

LIMITED ASBESTOS AND LEAD BASED PAINT ASSESSMENT



GREENVILLE COUNTY LIBRARY

505 PENNSYLVANIA AVENUE
GREER, SOUTH CAROLINA 29650

ECS PROJECT NO. 49:6949

FOR: GREENVILLE COUNTY LIBRARY SYSTEM

MAY 29, 2018





May 29, 2018

Mr. Greg Hester
Greenville County Library System
25 Heritage Green Place
Greenville, South Carolina 29601

ECS Project No. 49:6949

Reference: Limited Asbestos and Lead Based Paint Assessment, Greenville County Library, 505 Pennsylvania Avenue, Greer, South Carolina

Dear Mr. Hester:

ECS Southeast, LLP (ECS) is pleased to provide Greenville County Library System with the results of the above referenced Limited Asbestos and Lead Based Paint Assessment performed at Greenville County Library located at 505 Pennsylvania Avenue in Greer, South Carolina. This report summarizes our observations, analytical results, findings, and recommendations related to the work performed. The work described in this report was performed by ECS in general accordance with the Scope of Services described in ECS Proposal Number 49:9672-PR and the terms and conditions of the agreement authorizing those services.

ECS appreciates this opportunity to provide Greenville County Library System with our services. If we can be of further assistance to you, please do not hesitate to contact us.

Sincerely,

ECS Southeast, LLP

Matthew J. Wilbanks
Environmental Technician
MWilbanks@ecslimited.com
864-987-1610

Lindsey Lucas, REM
Environmental Principal
llucas1@ecslimited.com
864-987-1810

EXECUTIVE SUMMARY

The subject property is improved with an approximate 11,000 square foot library reportedly constructed in 1995. The building consists of a brick exterior, a glass entrance, and a metal roof. The interior consists of carpet on a concrete slab, drywall walls, and drop in acoustical ceiling tiles. At the time of the survey, the building was occupied, and is scheduled for renovation.

The purpose of the Limited Asbestos and Lead Based Paint Assessment was to identify asbestos-containing materials (ACMs) and lead-based paint (LBP) which may require special handling and/or disposal if removed during construction activities. The identification of ACMs may require trained labor, regulated work practices, and special disposal. The identification of LBP or other lead hazards may require disclosure to contractors and monitoring of lead exposure.

Based on the laboratory analysis of the bulk samples collected during the survey, none of the materials sampled were reported to contain detectable concentrations of asbestos.

The lead-based paint survey was performed by ECS representative Tom Barnes. Painted and/or glazed surfaces were assessed for lead content using a Direct-Read X-Ray Fluorescence (XRF) Spectrometer. Lead-based paint is defined by the U.S. EPA and South Carolina as any paint or other surface coatings that contain lead equal to or in excess of 1.0 mg/cm² or 0.5% by weight. Lead-Based Paint/Glaze was identified on the following building materials/components:

- Beige ceramic flooring in the kitchen

Additionally, paint and surface coatings which contain detectable concentrations of lead are considered "lead-containing paints". Since OSHA has no specific action level for lead in paint, all paint on the site found to have a measurable concentration of lead should be assumed to be lead containing. Detectable concentrations of lead were identified in the following building materials/components:

- Beige metal door frame in the hallway
- Beige drywall in the break room

Recommendations regarding the removal and disposal of the ACMs and LBP identified by ECS can be found in Section 5.0 of this report.

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1.0 SITE DESCRIPTION

The subject property is improved with an approximately 11,000 square foot library reportedly constructed in 1995. The building consists of a brick exterior, a glass entrance and exterior windows, and a metal roof. The interior consists of carpet on a concrete slab, drywall walls, and drop in acoustical ceiling tiles. At the time of the survey, the building was occupied, and is scheduled for renovation.

2.0 PURPOSE

The purpose of the Limited Asbestos and Lead Based Paint Assessment was to identify asbestos-containing materials (ACMs) and lead-based paint (LBP) which may require special handling and/or disposal if removed during construction activities. The identification of ACMs may require trained labor, regulated work practices, and special disposal. The identification of LBP or other lead hazards may require disclosure to contractors and monitoring of lead exposure.

3.0 METHODOLOGY

ECS performed the authorized Scope of Services in general accordance with our proposal, standard industry practices and methods specified by regulations for the identification of Asbestos-Containing Materials (ACMs) and Lead-Based Paints (LBPs).

3.1 Asbestos-Containing Materials

The non-destructive asbestos survey was performed by asbestos inspectors who have received EPA accredited training licensed by South Carolina. Samples of suspect ACMs were collected utilizing hand tools and placed into individual, labeled plastic bags. Unique bulk suspect ACM samples were submitted to EMSL in Pineville, North Carolina for analysis via Polarized Light Microscopy (PLM) in accordance with current EPA-600 methodology. Materials consisting of additional layers were analyzed separately. EMSL is listed as an accredited laboratory by the National Voluntary Laboratory Accreditation Plan (NVLAP) managed by the National Institute of Standards and Technology (NIST) for bulk sample analysis by currently approved EPA methodology by PLM.

The EPA National Emissions Standard for Hazardous Air Pollutants (NESHAP) requires a survey for asbestos prior to renovation or demolition. Renovation or demolition is defined under NESHAP as the removal of a load-bearing structure or member.

On the basis of requirements under NESHAP and SCDHEC for demolition activities, ECS conducted a limited survey for potential asbestos-containing building materials (ACBM). The ACBM survey was limited in that we did not conduct demolition such as jack/sledge hammering to expose potentially concealed materials.

The tasks associated with the proposed asbestos assessments were:

1. ECS collected samples of the materials suspected to contain asbestos in general accordance with NESHAP regulations. Specifically, samples were collected from random locations of each homogeneous area. As per the Asbestos Hazard Emergency Response Act (AHERA) & SCDHEC requirements, samples were collected from random locations of each homogeneous area, with the



material's number of samples based upon the following criteria:

- Thermal Insulation Materials (piping, breeching, boiler insulation, etc.) – A minimum of three (3) samples are required. Only patch areas (less than 6 square or linear feet) may have one (1) sample collected.
- Surfacing Materials (plaster, fireproofing, etc.) – A minimum of seven (7) samples are to be taken for areas greater than 5,000 square feet; five (5) for areas greater than 1,000 square feet, but less than 5,000 square feet; three (3) for areas less than 1,000 square feet.
- Miscellaneous Materials (flooring, adhesives, roofing, wallboard, etc.) – A minimum of three (3) samples are required.

2. Samples collected at the site were delivered to a laboratory that has been accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) for testing. The samples will be analyzed using Polarized Light Microscopy (PLM). A chain of custody was maintained with the samples.

3. The assessment did not include destructive measures to look in chases, above fixed ceilings, behind permanent or attached fixtures, behind walls etc. Materials located below carpeting corners, behind removable exterior siding and behind removable fixtures will be sampled if accessible during the time of the assessment.

4. If one sample of a material from a homogeneous area was reported to contain greater than 1% asbestos, then by EPA definition, it is characterized as asbestos-containing material. If samples of non-friable organically bound (NOB) materials are collected and reported by the laboratory to contain less than 1% asbestos by PLM, these materials will be re-analyzed in accordance with SCDHEC requirements for NOB's by transmission electron microscopy (TEM) using the Chatfield method.

During the survey, ECS attempted to identify suspect ACMs in readily accessible areas. However, due to the destructive means required to identify some materials, certain areas were deemed inaccessible (i.e. behind walls or sub grade materials) and were not surveyed for suspect ACMs. Unidentified suspect ACMs may be located in these and/or other inaccessible areas.

Samples were collected in general accordance with EPA Standard 40 CFR 763 Subpart E, Asbestos Hazard Emergency Response Act (AHERA) and OSHA Standard 29 CFR 1926.1101 Inspection Protocol. Multiple samples of each unique material were submitted. Samples were analyzed using "Positive Stop" methodology. If one sample of a homogeneous material is reported to contain asbestos, the remaining samples of that material are not analyzed. EPA regulations stipulate that if one sample contains asbestos the entire quantity of that material contains asbestos, regardless of additional analysis.

3.2 Lead in Paint and Surface Coatings

The Lead-Based Paint (LBP) survey was performed by a South Carolina licensed Lead Inspector using an X-Ray Fluorescence (XRF) Spectrometer to identify lead concentrations in painted and glazed surfaces.

The survey was conducted utilizing the U.S. EPA definition of LBP. Under this definition, painted surfaces which contain lead in concentrations equal to or greater than 1.0 milligrams per square



centimeter ($\geq 1.0 \text{ mg/cm}^2$) are classified as coated with LBP. Additionally, fixtures or components that are manufactured with a factory applied glazing (i.e., sinks, toilets, ceramic tiles, etc.) are tested as these factory-applied finishes often contain lead. Activities which disturb lead-containing paints and glazing (while not lead-based paints by the U.S. EPA definition) are regulated by OSHA (29 CFR 1926.62). Identification of paint for this assessment was conducted by collection of suspect paint chip sampling.

Because the current or proposed use of the property is not residential or child-occupied, the scope of the LBP survey was not conducted in accordance with HUD Chapter 7 requirements. This representative survey included taking readings from walls, windows, doors, and miscellaneous components. Walls are listed by letter with wall "A" being the entrance of the subject building, proceeding clockwise to "B, C, D", etc.

4.0 RESULTS

The following is a summary of laboratory results, findings and observations.

4.1 Asbestos-Containing Materials

In total, 31 bulk samples from 9 homogeneous areas were submitted to the laboratory of which 49 layers were analyzed.

Summary of Asbestos-Containing Materials Identified

Sample ID	Location	Material Description	Analytical Results	Category	Estimated Quantity
01-01,02,03, 04, 05, 06, 07	Throughout	Drywall and Joint Compound	No Asbestos Detected	N/A	12,000 SF
02-01,02,03	Throughout	Green Cove Base and Mastic	No Asbestos Detected	N/A	300 LF
03-01,02,03	Storage Room in Back	Green Floor Tile and Mastic	No Asbestos Detected	N/A	75 SF
04-01,02,03	Below Sink in Break Room	Undersink Coating	No Asbestos Detected	N/A	2 SF
05-01,02,03	Exterior Doors	Door Caulk	No Asbestos Detected	N/A	15 SF
06-01,02,03	Throughout	Ceiling Tile	No Asbestos Detected	N/A	11,000 SF
07-01,02,03	Office Area	Pink Cove Base	No Asbestos Detected	N/A	75 LF
08-01,02,03	HVAC Area in Back	HVAC Mastic	No Asbestos Detected	N/A	25 SF



Sample ID	Location	Material Description	Analytical Results	Category	Estimated Quantity
09-01,02,03	Throughout	Carpet Mastic	No Asbestos Detected	N/A	11,000 SF

None of the materials submitted for analysis to EMSL were reported to contain asbestos. Asbestos-Containing Material (ACMs) are defined as any material containing more than one percent (>1%) asbestos as determined using the method specified in Appendix A, Subpart F, 40 CFR Part 763, Section 1, PLM. A list of materials sampled and submitted for analysis and their reported analytical results can be found in the Appendix.

4.2 Suspect or Assumed Asbestos-Containing Materials

Due to the inaccessibility or the destructive means that asbestos sampling requires, additional suspect ACMs may remain within the building hidden behind inaccessible areas that include, but are not limited to, sub-grade walls, structural members, topping slabs, sub-grade sealants, flooring located below underlayments, areas behind exterior walls, pipe trenches, and subsurface utilities, etc. These areas were deemed inaccessible and were not assessed.

- If these materials are discovered during construction activities, they should be presumed to contain asbestos and be treated as ACMs or be sampled immediately upon discovery and prior to disturbance for asbestos content by a certified asbestos inspector in accordance with 29 CFR 1926.1101.

4.3 Lead in Paint and Surface Coatings

Lead-based paint is defined by the U.S. EPA and South Carolina as any paint or other surface coatings that contain lead equal to or in excess of 1.0 mg/cm² or 0.5% by weight.

Paint and surface coatings which contain detectable concentrations of lead considered "lead-containing paints". Since OSHA has no specific action level for lead in paint, all paint on the site found to have a measurable concentration of lead should be assumed to be lead containing. Work performed which may disturb lead-containing paint is regulated under OSHA as referenced under 29 CFR 1926.62. Paint and other surface coatings which are defined by applicable regulation as lead-based paints are summarized in the table below and photographs of lead-based paint identified are located in the Appendix.

The following types of materials were found to contain detectable concentrations of lead:

- Beige ceramic flooring in the kitchen
- Beige metal door frame in the hallway
- Beige drywall in the break room



Summary of XRF Lead-Based Paint Results and Condition

Location	Color	Substrate	Component	Condition	Lead Concentration (mg/cm ²)
Kitchen	Beige	Ceramic	Floor	Intact	3.4
Kitchen	Beige	Ceramic	Floor	Intact	2.5
Hallway	Beige	Metal	Door	Intact	0.01
Break Room	Beige	Drywall	Wall	Intact	0.01

5.0 RECOMMENDATIONS AND REGULATORY REQUIREMENTS

Based on our understanding of the purpose of the Limited Asbestos and Lead Based Paint Assessment, the results of laboratory analysis, and our findings and observations, ECS presents the following recommendations.

5.1 Asbestos-Containing Materials

None of the bulk samples submitted to EMSL were reported to contain detectable concentrations of asbestos. If additional suspect asbestos-containing materials are uncovered which were not accessible during this sampling event, it is recommended that these materials be sampled or tested immediately upon discovery for asbestos content by an asbestos inspector in accordance with 29 CFR 1926.1101.

5.2 Lead in Paint and Surface Coatings

Based on the findings of this report, detectable concentrations of lead were identified on some paints and surface coatings.

The presence of lead is a concern primarily when conditions exist where it may inhaled or ingested. Regardless of the analytical results of a material, all painted and/or glazed surfaces may still contain concentrations of lead in the paint, which when disturbed, may generate lead dust greater than the Permissible Exposure Limit (PEL) of 50 micrograms per cubic millimeter ($\mu\text{g}/\text{m}^3$) as an 8-hour Time Weighted Average (TWA) established by the OSHA "Lead Exposure in Construction Rule (29 CFR 1926.62)."

The OSHA standard gives no guidance on acceptable levels of lead in paint at which no exposure to airborne lead (above the action level) would be expected. Rather, OSHA defines airborne concentrations, and references specific types of work practices and operations from which a lead hazard may be generated (reference 29 CFR 1926.62, section d). Environmental and personnel monitoring should be conducted during any removal/demolition process (as appropriate) to verify that actual personal exposures are below the Permissible Exposure Limit (PEL) of 50 micrograms per cubic millimeter ($\mu\text{g}/\text{m}^3$) as an 8-hour Time Weighted Average (TWA). Under OSHA requirements,



the contractor performing renovation work will be required to conduct this monitoring and follow applicable requirements under 29 CFR 1926.62 if disturbing lead-containing paint.

6.0 LIMITATIONS

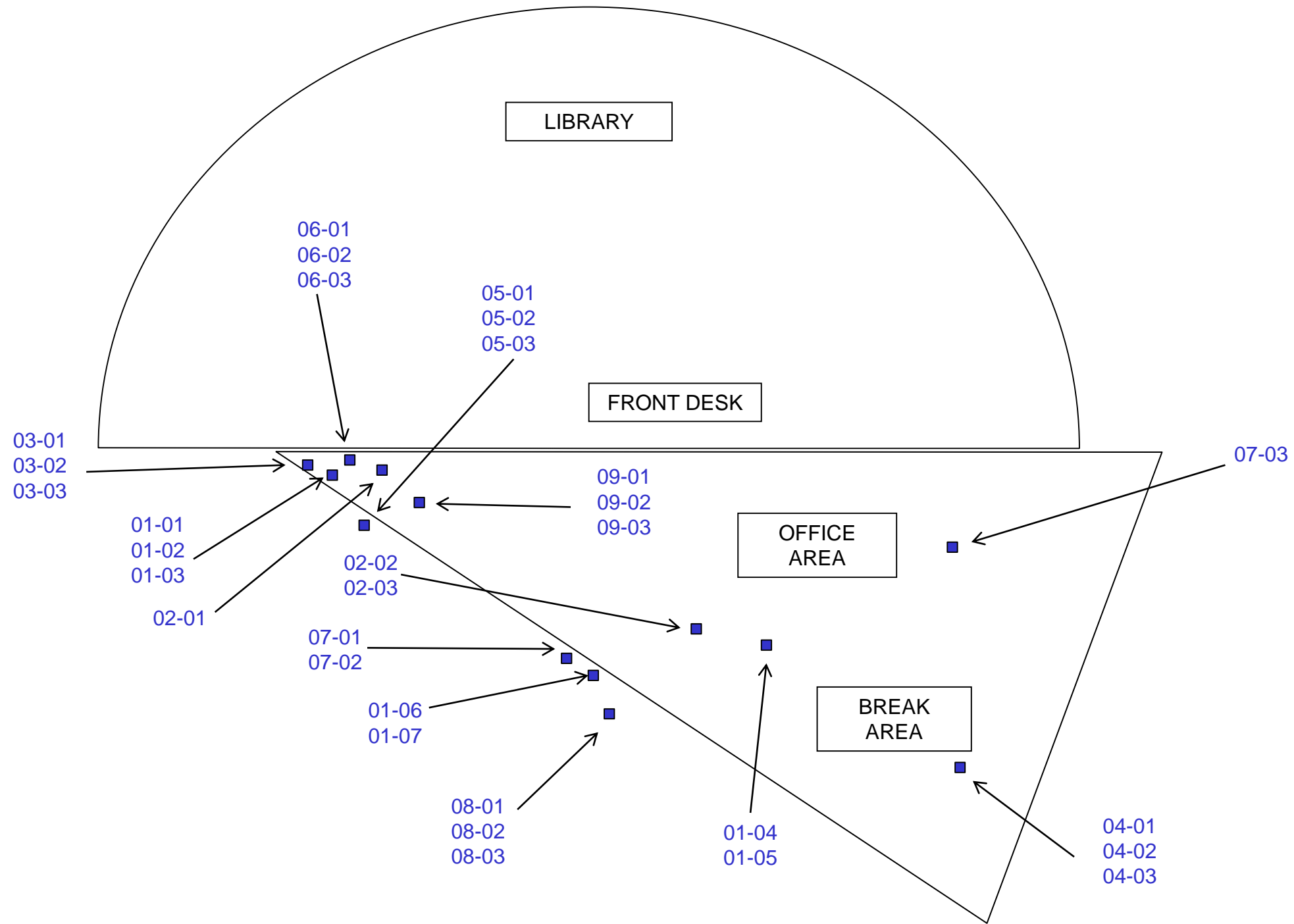
The conclusions and recommendations presented within this report are based upon a reasonable level of assessment within normal bounds and standards of professional practice for a site in this particular geographic setting. ECS is not responsible or liable for the discovery and elimination of hazards that may potentially cause damage, accidents, or injuries.

The observations, conclusions, and recommendations pertaining to environmental conditions at the subject site are necessarily limited to conditions observed, and/or materials reviewed at the time this study was undertaken. No warranty, expressed or implied, is made with regard to the conclusions and recommendations presented within this report. This report is provided for the exclusive use of the client. This report is not intended to be used or relied upon in connection with other projects or by other unidentified third parties without the written consent of ECS and the client.

Our recommendations are in part based on federal, state, and local regulations and guidelines. ECS does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, state, or federal public agencies, any conditions at the site that may present a potential danger to public health, safety, or the environment. Under this scope of services, ECS assumes no responsibility regarding any response actions initiated as a result of these findings. General compliance with regulations and response actions are the sole responsibility of the Client and should be conducted in accordance with local, state, and/or federal requirements.



Appendix I: Figures



NORTH

LEGEND

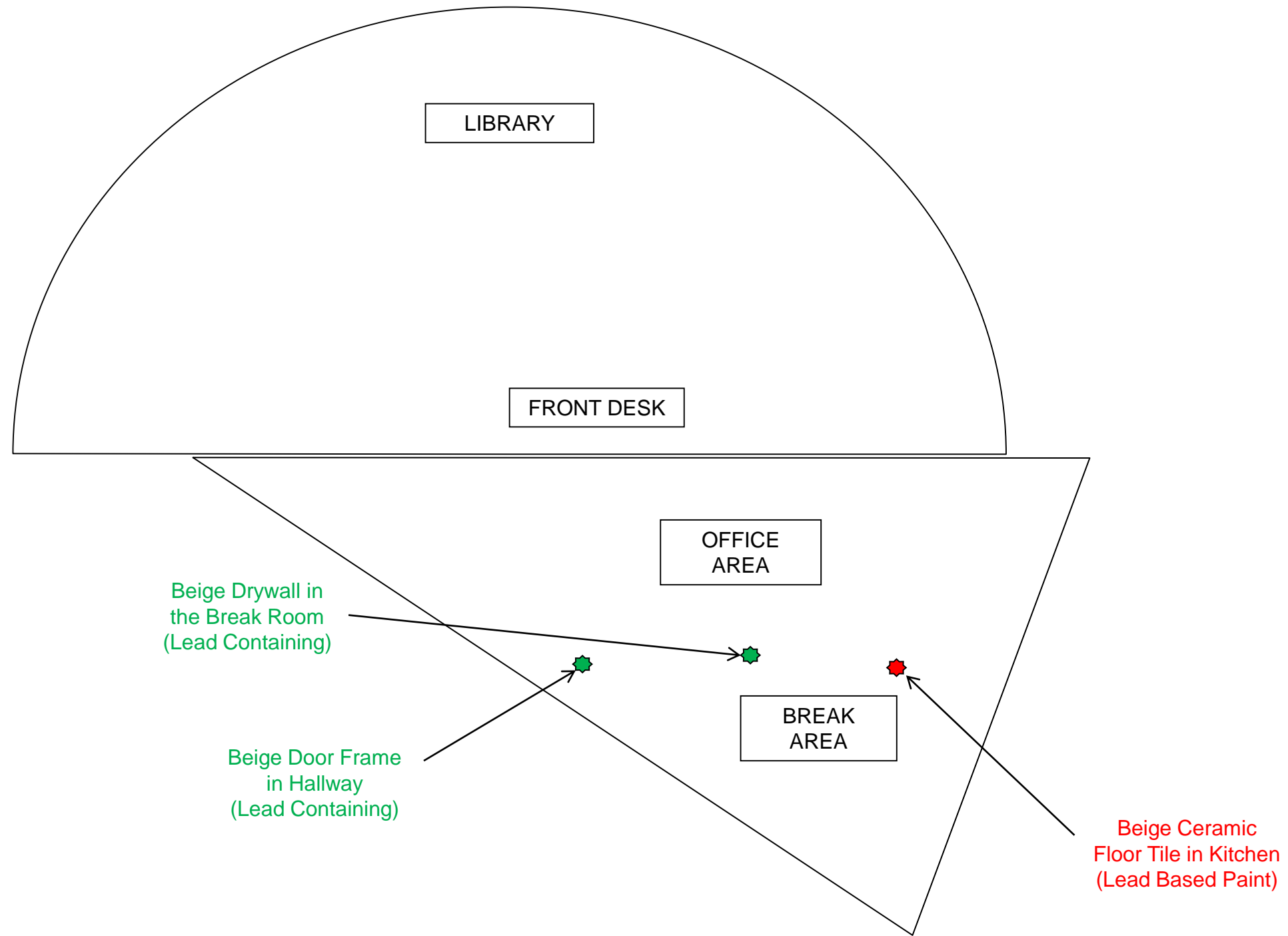
- Negative ACM Sample Location
- ★ Positive ACM Sample Location

DRAWING PROVIDED BY ECS
NOT TO SCALE





**FIGURE 1
ASBESTOS SAMPLE LOCATIONS**

Greenville County Library
505 Pennsylvania Avenue
Greer, Greenville County
South Carolina
ECS Project No. 49-6949



NORTH

LEGEND

-  Lead Based Paint Detected
-  Lead Containing Paint

DRAWING PROVIDED BY ECS
NOT TO SCALE



**FIGURE 2
LEAD BASED PAINT SAMPLE
LOCATIONS**

Greenville County Library
505 Pennsylvania Avenue
Greer, Greenville County
South Carolina
ECS PROJECT NO. 49-6949

Appendix II: Site Photographs



1 - View of the exterior of the Greenville County Library, located at 505 Pennsylvania Avenue in Greer, SC



2 - View of the entrance sign



3 - View of Drywall/Joint Compound (Sample 01) above the drop ceiling



4 - View of the green cove base (Sample 02) located throughout the structure



5 - View of the green floor tile and mastic (Sample 03) located in the storage room



6 - View of the ceiling tile (Sample 06) located throughout the structure



7 - View of the pink cove base (Sample 07) located throughout the office area



8 - View of the carpet and mastic (Sample 09) located throughout the structure



9 - View of piping and wall materials in the mechanical room



10 - View of HVAC Mastic (Sample 08)



11 - View of exterior piping



12 - View of beige ceramic tile in the kitchen area - Lead Based Coating



13 - View of exterior piping



14 - View of HVAC Mastic



15 - View of HVAC Mastic

Appendix III: Asbestos Bulk Sample Results



EMSL Analytical, Inc.

10801 Southern Loop Blvd Pineville, NC 28134

Tel/Fax: (704) 525-2205 / (704) 525-2382

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

EMSL Order: 411804050

Customer ID: ENCS55

Customer PO: 6949

Project ID:

Attention: Thomas W. Barnes, III
ECS (Engineering Consulting Services)
1200 Woodruff Road
Suite H-12
Greenville, SC 29607

Phone: (864) 987-1610

Fax: (864) 987-1615

Received Date: 05/22/2018 9:00 AM

Analysis Date: 05/24/2018

Collected Date: 05/21/2018

Project: 6949 - Greenville County Library

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	
01-01-Drywall <small>411804050-0001</small>	Drywall/ Joint Compound	Brown/White Fibrous Homogeneous	8% Cellulose 1% Glass	91% Non-fibrous (Other)	None Detected
01-01-Joint Compound <small>411804050-0001A</small>	Drywall/ Joint Compound	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
01-01-Tape <small>411804050-0001B</small>	Drywall/ Joint Compound	Beige Fibrous Homogeneous	100% Cellulose		None Detected
01-02-Drywall <small>411804050-0002</small>	Drywall/ Joint Compound	Brown/Gray Fibrous Homogeneous	5% Cellulose 1% Glass	94% Non-fibrous (Other)	None Detected
01-02-Joint Compound <small>411804050-0002A</small>	Drywall/ Joint Compound	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
01-03-Drywall <small>411804050-0003</small>	Drywall/ Joint Compound	Brown/Gray Fibrous Homogeneous	10% Cellulose 1% Glass	89% Non-fibrous (Other)	None Detected
01-03-Joint Compound <small>411804050-0003A</small>	Drywall/ Joint Compound	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
01-04-Drywall <small>411804050-0004</small>	Drywall/ Joint Compound	Brown/Gray Fibrous Homogeneous	5% Cellulose 1% Glass	94% Non-fibrous (Other)	None Detected
01-04-Joint Compound <small>411804050-0004A</small>	Drywall/ Joint Compound	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
01-05-Drywall <small>411804050-0005</small>	Drywall/ Joint Compound	Tan Fibrous Homogeneous	8% Cellulose 1% Glass	91% Non-fibrous (Other)	None Detected
01-05-Joint Compound <small>411804050-0005A</small>	Drywall/ Joint Compound	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
01-06-Drywall <small>411804050-0006</small>	Drywall/ Joint Compound	Tan Fibrous Homogeneous	5% Cellulose 1% Glass	94% Non-fibrous (Other)	None Detected
01-06-Joint Compound <small>411804050-0006A</small>	Drywall/ Joint Compound	White Non-Fibrous Homogeneous		35% Ca Carbonate 65% Non-fibrous (Other)	None Detected
01-07-Drywall <small>411804050-0007</small>	Drywall/ Joint Compound	White Fibrous Homogeneous	5% Cellulose 1% Glass	94% Non-fibrous (Other)	None Detected
01-07-Joint Compound <small>411804050-0007A</small>	Drywall/ Joint Compound	White Non-Fibrous Homogeneous		35% Ca Carbonate 65% Non-fibrous (Other)	None Detected
02-01-Cove Base <small>411804050-0008</small>	Green Cove Base	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 05/24/2018 16:52:46



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10801 Southern Loop Blvd Pineville, NC 28134

Tel/Fax: (704) 525-2205 / (704) 525-2382

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

EMSL Order: 411804050
Customer ID: ENCS55
Customer PO: 6949
Project ID:

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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
02-01-Mastic <small>411804050-0008A</small>	Green Cove Base	Beige Non-Fibrous Homogeneous		8% Ca Carbonate 92% Non-fibrous (Other)	None Detected
02-02-Cove Base <small>411804050-0009</small>	Green Cove Base	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
02-02-Mastic <small>411804050-0009A</small>	Green Cove Base	Tan Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
03-01-Floor Tile <small>411804050-0010</small>	Green Floor Tile	Black/Green Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
03-01-Mastic <small>411804050-0010A</small>	Green Floor Tile	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
03-02-Floor Tile <small>411804050-0011</small>	Green Floor Tile	Green Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
03-02-Mastic <small>411804050-0011A</small>	Green Floor Tile	Tan Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
04-01 <small>411804050-0012</small>	Undersink Coating	Gray Non-Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
04-02 <small>411804050-0013</small>	Undersink Coating	Gray Non-Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
05-01 <small>411804050-0014</small>	Door Caulking	White/Red Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
05-02 <small>411804050-0015</small>	Door Caulking	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
06-01 <small>411804050-0016</small>	Ceiling Tile	Tan/White Fibrous Homogeneous	45% Cellulose 20% Min. Wool	30% Perlite 5% Non-fibrous (Other)	None Detected
06-02 <small>411804050-0017</small>	Ceiling Tile	Tan/White Fibrous Homogeneous	45% Cellulose 20% Min. Wool	30% Perlite 5% Non-fibrous (Other)	None Detected
06-03 <small>411804050-0018</small>	Ceiling Tile	Gray Fibrous Homogeneous	45% Cellulose 20% Min. Wool	20% Perlite 15% Non-fibrous (Other)	None Detected
07-01-Cove Base <small>411804050-0019</small>	Pink Cove Base	Pink Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
07-01-Mastic <small>411804050-0019A</small>	Pink Cove Base	Tan Non-Fibrous Homogeneous		8% Ca Carbonate 92% Non-fibrous (Other)	None Detected
07-02-Cove Base <small>411804050-0020</small>	Pink Cove Base	Pink Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
07-02-Mastic <small>411804050-0020A</small>	Pink Cove Base	Tan Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
08-01 <small>411804050-0021</small>	HVAC Mastic	White Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected

Initial report from: 05/24/2018 16:52:46



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

EMSL Order: 411804050
Customer ID: ENCS55
Customer PO: 6949
Project ID:

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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
08-02-Mastic <i>411804050-0022</i>	HVAC Mastic	White Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
08-02-Insulation <i>411804050-0022A</i>	HVAC Mastic	Yellow Fibrous Homogeneous	98% Glass	2% Non-fibrous (Other)	None Detected
09-01 <i>411804050-0023</i>	Carpet Mastic	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
09-02 <i>411804050-0024</i>	Carpet Mastic	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Analyst(s) _____
 Kristie Elliott (21)
 Sarah Breneman (18)



 Lee Plumley, Laboratory Manager
 or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported 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. 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. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%

Samples analyzed by EMSL Analytical, Inc. Pineville, NC NVLAP Lab Code 200841-0, VA 3333 00312

Initial report from: 05/24/2018 16:52:46



EMSL ANALYTICAL, INC.
LABORATORY PRODUCTS TRAINING

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

411804050

PHONE:
FAX:

Company Name: ECS SOUTHEAST, LLP		EMSL Customer ID:	
Street: 1200 WOODRUFF ROAD, SUITE H-12		City: GREENVILLE	State/Province: SC
Zip/Postal Code: 29607	Country: USA	Telephone #: 864-987-1610	Fax #:
Report To (Name): TOM BARNES		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email	
Email Address: TWBARNES@ECSLIMITED.COM		Purchase Order: 6949	
Project Name/Number: 6949 - GREENVILLE COUNTY LIBRARY		EMSL Project ID (Internal Use Only):	
U.S. State Samples Taken: SOUTH CAROLINA		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** <i>Third Party Billing requires written authorization from third party</i>			
Turnaround Time (TAT) Options* - Please Check			
<input type="checkbox"/> 3 Hour	<input type="checkbox"/> 6 Hour	<input type="checkbox"/> 24 Hour	<input type="checkbox"/> 48 Hour <input checked="" type="checkbox"/> 72 Hour <input type="checkbox"/> 96 Hour <input type="checkbox"/> 1 Week <input type="checkbox"/> 2 Week
<small>*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.</small>			
PCM - Air <input type="checkbox"/> Check if samples are from NY <input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> w/ OSHA 8hr. TWA		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	
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 - 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)	
		Other: <input type="checkbox"/>	
<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: Matthew J. Minn		Samplers Signature: MATTHEW WILBANKS	
Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
01-01	DRYWALL/JOINT COMPOUND		MAY 21, 2018 11:00 AM
01-02	"		
01-03	"		
01-04	"		
01-05	"		✓
Client Sample # (s): 01-01 - 09-03		Total # of Samples: 31	
Relinquished (Client): Matthew J. Minn		Date: 5.21.18	Time: 16:45
Received (Lab): Kyle N...		Date: 5/22/18	Time: 9:00 AM Fx
Comments/Special Instructions: POSITIVE STOP		7722 8259 4229	



EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

411804050

PHONE:
FAX:

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
01-06	1" DRYWALL/JOINT COMPOUND		MAY 21, 2018 11:00 AM
01-07	1" "		
02-01	GREEN COVE BASE		
02-02	1" "		
02-03	1" "		
03-01	GREEN FLOOR TILE		
03-02	1" "		
03-03	1" "		
04-01	UNDERSINK COATING		
04-02	1" "		
04-03	1" "		
05-01	DOOR CAULKING		
05-02	1" "		
05-03	1" "		
06-01	CEILING TILE		
06-02	1" "		
06-03	1" "		
07-01	PINK COVE BASE		
07-02	1" "		
07-03	1" "		
08-01	HVAC MASTIC		
08-02	1" "		
08-03	1" "		✓

*Comments/Special Instructions:

⊕ Stop



EMSL Analytical, Inc.

10801 Southern Loop Blvd Pineville, NC 28134

Tel/Fax: (704) 525-2205 / (704) 525-2382

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

EMSL Order: 411804050

Customer ID: ENCS55

Customer PO: 6949

Project ID:

Attention: Thomas W. Barnes, III
ECS (Engineering Consulting Services)
1200 Woodruff Road
Suite H-12
Greenville, SC 29607

Phone: (864) 987-1610

Fax: (864) 987-1615

Received Date: 05/22/2018 9:00 AM

Analysis Date: 05/26/2018

Collected Date: 05/21/2018

Project: 6949 - Greenville County Library

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
02-03-Cove Base 411804050-0025	Green Cove Base	Blue/Green Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
02-03-Mastic 411804050-0026	Green Cove Base	Tan Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
03-03-Floor Tile 411804050-0027	Green Floor Tile	Green Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
03-03-Mastic 411804050-0028	Green Floor Tile	Tan Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
04-03 411804050-0029	Undersink Coating	Gray Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
05-03 411804050-0030	Door Caulking	White/Red Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
07-03-Cove Base 411804050-0031	Pink Cove Base	Pink Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
07-03-Mastic 411804050-0032	Pink Cove Base	Tan Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
08-03-Mastic 411804050-0033	HVAC Mastic	White Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
09-03 411804050-0034	Carpet Mastic	Tan Non-Fibrous Heterogeneous	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. Pineville, NC

Initial report from: 05/29/2018 08:32:00



EMSL Analytical, Inc.

10801 Southern Loop Blvd Pineville, NC 28134

Tel/Fax: (704) 525-2205 / (704) 525-2382

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

EMSL Order: 411804050
Customer ID: ENCS55
Customer PO: 6949
Project ID:

Attention: Thomas W. Barnes, III ECS (Engineering Consulting Services) 1200 Woodruff Road Suite H-12 Greenville, SC 29607	Phone: (864) 987-1610 Fax: (864) 987-1615
Project: 6949 - Greenville County Library	Received Date: 05/22/2018 9:00 AM Analysis Date: 05/26/2018 Collected Date: 05/21/2018

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
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Analyst(s)

Aaron Hartley (10)

Lee Plumley, 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. Pineville, NC

Initial report from: 05/29/2018 08:32:00

Appendix IV: Lead Laboratory Analytical Results

No.	Time	Units	Component	Substrate	Side	Floor	Room	Results	Action Level	PbC
2963	5/21/2018 10:04:00 AM	cps								0.88
2964	5/21/2018 10:05:00 AM	mg / cm ^2			CALIBRATE			Negative	1	0.8
2965	5/21/2018 10:08:00 AM	mg / cm ^2			CALIBRATE			Null	1	1
2966	5/21/2018 10:10:00 AM	mg / cm ^2			CALIBRATE			Positive	1	1
2967	5/21/2018 10:11:00 AM	mg / cm ^2			CALIBRATE			Null	1	1
2968	5/21/2018 10:14:00 AM	mg / cm ^2			CALIBRATE			Positive	1	1.1
2969	5/21/2018 10:15:00 AM	mg / cm ^2	WALL	DRYWALL	A	FIRST	IT	Negative	1	0
2970	5/21/2018 10:19:00 AM	mg / cm ^2	WALL	DRYWALL	A	FIRST	BREAK	Negative	1	0.01
2971	5/21/2018 10:21:00 AM	mg / cm ^2	DOOR	WOOD	A	FIRST	BREAK	Negative	1	0
2972	5/21/2018 10:22:00 AM	mg / cm ^2	TRIM	METAL	A	FIRST	BREAK	Negative	1	0
2973	5/21/2018 10:22:00 AM	mg / cm ^2	TRIM	METAL	A	FIRST	HALL	Negative	1	0
2974	5/21/2018 10:24:00 AM	mg / cm ^2	DOOR	METAL	A	FIRST	HALL	Negative	1	0.01
2975	5/21/2018 10:24:00 AM	mg / cm ^2	FLOOR	CERAMIC	A	FIRST	KITCHEN	Positive	1	3.4
2976	5/21/2018 10:27:00 AM	mg / cm ^2	FLOOR	CERAMIC	A	FIRST	KITCHEN	Positive	1	2.5
2977	5/21/2018 10:32:00 AM	mg / cm ^2	CABINET	WOOD	A	FIRST	KITCHEN	Negative	1	0
2978	5/21/2018 10:32:00 AM	mg / cm ^2	DOOR	METAL	A	FIRST	OUTSIDE	Null	1	0
2979	5/21/2018 10:32:00 AM	mg / cm ^2	DOOR	METAL	A	FIRST	OUTSIDE	Negative	1	0
2980	5/21/2018 10:51:00 AM	mg / cm ^2	TRIM	METAL	A	FIRST	OUTSIDE	Negative	1	0
2981	5/21/2018 10:53:00 AM	mg / cm ^2	WALL	DRYWALL	B	FIRST	MECH	Negative	1	0
2982	5/21/2018 10:57:00 AM	mg / cm ^2	GUTTER	METAL	A	FIRST	OUTSIDE	Negative	1	0
2983	5/21/2018 10:59:00 AM	mg / cm ^2			CALIBRATE			Negative	1	0.9
2984	5/21/2018 11:00:00 AM	mg / cm ^2			CALIBRATE			Positive	1	1
2985	5/21/2018 11:00:00 AM	mg / cm ^2			CALIBRATE			Negative	1	0.9

Appendix V: Certifications/ Licenses

SCDHEC ISSUED

Asbestos ID Card

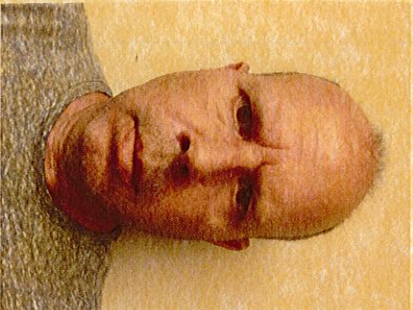
Thomas Barnes



AIRSAMPLER	AS-00478	Expiration Date:	12/07/18
CONSULTBI	BI-01498		12/08/18
SUPERAMERA	SA-02597		12/07/18

United States Environmental Protection Agency

This is to certify that



Thomas W Barnes

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Inspector

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires

October 13, 2019

LBP-1-1168789-1

Certification #

September 29, 2016

Issued On



A handwritten signature in black ink, appearing to read "Adrienne Priselac".

Adrienne Priselac, Manager, Toxics Office
Land Division

SCDHEC ISSUED
Asbestos ID Card

Matthew J Wilbanks



CONSULTBI BI-01688

Expiration Date:
01/31/19