

Asbestos & Lead Paint Inspection Report

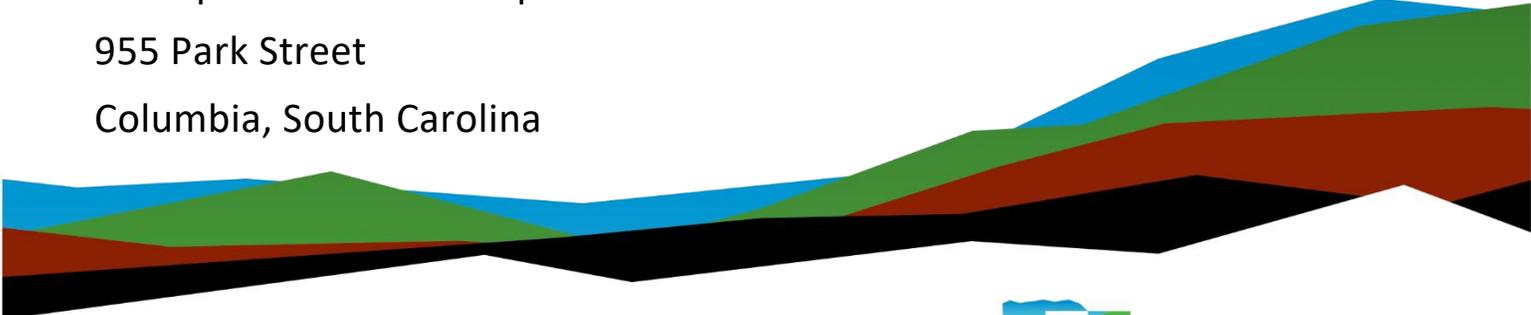
S-23-102 Bridge over Armstrong Creek

December 20, 2023 | Report Number: 7323P180

ASBESTOS DETECTED: NO
LEAD PAINT DETECTED: YES

Prepared for:

SC Department of Transportation
955 Park Street
Columbia, South Carolina



Nationwide
[Terracon.com](https://www.terracon.com)

- Facilities
- Environmental
- Geotechnical
- Materials



521 Clemson Road
Columbia, SC 29229
P (803) 741-9000
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Terracon.com

December 20, 2023

SCDOT
955 Park Street
Columbia, SC 29202

Attn: Mr. Trapp Harris, P.E.

Re: Asbestos & Lead Paint Inspection Report
SCDOT Bridge Package 19
S-23-102 over Armstrong Creek
Bridge Asset No. 03308
Greenville County, South Carolina
Terracon Project No. 7323P180
SCDOT Project No. P041161
Survey Conducted: November 30, 2023

Dear Mr. Harris:

Terracon Consultants, Inc. (Terracon) is pleased to present the results of the asbestos and lead paint inspection performed on the above referenced site. We understand that this inspection was requested due to the planned repair and rehabilitation of the structure.

Terracon appreciates the opportunity to provide environmental consulting services for the SCDOT. If you should have any questions regarding this report, or if you need assistance with bid documents or project oversight, please contact the undersigned at (803) 741-9000.

Sincerely,

Terracon Consultants, Inc.

A handwritten signature in blue ink, appearing to read "Adam Chapiessky".

Adam Chapiessky
Certified Operator

A handwritten signature in blue ink, appearing to read "Norman E. Partin, Jr." with a stylized flourish.

Norman E. (Gene) Partin, Jr., CHMM
Department Manager



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December 20, 2023 ■ Terracon Project No. 7322P180



EXECUTIVE SUMMARY

This executive summary is intended as an overview for the convenience of the reader. The report should be reviewed in its entirety prior to making any decisions regarding this site.

Terracon Consultants Inc. (Terracon) conducted an asbestos and lead paint inspection of building materials at the S-23-102 Bridge (Asset No. 03308) over Armstrong Creek located in Greenville County, South Carolina. The purpose of this inspection was to sample and identify suspect asbestos-containing materials (ACM) and provide information regarding the identity, location, condition and approximate quantities of ACM in building components. The objective of the lead paint evaluation was to identify lead containing paint systems on components that may require special handling and disposal considerations upon demolition of the structure.

The inspection was performed on November 30, 2023 by a South Carolina Department of Health and Environmental Control (SCDHEC) licensed asbestos inspector in general accordance with our proposal dated September 21, 2023, and the sampling protocols established in EPA 40 CFR 763 (Asbestos Hazard Emergency Response Act, AHERA) and the SCDHEC Regulation 61-86.1 Standards of Performance for Asbestos Projects. Paint samples were collected from visible and accessible building components and paint systems and submitted to an Environmental Laboratory Accreditation Program (ELAP) approved laboratory for analysis of lead.

Three (3) bulk samples were collected from homogeneous areas of suspect ACM. Four (4) paint-chip samples were collected from the components of the bridge.

Findings

Laboratory analysis did not identify asbestos in any of the samples collected.

Laboratory analysis detected lead in the following samples:

- Orange paint on tension bracket plates (37% by weight).
- Gray paint on steel beams (0.013% by weight).

Recommendations

Based on the scope of services, limitations, and findings of this assessment, Terracon recommends the following:

- A copy of this report must be submitted to SCDHEC at least ten (10) working days prior to demolition when applying for a demolition permit.

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- **Dispose of lead painted debris in a Class II Landfill.** - SCDHEC regulations require that lead-painted demolition debris be disposed in a permitted Class II landfill. Landfills should be contacted to determine their specific disposal requirements. Metal components painted with lead-based paint may be recycled however the recycler should be contacted to determine their specific requirements.

- **Inform contractors and workers of presence of lead in paints** - Occupational Safety and Health Administration Lead Regulations apply to actions initiated on lead containing materials. This regulation applies to lead concentrations greater than the analytical limit of detection. This regulation provides exposure levels on airborne lead and does not reference the concentration of lead in paint or other lead-containing materials. Workers performing work on surfaces which have any lead concentration should be notified to comply with OSHA requirements. The full OSHA lead standard should be referenced for compliance.

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December 20, 2023 ■ Terracon Project No. 7322P180



1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) conducted an asbestos and lead paint inspection of building materials at the S-23-102 Bridge (Asset No. 03308) over Armstrong Creek located in Greenville County, South Carolina. The asbestos survey was conducted on November 30, 2023, by a South Carolina Department of Health and Environmental Control (SCDHEC) licensed building inspector in general accordance with our Proposal No. 8623P180, dated September 21, 2023.

We understand the asbestos and lead paint inspection was requested due to the planned repair and rehabilitation of the bridge.

2.0 BUILDING DESCRIPTION

The bridge deck of the structure consists of concrete spans. The bridge structure has a combination of concrete, and metal, and wood guardrails. The bridge deck is supported by concrete pier caps, which are located on wood or steel piers. The bridge structure is approximately 60 feet long and 25 feet wide.

3.0 ASBESTOS INSPECTION

The asbestos inspection was conducted by SCDHEC licensed Asbestos Building Inspector Mr. Adam Chapiessky (License No. BI-001971, exp. 1/3/2024). Copies of asbestos licenses are included in Appendix C. The inspection was conducted on November 30, 2023, in general accordance with the sampling protocols established by EPA Regulation 40 CFR 763 Subpart E 763.86, AHERA and SCDHEC R61-86.1. A summary of survey activities is provided below.

3.1 Regulatory Overview

Environmental Protection Agency (EPA) regulation 40 CFR 61, Subpart M, National Emission Standards for Hazardous Air Pollutants (NESHAP), prohibits the release of asbestos fibers to the atmosphere during renovation/demolition activities. NESHAP requires that potentially regulated asbestos-containing building materials be identified, classified and quantified prior to planned disturbances or demolition activities. An ACM is defined as any material containing asbestos of any type in an amount greater than one percent (1%). The asbestos NESHAP regulates asbestos fiber emissions and asbestos waste disposal practices. Under NESHAP, asbestos-containing building materials are classified as either friable,

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Category I non-friable or Category II non-friable ACM. Friable materials are those that, when dry, may be crumbled, pulverized or reduced to powder by hand pressure. Non-friable materials contain asbestos fibers which have been “locked in” by a bonding agent, coating, binder or other materials so that the asbestos is bound and will not readily release fibers during normal handling or use. Category I non friable ACM includes packing materials, gaskets, resilient floor coverings and asphalt roofing products containing more than 1 percent (%) asbestos. Category II non-friable ACM are non-friable materials other than Category I materials that contain more than 1% asbestos.

Friable ACM, Category I and Category II non-friable ACM which is in poor condition and has become friable or which will be subjected to drilling, sanding, grinding, cutting or abrading and which could be crushed or pulverized during anticipated renovation/demolition activities are considered regulated ACM (RACM). RACM must be removed prior to renovation or demolition activities.

In the state of South Carolina, asbestos activities are regulated by the SCDHEC under the SCDHEC Regulation 61-86.1 Standards of Performance for Asbestos Projects. The SCDHEC require that any asbestos-related activity conducted in a public building be performed by personnel licensed by the SCDHEC. The owner or operator must provide the SCDHEC with written notification of planned abatement and removal activities prior to the commencement of those activities. The SCDHEC requires 4 day notification for non-friable projects and 10 day notification for RACM projects. Asbestos abatement must be performed by SCDHEC-licensed asbestos abatement contractors. A SCDHEC-licensed Project Designer shall prepare a written abatement design for each abatement renovation project involving the removal of greater than 3,000 square, 1,500 linear, or 656 cubic feet of RACM. Third-party air monitoring must be conducted during the abatement of friable (regulated) ACM.

The SCDHEC defines a renovation as, “altering a facility or one or more facility components in any way, including the stripping or removal of RACM from any facility component.” A demolition is defined as, “Wrecking or taking out any load-supporting structural member of a facility together with any related handling operations, the burning of any facility, or moving of a structure.”

The Occupational Safety and Health Administration (OSHA) Asbestos Standard for Construction Industry (29 CFR 1926.1101) regulates workplace exposure to asbestos. The OSHA standard requires that employee exposure to airborne asbestos fibers be maintained below 0.1 asbestos fibers per cubic centimeter of air (0.1 f/cc). The OSHA standard classifies construction and maintenance activities, which could disturb ACM, and specifies work practices and precautions which employers must follow when engaging in each class of regulated work. A full copy of the OSHA asbestos standard for general industry may be found at OSHA’s website (www.osha.gov) and should be referenced for specific information.

3.2 Visual Assessment

Our inspection activities began with visual observation of the structure to identify apparent homogeneous areas of suspect ACM. A homogeneous area consists of building materials, which appear similar throughout in terms of color, texture and date of application. Building materials which were not

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identified as concrete, glass, wood, masonry, metal or rubber were considered suspect ACM. Although reasonable effort was made to survey accessible suspect materials, additional suspect but un-sampled materials could be located in walls, in voids or in other concealed areas.

3.3 Physical Assessment

A physical assessment of each homogeneous area of suspect ACM was conducted to assess the friability and condition of the materials. A friable material is defined by the EPA as a material, which can be crumbled, pulverized or reduced to powder by hand pressure when dry. Non-friable materials contain asbestos fibers which have been “locked in” by a bonding agent, coating, binder or other materials so that the asbestos is bound and will not readily release fibers during normal handling or use. Friability was assessed by physically touching suspect materials.

3.4 Sample Collection

Based on the results of the visual sampling, bulk samples of suspect ACM were collected in general accordance with the sampling protocols outlined in EPA Regulation 40 CFR 763 Subpart E763.86 (Asbestos Hazard Emergency Response Act, AHERA) and SCDHEC sample collection protocols. Random samples of suspect materials were collected in each homogeneous area. Bulk samples were collected using wet methods as applicable to reduce the potential for fiber release. Samples were placed in sealable containers and labeled with unique sample numbers using an indelible marker.

Three (3) bulk samples were collected from one (1) homogeneous areas of suspect ACM. A summary of the suspect ACM samples collected during the survey is presented in Table 1. Sample locations are depicted on a Site Diagram (Exhibit 2).

3.5 Sample Analysis

Bulk samples were submitted under chain of custody to EMSL Analytical Inc. (EMSL) of Charlotte, North Carolina for analysis by Polarized Light Microscopy (PLM) with dispersion staining techniques per EPA EPA/600/R-93/116. The percentage of asbestos, where applicable, was determined by microscopical visual estimation. EMSL is accredited under the National Voluntary Laboratory Accreditation Program NVLAP (#200841-0). Layered analysis of samples was conducted by the lab.

Per the SCDHEC Regulation 61-86.1 Standards of Performance for Asbestos Projects, negative results for non-friable organically bound (NOB) materials such as flooring, mastics, and roofing shall be verified with at least one TEM analysis. The additional analysis was performed by TEM in accordance with EPA/600/R-93/116 Section 2.5.5.1.

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Two (2) NOB material layers tested negative for asbestos by PLM analysis and thus were submitted and analyzed by TEM analysis. Samples requiring TEM analysis are identified on Table 1.

3.6 Findings

Based on the results of laboratory analyses, asbestos was not detected in any of the samples collected. Negative PLM results for NOB materials were confirmed by TEM analysis.

Table 1 summarizes the results of the visual inspection, estimated quantities, and laboratory analyses. Asbestos laboratory analytical reports are included in Appendix B.

3.7 Recommendations

Based on the scope of services, limitations, and findings of this assessment, Terracon recommends the following:

- A copy of this report must be submitted to SCDHEC at least ten (10) working days prior to demolition when applying for a demolition permit.

In accordance with OSHA's Asbestos Standard, the employer shall notify affected employees and contractors of the presence and location of asbestos-containing materials and test results. A full copy of the OSHA asbestos standard for general industry may be found at OSHA's website (www.osha.gov) and should be referenced for specific information.

4.0 LEAD PAINT SAMPLING

The objective of the lead paint sampling was to identify lead containing paint systems on structural components that may require special handling and disposal considerations upon demolition of the structure. SCDHEC regulates solid waste disposal under Regulation 61-107.19 as noted below. Testing was performed to meet specific State disposal requirements and does not comply with all parts of the Occupational Health and Safety Administrations (OSHA) lead regulations. Testing to comply with OSHA regulations are not covered in our scope of work since it is the responsibility of the contractor to protect its employees.

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4.1 Regulatory Overview

Lead is regulated by the EPA, SCDHEC and OSHA. The EPA and SCDHEC regulate lead use, removal, and disposal, and OSHA regulates lead exposure to workers. The EPA defines LBP as paint, varnish, stain, or other applied coating that contains lead equal to or greater than 1.0 mg/cm², 5,000 mg/kg, or 0.5% by dry weight as determined by laboratory analysis. The SCDHEC regulations 61-107.19 require that painted demolition debris with a lead concentration greater than 0.06% by weight be disposed in a permitted Class II landfill. For the purpose of the OSHA lead standard, lead includes metallic lead, all inorganic lead compounds, and organic lead soaps. The complete OSHA standard for compliance can be found on OSHA's website (www.osha.gov). A synopsis of the OSHA regulations (29 CFR 1926.62) and the applicability are as follows:

The OSHA *Lead Standard for Construction* (29 CFR 1926.62) applies to all construction work where an employee may be occupationally exposed to lead. All work related to construction, alteration, or repair (including painting and decorating) is included. The lead-in-construction standard applies to any detectable concentration of lead in paint, as even small concentrations of lead can result in unacceptable employee exposures depending upon on the method of removal and other workplace conditions. Under this standard, construction includes, but is not limited to, the following:

- Demolition or salvage of structures where lead or materials containing lead are present
- Removal or encapsulation of materials containing lead
- New construction, alteration, repair, or renovation of structures, substrates, or portions containing lead, or materials containing lead
- Installation of products containing lead
- Lead contamination/emergency clean-up
- Transportation, disposal, storage, or containment of lead or materials containing lead on the site or location at which construction activities are performed
- Maintenance operations associated with construction activities described above

4.2 Sampling and Analytical Protocol

Mr. Chapiesky of Terracon conducted the lead paint (LP) sampling on November 30, 2023. The LP sampling was conducted by collecting paint chip samples. The paint chip samples were collected from painted or lacquered surfaces of structural components likely to contain LP, based on apparent date of application. The paint samples were collected down to the surface substrate so as to include any underlying paint systems in the analysis. The random paint chip samples were selected based on current paint schemes and may not be inclusive of old paint systems covered with paneling, or existing painted systems. The paint chip samples were submitted to an ELAP approved laboratory for analysis of lead by NIOSH Method 7082M (atomic absorption).

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4.3 Sample Collection

Four (4) paint samples were collected from painted surfaces on the structure. Paint sampled included: yellow strip, white stripe, orange bracket, and grey beam paint.

4.4 Findings

Laboratory analysis detected lead in the following samples:

- Orange paint on tension bracket plates (37% by weight).
- Gray paint on steel beams (0.013% by weight).

A summary of the lead paint laboratory results is presented in Table 2. The analytical report is included in Appendix B.

4.5 Recommendations

Based on the scope of services, limitations, and findings of this assessment, Terracon recommends the following:

- **Dispose of lead painted debris in a Class II Landfill.** - SCDHEC regulations require that lead-painted demolition debris be disposed in a permitted Class II landfill. Landfills should be contacted to determine their specific disposal requirements. Metal components painted with lead-based paint may be recycled however the recycler should be contacted to determine their specific requirements.
- **Inform contractors and workers of presence of lead in paints** - Occupational Safety and Health Administration Lead Regulations apply to actions initiated on lead containing materials. This regulation applies to lead concentrations greater than the analytical limit of detection. This regulation provides exposure levels on airborne lead and does not reference the concentration of lead in paint or other lead-containing materials. Workers performing work on surfaces which have any lead concentration should be notified to comply with OSHA requirements. The full OSHA lead standard should be referenced for compliance.

5.0 LIMITATIONS / GENERAL COMMENTS

This survey was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results,

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December 20, 2023 ■ Terracon Project No. 7322P180



findings, conclusions and recommendations expressed in this report are based on conditions observed during our survey of the structure. The information contained in this report is relevant to the date on which this survey was performed, and should not be relied upon to represent conditions at a later date.

This report has been prepared on behalf of and exclusively for use by SCDOT for specific application to their project as discussed. Terracon does not warrant the work of regulatory agencies, laboratories or other third parties supplying information, which may have been used in the preparation of this report. No warranty, express or implied is made.

This report is not a bidding document. Contractors or consultants reviewing this report must draw their own conclusions regarding further investigation or remediation deemed necessary.

TABLES

TABLE 1 - Asbestos Sample Summary
S-23-102 over Armstrong Creek
Greenville, South Carolina
Project No. 7323P180

HA	Approx. Quantity* (ft ²)	Samples Collected	Description	Material Location	Lab Result	Category	Condition
1	75	3	Thick tar and felt vibration dampener	Between pier caps and decking	NAD	Misc.	NF, Good

Notes

Due to planned renovation all materials have a high potential for disturbance

* **Quantities should not be used for bidding purposes.**

Materials hidden and not observed due to access restrictions and/or enclosed spaces can change actual quantities. Contractors are strongly encouraged to collect their own measurements prior to submitting bids to verify quantities provided above.

Homogeneous Material 1 is a NOB material. Negative PLM results were confirmed with TEM analyses.

See Figure 2 for sample locations

- HA Homogeneous Area
- NAD No asbestos detected
- SM Surfacing Material
- Misc Miscellaneous Material
- F Friable
- NF Non-Friable
- LF Linear Feet

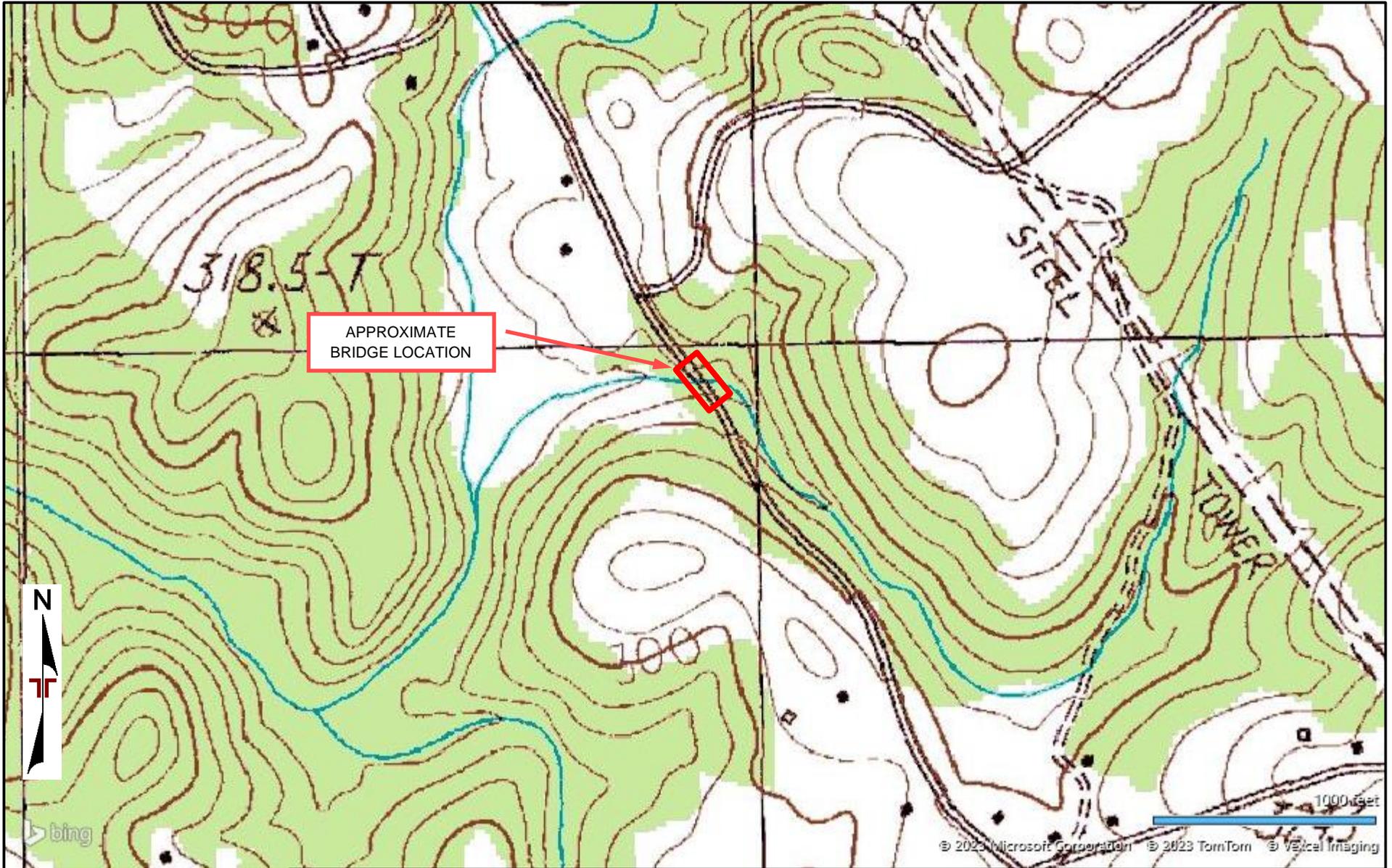
TABLE 2 - Lead Paint Sample Summary
S-23-102 over Armstrong Creek
Greenville, South Carolina
Project No. 7323P180

Sample Number	Description	Location	Lab Result
LP-1	Yellow paint	Yellow stripe	<0.0082%
LP-2	White paint	White stripe	<0.0080%
LP-3	Orange paint	Brackets	37.00%
LP-4	Gray paint	Piers	0.01%

Note:

Results in boldface indicate concentration above the EPA regulatory limit (0.5%)

FIGURES



TOPOGRAPHIC MAP IMAGE COURTESY OF THE U.S. GEOLOGICAL SURVEY
 QUADRANGLES INCLUDE: DACUSVILLE, SC (1/1/1983) and PARIS MOUNTAIN, SC (1/1/1983).

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager: ADC
 Drawn by: PTK
 Checked by: ADC
 Approved by: AF

Project No. 7323P180
 Scale: AS SHOWN
 File Name: Exh 1
 Date: Dec 2023

Terracon

521 Clemson Rd
 Columbia, SC 29229-4307

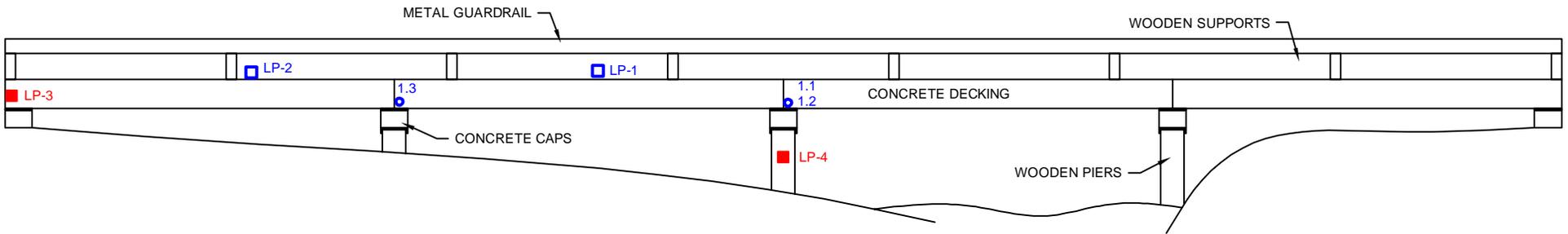
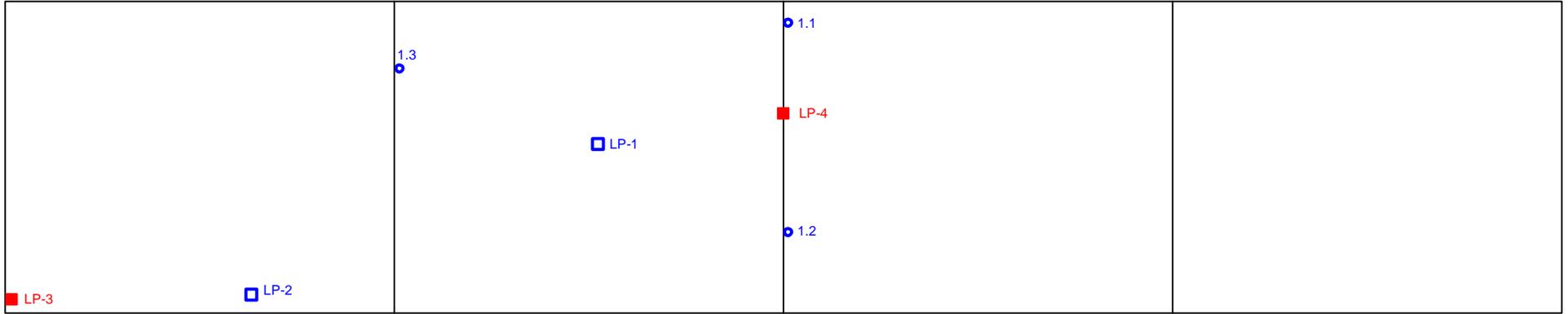
TOPOGRAPHIC MAP

S-23-102 over Armstrong Creek
 Keeler Mill Road
 Greenville County, South Carolina
 Bridge #03308

Exhibit

1

PLAN VIEW



PROFILE VIEW

EXPLANATION

- POSITIVE ACM SAMPLE LOCATION
- NEGATIVE ACM SAMPLE LOCATION
- POSITIVE LEAD PAINT SAMPLE LOCATION
- NEGATIVE LEAD PAINT SAMPLE LOCATION

Project Mngr: ADC	Project No. 7323P180	 Consulting Engineers and Scientists 521 CLEMSON ROAD COLUMBIA, SOUTH CAROLINA PH. (803) 741-9000 FAX. (803) 741-9900	SAMPLE LOCATION PLAN S-23-102 OVER ARMSTRONG CREEK KEELER MILL ROAD GREENVILLE COUNTY, SOUTH CAROLINA BRIDGE #03308	Exhibit 2
Drawn By: PTK	Scale: NOT TO SCALE			
Checked By: ADC	File No. S-23-102			
Approved By: AF	Date: DECEMBER 2023			
DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES				

APPENDIX A

Photo Documentation



PHOTO # 1 View of the bridge facing north.



PHOTO # 2 View of the side of the bridge facing north.



PHOTO # 3 View of bridge asset number.



PHOTO # 4 View of bridge number.



PHOTO # 5 View of HA #1 Thick tar and felt vibration dampener.



PHOTO # 6 View of LP-1 White stripe paint LP-2 Yellow stripe paint.



PHOTO # 7 View of LP-3 orange bracket paint.



PHOTO # 8 View of LP-4 grey pier paint.

APPENDIX B

Laboratory Reports



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: 412314301

Customer ID: GAGE62

Customer PO: 7323P180

Project ID:

Attention: Adam Chapiesky
Terracon Consultants, Inc.
521 Clemson Road
Columbia, SC 29229

Phone: (803) 741-9000

Fax: (803) 741-9900

Received Date: 12/01/2023 9:45 AM

Analysis Date: 12/04/2023

Collected Date: 11/30/2023

Project: 7323P180/ S-23-102 over Armstrong

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
1.1-Tar <small>412314301-0001</small>	Thick Tar, Shingle and Felt Vibration Dampener	Tan/Black Non-Fibrous Heterogeneous	25% Cellulose	5% Quartz 70% Non-fibrous (Other)	None Detected
1.1-Felt <small>412314301-0001A</small>	Thick Tar, Shingle and Felt Vibration Dampener	Black Fibrous Homogeneous	50% Cellulose	50% Non-fibrous (Other)	None Detected
1.2-Tar <small>412314301-0002</small>	Thick Tar, Shingle and Felt Vibration Dampener	Black Non-Fibrous Homogeneous	15% Cellulose	3% Quartz 5% Ca Carbonate 77% Non-fibrous (Other)	None Detected
1.2-Felt <small>412314301-0002A</small>	Thick Tar, Shingle and Felt Vibration Dampener	Black Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected

Analyst(s)

Jordan Simpson (2)

Kelsie Dwyer (2)

Lee Plumley, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method") but augmented with procedures outlined in the 1993 ("final") version of the method. This report 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. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Estimation of uncertainty is available on request.

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

Initial report from: 12/05/2023 07:48:01



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: 412314301
Customer ID: GAGE62
Customer PO: 7323P180
Project ID:

Attention: Adam Chapiesky Terracon Consultants, Inc. 521 Clemson Road Columbia, SC 29229	Phone: (803) 741-9000 Fax: (803) 741-9900 Received Date: 12/01/2023 9:45 AM Analysis Date: 12/04/2023 Collected Date: 11/30/2023
Project: 7323P180/ S-23-102 over Armstrong	

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
1.3-Tar 412314301-0003	Thick Tar, Shingle and Felt Vibration Dampener	Black Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
1.3-Felt 412314301-0003A	Thick Tar, Shingle and Felt Vibration Dampener	Black Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected

Analyst(s)

 Sarah Breneman (2)

Lee Plumley, Laboratory Manager
or other approved signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. EMSL recommends that samples reported as none detected or <1% undergo additional analysis via PLM to avoid the possibility of false negatives.

Samples analyzed by EMSL Analytical, Inc. Pineville, NC

Initial report from: 12/05/2023 07:48:00



EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

412314301

10801 Southern Loop Blvd

Pineville, NC 28134

PHONE: (704) 525-2205

FAX: (704) 525-2382

Company Name : Terracon Consultants, Inc.		EMSL Customer ID:	
Street: 521 Clemson Road		City: Columbia	State/Province: SC
Zip/Postal Code: 29229	Country: US	Telephone #: 803-212-0064	Fax #: 803-741-9900
Report To (Name): Adam Chapirsky		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email	
Email Address: Adam.Chapirsky@Terracon.com		Purchase Order: 7323P180	
Project Name/Number: 7323P180/5-13-102 over Armstrong		EMSL Project ID (Internal Use Only):	
U.S. State Samples Taken: SC		CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt	

EMSL-Bill to: Same Different - If Bill to is Different note instructions in Comments**
Third Party Billing requires written authorization from third party

Turnaround Time (TAT) Options* - Please Check

3 Hour 6 Hour 24 Hour 48 Hour 72 Hour 96 Hour 1 Week 2 Week

*For TEM Air 3 hr through 6 hr, please call ahead to schedule. *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.

<p>PCM - Air <input type="checkbox"/> Check if samples are from NY</p> <p><input type="checkbox"/> NIOSH 7400</p> <p><input type="checkbox"/> w/ OSHA 8hr. TWA</p>	<p>TEM - Air <input type="checkbox"/> 4-4.5hr TAT (AHERA only)</p> <p><input type="checkbox"/> AHERA 40 CFR, Part 763</p> <p><input type="checkbox"/> NIOSH 7402</p> <p><input type="checkbox"/> EPA Level II</p> <p><input type="checkbox"/> ISO 10312</p>	<p>TEM - Dust</p> <p><input type="checkbox"/> Microvac - ASTM D 5755</p> <p><input type="checkbox"/> Wipe - ASTM D6480</p> <p><input type="checkbox"/> Carpet Sonication (EPA 600/J-93/167)</p>
<p>PLM - Bulk (reporting limit)</p> <p><input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%)</p> <p><input type="checkbox"/> PLM EPA NOB (<1%)</p> <p>Point Count</p> <p><input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%)</p> <p>Point Count w/Gravimetric</p> <p><input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%)</p> <p><input type="checkbox"/> NYS 198.1 (friable in NY)</p> <p><input type="checkbox"/> NYS 198.6 NOB (non-friable-NY)</p> <p><input type="checkbox"/> NYS 198.8 SOF-V</p> <p><input type="checkbox"/> NIOSH 9002 (<1%)</p>	<p>TEM - Bulk</p> <p><input checked="" type="checkbox"/> TEM EPA NOB</p> <p><input type="checkbox"/> NYS NOB 198.4 (non-friable-NY)</p> <p><input type="checkbox"/> Chatfield SOP</p> <p><input type="checkbox"/> TEM Mass Analysis-EPA 600 sec. 2.5</p> <p>TEM - Water: EPA 100.2</p> <p>Fibers >10µm <input type="checkbox"/> Waste <input type="checkbox"/> Drinking</p> <p>All Fiber Sizes <input type="checkbox"/> Waste <input type="checkbox"/> Drinking</p>	<p>Soil/Rock/Vermiculite</p> <p><input type="checkbox"/> PLM EPA 600/R-93/116 with milling prep (<1%)</p> <p><input type="checkbox"/> PLM EPA 600/R-93/116 with milling prep (<0.25%)</p> <p><input type="checkbox"/> TEM EPA 600/R-93/116 with milling prep (<0.1%)</p> <p><input type="checkbox"/> TEM Qualitative via Filtration Prep</p> <p><input type="checkbox"/> TEM Qualitative via Drop Mount Prep</p> <p><input type="checkbox"/> Cincinnati Method EPA 600/R-04/004 - PLM/TEM (BC)</p> <p>Other:</p> <p><input type="checkbox"/></p>

Check For Positive Stop - Clearly Identify Homogenous Group Filter Pore Size (Air Samples): 0.8µm 0.45µm

Samplers Name: Adam Chapirsky Samplers Signature:

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
1.1	Thick Tar, Shingle and felt vibration dampener		11/30/23
1.2			
1.3			

Client Sample # (s): 1.3	Total # of Samples: 3
Relinquished (Client):	Date: 11/30/23 Time: 12:00
Received (Lab):	Date: 12/1/23 Time: 9:45 AM FX
Comments/Special Instructions: Run TEM Concurrently 7967 5276 9210	



EMSL Analytical, Inc.

10801 Southern Loop Blvd, Pineville, NC 28134
Phone/Fax: (704) 525-2205 / (704) 525-2382
<http://www.EMSL.com> charlottelab@emsl.com

EMSL Order: 412314286
CustomerID: GAGE62
CustomerPO: 7323P180
ProjectID:

Attn: **Adam Chapiesky**
Terracon Consultants, Inc.
521 Clemson Road
Columbia, SC 29229

Phone: (803) 741-9000
Fax: (803) 741-9900
Received: 12/1/2023 09:45 AM
Collected: 11/30/2023

Project: **7323P180/ S-23-102 over Armstrong**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Weight</i>	<i>Lead Concentration</i>
LP-1 Site: Yellow Paint	412314286-0001	11/30/2023	12/1/2023	0.2447 g	<0.0082 % wt
LP-2 Site: White Paint	412314286-0002	11/30/2023	12/1/2023	0.3435 g	<0.0080 % wt
LP-3 Site: Orange Paint	412314286-0003	11/30/2023	12/1/2023	0.2814 g	37 % wt
LP-4 Site: Grey Paint	412314286-0004	11/30/2023	12/1/2023	0.2597 g	0.013 % wt

Aaron Hartley, Lead Technical Manager
or other approved signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted.
* Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.008% wt based on the minimum sample weight per our SOP. "<" (less than) result signifies the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. Definitions of modifications are available upon request.
Samples analyzed by EMSL Analytical, Inc. Pineville, NC AIHA LAP, LLC-ELLAP Accredited #192283

Initial report from 12/04/2023 08:06:44



Lead (Pb) Chain of Custody

EMSL Order ID (Lab Use Only):

Pineville, NC 28134

PHONE: (704) 525-2205

FAX: (704) 525-2382

EMSL ANALYTICAL, INC.
LABORATORY PRODUCTS TRAINING
LABORATORY PRODUCTS TRAINING

412314286

Company: Terracon Consultants, Inc.		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different If Bill to is Different note instructions in Comments**	
Street: 521 Clemson Road		Third Party Billing requires written authorization from third party	
City: Columbia	State/Province: SC	Zip/Postal Code: 29229	Country: US
Report To (Name): Adam Chapiesky		Telephone #: 803-741-9000	
Email Address: Adam.Chapiesky@terracon.com		Fax #: 803-741-9900	Purchase Order: 7323918
Project Name/Number: 7323918/5-23-102 over Armstrong		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email	
U.S. State Samples Taken: SC		CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt	

Turnaround Time (TAT) Options* - Please Check

3 Hour
 6 Hour
 24 Hour
 48 Hour
 72 Hour
 96 Hour
 1 Week
 2 Week

*Analysis completed in accordance with EMSL's Terms and Conditions located in the Price Guide

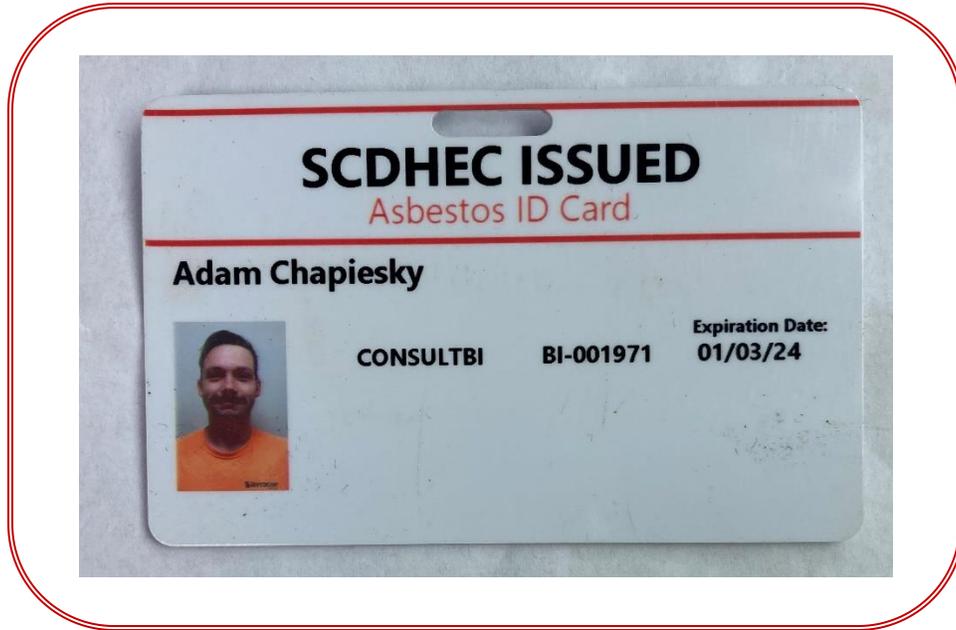
Matrix	Method	Instrument	Reporting Limit	Check
Chips <input checked="" type="checkbox"/> % by wt. <input type="checkbox"/> mg/cm ² <input type="checkbox"/> ppm (mg/kg)	SW846-7000B	Flame Atomic Absorption	0.01%	<input checked="" type="checkbox"/>
Air	NIOSH 7082	Flame Atomic Absorption	4 µg/filter	<input type="checkbox"/>
	NIOSH 7105	Graphite Furnace AA	0.03 µg/filter	<input type="checkbox"/>
	NIOSH 7300M/NIOSH 7303	ICP-OES	0.5 µg/filter	<input type="checkbox"/>
Wipe* ASTM <input type="checkbox"/> non ASTM <input type="checkbox"/> *if no box checked, non-ASTM Wipe assumed	SW846-7000B	Flame Atomic Absorption	10 µg/wipe	<input type="checkbox"/>
	SW846-6010B or C	ICP-OES	1.0 µg/wipe	<input type="checkbox"/>
TCLP	SW846-1311/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
	SW846-1311/SW846-6010B or C	ICP-OES	0.1 mg/L (ppm)	<input type="checkbox"/>
SPLP	SW846-1312/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
	SW846-1312/SW846-6010B or C	ICP-OES	0.1 mg/L (ppm)	<input type="checkbox"/>
TTLC	22 CCR App. II, 7000B/7420	Flame Atomic Absorption	40 mg/kg (ppm)	<input type="checkbox"/>
	22 CCR App. II, SW846-6010B or C	ICP-OES	2 mg/kg (ppm)	<input type="checkbox"/>
STLC	22 CCR App. II, 7000B/7420	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
	22 CCR App. II, SW846-6010B or C	ICP-OES	0.1 mg/L (ppm)	<input type="checkbox"/>
Soil	SW846-7000B	Flame Atomic Absorption	40 mg/kg (ppm)	<input type="checkbox"/>
	SW846-6010B or C	ICP-OES	2 mg/kg (ppm)	<input type="checkbox"/>
Wastewater Unpreserved <input type="checkbox"/> Preserved with HNO ₃ pH < 2 <input type="checkbox"/>	SM3111B/SW846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	<input type="checkbox"/>
	EPA 200.7	ICP-OES	0.020 mg/L (ppm)	<input type="checkbox"/>
Drinking Water Unpreserved <input type="checkbox"/> Preserved with HNO ₃ pH < 2 <input type="checkbox"/>	EPA 200.8	ICP-MS	0.001 mg/L (ppm)	<input type="checkbox"/>
	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	<input type="checkbox"/>
	EPA 200.5	ICP-OES	0.003 mg/L (ppm)	<input type="checkbox"/>
TSP/SPM Filter	40 CFR Part 50	ICP-OES	12 µg/filter	<input type="checkbox"/>
	40 CFR Part 50	Graphite Furnace AA	3.6 µg/filter	<input type="checkbox"/>
Other:				<input type="checkbox"/>

Name of Sampler: Adam Chapiesky		Signature of Sampler:	
Sample #	Location	Volume/Area	Date/Time Sampled
LP-1	Yellow white Paint		11/30/23
LP-2	White Paint		
Client Sample #s	LP-1 - LP-4	Total # of Samples:	4
Relinquished (Client):	<i>[Signature]</i>	Date:	11/30/23
Received (Lab):	<i>[Signature]</i>	Date:	12/1/23
Comments:		Time:	1700
		Time:	945AM FX

7967 5276 9210

APPENDIX C

Inspector Credentials



Adam Chapiesky

Asbestos Building Inspector BI-001971

