

HAZARDOUS MATERIALS ASSESSMENT

ATC Associates Inc. (ATC) was retained by Dore and Whittier, Inc., to perform a Hazardous Materials Assessment regarding remediation of environmental hazards at the following school located in Wayland, Massachusetts:

- Wayland High School

ATC's representatives performed a site review to determine the locations of hazardous materials that may be affected by the forthcoming proposed renovation work at the school.

Note: ATC's Hazardous Materials Assessment did not include any sampling and analysis of materials as part of this study.

ATC's Scope of Work for this project included a cursory review of the following hazardous materials typically found in school buildings:

1. Lead Paint
2. Asbestos
3. Underground Storage Tanks (UST)
4. Miscellaneous Hazardous Materials (i.e. PCB light ballast's, disposal drums, chemical storage, etc.)

Outlined below is a summary of ATC's findings:

I. SITE DESCRIPTION

The High School campus consists of eight buildings, seven of which are located in a campus setting and are connected by covered walkways. The one freestanding building is a Field House. Concerns associated with the eight buildings are described in greater detail below. Two, freestanding small sheds, and two, freestanding storage containers are associated with specific campus buildings and are also described below. A separate town building, a municipal pool, is located adjacent to the High School property but is not considered part of this feasibility assessment.

Site specific information was provided by Neil Westgate, Head of Maintenance, who has been associated with the site for 18 years. Mr. Westgate provided access to a number of areas of the building and answered specific questions regarding site operations and handling of hazardous materials. Additional site specific information was obtained from plans associated with prior renovations that were made available on the date of the site inspection.

The original campus (Buildings A through F) was constructed in 1960. Renovations and additions to all buildings (except Building B, which was not renovated) were completed in 1965. Building G was added in 1965. Building H was added in 1971. Additional renovations were performed in 1991.

II. LEAD PAINT MATERIALS

The buildings were originally constructed in the 1960 with subsequent renovations in 1965, 1971 and 1991. The 1960, 1965 & 1971 portions of the buildings represents a higher potential for lead containing paint to be present as compared to the 1991 renovated areas. This is based upon the fact that the Consumer Product Safety Commission (CPSC) did not ban the sale of commercial paint that contained greater than 0.006% lead until 1976.

The Occupational Safety and Health Administration (OSHA) under their 29 CFR 1926.62 Regulation, consider elemental lead (i.e. >0.0) to be considered lead containing and subject to their worker protection regulations. Therefore, ATC recommends that appropriate lead testing be performed within the building and all results disclosed to the Contractor as part of the Bid Documents.

In addition, any building components that are found to contain any detectable lead will also be subject to federal Resource Conservation and Recovery Act (RCRA) regulations with regards to disposal. Appropriate Toxicity Characteristic Leaching Procedure (TCLP) sampling shall be required of the waste streams to determine if the material is considered hazardous waste for lead. ATC does recommend that representative TCLP samples be collected of the building components subject to disposal and the results be provided to the Contractor as part of the Bid Documents.

III. ASBESTOS MATERIALS

ATC performed a cursory review for suspect asbestos-containing materials (ACM) located in accessible areas of the building as well as the Asbestos Hazard Emergency Response Act (AHERA) plan. The AHERA Plan, which was developed for the building in 1988 as required by federal law, included procedures for in-place management of identified asbestos containing materials.

The results of that plan indicated the following asbestos-containing materials to be present within the building at the time of the original AHERA survey:

- Pipe Insulation
- Pipe Fitting Insulation
- Tank Insulation
- Duct Insulation
- Fire Doors
- Vinyl Asbestos Floor Tile
- Covebase and Mastic
- Boiler Insulation

According to site maintenance, the majority of these materials were abated during the 1991 renovation to the buildings. The Current 3-year AHERA reinspection update performed in December 2001 concurs with this finding and lists the following remaining materials to be present within the buildings that are subject to continued in-place management:

1. VAT (covered with carpet)
2. Covebase
3. Pipe Insulation Inside Pipe Tunnels (Sealed Off)
4. Fire Door
5. 9" x 9" Floor Tile (Book Room)

ATC would like to also point out that at the time of the AHERA plan development (1988), the known list of suspect asbestos-containing materials required to be identified were far less than what is required by today standards. In addition, the amount of samples collected and analyzed for each suspect material by the original AHERA plan was completed to minimal standards as well.

Therefore, the following additional suspect ACM was observed by ATC and will require sampling to confirm asbestos content:

- Carpet Mastic
- Interior Door Caulking
- Interior/Exterior Window Caulking
- Interior/Exterior Window Glazing Compound
- Duct Sealant
- Ceramic Tile Grout
- Skim Coat on Exposed Concrete

In accordance with federal Environmental Protection Agency (EPA) National Emission Standards for Hazardous Air Pollutants (NESHAP) Regulations, all materials found to be asbestos-containing in the building must be abated prior to renovation/demolition activities. Therefore, ATC recommends that a comprehensive survey be performed in the school buildings that will (1) identify all suspect ACM subject to potential impact by forthcoming renovation activities which will comply with NESHAP Regulations; and (2) update the overall current AHERA plan for the school.

IV. UNDERGROUND STORAGE TANKS (UST'S), OIL & HAZARDOUS MATERIALS

ATC performed an assessment as to the presence and locations of UST's and oil and other hazardous materials (OHM) at the site. ATC's review included a preliminary site investigation as well as discussions with school personnel and custodial staff on past practices and handling of OHM at the site.

The following is a summary of ATC's findings:

1. Municipal water is provided to the complex. According to Mr. Westgate, two septic systems are associated with the school campus. One system collects discharge from the Math/English Building and the Field House. The septic tank for this system is located at the front of the complex (south side) and the waste water is pumped up to playing fields for leaching. The second system collects discharge from all other buildings. The septic tank is located behind the baseball diamond and is pumped up hill to leaching pits that are 30 to 40 feet in size.
2. Fluorescent light ballast's at all buildings are reported to have been replaced with electronic ballast's in 1991, at which time, all PCB-containing ballast's were reportedly removed and disposed of.

3. With the exception of the Field House (see below), hot water is currently provided to the buildings in the complex via a separate hot water heater located in each building. All hot water heaters are natural gas-fired, with the exception of an electric hot water heater located in the Math-English Building. Hot water was formerly provided to the complex (Buildings A through E) by means of a hot water system associated with the boilers in the Fine Arts Building (Building A). The hot water storage tank for this system is still in place but is no longer in use.
4. Heating is generally handled via forced hot water from newer boilers in three buildings in conjunction with roof-mounted HVAC units and supplemental baseboard heating in various locations. Natural gas meters are located in the Administration and Media Building (Building H) and in the Fine Arts Building (Building A). No emergency generator is present.
5. According to Mr. Westgate, no below grade acid waste tank is present. Science sinks in the Science Building and the Math/English Building have a variety of acid neutralization tanks associated with them. Moderate amounts of chemical cleaners and other maintenance chemicals are present in the custodial storage areas of each of the campus buildings. A scrub sink or floor sink is present in each custodial storage area.
6. Mr. Westgate stated that the Massachusetts Department of Environmental Protection had cited the school for unacceptable hazardous waste disposal practices. As a result, a hazardous waste collection program has been designed to address wastes generated in the science areas, the photography lab, boiler rooms, and maintenance areas. This program will be implemented when the school year begins in September 2002.

Fine Arts Building A

- The main boiler room for the campus is located in this building. The two boilers located in the Fine Arts Boiler Room supply heat for the complex (all buildings with the exception of the Field House and the Administration/Media Building).
- One 10,000-gallon underground storage tank (UST) for No. 2 fuel oil is located adjacent to the northeast corner of Building A. This UST was installed in 1991 and replaced an earlier UST in the same location. The in-use UST appears to meet existing standards for overfill and spill protection. No details were provided on tank construction.

- Two vent pipes are visible on the eastern wall of the Fine Arts Building in the immediate vicinity of a manway access and fill port associated with the active UST. Plans from the 1991 renovation indicate that, at that time, a 2-inch diameter fuel oil supply line and a 2.5-inch diameter fuel oil supply line, in conjunction with a 2-inch diameter fuel oil return line, were to be maintained during the renovations. Mr. Westgate indicated that he was uncertain about the reason for the two vents but he believed the original UST also had two vents. Because of the drawing showing two fuel oil supply lines and the current presence of two vent pipes, it is unclear if one or two USTs were previously present. It is possible that an abandoned UST is currently present. No records regarding the UST removal in 1991 were available.
- Boilers in the Fine Arts Building were replaced in 1991. They are dual fuel (natural gas or fuel oil) but are currently run only on fuel oil because insufficient pressure is available in the street line to support use of natural gas by these boilers. Water treatment is added to the circulating hot water at an access point in the Boiler Room.
- No significant oil staining was observed on the concrete floor. Oil has collected in the drip pan beneath the oil pumps.
- According to Mr. Westgate, after a heavy rain, water comes into the Fine Arts Building Boiler Room through cracks in the floor and collects in the sumps. He attributes this to the presence of higher topography around the building and the shallowness of ledge. No floor drains were observed in the Boiler Room. Two sumps and sump pumps are located in the Boiler Room. Standing water was observed in the sumps during the site inspection and water damage was noted on cardboard boxes present on the floor of the Boiler Room. Generally, the floor was dry and dusty at the time of the site inspection. Mr. Westgate noted that the dust on the floors was the fine sediment left behind after the water receded.
- A below-grade, concrete transformer vault with a metal grate at grade level is located adjacent to the north side of the Fine Arts Building. Two older style transformers were visible within the vault. Based on the apparent age of the transformers, and the original construction date of the school complex (1961), these transformers may contain PCBs. The floor of the vault is reported to be concrete but was not visible from above due to the presence of leaf litter within the vault.
- According to Mr. Westgate, two kilns with separate, power vented exhaust are located in the Fine Arts Building. These kilns are in use during the school year. The kilns were not observed during the site inspection.

- A freestanding wooden shed, formerly a preschool play structure is located on the north side of the Fine Arts Building. According to Mr. Westgate, this structure houses snow blowers and other equipment used for removal of snow from area immediately surrounding the campus building, as well as lawn mowing equipment. The interior of the shed was not inspected. According to Mr. Westgate, gasoline for the snow blowers and lawnmowers is stored in 5-gallon plastic containers. Snow removal for the parking lot and access road is provided by the town Department of Public Works.
- A wood shop was formerly located in the Fine Arts Building. This area is still marked above the doorjamb but is currently used for classroom/office space. No specific concerns with this area were noted. A trash dumpster is located at the loading dock on the east side of the Fine Arts Building. No specific concerns with this dumpster were noted.

Science Building B:

- Room S2 has six bench sinks where the traps were enclosed and a determination could not be made regarding the presence of acid neutralization sumps. Two side sinks are present in Room S2 with a visible acid neutralization trap beneath each. One sink with an acid neutralization trap was present in a prep/chemical storage room associated with Room S6. The stainless steel sink is rusted and appears corroded. Significant quantities of chemicals are stored on open shelves in this room. A closed, but not locked, corrosive storage cabinet is located beneath the sink. One vapor hood is present in the lab.
- Room S6 has 10 sinks with an acid neutralization trap beneath each sink. An associated prep room has a stainless steel sink without any apparent acid neutralization trap. The sink appears corroded. Moderate amounts of chemicals are stored in this prep room.
- Room S10 has one, large stainless steel sink (approximately 2.5 feet by 4.5 feet) with an acid neutralization trap beneath. This sink was strongly discolored and appeared corroded. One sink was visible through a window in the door of a locked prep room associated with Room S10. Insufficient visibility was available to determine if an acid neutralization trap was present beneath the sink in the prep room or if additional sinks were present in the prep room.

- Room S7, currently used as a computer lab, also has science sinks. This room was initially occupied by workers and then locked during the site inspection and was not directly observed. According to Mr. Westgate, the water supply to these sinks has been capped and the faucets removed. The sinks will be covered to provide flat surfaces for the computers. According to Mr. Westgate, no traps or sumps are associated with these sinks.
- Room S11, the lab from which the greenhouse is accessed, contains four, multi-faucet trench sinks. Each of the four trench sinks has an acid neutralization trap beneath.
- A greenhouse is attached to the southern side of the Science Building. Formerly, heat for the greenhouse was provided via heating pipes supplied by the original heating system in the Fine Arts Building. These heating pipes are still present, although no longer in use, within a metal-plate-covered trench that runs the length of the shed-shaped greenhouse structure. This system was abandoned when the newer heating system for the campus (including the HVAC units on the roof) was brought online. Currently, heat for the greenhouse is provided via baseboard units that are piped through the wall from the Science Building and are part of the newer heating system.

Social Studies Building C

- No concerns with respect to oil and hazardous materials.

Languages Building D

- No concerns with respect to oil and hazardous materials.

Commons Building E

- The Commons Building houses the kitchen and cafeteria. No fryolator is in use in the building. No trash compactors are used at the school. A dumpster with recycling ports is present on pavement on the east side of the Commons Building. According to Mr. Westgate, grease traps are associated with one pot sink in the kitchen and one abandoned dishwashing machine. Two other pot sinks do not have grease traps.

Field House Building F

- A Boiler Room is located at the rear of the Field House. Three boilers are present. Two of the boilers are dual fuel but utilize fuel oil only due to insufficient line pressure from the available natural gas supply lines. These two boilers supply heat for the Field House. The third boiler is a gas-fired boiler used to provide hot water for the locker rooms. All three boilers were installed in 1991. One 10,000-gallon UST is located west side of the Field House Boiler Room. The tank monitor for this UST was new in 1991; however the tank sensors failed approximately 4 years ago (approximately 1998) and the tank monitor system was replaced. No report of problems with the UST that were not resolved with the installation of the new tank monitoring system. The in-use UST appears to meet existing standards for overfill and spill protection. No details were provided on tank construction.
- A sump pump is located in a grated sump area located behind the two main boilers. This sump reportedly discharges to a storm drain of uncertain location. No specific indication of discharge of oil or hazardous material to the sump; however, the sump could not be inspected directly without removal of the grates. A floor drain is within the Field House Boiler Room near the entry doorway. This floor drain reportedly discharges to the sump.
- A transformer vault is located on the east side of the Field House. This concrete vault is accessed through the top of the vault. The transformers were not inspected. Depending on the age of the transformers, possibly original to the initial construction in 1961, PCBs may be present.
- Lime is no longer used on the playing fields for line marking; paint is used for this purpose. Maintenance of the playing fields is undertaken by the Wayland Department of Public Works and paints, equipment, lawn maintenance chemicals, and other materials used to maintain the fields are stored at the Department of Public Works and brought to the school as needed.

Math-English Building G

- Three science labs are present in the Math-English Building. The sink drains in these labs are clear PVC and, according to Mr. Westgate, are piped to a single, common, acid neutralization trap. The location of this trap was not determined and the trap was not inspected. A locked room with a "Danger Chemical Storage" warning sign is present at the end of the hallway where the three science labs are located. The trap may be present in this room.

- Room ME15 contains six bench sinks with enclosed traps, one demo sink, and two side sinks. No acid neutralization traps were visible. Discharge piping visible on the demo and side sinks is clear, 3-inch diameter PVC. One vapor hood is present.
- Room ME14 contains seven bench sinks and one demo sink with an attached filter. No acid neutralization traps were visible. Discharge piping visible on the eight sinks is clear PVC or black PVC, all 3-inch diameter.
- Room ME13 contains six bench sinks and one demo sink with no visible acid neutralization traps. Discharge piping is clear, 3-inch diameter PVC.

Administration and Media Building H

- A photography lab is present on the second floor of the Administration and Media Building. This lab is currently in use and has been in continuous use since the building was constructed in 1971. An enclosed dark room and an adjacent, open area are both part of the photography lab. The sink and metal cabinets within the dark room are very corroded. No dilution tank is present. No acid neutralization or metals collection traps are present. Chemicals are stored on the counter area near both sinks. An exhaust fan in the dark room area draws fumes from the area; however, Mr. Westgate reported that odors are a problem when the lab is in use. Mr. Westgate reported significant problems with the drains in both the dark room and adjacent area and that pipes have been replaced to both sink drains.
- A separate boiler is present in an interior room on the lower level of the Administration and Media Building. This boiler is natural gas-fired and supplies heat to Building H only. The natural gas-fired hot water heater is also present in this interior room. Some dark staining was observed on the floor of the Administration and Media Building Boiler Room. The source of this staining was not determined.
- A Health Suite is present in the Administration and Media Building. This area was locked during the site inspection and was not inspected.
- An elevator is present in the Administration and Media Building. The hydraulics associated with the elevator are located in a locked area and were not viewed. Based on the age of the building (constructed 1971), it is likely that the hydraulics are not a significant environmental concern.
- A wooden shed, reported by Mr. Westgate to be used for storage of outdoor maintenance equipment, is located on the east side of the Administration Building. The interior of this shed was not inspected.

AREAS OF CONCERN FOR RENOVATION AND NEW CONSTRUCTION

1. Previous AHERA reports and updates were developed for the school buildings and the majority of the original identified asbestos materials were abatement during the 1991 renovation. However, other suspect asbestos materials may be present in building materials that were not covered by the original AHERA plan survey. Recommend a comprehensive asbestos survey of the site buildings be performed to identify all asbestos materials.
2. Lead containing paint may be present in the older portions of the buildings that were not renovated in 1991. During construction, the General Contractor shall be required to comply with OSHA regulations with regards to protection of employees and site personnel as well as EPA disposal requirements. Recommend lead testing be performed within the site building in order to disclose such information to the contractors as part of the bid documents.
3. Past history of discharge of hazardous materials (including waste chemicals and heavy metals) to the onsite drains and ultimately to two onsite septic systems. Recommend that investigation of soil and groundwater quality at the leaching fields and pits, determination of potential receptors, and possible excavation and disposal of impacted materials be performed.
4. Presence of two vents and indications of two fuel oil supply lines associated with pre-1991 UST at the Fine Arts Building (Building A). Recommend determination of the presence of absence of an abandoned UST in this area.
5. No documentation provided regarding conditions associated with the removal of two USTs (one at Fine Arts Building and one at Field House) that was undertaken in 1991. Recommend attempt to obtain documentation. If not available, recommend subsurface investigation of soil and groundwater quality to determine if impacts are currently present.
6. Tank construction details, if available, should be obtained to document compliance of the two in use USTs with current tank regulations.
7. The interiors of the garage attached to the Field House and the two wooden storage sheds were not observed. Hazardous material storage and use in these areas may be an issue.
8. In general, hazardous materials in the science labs and prep rooms were stored on open shelving or in unlocked cabinets. Access to these materials was relatively easy and protection against fire, spillage, and unauthorized use did not appear to be present. The to-be-implemented hazardous waste disposal program appears to have added hazardous waste collection containers to the areas of generation (including

science rooms, custodial rooms, boiler rooms, and photography lab). These collection containers of hazardous wastes are not stored in locked areas. Recommend limiting access to hazardous materials and wastes in new design. If hazardous materials are not to be reused, disposal will be required.

9. Existing acid neutralization traps and plumbing associated with the Science Building and the Math/English Building will require cleanout and disposal.
10. Grease traps, and associated piping, in the kitchen may require cleanout and disposal.
11. Standing water in sumps in the Fine Arts Building A Boiler Room and the Field House Boiler Room may require testing and disposal. Recommend determination of discharge points for the sumps and determination of whether oil or hazardous material has been discharged through the sump and impacted soil and/or groundwater quality at the site.
12. Transformers at the Fine Arts Building and the Field House may contain PCBs and require special disposal. Recommend determining PCB content prior to removal and disposal. Determine if releases from the transformers have stained the concrete floors and if PCB contamination of the slab is present.
13. Ash and coatings within the chimneys associated with the three Boiler Rooms may contain hazardous materials and heavy metals and may require special disposal.

The aforementioned information represents ATC's preliminary site investigation work relating to the feasibility study. As noted, additional sampling and investigation may be required in some instances to further determine the extent of the remediation activities required.