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July 28, 2016

Mr. Thomas Geary
Director of Facilities
Haverhill Public Schools
4 Summer Street
Haverhill, MA 01832

VIA EMAIL

Project 01288.003

RE: AHERA 3-Year Re-inspection, Crowell Elementary School, 26 Belmont Avenue, Haverhill, MA

Dear Mr. Geary,

Axiom Partners, Inc. (AXIOM) conducted a 3-year AHERA¹ re-inspection of the Crowell Elementary School at the above-referenced address. The re-inspection was performed to continue the Local Education Agency's (LEA's) compliance with AHERA which requires periodic assessment of known asbestos-containing building materials (ACBMs) located in this school building.

A. AHERA 3-YEAR RE-INSPECTION

The re-inspection was performed in compliance with the Environmental Protection Agency's Asbestos Hazard Emergency Response Act (AHERA), 40 CFR Part 763, Section 763.85.

The re-inspection was performed on February 18, 2016 by experienced Massachusetts-licensed Asbestos Inspector, Mr. Christopher M. LaPorte (License Number AI031166). The re-inspection included all accessible interior areas of the building.

A summary table prepared for the school is attached to this letter. The table includes:

- | | | |
|------------------|--------------------------------|----------------------------------|
| • ACBMs | • Friability | • Previous Response Actions |
| • Presumed ACBMs | • Hazard/Condition Assessments | • Recommended Response Actions |
| • Quantities | • Changes in Condition | • Newly-identified Suspect ACBMs |
| • Locations | | |

To ensure compliance with AHERA, a copy of this re-inspection report must be included in the Asbestos Management Plan for the school.

AXIOM recommends labeling of certain ACBMs specified by AHERA and the continued management of these ACBMs in place until they are removed.

¹ EPA's Asbestos Hazard Emergency Response Act, 1986



B. RECOMMENDATIONS/ACTION ITEMS

Based on AXIOM's observations during this 3-year AHERA re-inspection, we recommend the following:

- Label friable insulation in the basement with asbestos warning stickers/labels (adhere directly onto insulation and post a warning sign at the entrance).
- Perform a complete building asbestos survey with limited sampling. Destructive sampling methods are not recommended. It would be beneficial to discreetly sample items such as plaster, wall board, joint compound and other materials which are likely to be impacted by students, faculty or maintenance during routine activities (e.g., hanging artwork, installing telecomm lines). Materials which may be present in large quantities such as floor tile and associated adhesive, and which would therefore be costly abatement items, should also be sampled in an effort to remove them from the list of suspect materials.
- The only documentation available for this school during AXIOM's re-inspection were the 1987 initial inspection report and 1988 asbestos management plan, both authored by Hunter Environmental and the 2011 three-year re-inspection report authored by Hub Testing Laboratory, Inc. Consider contacting previous consultants or Designated Person(s) to locate and obtain additional asbestos-related documentation for this school. Documentation may include additional 3-year re-inspection reports, bulk sampling results and/or ACBM abatement documentation such as asbestos abatement notification forms, waste shipment records, contractor documents or abatement summary reports to complete documentation of AHERA-related activities.

C. LIMITATIONS AND EXCLUSIONS

This inspection effort included our review of available AHERA documentation. The original 1987 inspection report, the 1988 Management Plan and the 2011 Re-inspection reports were used as guidance documents. Historical documentation did not include supporting asbestos bulk sample data (laboratory analytical reports). AXIOM did not collect any bulk samples for asbestos analysis.

The re-inspection was performed by AXIOM to ensure that the LEA is in compliance with AHERA, however this inspection is not NESHAP² compliant, which is required for building demolition or renovation including testing of exterior suspect ACBMs. The potential for concealed ACBMs to remain in this school exists. Inaccessible building areas, systems, structural components or surfaces which may not have been observed may include the following:

- Buried or otherwise concealed pipe trenches and utility vaults/corridors;
- Buried foundations (except as specifically identified);
- Electrical equipment/wire (except as specifically identified);
- Multi-layered flooring material applications;
- Most pipe and vessel gaskets;
- Inside boilers and other mechanical equipment, ductwork and air handling equipment;
- Enclosed wall and ceiling cavities;
- Fire door cores;
- Interior window and door frame caulking that have been replaced or in-filled;
- Roofing materials; and
- Exterior window and door frame caulking.

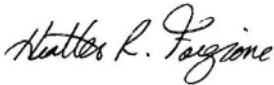
² EPA's National Emission Standard for Hazardous Air Pollutants

Please note that, while roofing materials, window and door frame caulking and other exterior materials are not regulated by AHERA, these materials would require sampling prior to demolition, renovations or repairs that may impact them.

AXIOM made every reasonable effort to address potential ACBMs at the school; however, the potential remains that concealed ACBMs could be encountered during future building renovations. If suspect ACBMs are encountered that are not discussed herein, testing should be performed and results should be incorporated into the School's Asbestos Management Plan.

Please call us if you have any questions.

Sincerely,



Heather R. Forgione
Project Manager



Stephen E. Minassian
Principal

attachments: AHERA Summary Table

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AHERA SUMMARY TABLE

LEA/School System: Haverhill Public Schools

Building: Crowell Elementary School

Inspection Date: February 18, 2016

Re-inspection Findings for ACBMs							Management Planner Recommendations
Material Description	Location(s)	Quantity ¹	Friability	Assessment Category ²	Assessment Justification	Change in Assessment	Preventive Measures; Response Actions
Wall Plaster	Basement Storage Rooms, Boiler Room, Throughout First and Second Floors	TBD	Friable	---	Non-ACBM material; intact	---	Identified in 1987 Hunter and 2011 HUB inspections; Hunter inspection reported material is negative, with 7 sample results to confirm (CRO 09-14 and 16); not required to remain on O&M Plan, but maintain entry on this table for documentation
Ceiling Plaster	Teacher's Dining Room, Girl's Restroom, Oil Tank Room, Storage behind library, Boiler Room, Stairs, Basement Classroom, Hallways, Library, Throughout First and Second Floors	TBD	Friable	---	Non-ACBM material; damaged in oil tank room, storage behind library	---	Identified in 1987 Hunter and 2011 HUB inspections; Hunter inspection reported material is negative, with 7 sample results to confirm (CRO 03-05 and 20-23); not required to remain on O&M Plan, but maintain entry on this table for documentation
Pipe Insulation and Hard Fittings	Basement Storage Rooms, Teacher's Dining Room, Girl's Restroom, Stairs, Basement Classroom, Hallways, Library	480 LF	Friable	1	ACBM; damaged in basement storage room, classroom and library	Previously identified as intact	Identified in 1987 Hunter and 2011 HUB inspections in multiple locations in basement (740 LF) and partially confirmed in this inspection (480 LF); repair or replace damaged areas and maintain O&M Plan
Gypsum Wall Board	Basement Storage Rooms, Teacher's Dining Room, Stairs, Basement Classroom, Library	TBD	Non-Friable	5	PACM; intact	---	Identified in 1987 Hunter inspection and 2011 HUB inspection; Hunter inspection reported material is negative in Rooms 8, 10 & 105 with sample results to confirm (CRO 01, 02, 07 & 15), but identified in additional locations in this inspection; maintain O&M Plan

¹ SF = Square Feet; LF = Linear Feet; EA = Each

² AHERA Categories: (1) Damaged or significantly damaged thermal system insulation ACM; (2) Damaged friable surfacing ACM; (3) Significantly damaged friable surfacing ACM; (4) Damaged or significantly damaged friable miscellaneous ACM; (5) ACBM with potential for damage; (6) ACBM with potential for significant damage; (7) Any remaining friable ACBM or friable suspected ACBM

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Joint Compound	Basement Storage Rooms, Teacher's Dining Room, Stairs, Basement Classroom, Library	TBD	Non-Friable	5	PACM; intact	---	Not identified in the 1987 Hunter or 2011 HUB inspection; maintain O&M Plan
4" Brown Cove Base	Teacher's Dining Room	TBD	Non-Friable	5	PACM; intact	---	Not identified in the 1987 Hunter or 2011 HUB inspection; maintain O&M Plan
4" Brown Cove Base Adhesive	Teacher's Dining Room	TBD	Non-Friable	5	PACM; intact	---	Not identified in the 1987 Hunter or 2011 HUB inspection; maintain O&M Plan
4" Gray Cove Base	Basement Storage Rooms, Classroom	TBD	Non-Friable	5	PACM; intact	---	Not identified in the 1987 Hunter or 2011 HUB inspection; maintain O&M Plan
4" Gray Cove Base Adhesive	Basement Storage Rooms, Classroom	TBD	Non-Friable	5	PACM; intact	---	Not identified in the 1987 Hunter or 2011 HUB inspection; maintain O&M Plan
12" x 12" Gray Floor Tile	Kitchen	250 SF	Non-Friable	5	PACM; intact	No Change	Identified in the 2011 HUB inspection and confirmed in this inspection; maintain O&M Plan
12" x 12" Gray Floor Tile Adhesive	Kitchen	250 SF	Non-Friable	5	PACM; intact	No Change	Identified in the 2011 HUB inspection and confirmed in this inspection; maintain O&M Plan
12" x 12" Gray and Black Floor Tile (Pattern)	Cafeteria	216 SF	Non-Friable	5	PACM	---	Identified in the 1987 Hunter inspection report as being located in the cafeteria, reported material is negative, but inadequate sample results to confirm; not confirmed in 2011 HUB inspection or this inspection; maintain O&M Plan

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12" x 12" Gray and Black Floor Tile (Pattern) Adhesive	Cafeteria	216 SF	Non-Friable	5	PACM	---	Identified in the 1987 Hunter inspection report as being located in the cafeteria, reported material is negative, but inadequate sample results to confirm; not confirmed in 2011 HUB inspection or this inspection; maintain O&M Plan
Fire Door Core Insulation	Boiler Room	1	Non-Friable	5	PACM; intact	---	Not identified in the 1987 Hunter or 2011 HUB inspection; maintain O&M Plan
Boiler Coverings/Breeching	Boiler Room	180 SF	Friable	5	ACBM; intact	---	Identified in 1987 Hunter inspection as "boiler coverings" and in 2011 HUB inspection as "boiler breeching;" not confirmed in this inspection; maintain O&M Plan
Red Firestop	Boiler Room	10 SF	Non-Friable	5	PACM; intact	No Change	Identified in the 2011 HUB inspection and confirmed in this inspection; maintain O&M Plan
Bulletin Boards/Chalk Board Adhesive	Teacher's Dining Room, Throughout First and Second Floors	TBD	Non-Friable	5	PACM; intact	---	Identified in Rooms 104 & 202 in 1987 Hunter inspection, reported material is negative, with 2 sample results to confirm (CRO 06 & 08); not confirmed in 2011 HUB inspection; identified in additional areas in this inspection and must be considered PACM; maintain O&M Plan
Interior Window Putty	Girl's Restroom, Stairs	5 windows	Non-Friable	5	PACM; intact	---	Not identified in the 1987 Hunter or 2011 HUB inspection; maintain O&M Plan
Interior Window Frame Caulking	Stairs, Basement Classroom, Throughout First and Second Floors	1	Non-Friable	5	PACM; intact	Previously identified as damaged	Identified in the 2011 HUB inspection and confirmed in this inspection; maintain O&M Plan

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Exterior Window Frame Caulking	Exterior	TBD	Non-Friable	5	PACM; intact	Previously identified as damaged	Identified in the 2011 HUB inspection and confirmed in this inspection; maintain O&M Plan
Brick Mortar	Exterior	TBD	Non-Friable	5	PACM; intact	No Change	Identified in the 2011 HUB inspection and confirmed in this inspection; maintain O&M Plan
Prefabricated Gypsum Wall Board	Temporary Building	1,000 SF	Non-Friable	5	PACM; intact	No Change	Identified in 1987 Hunter and 2011 HUB inspection and confirmed in this inspection; Hunter inspection reported material is negative, but inadequate sample results to confirm; maintain O&M Plan
2' x 2' Ceiling Tile	Temporary Building	900 SF	Non-Friable	5	PACM; intact	No Change	Identified in 2011 HUB inspection and confirmed in this inspection; Inspections reported material is negative, but there are no sample results to confirm; maintain O&M Plan
1' x 1' Ceiling Tile	Temporary Building	625 SF	Non-Friable	5	PACM; intact	No Change	Identified in 1987 Hunter inspection and confirmed in this inspection; Hunter inspection reported material is negative, but inadequate sample results to confirm; maintain O&M Plan
Yellow Swirl Linoleum	Temporary Building	160 SF	Non-Friable	5	PACM; intact	No Change	Identified in 1987 Hunter inspection, 2011 HUB inspection and confirmed in this inspection; Hunter inspection reported material is negative, but inadequate sample results to confirm; maintain O&M Plan

General Comments

- AXIOM reviewed the initial 1987 inspection report and 1988 asbestos management plan from Hunter Environmental and a 2011 three-year re-inspection report authored by Hub Testing Laboratory, Inc. No additional documentation (e.g., 3-year re-inspection reports, abatement paperwork) was reviewed during this re-inspection.

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- Hunter identified approximately 740 linear feet of pipe insulation in the basement in 1987. AXIOM identified approximately 480 linear feet of this material during our re-inspection. Pipes in several areas of the basement were observed to either be uninsulated or insulated with fiberglass. No documentation regarding abatement of ACBM or PACM pipe insulation and fittings was available for review.
- Concealed pipe/fitting insulation may be located in wall cavities.

Suggested Action Items

- Label friable insulation in the basement with asbestos warning stickers/labels (adhere directly onto insulation and post a warning sign at the entrance).
- Perform a complete building asbestos survey with limited sampling. Destructive sampling methods are not recommended. It would be beneficial to discreetly sample items such as plaster, wall board, joint compound and other materials which are likely to be impacted by students, faculty or maintenance during routine activities (e.g., hanging artwork, installing telecomm lines). Materials which may be present in large quantities such as floor tile and associated adhesive, and which would therefore be costly abatement items, should also be sampled in an effort to remove them from the list of suspect materials.
- The only documentation available for this school during AXIOM's re-inspection were the 1987 initial inspection report and 1988 asbestos management plan, both authored by Hunter Environmental and a three-year re-inspection report completed by HUB Testing Laboratory, Inc. in 2011. Consider contacting previous consultants or Designated Person(s) to locate and obtain additional asbestos-related documentation for this school. Documentation may include additional 3-year re-inspection reports, bulk sampling results and/or ACBM abatement documentation such as asbestos abatement notification forms, waste shipment records, contractor documents or abatement summary reports to complete documentation of AHERA-related activities.

Were additional samples of this ACBM collected: NO	Date Management Planner Review: July 28, 2016
Inspector Name: Christopher M. LaPorte	Management Planner Name: Heather R. Forgione
Inspector Signature: 	Management Planner Signature: 
Accreditation No. / State: AI031166 / Massachusetts	Accreditation No. / State: AP900433 / Massachusetts
Expiration Date: September 9, 2016	Expiration Date: September 9, 2016

I, the LEA's Designated Person have read and understood the recommendations made above: Thomas Geary	Signature (LEA Designate):
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