

ANALYSIS OF BROWNFIELD CLEANUP ALTERNATIVES

**Luxora Elementary School
406 Washington Avenue
Luxora, Ark. (Mississippi County)
AFIN: 47-01122**



Arkansas Department of Energy and Environment
Division of Environmental Quality
Office of Land Resources, Brownfield Program

October 2025

1.0 Introduction and Background

1.1 Site Location

The site is located at 406 Washington Avenue, Luxora, Ark. (Mississippi County) (Figure 1).

1.2 Previous Site Use(s)

The 5.53-acre site was used as a public school from the 1910s until 2014. Luxora Elementary School closed in 2014 and ownership was transferred to the City of Luxora in 2015.

Currently, the site contains three school buildings (Figure 2). Buildings A and C are used by the City of Luxora for community meetings and after school programs. Building B contains asbestos-containing materials (ACM) and is not currently in use (Figure 3).

1.3 Previous Site Assessments

An ASTM International (formerly American Society for Testing and Materials) Phase I Environmental Site Assessment (ESA) was completed by Environmental Science Services, Inc. in April 2024. The Phase I ESA identified no Recognized Environmental Conditions in connection with the site. However, the Phase I ESA identified the potential presence of ACM and lead-based paint (LBP) at the site based on the age of the school buildings, which were constructed prior to 1978.

An ACM inspection was completed by Environmental Science Services, Inc. in September 2024. A total of 32 samples representing 12 homogenous areas were collected and submitted to EMSL Analytical Laboratories for analysis of bulk asbestos using polarized light microscopy. Multiple samples were broken into layers by the laboratory; therefore, 49 analyses were completed. The survey identified four homogenous areas of ACM (materials containing greater than 1% asbestos) in building materials in Building B only. The following approximate amounts of ACM were identified at the site:

- 12,800 square feet (SF) of white 12x12 floor tile with black mastic throughout hallways and classrooms in Building B;
- 900 SF of sheetrock joint compound in the interior hallway of Building B;
- 1,600 SF of transite panels beneath exterior windows of Building B; and
- 13 white mudded pipe elbows in pipe fittings in the boiler room of Building B, with the chance of additional fittings present in pipe chases and wall cavities.

The floor tile, joint compound, and transite panels are considered Category I and Category II non-friable ACM in their current condition and state. The pipe elbows are considered friable ACM. All ACM identified at the property was noted to be in fair to good condition at the time of the inspection.

An LBP inspection was also completed by Environmental Science Services, Inc. in September 2024. Results of the LBP inspection indicated that LBP is not present in painted components associated with the property. Although not considered regulated LBP, the presence of lead paint below regulatory levels was identified on painted components. These painted components, if disturbed, may create a lead dust hazard or exposure issue for workers. Therefore, appropriate precautions should be taken when disturbing painted surfaces.

1.4 Project Goal

The City of Luxora intends to renovate buildings at the site, including energy efficiency upgrades, and to continue using the site as a space for community events and after school programs. ACM must be removed by an Arkansas-licensed asbestos abatement contractor prior to renovation activities that would disturb the materials.

Cleanup goals for the project include:

- Protection of human health and the environment;
- Compliance with applicable and appropriate regulatory requirements; and
- Short- and long-term hazard reduction.

2.0 Regulatory Considerations

2.1 Cleanup Oversight Responsibility

Arkansas Department of Energy and Environment (E&E), Division of Environmental Quality (DEQ), Brownfield Program will provide regulatory oversight of cleanup activities at the Site.

Tetra Tech, Inc. (Tetra Tech) will be the primary contractor for the project and will oversee the removal and disposal of ACM by sub-contractors. Gerken Environmental Enterprises, Inc. (Gerken), the remediation sub-contractor, is an Arkansas-licensed asbestos abatement contractor and is authorized to dispose of ACM waste. Environmental Enterprise Group, Inc. (EEG), as the licensed Arkansas Air Monitor, will be sub-contracted to perform oversight and clearance sampling.

A 10-Day Notice of Intent (NOI) will be filed with the DEQ Asbestos Section prior to site activities.

2.2 Applicable Laws and Regulations

The following laws and regulations apply to the asbestos cleanup alternatives for the Site:

- Toxic Substances Control Act (TSCA) – TSCA regulated certain hazardous chemical substances, including asbestos, and authorizes EPA to take regulatory action to protect against unacceptable risk of injury to human health or the environment.
- National Emissions Standard for Hazardous Air Pollutants (NESHAP) Regulation 40 CFR Part 61, Subpart M – Specifies work practices for asbestos during demolitions and renovations of buildings. The regulations require the owner or the operator of the building to notify the appropriate state agency before any demolition, or before any renovations of buildings that could contain a certain threshold amount of asbestos or asbestos-containing material.
- Clean Air Act (CAA) (24 U.S. Code § 7401 et seq.) – Includes provisions for the EPA to set national emission standards for hazardous air pollutants, including asbestos.
- Occupational Safety and Health Administration (OSHA) 29 CFR 1910.1001, Asbestos General Standard – Specifies permissible exposure limits, limits, engineering controls, worker training, labeling, respiratory protection, and disposal of asbestos waste.
- OSHA 29 CFR 1926.1101, Asbestos Construction Standard – Covers construction work involving asbestos, including work practice during demolition and renovation, worker training, disposal of asbestos waste, and specification of exposure limits.
- 20 CAR § 860-101 et seq., Arkansas Asbestos Abatement Rule (formerly Arkansas Pollution Control & Ecology Commission [APC&EC] Rule 21) – Specifies work practices for asbestos during demolitions and renovations of commercial buildings, including licensing and certification, inspections, notifications, and disposal requirements.
- 8 CAR § 60-101, Solid Waste Management Rules (formerly Rule 22) – Describes disposal requirements for asbestos containing materials.

Under Federal and State laws and regulations, before any renovation or demolition activities can commence in commercial properties, it is mandatory to determine the presence of asbestos-containing materials (ACM), including all Category I and Category II non-friable materials.

Regulated ACM (RACM) includes any ACM that is friable; any Category I and II ACM that is in poor condition; and any Category I or II ACM that becomes friable during renovation or demolition activities and is present in quantities greater than 160 square feet, 260 linear feet, or 35 cubic feet.

Any ACM that will be rendered friable during renovation or demolition activities due to sawing, sanding, drilling or abrading, regardless of the quantity of the material, are also considered to be regulated. DEQ requires these materials to be removed prior to any such renovation or demolition.

Removal of RACM from any public school, public building, or commercial building is regulated by EPA, DEQ, and OSHA. These materials must be removed by an asbestos abatement contractor licensed by DEQ who employs trained and certified workers that are individually licensed by DEQ.

An asbestos abatement design must be submitted to the DEQ Asbestos Section prior to a renovation, demolition, or response action, other than a small-scale short-duration (SSSD) activity or minor release episode that involves RACM. The project design must be a site-specific written document and a copy must be maintained at the job site and be made available to DEQ employees upon request. A Notice of Intent (NOI) must also be submitted to the DEQ Asbestos Section at least 10 working days prior to commencement of abatement activities.

Final clearance air sampling is required by DEQ for all contained work areas when regulated materials are removed. Final clearance air monitoring is to be performed by an Arkansas-licensed Air Monitor.

The disposal of RACM is regulated by the DEQ Solid Waste Division. Removed materials must be transported and disposed of as an asbestos-containing waste at a Class I licensed and permitted landfill. Disposal of Category I and II non-friable asbestos-containing materials in good condition can be disposed of at either a Class I or Class III licensed and permitted landfill.

2.3 Applicable Cleanup Standards

Final visual and air clearance sampling will be conducted to verify project completion. Tetra Tech will provide a licensed Arkansas Air Monitor to designate locations where air sampling will occur. The project will not be deemed complete until clearance sample levels are within acceptable levels. Air samples will be analyzed by the Phase Contrast Microscopy (PCM) Method 7400.

3.0 Evaluation of Cleanup Alternatives

Four cleanup alternatives were considered to address contamination at the site:

- Alternative #1: No Action
- Alternative #2: In-Place Management of ACM
- Alternative #3: Partial Removal of ACM and In-Place Management
- Alternative #4: Removal of All ACM

The effectiveness, feasibility, and cost of each cleanup alternative were evaluated.

3.1 Alternative #1: No Action

The No Action alternative is included as a baseline for comparison to the other proposed alternatives. This option would leave all ACM in place at the site.

Effectiveness – This alternative would not reduce the ACM hazard in the short- or long-term and would not be protective of human health and the environment. Applicable laws and regulations require RACM, as well as any ACM that may become friable during renovations, to be removed prior to planned renovations. Therefore, Alternative #1 would not allow for renovations necessary to meet the project goal.

Feasibility – This option would not prevent exposure to ACM. It is not feasible as the building is being renovated for future use which will require removal of ACM.

Cost – There are no costs associated with the No Action alternative.

3.2 Alternative #2: In-Place Management of ACM

In-place management of ACM would include the development of a written Operations and Maintenance (O&M) Plan to provide education, training, monitoring, and recordkeeping in regard to ACM left in place in Building B.

Effectiveness – This alternative would reduce the ACM hazard as long as building occupants adhere to the O&M Plan and therefore would be protective of human health and the environment. However, applicable laws and regulations require RACM, as well as any ACM that may become friable during renovations, to be removed prior to planned renovations. For this reason, Alternative #2 would not allow for renovations necessary to meet the project goal.

Feasibility – This option would prevent exposure to ACM as long as occupants follow the written O&M Plan. However, the option is not feasible as the building is being renovated for future use which will require removal of RACM and any ACM that will become friable during the renovation.

Cost – Development of an O&M Plan is estimated at **\$2,000**.

3.3 Alternative #3: Partial Removal of ACM and In-Place Management

This option includes removal of friable ACM (mudded pipe elbows), removal of any ACM in less than “good” condition (floor tiles and joint compound), and preparation of an O&M Plan for management of the remaining ACM (transite panels).

Effectiveness – This option would reduce the short-term hazard associated with the ACM in Building B. It would be protective of human health and the environment and would be in compliance with applicable laws and regulations. However, this option would not be effective in the long-term because the remaining ACM would eventually require removal as the building ages and the condition of the materials becomes worse. Additionally, this option would limit the renovation activities and would not allow for replacement of windows on Building B.

Feasibility – This option would prevent exposure to the ACMs long as occupants follow the written O&M Plan and would be in accordance with regulatory requirements. However, this option would limit renovation plans, require ongoing management of remaining ACM, and would eventually require additional ACM removal. For these reasons, it is not considered a practical solution for the contamination at the site.

Cost – The estimated cost for Alternative #3 is **\$83,300**. The estimate includes development of a site-specific QAPP, removal and disposal of ACM except for the transite panels, air monitoring, project oversight and reporting, and development of an O&M Plan.

3.4 Alternative #4: Removal of All ACM

This option includes removal of all ACM identified at the site.

Effectiveness – Complete removal of all ACM is the most effective option as it would fully protect human health and the environment in the short- and long-term. The abatement would be conducted by licensed workers in accordance with applicable laws and regulations. Further, this option would allow necessary renovations to proceed so that the project goal can be met.

Feasibility – This option would prevent exposure to the ACM and would be in accordance with regulatory requirements.

Cost – The estimated cost for Alternative #4 is **\$88,500**. The estimate includes development of a site-specific QAPP, removal and disposal of all ACM, air monitoring, and project oversight and reporting.

4.0 Selected Cleanup Alternative

The selected cleanup alternative for the site is Alternative #4, which includes removal of all ACM identified at the site. While this method costs more than Alternatives #1-3, it is the only method that would be fully protective of human health and the environment and would allow planned building renovations to proceed without complications.



Figure 1. Site Location
406 Washington Avenue
Luxora, Ark. (Mississippi County)



Figure 2. Site Boundaries
406 Washington Avenue
Luxora, Ark. (Mississippi County)

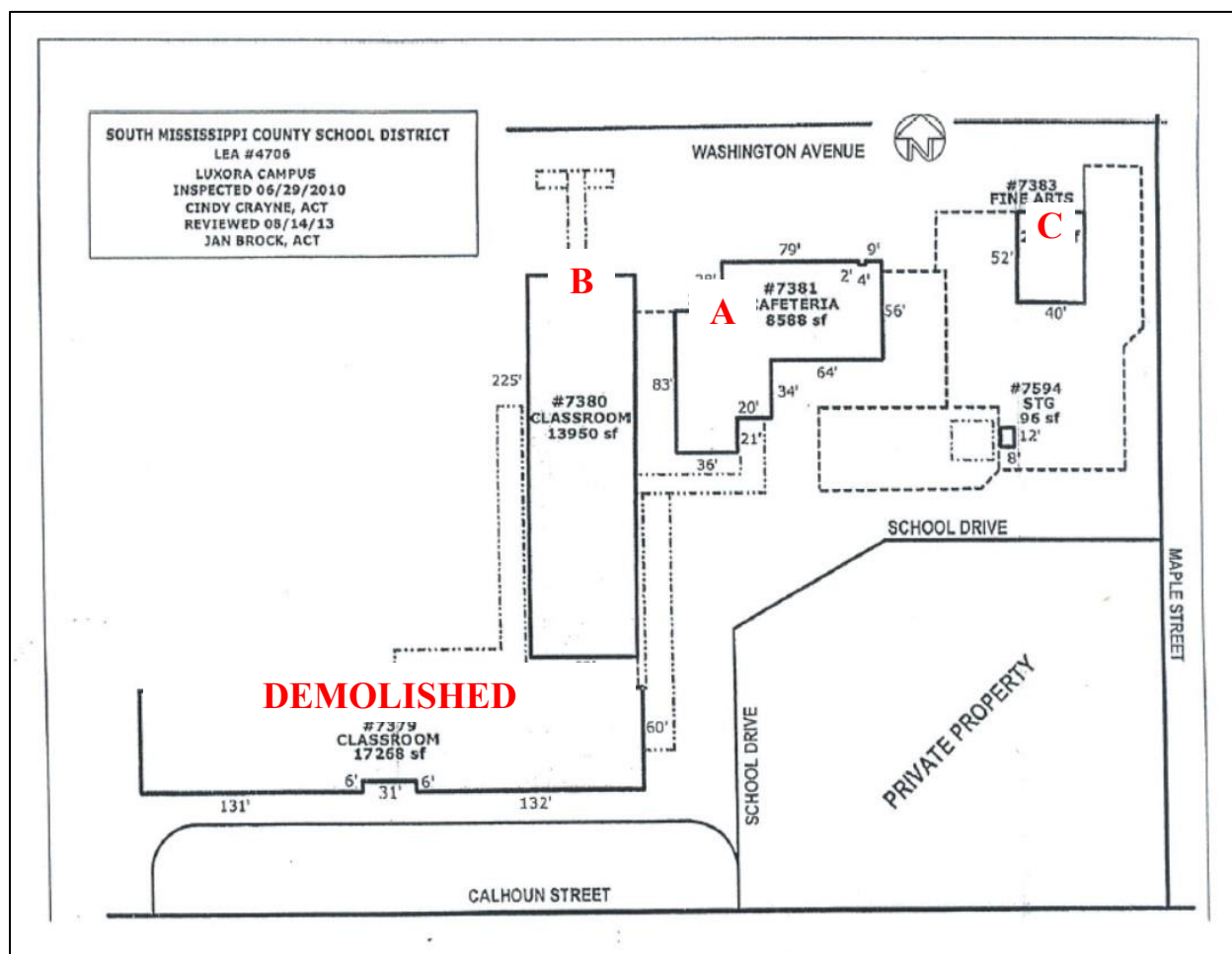


Figure 3. Site Layout
406 Washington Avenue
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