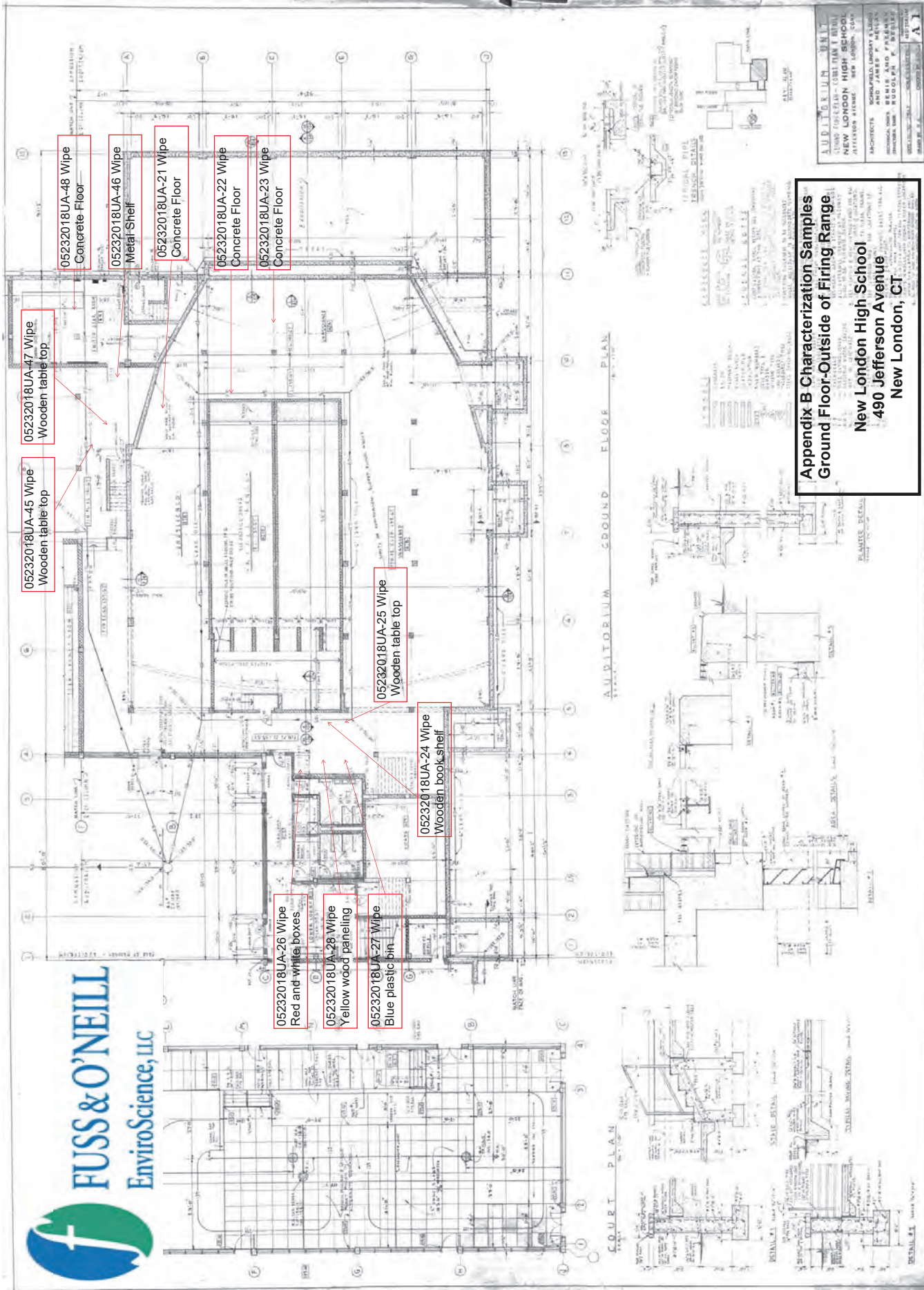
Appendix B

Floor Plan Identifying the Areas Sampled



**Appendix B Characterization Samples
Ground Floor-Outside of Firing Range**
New London High School
490 Jefferson Avenue
New London, CT

AUDITORIUM UNIT
UNIVERSITY OF CONNECTICUT - 08811M T BRL
NEW LONDON HIGH SCHOOL
JEFFERSON AVENUE NEW LONDON, CT
ARCHITECTS: SCHWABED LINDSEY & SONS
ENGINEERS: BEHRE AND FREEMAN
PROJECT MANAGER: ROBERT J. LEE
DATE: 11/11/11
DRAWN BY: J. P. JONES





FUSS & O'NEILL
EnviroScience, LLC

**Appendix B Characterization
Samples**
**Ground Floor-Outside of Firing
Range**
New London High School
490 Jefferson Avenue
New London, CT

NEW LONDON HIGH SCHOOL
490 JEFFERSON AVENUE
NEW LONDON, CT 06460
ARCHITECTS: MICHAEL BROWN AND ASSOCIATES
MICHAEL BROWN AND ASSOCIATES
1000 WEST STREET, SUITE 200
NEW LONDON, CT 06460
PHONE: 860.441.1111
FAX: 860.441.1112
WWW.MBA-CT.COM

05232018UA-30 Wipe
Concrete floor

05232018UA-39 Wipe
Brown desk top

05232018UA-33, 34,
35 Wipe-wooden chair,
gray desk, read leather
chair

05232018UA-32 Wipe
Concrete Floor

05232018UA-42 Wipe
Metal locker door #2

05232018UA-29 Wipe
Wooden table top

05232018UA-38 Wipe
Gray file cabinet

05232018UA-37 Wipe
Book case

05232018UA-31 Wipe
Concrete floor

05232018UA-40 Wipe
Concrete Floor

05232018UA-44 Wipe
Wooden bench

05232018UA-41 Wipe
Metal locker #68

05232018UA-43 Wipe
Wooden bench

Appendix C

Lead Paint Testing Procedures and Equipment

STANDARD OPERATING PROCEDURES LEAD-BASED PAINT LIMITED SCREENINGS

TESTING PROCEDURES AND EQUIPMENT

The U. S. Department of Housing and Urban Development (HUD) "Guidelines for the Evaluation and Control of Lead Hazards in Housing, September 1997," were consulted for this lead paint screening. HUD has been the agency at the federal level with responsibility for the establishment of national lead-based paint standards for testing and abatement. The HUD document will be referenced as the Guidelines in this document. The HUD Guidelines are specific to child occupied dwelling units or target housing and are not wholly applicable to limited screenings. Additionally, most New England States have regulations and standards with regard to lead paint testing and abatement in child occupied facilities. EnviroScience shall consult these regulations and standards prior to beginning testing. Some states have reporting requirements if certain threshold values for lead paint are found and certain conditions exist. EnviroScience reports any specific testing results required by State laws as licensed inspectors and consultants in these circumstances.

This lead evaluation was a Lead Based Paint Limited Screening. Both the proposed scope of work and the final report will note this type of evaluation was done. A Lead Paint Limited Screening is performed in order to determine through representative testing the lead paint history of a property. However, conclusions about untested areas cannot be reliably determined based on the limited testing that was done. Comprehensive inspections involve testing of representative components in each and every room of a building. A Lead Based Paint Limited Screening is conducted in representative locations and not necessarily every room. The intent is to collect a sufficient number of readings using field instrumentation to characterize a given component or surface. Representative components are classified as testing combinations. The age and use of the functional space, component type, and substrate type are used to characterize a testing combination for purposes of a Lead Based Paint Limited Screening. Considering age of the structure inspectors determine original dates of construction and any major renovations to the original building. Interior spaces where major renovation has occurred are also treated as separate spaces. A functional space is a room or group of rooms used for similar purposes where painting is presumed to be uniform.

Inspectors perform Lead Based Paint Limited Screening on representative components ensuring randomization in the selection of components. EnviroScience utilizes a protocol of a minimum of three (3) rooms with similar building components and surfaces are comprehensively tested similar to inspections for HUD compliance or state regulated inspections. (For example, living room, kitchen, and a bedroom may be comprehensively tested in a 6-room apartment). In this protocol specific unique components are tested in any other locations in the dwelling. Inspectors shall record readings utilizing portable field instrumentation.

Conclusions in a Lead Based Paint Limited Screening are made based on consistent findings in the limited number of readings collected for a given testing combination. Inspectors conduct more readings if trends or similar findings are not found during such a limited screening process. In reporting findings and use in cost estimating, EnviroScience shall use limited screening information to extrapolate (or presume) that the untested areas have similar paint history as to those areas where limited screenings were conducted. (For example if in the three locations tested, all window sashes

contained threshold values of lead paint above HUD or other State regulatory levels, then EnviroScience would detail in the report that all such components in the dwelling should be presumed to contain lead paint or recommend them to be tested further).

Lead-based paint surfaces and components were identified by utilizing on-site x-ray fluorescence (XRF) instruments. Fuss & O'Neill EnviroScience, LLC owns and maintains XRFs for testing for lead-based paint. These instruments are four Radiation Monitoring Devices LPA-1 (RMD). Each of these instruments is operated in accordance with state and federal and manufacturer standards on the use of the instruments. State and federal protocols provide, with the exception of wall surfaces, one reading with the instrument on a representative component in each room, i.e., baseboard, chair rail, etc., as sufficient to establish the lead paint classification of all the representatives of that component type in a room. In the case of walls, because of the large spacial areas involved and the variability in lead content in paint over such large areas, the federal and state governments want a reading on each wall surface in a room. Therefore, representative testing is not permitted for walls.

The federal government has developed Performance Characteristic Sheets (PCS) for each of the types of instruments cited above. Each instrument must be calibrated in accordance with these PCSs on a 1.0-milligram lead standard. Each of EnviroScience's instruments has one of these standards assigned to it. Some of the standards were purchased directly from the government and the others from the manufacturers of the instruments.

Each of the instruments has federal government-determined positive and negative ranges for the definition of lead-based paint. XRF results are classified using either the threshold or the inconclusive range. For the threshold, results are classified as positive if they are greater than or equal to the threshold and negative if they are less than the threshold. There is no inconclusive classification when using the threshold. For the inconclusive range, results are classified as positive if they are greater than the upper limit of the inconclusive range and negative if they are less than the lower limit of the inconclusive range. The ranges for each of the types of instruments and their various operating modes are as follows:

Radiation Monitoring Device LPA Analyzer 1

30-Second Standard Mode Reading Description	Substrate	Threshold (mg/cm²)
Results corrected for substrate bias on metal substrate only.	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	0.9
	Plaster	1.0
	Wood	1.0

Quick Mode Reading Description	Substrate	Threshold (mg/cm²)	Inconclusive Range (mg/cm²)
Readings not corrected for substrate bias on any substrate.	Brick	1.0	None
	Concrete	1.0	None
	Drywall	1.0	None
	Metal	1.0	None
	Plaster	1.0	None
	Wood	1.0	None

If a reading falls in the inconclusive range, either the lead inspector should be authorized by the client to take a paint chip sample to determine whether the final result is either positive or negative after laboratory analysis, or the result can be categorized as suspect positive and treated accordingly. If it is not confirmed with laboratory analysis, it cannot be assumed to be negative for toxic levels of lead. If it is assumed to be positive, it can either be abated as a positive if the condition of the surface and/or location of the component requires this treatment under Connecticut and/or HUD regulations, or it can be managed in place as a positive component in accordance with the requirements of Connecticut and HUD regulations.

Prior to the start of any testing, a sketch of the building is drawn, and side designations are given to help identify exactly where readings were taken. Drawings depicting the room-numbering scheme are located on the cover page(s) for the building(s) inspected. Each side of the building was labeled A, B, C, or D. The wall "A" side of the unit is generally the side of primary entrance into a dwelling, and this room is always Room 1. Areas in the units include rooms, hallways, and closets. Areas are numbered in a clockwise fashion as building construction allows. This allows the inspector to indicate which substrate surface was tested. The condition of the surface is described by a check mark in the appropriate column, under the heading "condition of surface" on the testing form.

When more than one surface type was present on a side, the component tested was indicated with a number. If two windows were present on a building side, they were numbered left to right. Closet shelves and shelf supports were numbered top to bottom.

It is understood that the room layouts presented in the report are in conformance with the conditions that exist at the time the testing is performed. EnviroScience avoids labeling a room solely by its current functional use (i.e., living room, bedroom, etc.) since this use can change over time. Similarly, room layouts can change dramatically as dwellings are renovated and additions are built, incorporating existing rooms, or existing interior walls are moved or eliminated altogether.

Appendix D

Lead Dust Wipe Laboratory Report and Chain of Custody Form



FUSS & O'NEILL
EnviroScience, LLC

www.fando.com

146 Hartford Road, Manchester, CT 06040

(860) 646-2469 Fax (860) 649-6883

061809574

SAMPLE LOG FOR LEAD WIPES

Sheet No. 1 of 5

Project Name: New London High School
Building: Basement Area / Below Auditorium

Project Number: 20170858.A1E
Project Manager: C. Texidor

Sample ID Number	Sample Location/Building	Surface		Result (ug/ft)	Lab Number
		Component	Sq. Ft		
05232018MA-01	NE Mechanical Room	Black file cabinet	144		
02	NE Mech. Room / Fan Room	Floor	144		
03	NE Mech Room / Fan Room	Floor	144		
04	NE Mech Room - by Entry on book shelf	BOOK	36		
05	NE Mech Room - Black Chair Next to duct	Chair - Plastic	144		
06	SE Storage area Next to exit double doors	Floor	144		
07	SE Storage area - Wooden Storage Cabinet	Wooden Cabinet	144		
08	SW Storage area	Floor	144		
09	SW Storage area	Chair	144		
10	WEST Storage area	Floor	144		
11	Outside of Entry to shooting range	Floor	144		
12	Top of Wooded cabinet outside of shooting range	Wood	144		

Analysis Method: EPA-SW-846-3050(MOD.)
Wipe Media ☒ ASTM ☐ Non ASTM

Turnaround Time 240 days

Based on the turnaround time indicated above, analyses are due to Fuss & O'Neill EnviroScience on or before this date.
Please call the Fuss & O'Neill EnviroScience laboratory at 860-646-2469 if analyses will be late.

Fax Results To: Fuss & O'Neill EnviroScience Laboratory at 888-838-1160

Special Instructions: _____

Samples Collected By: Ulkens Auguste Date: 5/23/2018 Time: Am - Pm
Samples Rec'd/Sent By: / Date: / Time: /
Samples Received By: UNIQUE MCKAY Date: 5/24/18 Time: 9:36 AM

Shipped To: ☒ EMSL (State) NY ☐ Other _____Method of Shipment: ☒ Fed Ex. ☐ UPS Overnight ☐ UPS Ground ☐ Other _____

PB-1/2/3/4/5/6/7/8/9/10/11/12/13/14/15/16/17/18/19/20/21/22/23/24/25/26/27/28/29/30/31/32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47/48/49/50/51/52/53/54/55/56/57/58/59/60/61/62/63/64/65/66/67/68/69/70/71/72/73/74/75/76/77/78/79/80/81/82/83/84/85/86/87/88/89/90/91/92/93/94/95/96/97/98/99/100/101/102/103/104/105/106/107/108/109/110/111/112/113/114/115/116/117/118/119/120/121/122/123/124/125/126/127/128/129/130/131/132/133/134/135/136/137/138/139/140/141/142/143/144/145/146/147/148/149/150/151/152/153/154/155/156/157/158/159/160/161/162/163/164/165/166/167/168/169/170/171/172/173/174/175/176/177/178/179/180/181/182/183/184/185/186/187/188/189/190/191/192/193/194/195/196/197/198/199/200/201/202/203/204/205/206/207/208/209/210/211/212/213/214/215/216/217/218/219/220/221/222/223/224/225/226/227/228/229/230/231/232/233/234/235/236/237/238/239/240/241/242/243/244/245/246/247/248/249/250/251/252/253/254/255/256/257/258/259/260/261/262/263/264/265/266/267/268/269/270/271/272/273/274/275/276/277/278/279/280/281/282/283/284/285/286/287/288/289/290/291/292/293/294/295/296/297/298/299/300/301/302/303/304/305/306/307/308/309/310/311/312/313/314/315/316/317/318/319/320/321/322/323/324/325/326/327/328/329/330/331/332/333/334/335/336/337/338/339/340/341/342/343/344/345/346/347/348/349/350/351/352/353/354/355/356/357/358/359/360/361/362/363/364/365/366/367/368/369/370/371/372/373/374/375/376/377/378/379/380/381/382/383/384/385/386/387/388/389/390/391/392/393/394/395/396/397/398/399/400/401/402/403/404/405/406/407/408/409/410/411/412/413/414/415/416/417/418/419/420/421/422/423/424/425/426/427/428/429/430/431/432/433/434/435/436/437/438/439/440/441/442/443/444/445/446/447/448/449/450/451/452/453/454/455/456/457/458/459/460/461/462/463/464/465/466/467/468/469/470/471/472/473/474/475/476/477/478/479/480/481/482/483/484/485/486/487/488/489/490/491/492/493/494/495/496/497/498/499/500/501/502/503/504/505/506/507/508/509/510/511/512/513/514/515/516/517/518/519/520/521/522/523/524/525/526/527/528/529/530/531/532/533/534/535/536/537/538/539/540/541/542/543/544/545/546/547/548/549/550/551/552/553/554/555/556/557/558/559/560/561/562/563/564/565/566/567/568/569/570/571/572/573/574/575/576/577/578/579/580/581/582/583/584/585/586/587/588/589/590/591/592/593/594/595/596/597/598/599/600/601/602/603/604/605/606/607/608/609/610/611/612/613/614/615/616/617/618/619/620/621/622/623/624/625/626/627/628/629/630/631/632/633/634/635/636/637/638/639/640/641/642/643/644/645/646/647/648/649/650/651/652/653/654/655/656/657/658/659/660/661/662/663/664/665/666/667/668/669/670/671/672/673/674/675/676/677/678/679/680/681/682/683/684/685/686/687/688/689/690/691/692/693/694/695/696/697/698/699/700/701/702/703/704/705/706/707/708/709/710/711/712/713/714/715/716/717/718/719/720/721/722/723/724/725/726/727/728/729/730/731/732/733/734/735/736/737/738/739/740/741/742/743/744/745/746/747/748/749/750/751/752/753/754/755/756/757/758/759/760/761/762/763/764/765/766/767/768/769/770/771/772/773/774/775/776/777/778/779/780/781/782/783/784/785/786/787/788/789/790/791/792/793/794/795/796/797/798/799/800/801/802/803/804/805/806/807/808/809/810/811/812/813/814/815/816/817/818/819/820/821/822/823/824/825/826/827/828/829/830/831/832/833/834/835/836/837/838/839/840/841/842/843/844/845/846/847/848/849/850/851/852/853/854/855/856/857/858/859/860/861/862/863/864/865/866/867/868/869/870/871/872/873/874/875/876/877/878/879/880/881/882/883/884/885/886/887/888/889/890/891/892/893/894/895/896/897/898/899/900/901/902/903/904/905/906/907/908/909/910/911/912/913/914/915/916/917/918/919/920/921/922/923/924/925/926/927/928/929/930/931/932/933/934/935/936/937/938/939/940/941/942/943/944/945/946/947/948/949/950/951/952/953/954/955/956/957/958/959/960/961/962/963/964/965/966/967/968/969/970/971/972/973/974/975/976/977/978/979/980/981/982/983/984/985/986/987/988/989/990/991/992/993/994/995/996/997/998/999/1000/1001/1002/1003/1004/1005/1006/1007/1008/1009/1010/1011/1012/1013/1014/1015/1016/1017/1018/1019/1020/1021/1022/1023/1024/1025/1026/1027/1028/1029/1030/1031/1032/1033/1034/1035/1036/1037/1038/1039/1040/1041/1042/1043/1044/1045/1046/1047/1048/1049/1050/1051/1052/1053/1054/1055/1056/1057/1058/1059/1060/1061/1062/1063/1064/1065/1066/1067/1068/1069/1070/1071/1072/1073/1074/1075/1076/1077/1078/1079/1080/1081/1082/1083/1084/1085/1086/1087/1088/1089/1090/1091/1092/1093/1094/1095/1096/1097/1098/1099/1100/1101/1102/1103/1104/1105/1106/1107/1108/1109/1110/1111/1112/1113/1114/1115/1116/1117/1118/1119/1120/1121/1122/1123/1124/1125/1126/1127/1128/1129/1130/1131/1132/1133/1134/1135/1136/1137/1138/1139/1140/1141/1142/1143/1144/1145/1146/1147/1148/1149/1150/1151/1152/1153/1154/1155/1156/1157/1158/1159/1160/1161/1162/1163/1164/1165/1166/1167/1168/1169/1170/1171/1172/1173/1174/1175/1176/1177/1178/1179/1180/1181/1182/1183/1184/1185/1186/1187/1188/1189/1190/1191/1192/1193/1194/1195/1196/1197/1198/1199/1200/1201/1202/1203/1204/1205/1206/1207/1208/1209/1210/1211/1212/1213/1214/1215/1216/1217/1218/1219/1220/1221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SAMPLE LOG FOR LEAD WIPES

Sheet No. 2 of 5

Project Name: New London High School
Building: BASMENT / BEHIND Auditorium

Project Number: 20170858.A1E
Project Manager: C. Texidor

Sample ID Number	Sample Location/Building	Surface		Result (ug/ft)	Lab Number
		Component	Sq. Ft		
0523201844-13	SE Storage area black TV stand	metal	144		
14	South/South East Storage Space - Storage boxes	Cardboard box	144		
15	South/South East Storage area - on book shelf	BOOK	36		
16	SW Storage area	Brain table	144		
17	SW Storage area green & yellow seats	Seat metal	144		
18	SW Storage area TV	TV - Plastic	36		
19	SW Storage area	Blue recycling paper bin	144		
20	SW Storage area	gray floor lights	144		
21	SW Storage area	gray floor lights	144		
22	SW Storage area	black bags	144		
23	SW Storage area foamed concrete floor	Gym equipment Seat	144		
23	foamed concrete floor	Concrete floor	144		

Analysis Method: EPA-SW-846-3050(MOD.)
Wipe Media ☒ ASTM ☐ Non ASTM

Turnaround Time 3 days

Based on the turnaround time indicated above, analyses are due to Fuss & O'Neill EnviroScience on or before this date: 5/28/18 WM
Please call the Fuss & O'Neill EnviroScience laboratory at 860-646-2469 if analyses will be late.

Fax Results To: Fuss & O'Neill EnviroScience Laboratory at 888-838-1160

Special Instructions: _____

Samples Collected By: Ulkens August Date: 5/23/2018 Time: Am - Pm
Samples Rec'd/Sent By: / Date: / Time: /
Samples Received By: UNIQUE MCKOY Date: 5/24/18 Time: 9:36AM

Shipped To: ☒ EMSL (State) NY ☐ Other _____Method of Shipment: ☒ Fed Ex. ☐ UPS Overnight ☐ UPS Ground ☐ Other _____

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SAMPLE LOG FOR LEAD WIPES

Sheet No. 2 of 5

Project Name: New London High School
Building: BASEMENT / BEHN Auditorium

Project Number: 20170858.A1E
Project Manager: C. Texidor

Sample ID Number	Sample Location/Building	Surface		Result (ug/ft)	Lab Number
		Component	Sq. Ft		
0523201811A-24	NE Mech Room/Fan Room	Wooden Book Shelf-top	144		
25	NE Mech Room/Fan Room	Brown wooden table-top	144		
26	NE Mech Room/Fan Room	Red & white Boxes	144		
27	NE Mech Room/Fan Room	Blue plastic bin	144		
28	NE Mech Room/Fan Room	Yellow wood paneling	144		
29	Open area outside of Training Room - North	Floor	144		
30	↓ - SW Entry	Floor	144		
31	↓ - East Entry	Floor	144		
32	Open area outside of Training Room - Center	Floor	144		
33	Open area outside of Training Room	Wooden chair - Seat	144		
34	↓	gray student desk - top & side	144		
35	↓	Red leather chair - Arm	36		

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2018 MAY 24 A 9:36

Analysis Method: EPA-SW-846-3050(MOD.)
Wipe Media ☒ ASTM ☐ Non ASTM

Turnaround Time 3 days (W)

Based on the turnaround time indicated above, analyses are due to Fuss & O'Neill EnviroScience on or before this date: 5/28/18.
Please call the Fuss & O'Neill EnviroScience laboratory at 860-646-2469 if analyses will be late.

Fax Results To: Fuss & O'Neill EnviroScience Laboratory at 888-838-1160

Special Instructions: _____

Samples Collected By: Ulkens Auguste Date: 5/23/2018 Time: _____
Samples Rec'd/Sent By: _____ Date: _____ Time: _____
Samples Received By: UNIQUE UCKA Date: 5/24/18 Time: 9:36 AM

Shipped To: ☒ EMSL (State) NY ☐ Other _____Method of Shipment: ☒ Fed Ex ☐ UPS Overnight ☐ UPS Ground ☐ Other _____

pb A. J. J. 5/29/18



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SAMPLE LOG FOR LEAD WIPES

Sheet No. 4 of 5

Project Name: New London High School
Building: Barnet / Auditorium below

Project Number: 20170858.A1E
Project Manager: C. Texidor

Sample ID Number	Sample Location/Building	Surface		Result (ug/ft)	Lab Number
		Component	Sq. Ft		
05232018 UA-36	Open area outside of training room	gray table top	144		
37	Open area outside of training room	left book case @ bottom book shelf	144		
38	Open area outside of Training Room - South	gray file cabinet - Top	144		
39	Open area outside of Training Room - WEST	Broken desk - Top	144		
40	Training Room	floor	144		
40up	Training Room	metal locker door #100R	144		
41	Training Room	metal locker door # 63	144		
42	↓	metal locker door # 2	144		
43	Training Room	wooden bench	144		
44	Training Room	wooden bench	144		
45	Team Jersey Storage Room	wooden shelf	144		
46	↓	metal shelf	144		

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Analysis Method: EPA-SW-846-3050(MOD.)
Wipe Media ☒ ASTM ☐ Non ASTM

Turnaround Time 3 days

Based on the turnaround time indicated above, analyses are due to Fuss & O'Neill EnviroScience on or before this date: 5/28/18
Please call the Fuss & O'Neill EnviroScience laboratory at 860-646-2469 if analyses will be late.

Fax Results To: Fuss & O'Neill EnviroScience Laboratory at 888-838-1160

Special Instructions: _____

Samples Collected By: Ulkens Auguste Date: 5/23/2018 Time: _____
Samples Rec'd/Sent By: / Date: / Time: /
Samples Received By: UNIQUE NCKA Date: 5/24/18 Time: 9:36 AM

Shipped To: ☒ EMSL (State) NY ☐ Other _____Method of Shipment: ☒ Fed Ex. ☐ UPS Overnight ☐ UPS Ground ☐ Other _____

PB- A. J. [Signature] 5/29/18



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SAMPLE LOG FOR LEAD WIPES

Sheet No. 5 of 5

Project Name: New London High School
Building: Basement/Below Auditorium

Project Number: 20170858.A1E
Project Manager: C. Texidor

Sample ID Number	Sample Location/Building	Surface		Result (ug/ft)	Lab Number
		Component	Sq. Ft		
05232018UA-47	Team Jersey Locker Room	Floor	144		
48	Electrical / Switch gear room	Floor	144		
49	Field blank	N/A	—		
50	Field blank	N/A	—		

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Analysis Method: EPA-SW-846-3050(MOD.)
Wipe Media ☒ ASTM ☐ Non ASTM

Turnaround Time 3 days

Based on the turnaround time indicated above, analyses are due to Fuss & O'Neill EnviroScience on or before this date: 5/28/18
Please call the Fuss & O'Neill EnviroScience laboratory at 860-646-2469 if analyses will be late.

Fax Results To: Fuss & O'Neill EnviroScience Laboratory at 888-838-1160

Special Instructions: _____

Samples Collected By: Ulkens Auguste Date: 5/23/2018 Time: Am - Pm
Samples Rec'd/Sent By: 1 Date: 1 Time: 1
Samples Received By: UNIQUE MCKOY Date: 5/24/18 Time: 9:37 AM

Shipped To: ☒ EMSL (State) NY ☐ Other _____Method of Shipment: ☒ Fed Ex. ☐ UPS Overnight ☐ UPS Ground ☐ Other _____


EMSL Analytical, Inc.

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EMSL Order: 061809574

CustomerID: ENV154

CustomerPO:

ProjectID:

Attn: **Carlos Texidor**
Fuss & O'Neill EnviroScience, LLC
146 Hartford Road
Manchester, CT 06040

Phone: (860) 646-2469
 Fax: (888) 838-1160
 Received: 05/24/18 9:36 AM
 Collected: 5/23/2018

 Project: **New London High School, BASEMENT AREA/ BELOW AUDITORIUM, PROJECT # 20170858.A1E**
Test Report: Lead in Dust by Flame AAS (SW 846 3051A/7000B)*

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Area Sampled</i>	<i>Lead Concentration</i>
05232018UA-01 Site: NE Mechanical Room/ FAN Room	061809574-0001	5/23/2018	5/29/2018	144 in ²	13 µg/ft ²
05232018UA-02 Site: NE Mech. Room / Fan Room next to Filter Storage Area	061809574-0002	5/23/2018	5/29/2018	144 in ²	5500 µg/ft ²
05232018UA-03 Site: NE Mech Room / Fan Room by the 4th Column- WEST	061809574-0003	5/23/2018	5/29/2018	144 in ²	1500 µg/ft ²
05232018UA-04 Site: NE Mech Room- by Entry on book shelf	061809574-0004	5/23/2018	5/29/2018	144 in ²	30 µg/ft ²
05232018UA-05 Site: NE Mech Room Black Chair next to Duct	061809574-0005	5/23/2018	5/29/2018	144 in ²	15 µg/ft ²
05232018UA-06 Site: SE Storage area Next to Exit Double Doors	061809574-0006	5/23/2018	5/29/2018	144 in ²	120 µg/ft ²
05232018UA-07 Site: SE Storage area- Wooden Storage Cabinet	061809574-0007	5/23/2018	5/29/2018	144 in ²	27 µg/ft ²
05232018UA-08 Site: SW Storage area	061809574-0008	5/23/2018	5/29/2018	144 in ²	68 µg/ft ²
05232018UA-09 Site: SW Storage area, tan and orange chair	061809574-0009	5/23/2018	5/29/2018	144 in ²	<10 µg/ft ²
05232018UA-10 Site: West Storage area	061809574-0010	5/23/2018	5/29/2018	144 in ²	710 µg/ft ²
05232018UA-11 Site: Outside of Entry to Shooting Range	061809574-0011	5/23/2018	5/29/2018	144 in ²	140 µg/ft ²
05232018UA-12 Site: Top of Wooden Cabinet outside of Shooting Range	061809574-0012	5/23/2018	5/29/2018	144 in ²	120 µg/ft ²
05232018UA-13 Site: SE Storage area Black TV Stand	061809574-0013	5/23/2018	5/29/2018	144 in ²	<10 µg/ft ²
05232018UA-14 Site: South/ South East Storage Space- Storage Boxes	061809574-0014	5/23/2018	5/29/2018	144 in ²	<10 µg/ft ²
05232018UA-15 Site: South/ South East Storage area- on book shelf	061809574-0015	5/23/2018	5/29/2018	144 in ²	<10 µg/ft ²

 Michelle McGowan, Laboratory Manager
 or other approved signatory

*Analysis following Lead in Dust by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 10 ug/wipe. Ug/wipe = ug/ft² x area sampled in ft². 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 (such as volume sampled) or analytical method limitations. Samples received in good condition unless otherwise noted. The lab is not responsible for data reported in ug/ft² which is dependent upon the area provided by non-lab personnel. The test results contained within this report meet the requirements of NELAC unless otherwise noted. "<" (less than) result signifies the analyte was not detected at or above the warning 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 accred. program for Lead in Dust, CT PH-0249, NYS ELAP 11469, CA 2339.

Initial report from 05/29/2018 13:23:23


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Test Report: Lead in Dust by Flame AAS (SW 846 3051A/7000B)*

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Area Sampled</i>	<i>Lead Concentration</i>
05232018UA-16 Site: SW Storage Area	061809574-0016	5/23/2018	5/29/2018	144 in ²	<10 µg/ft ²
05232018UA-17 Site: SW Storage Area green & yellow seats	061809574-0017	5/23/2018	5/29/2018	144 in ²	490 µg/ft ²
05232018UA-18 Site: SW Storage Area TV	061809574-0018	5/23/2018	5/29/2018	144 in ²	<10 µg/ft ²
05232018UA-19 Site: SW Storage Area	061809574-0019	5/23/2018	5/29/2018	144 in ²	<10 µg/ft ²
05232018UA-20 Site: SW Storage Area	061809574-0020	5/23/2018	5/29/2018	144 in ²	15 µg/ft ²
05232018UA-20 Dup Site: SW Storage Area	061809574-0021	5/23/2018	5/29/2018	144 in ²	<10 µg/ft ²
05232018UA-21 Site: SW Storage Area	061809574-0022	5/23/2018	5/29/2018	144 in ²	<10 µg/ft ²
05232018UA-22 Site: SW Storage Area	061809574-0023	5/23/2018	5/29/2018	144 in ²	180 µg/ft ²
05232018UA-23 Site: SW Storage Area Raised Concrete Floor	061809574-0024	5/23/2018	5/29/2018	144 in ²	1100 µg/ft ²
05232018UA-24 Site: NE Mech Room/ Fan Room	061809574-0025	5/23/2018	5/29/2018	144 in ²	200 µg/ft ²
05232018UA-25 Site: NE Mech Room/ Fan Room	061809574-0026	5/23/2018	5/29/2018	144 in ²	16 µg/ft ²
05232018UA-26 Site: NE Mech Room/ Fan Room	061809574-0027	5/23/2018	5/29/2018	144 in ²	140 µg/ft ²
05232018UA-27 Site: NE Mech Room/ Fan Room	061809574-0028	5/23/2018	5/29/2018	144 in ²	92 µg/ft ²
05232018UA-28 Site: NE Mech Room/ Fan Room	061809574-0029	5/23/2018	5/29/2018	144 in ²	77 µg/ft ²
05232018UA-29 Site: Open area outside of Training Room- North	061809574-0030	5/23/2018	5/29/2018	144 in ²	55 µg/ft ²

 Michelle McGowan, Laboratory Manager
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<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Area Sampled</i>	<i>Lead Concentration</i>
05232018UA-30 Site: Open area outside of Training Room- SW Entry	061809574-0031	5/23/2018	5/29/2018	144 in ²	<10 µg/ft ²
05232018UA-31 Site: Open area outside of Training Room- East	061809574-0032	5/23/2018	5/29/2018	144 in ²	21 µg/ft ²
05232018UA-32 Site: Open area outside of Training Room- Center	061809574-0033	5/23/2018	5/29/2018	144 in ²	82 µg/ft ²
05232018UA-33 Site: Open area outside of Training Room	061809574-0034	5/23/2018	5/29/2018	144 in ²	<10 µg/ft ²
05232018UA-34 Site: Open area outside of Training Room	061809574-0035	5/23/2018	5/29/2018	144 in ²	<10 µg/ft ²
05232018UA-35 Site: Open area outside of Training Room	061809574-0036	5/23/2018	5/29/2018	144 in ²	<10 µg/ft ²
05232018UA-36 Site: Open area outside of Training Room	061809574-0037	5/23/2018	5/29/2018	144 in ²	<10 µg/ft ²
05232018UA-37 Site: Open area outside of Training Room	061809574-0038	5/23/2018	5/29/2018	144 in ²	120 µg/ft ²
05232018UA-38 Site: Open area outside of Training Room- South	061809574-0039	5/23/2018	5/29/2018	144 in ²	<10 µg/ft ²
05232018UA-39 Site: Open area outside of Training Room- West	061809574-0040	5/23/2018	5/29/2018	144 in ²	35 µg/ft ²
05232018UA-40 Site: Training Room	061809574-0041	5/23/2018	5/29/2018	144 in ²	<10 µg/ft ²
05232018UA-40 Dup Site: Training Room	061809574-0042	5/23/2018	5/29/2018	144 in ²	<10 µg/ft ²
05232018UA-41 Site: Training Room	061809574-0043	5/23/2018	5/29/2018	144 in ²	<10 µg/ft ²
05232018UA-42 Site: Training Room	061809574-0044	5/23/2018	5/29/2018	144 in ²	<10 µg/ft ²
05232018UA-43 Site: Training Room next to Locker # 6	061809574-0045	5/23/2018	5/29/2018	144 in ²	<10 µg/ft ²

 Michelle McGowan, Laboratory Manager
 or other approved signatory

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<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Area Sampled</i>	<i>Lead Concentration</i>
05232018UA-44 Site: Training Room next to Locker #69	061809574-0046	5/23/2018	5/29/2018	144 in ²	<10 µg/ft ²
05232018UA-45 Site: Team Jersey Storage Room	061809574-0047	5/23/2018	5/29/2018	144 in ²	<10 µg/ft ²
05232018UA-46 Site: Team Jersey Storage Room	061809574-0048	5/23/2018	5/29/2018	144 in ²	76 µg/ft ²
05232018UA-47 Site: Team Jersey Locker Room	061809574-0049	5/23/2018	5/29/2018	144 in ²	46 µg/ft ²
05232018UA-48 Site: Electrical/ Switch Gear Room	061809574-0050	5/23/2018	5/29/2018	144 in ²	620 µg/ft ²
05232018UA-49 Site: Field Blank	061809574-0051	5/23/2018	5/29/2018	n/a	<10 µg/wipe
05232018UA-50 Site: Field Blank	061809574-0052	5/23/2018	5/29/2018	n/a	<10 µg/wipe

 Michelle McGowan, Laboratory Manager
 or other approved signatory

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15050

**NEW LONDON HIGH SCHOOL
ADDITIONS & RENOVATIONS
Phase 2: Early Haz-Mat Package
State Project #095-0090 MAG/N**

DRAWINGS

Hazardous Materials Abatement Drawings HM-01, HM-02, HM-03, and NLHS-06.28.18



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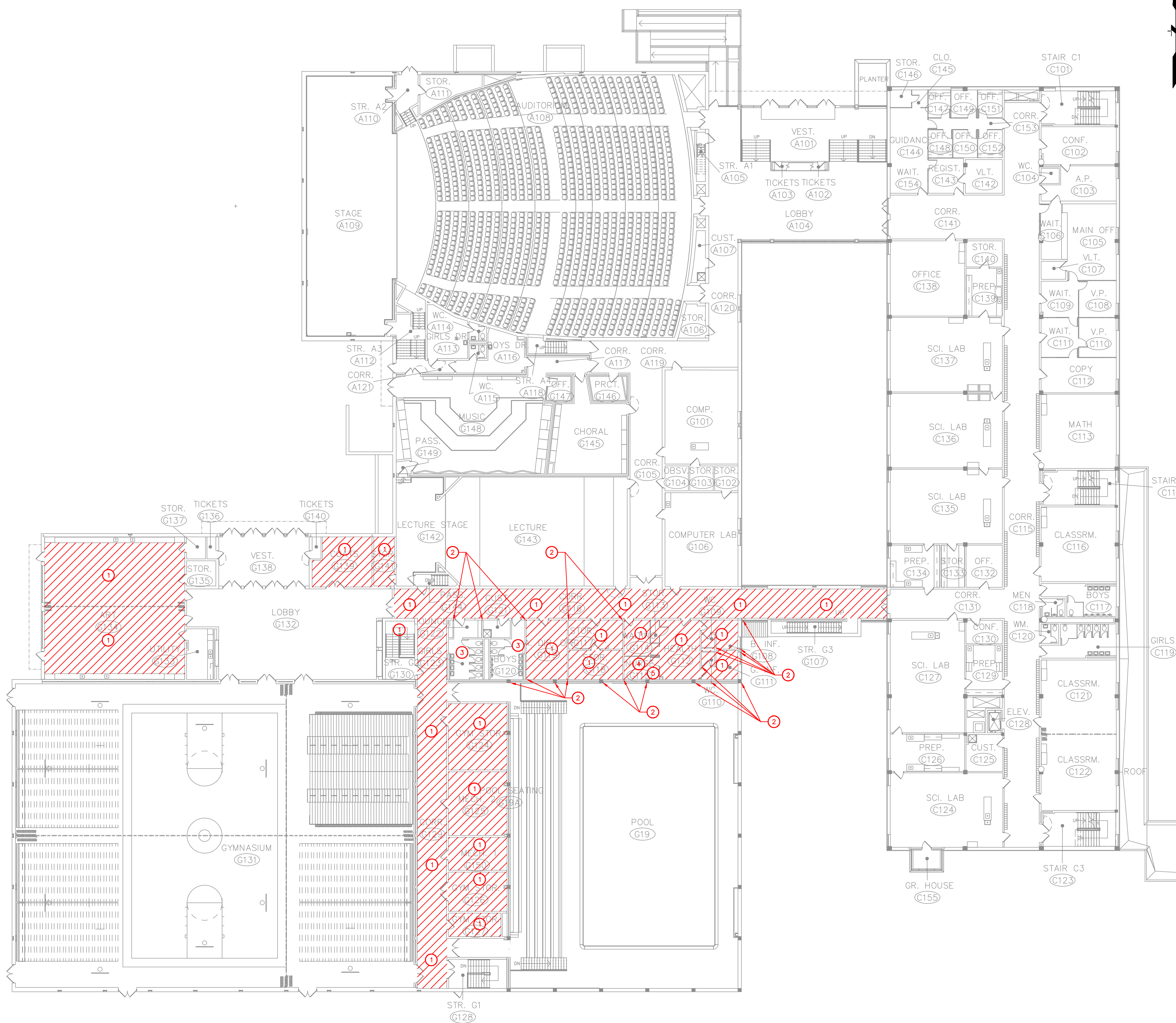
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PHASE 2: EARLY HAZ-MAT PACKAGE
JEFFERSON AVENUE & CHESTER STREET NEW LONDON, CT 06320
STATE PROJECT #095-0090 MAG/N

DATE:	JOB NUMBER:
17 JANURY 2019	15050

1. CONTRACTOR SHALL REMOVE ALL DUCT INSULATION FROM ALL OF THE DUCT WORK IN STORAGE AREAS-AB AND DISPOSE OF AS LEAD RCRA HAZARDOUS WASTE.
2. METALS DEFLECTORS PLATES CAN BE RECYCLED ONCE REMOVED.
3. CONTRACTOR SHALL REMOVE ALL OF THE CMU WALLS AND ALL KNEE WALLS IN ITS ENTIRELY FOR DISPOSAL AS RCRA HAZARDS WASTE.
4. CONTRACTOR SHALL USE A CONCRETE FLOOR GRINDER, OR A CONCRETE GRINDER WITH HEPA FILTER DUST COLLECTING DEVICE ATTACHMENT TO REMOVE MATERIAL(S) ON THE SURFACE (LEAD DUST). CONTRACTOR SHALL USE A CONCRETE GRINDER OR SCARIFY CONCRETE FLOOR IN ITS ENTIRELY A MINIMUM OF SIX (6) PASSES. ALL ACCUMULATED WASTE SHALL BE DISPOSED OF AS LEAD RCRA HAZARDOUS WASTE.
5. CONTRACTOR SHALL USE A CONCRETE FLOOR GRINDER WITH A HEPA DUST COLLECTING DEVICE ATTACHMENT TO REMOVE MATERIAL ON THE SURFACE. CONTRACTOR SHALL USE A CONCRETE GRINDER OR SCARIFY CONCRETE FLOOR IN ITS ENTIRELY A MINIMUM OF FOUR (4) PASSES.
6. CONTRACTOR SHALL REMOVE IN ITS ENTIRELY ALL OF THE HVAC DUCT SYSTEMS AS INDICATED IN NHLS DRAWING DATED 06-28-1980 ITEMS 3, 4, 5, 6, 7 AND 7. THE CONTRACTORS SHALL DISPOSE OF ANY FIBERGLASS INSULATION AS LEAD RCRA HAZARDOUS WASTE. BARE DUCT WORK WILL BE DISPOSED OF AS ACM-WRAPPED IN TWO-LAYERS OF POLY.
7. CONTRACTOR SHALL CLEAN ALL IDENTIFIED CEILING SURFACES BY WIPING WITH CLOTHS WET WITH TRISODIUM PHOSPHATE (TSP) SOLUTION AND BE CLEANED WITH A HEPA VACUUM IN CONJUNCTION WITH WET-WIPING METHODS.
8. ALL MOVABLE OBJECTS NOT CONSIDERED MEMORABILIA, TROPHIES, AWARDS, SHALL BE HEPA VACUUMED PRIOR TO REMOVAL FROM WORK AREA AND DISPOSED OF AS HAZARDOUS MATERIAL WASTE.
9. CONTRACTOR SHALL REMOVE ALL ACOUSTICAL CEILING/12'X12' TILES AND DISPOSE OF AS LEAD RCRA HAZARDOUS WASTE. GLUE DAUBS ASSOCIATED TILES CONTAINS TWO (2) PERCENT CHRYSOTILE ASBESTOS. (REFER TO SECTION 028213 ASBESTOS ABATEMENT).
10. CONTRACTOR SHALL REMOVE ALL SAND IN THE SAND PIT AND DISPOSE OF AS LEAD RCRA HAZARDOUS MATERIAL. AFTER THE SAND IS REMOVED FROM THE SAND PITS, THE CONTRACTOR SHALL USE A CONCRETE SCARIFIER WITH HEPA DUST COLLECTING DEVICE ATTACHMENT TO REMOVE MATERIAL ON THE SURFACE (LEAD DUST).
11. CONTRACTOR SHALL SEPARATE ALL NON-POROUS MEMORABILIA, TROPHIES, AWARDS, OR ANY OTHER NON-POROUS REQUESTED BY THE "OWNER" FOR PROPER DECONTAMINATION USING WET-WIPING AND HEPA VACUUMING METHODS. ALL OTHER MOVABLE OBJECTS WILL BE DISPOSED OF AS LEAD RCRA HAZARDOUS WASTE.



ASBESTOS ABATEMENT NOTES

- 1 THE HAZARDOUS MATERIALS ABATEMENT CONTRACTOR SHALL REMOVE AND DISPOSE OF ASBESTOS CONTAINING FLOOR TILE AND ASSOCIATED MASTIC AS ACM.
- 2 THE HAZARDOUS MATERIALS ABATEMENT CONTRACTOR SHALL REMOVE AND DISPOSE OF ASBESTOS CONTAINING CORNER JOINTS & EXPANSION JOINT-GRAY CAULKING COMPOUNDS AS ACM.
- 3 THE HAZARDOUS MATERIALS ABATEMENT CONTRACTOR SHALL REMOVE AND DISPOSE OF ASBESTOS CONTAINING VAPOR BARRIER AS ACM.
- 4 THE HAZARDOUS MATERIALS ABATEMENT CONTRACTOR SHALL REMOVE WINDOW, CAULKING AND GLAZING AS ACM.
- 5 THE HAZARDOUS MATERIALS ABATEMENT CONTRACTOR SHALL REMOVE AND DISPOSE OF ASBESTOS CONTAINING SINK UNDER COATING AS ACM.
- 6 THE HAZARDOUS MATERIALS ABATEMENT CONTRACTOR SHALL REMOVE AND DISPOSE OF ASBESTOS CONTAINING MATERIALS FROM THE EXTERIOR AND INTERIOR OF BOILER #2 UNDER FULL NEGATIVE PRESSURE CONTAINMENT AS ACM.
- 7 THE HAZARDOUS MATERIALS ABATEMENT CONTRACTOR SHALL REMOVE ALL ASBESTOS CONTAINING THERMAL SYSTEM INSULATION AS ACM.
- 8 THE HAZARDOUS MATERIALS ABATEMENT CONTRACTOR SHALL REMOVE AND DISPOSE OF ASBESTOS CONTAINING WATER TANK INSULATION AS ACM.

GENERAL NOTES

- 1. THE HAZARDOUS MATERIALS ABATEMENT CONTRACTOR SHALL BE RESPONSIBLE FOR THE VERIFICATION OF ALL EXISTING CONDITIONS AND QUANTITIES, AND FOR NOTIFYING THE CONSULTANT OF ANY DISCREPANCIES PRIOR TO FINALIZING BID.
- 2. RENOVATION AREAS REPRESENTED ON THIS DRAWING ARE TO BETTER AID IN THE IDENTIFICATION OF AREAS REQUIRING ABATEMENT. THE CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS FOR RENOVATION INFORMATION.
- 3. THE HAZARDOUS MATERIALS ABATEMENT CONTRACTOR IS RESPONSIBLE FOR PERFORMING ENOUGH SELECTIVE DEMOLITION OF BASE COVE TO ACCESS AND REMOVE DESIGNATED ASBESTOS FLOOR TILES AND MASTIC.
- 4. SHADING OR HATCHING REPRESENTED ON THIS DRAWING IS TO BETTER AID IN THE IDENTIFICATION OF AREAS REQUIRING ABATEMENT. THE HAZARDOUS MATERIALS ABATEMENT CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, LOCATIONS AND/OR QUANTITIES PRIOR TO FINALIZING BID.



ANTINOZZI ASSOCIATES
ARCHITECTURE & INTERIORS

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REVISIONS:	
DATE	DESCRIPTION

ADDITIONS & RENOVATIONS
NEW LONDON HIGH SCHOOL
PHASE 2: EARLY HAZ-MAT PACKAGE
JEFFERSON AVENUE & CHESTER STREET NEW LONDON, CT 06320
STATE PROJECT #095-0090 MAG/N

DRAWING TITLE:
HAZARDOUS
MATERIAL
ABATEMENT PLAN

SCALE: 1/16"= 1'-0" DRAWN BY: REVIEWED BY:

DRAWING NO.

HM-002

DATE: 17 JANUARY 2019 JOB NUMBER: 15050



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- 6 THE HAZARDOUS MATERIALS ABATEMENT CONTRACTOR SHALL REMOVE AND DISPOSE OF ASBESTOS CONTAINING MATERIALS FROM THE EXTERIOR AND INTERIOR OF BOILER #2 UNDER FULL NEGATIVE PRESSURE CONTAINMENT AS ACM.
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2. RENOVATION AREAS REPRESENTED ON THIS DRAWING ARE TO BETTER AID IN THE IDENTIFICATION OF AREAS REQUIRING ABATEMENT, THE CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS FOR RENOVATION INFORMATION.
3. THE HAZARDOUS MATERIALS ABATEMENT CONTRACTOR IS RESPONSIBLE FOR PERFORMING ENOUGH SELECTIVE DEMOLITION TO BASE ABOVE TO ACCESS AND REMOVE DESIGNATED ASBESTOS CONTAMINATED AREAS AND WASTE
4. SHADING OR HATCHING REPRESENTED ON THIS DRAWING IS TO BETTER AID IN THE IDENTIFICATION OF AREAS REQUIRING ABATEMENT, THE HAZARDOUS MATERIALS ABATEMENT CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, LOCATIONS AND/OR QUANTITIES PRIOR TO FINALIZING BID.

