

ASBESTOS CONTAINING MATERIAL INVESTIGATION REPORT

SC 215 (BUFFALO WEST SPRINGS HWY.) BRIDGE
OVER FAIRFOREST CREEK
SCDOT BRIDGE # 444021500300
UNION COUNTY, SOUTH CAROLINA

PREPARED FOR:



C/O Ms. Lila Leon, PE PhD
SC Geotechnical Lead
1201 Main Street, Suite 800
Columbia, SC 29201

PREPARED BY:

F&ME Consultants
1825 Blanding Street
Columbia, South Carolina 29201

February 24, 2023

☐ ACM was found.

☒ ACM was not found.

F&ME Project No.: G6658.006

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1. EXECUTIVE SUMMARY

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

F&ME Consultants, Inc. (FME) has completed an Asbestos Containing Material (ACM) Investigation of the SC 215 (Buffalo West Springs Hwy.) Bridge over Fairforest Creek (Bridge) in Union County, South Carolina at the request of HDR (Client). The field investigation was performed on February 9, 2023, in anticipation of an on-alignment replacement of the existing Bridge. This investigation was also conducted pursuant to South Carolina Department of Health and Environmental Control (SCDHEC), United States Environmental Protection Agency (USEPA), National Emission Standards for Hazardous Air Pollutants (NESHAP), and Occupational Safety and Health Administration (OSHA) regulations requiring an ACM investigation prior to any demolition activities.

Per an agreed upon scope of work, FME performed this investigation to identify any ACM that might be encountered during the demolition activities associated with the existing Bridge, and to provide recommendations regarding proper handling and disposal of any ACM found. The investigation of the Bridge identified three (3) suspect materials: expansion joint material, a black coating on steel columns, and black coating on concrete columns. During the field investigation, FME personnel collected samples of these materials and assessed their physical conditions. **Laboratory results indicated that the suspect materials sampled during this investigation contained no asbestos.** Therefore, at this time, no special handling or disposal requirements are required regarding ACM. However, during the course of demolition activities, previously concealed ACM might be discovered. If suspect ACM (i.e., bond break bearing pad materials) is found, the affected contractor(s) must stop work, take appropriate actions, and notify the Owner/Asbestos Consultant for an appropriate response action. The SCDHEC must be notified if any suspect ACM is discovered.

We sincerely appreciate the opportunity to assist you with this project. Should you have any questions or require additional information concerning this Investigation, please do not hesitate to contact our office at (803) 254-4540.

Sincerely,

F&ME CONSULTANTS



James T. Timmons

Environmental Professional
Asbestos Consultant/Inspector
SCDHEC License No: MP-00196
Expiration Date 01/23/2024



Glynn M. Ellen

Environmental Department Manager
Asbestos Consultant/Management Planner
SCDHEC License No: ASB-22641
Expiration Date 01/23/2024

2. INTRODUCTION

FME has completed an ACM investigation of the SC 215 (Buffalo West Springs Hwy.) Bridge over Fairforest Creek, in Union County, South Carolina. The investigation was performed on February 9, 2023. This investigation was conducted pursuant to SCDHEC, USEPA, NESHAP, and OSHA regulations which require an ACM investigation prior to any demolition activities. See Appendix A – Site Vicinity Map for the location of the Bridge.

It is our understanding that the proposed project will include the complete demolition and removal of the existing Bridge, and replacement with a new bridge along the existing alignment. The purpose of this investigation was to determine if asbestos was present on the existing Bridge by identifying and sampling suspect ACM, obtaining analytical results, quantifying any confirmed ACM, and assessing the physical condition of the ACM, where possible.

This report has been prepared exclusively for the Client and shall not be disseminated in whole or part to other parties without prior consent from Client or FME. No other environmental issues were addressed as part of this report.

3. EXISTING BRIDGE STRUCTURE

The existing bridge structure (~285.0' L x 26.5' W, inside curb to inside curb), is located on SC 215 (Buffalo Springs West Hwy.) and crosses over Padgetts Creek in Union County, South Carolina. The date of construction for the original Bridge is unknown. The existing Bridge is an eleven (11) span, two (2) lane concrete and steel bridge, with an asphalt overlay. The original bridge deck is constructed with poured-in-place (PIP) concrete deck and horizontal concrete beams which rest on PIP concrete bent caps. The bent caps of the original portion of Bridge are supported by two (2) PIP concrete



Photo 1: SC 215 (Buffalo West Springs Rd.) over Fairforest Creek in Union County, South Carolina

piers. The Bridge was widened approximately 5' on the southeast and northwest sides at some point. The bridge decking for the widened section of the Bridge is supported by PIP concrete bent caps that are supported by one (1) structural steel H-pile on either side of the bent. Metal drainage scuppers were noted along the sides of the bridge structure. Metal guardrails and posts are attached to the concrete curb on each side. A cast iron utility pipe was attached to the southeast side of the Bridge and runs the entire length of the Bridge. See Appendix A – Site Vicinity Map, for the location of the Bridge. See Appendix B –General Bridge Plan, for a layout of the Bridge.

4. FIELD ASSESSMENT

During the investigation, all accessible bridge components (i.e., bent caps, H-piles, scuppers, expansion joints, etc.) were visually inspected for suspect ACM. Examples of possible suspect materials include bond break bearing pads, expansion joint material, and drainage scuppers. The concrete bridge deck rested directly on the horizontal concrete beams. The concrete bent caps were supported by concrete piers at each bent with no suspect materials noted. Three (3) suspect materials were observed/visible on the Bridge. The suspect materials noted on the Bridge were expansion joint material, a black coating on steel columns and a black coating on concrete columns. Samples of these materials were taken from random locations on the Bridge. See Appendix B – Sample Location Plan, for detailed sample locations. Also, see Appendix G – Site Photographs, for more details.

5. ASSESSMENT RESULTS

During the investigation, expansion joint material, the black coating on steel columns, and the black coating on concrete columns were the only suspect materials identified associated with the Bridge. A total of three (3) samples were taken of each of the suspect materials for laboratory analysis, and physical characteristics were recorded. The remaining structural materials (i.e., wood, steel, etc.) were not considered suspect and were not sampled.

Random samples of these suspect materials were collected for laboratory analysis, and their physical characteristics were recorded. Building materials such as concrete, metal, wood, brick, carpet, etc., were not considered suspect ACM. Bulk samples of suspect materials were analyzed by Polarized Light Microscopy (PLM) in accordance with EPA 600/R-93/116. Confirmation Transmission Electron Microscopy (TEM) was also performed on any non-friable organically bound materials that tested negative for asbestos content as per SCDHEC regulations effective May 27, 2011. A “*first positive stop*” protocol was implemented for sample testing. This protocol establishes that if the first sample of a material tested positive for asbestos content, subsequent samples were not to be analyzed, and would be considered positive as well. A total of eight (8) samples were analyzed by PLM and three (3) samples were TEM-confirmed. **The results of the analysis indicated that none of the suspect materials sampled during this investigation contained asbestos.** Results of laboratory analysis are summarized in Appendix C – Summary of Sample Results.

Appropriate sampling and chain-of-custody protocols were followed to ensure proper handling and delivery of samples to the analytical laboratory. Appendix D – Bulk Asbestos Analytical Report and Appendix E – Laboratory Chain of Custody were provided to show laboratory documentation of the analytical results. Appendix F – Personnel Certification, provides the qualifications for the FME Asbestos Inspectors.

6. RECOMMENDATIONS

The results, conclusions, and recommendations of this Investigation are representative of the conditions observed at the site on the date of the field investigation. FME does not assume responsibility for any changes in conditions or circumstances that may have occurred after this investigation.

It is our understanding that the subject Bridge is to be demolished in anticipation of an on-alignment replacement of the existing Bridge structure. **The results of the analysis indicated that the expansion joint material, black coating on steel columns, and black coating on concrete columns sampled during this investigation contained no asbestos.** Therefore, there are no foreseen special handling or disposal requirements, regarding asbestos, that will be required for the demolition of this bridge.

If any concealed and/or inaccessible suspect ACM (i.e., bond break bearing pad materials) are encountered during the demolition activities, the affected contractor(s) must stop work, take appropriate actions, and notify the Owner/asbestos Consultant for an appropriate response action. The SCDHEC must be notified if any suspect ACM is discovered.

This report has been prepared exclusively for the Client and FME and shall not be disseminated in whole or in part to other parties without prior consent from the Client and FME. Use of this document for bidding purposes is not recommended without prior consultation with FME.

We sincerely appreciate the opportunity to be of service to HDR in this matter. If you have any questions regarding the information presented herein, please contact our office at (803) 254-4540.

APPENDICES

Appendix A – Site Vicinity Map

Appendix B – Sample Location Plan

Appendix C – Summary of Samples

Appendix D – Laboratory Analysis Reports

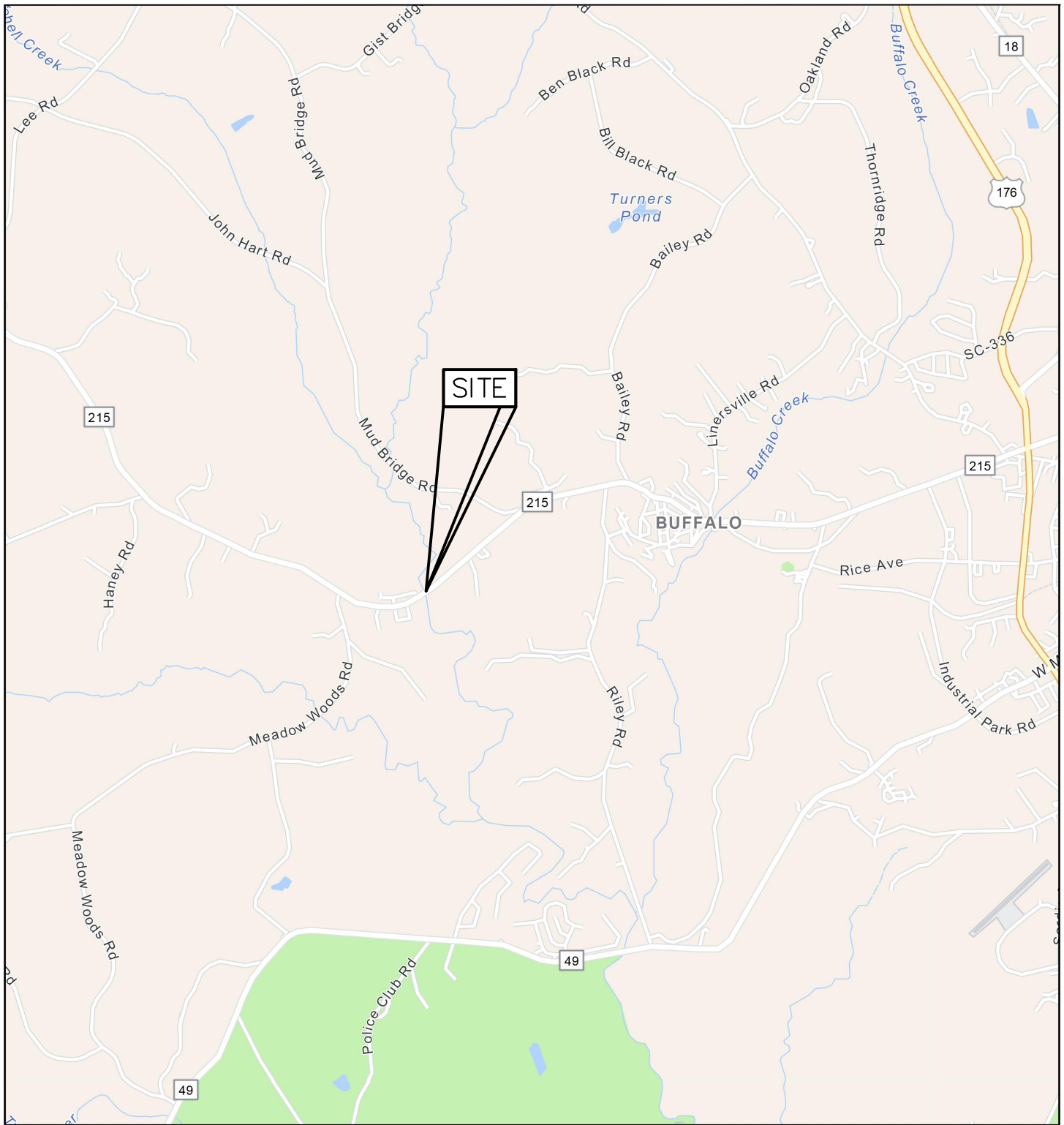
Appendix E – Chain of Custody Form

Appendix F – Personnel Certifications

Appendix G – Site Photographs

Appendix A

Site Vicinity Map



1:72,000

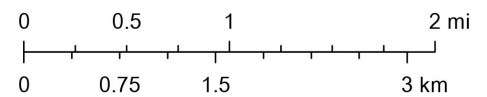


FIGURE
NUMBER:

1

F&ME CONSULTANTS
PROJECT NUMBER:

G6658.006

ASBESTOS CONTAINING MATERIALS INVESTIGATION
SC 215 Bridge over Fairforest Creek
Union County, SC
Site Vicinity Map
Prepared for: HDR, Inc.
1201 Main Street, Suite 800
Columbia, SC 29201



1825 BLANDING STREET
COLUMBIA, SC 29201

ORIGINAL:
February 24, 2023

REVISIONS:

1
2
3

SCALE:
AS SHOWN

DRWN. BY: MSM
CHKD. BY: JTT
APPR. BY: GME

NOTES:

Appendix B

Sample Location Plan

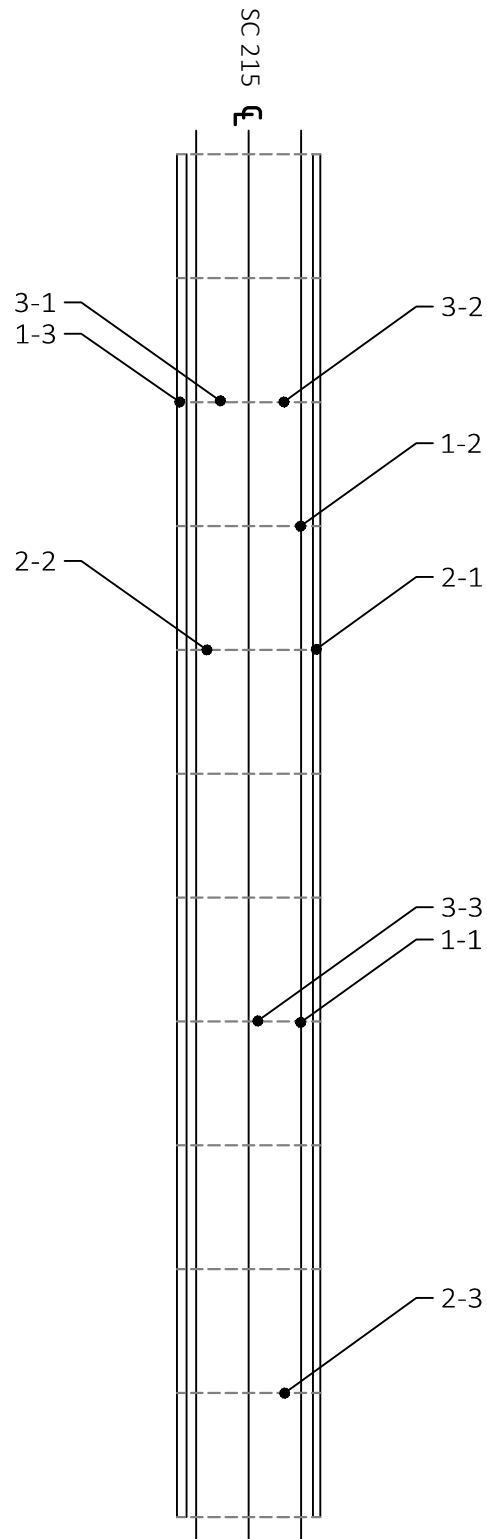


FIGURE
NUMBER:

2

F&ME CONSULTANTS
PROJECT NUMBER:

G6658.006

ASBESTOS CONTAINING MATERIALS INVESTIGATION
SC 215 Bridge over Fairforest Creek
Union County, SC
Sample Location Plan
Prepared for: HDR, Inc.
1201 Main Street, Suite 800
Columbia, SC 29201



1825 BLANDING STREET
COLUMBIA, SC 29201

ORIGINAL:
February 24, 2023

REVISIONS:

1 _____
2 _____
3 _____

SCALE:
N.T.S.

DRWN. BY: MSM
CHKD. BY: JTT
APPR. BY: GME

NOTES:

Appendix C

Summary of Samples

Appendix C: Summary of Samples

Sample ID	Description
1-1	Expansion Joint Material
1-2	Expansion Joint Material
1-3	Expansion Joint Material
2-1	Black Steel Column Coating
2-2	Black Steel Column Coating
2-3	Black Steel Column Coating
3-1	Black Concrete Column Coating
3-2	Black Concrete Column Coating
3-3	Black Concrete Column Coating



Appendix D

Laboratory Analysis Reports



EMSL Analytical, Inc.

706 Gralin Street Kernersville, NC 27284

Tel/Fax: (336) 992-1025 / (336) 992-4175

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

EMSL Order: 022301274

Customer ID: FMEC62

Customer PO: G6658.006

Project ID:

Attention: Glynn M. Ellen
F & ME Consultants
1825 Blanding Street
Columbia, SC 29201

Phone: (803) 254-4540

Fax: (803) 254-4542

Received Date: 02/10/2023 9:00 AM

Analysis Date: 02/14/2023

Collected Date:

Project: S 215 RBO Fairforest Creek

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 022301274-0001	Expansion Joint Material	Black Non-Fibrous Heterogeneous	3% Cellulose	97% Non-fibrous (Other)	None Detected
1-2 022301274-0002	Expansion Joint Material	Black Non-Fibrous Homogeneous	3% Cellulose	97% Non-fibrous (Other)	None Detected
2-1 022301274-0003	Black Steel Column Coating	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
2-2 022301274-0004	Black Steel Column Coating	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
3-1 022301274-0005	Concrete Column Coating	Brown/Gray/Black Non-Fibrous Heterogeneous		40% Quartz 60% Non-fibrous (Other)	None Detected
3-2 022301274-0006	Concrete Column Coating	Brown/Gray/Black Non-Fibrous Heterogeneous		40% Quartz 60% Non-fibrous (Other)	None Detected
3-3 022301274-0007	Concrete Column Coating	Brown/Gray/Black Non-Fibrous Heterogeneous		40% Quartz 60% Non-fibrous (Other)	None Detected
3-4 022301274-0008	Concrete Column Coating	Brown/Gray Non-Fibrous Homogeneous		40% Quartz 60% Non-fibrous (Other)	None Detected

Analyst(s)

Bobby Wheatley (5)

Philip Szabo (3)

Stephen Bennett, 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. Kernersville, NC NVLAP Lab Code 102104-0, Virginia 3333-000228, West Virginia LT000321

Initial report from: 02/15/2023 08:18:16



EMSL Analytical, Inc.

706 Gralin Street Kernersville, NC 27284

Tel/Fax: (336) 992-1025 / (336) 992-4175

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

EMSL Order: 022301274

Customer ID: FMEC62

Customer PO: G6658.006

Project ID:

Attention: Glynn M. Ellen
F & ME Consultants
1825 Blanding Street
Columbia, SC 29201

Phone: (803) 254-4540

Fax: (803) 254-4542

Received Date: 02/10/2023 9:00 AM

Analysis Date: 02/14/2023 - 02/15/2023

Collected Date:

Project: S 215 RBO Fairforest Creek

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 022301274-0009	Expansion Joint Material	Black Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
2-3 022301274-0010	Black Steel Column Coating	Black Fibrous Homogeneous	98.7 Other talc fibers present.	1.3 Fibrous_Other	No Asbestos Detected
3-5 022301274-0011	Concrete Column Coating	Gray/Tan Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected

Analyst(s)

Stephen Bennett (3)

Stephen Bennett, 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. Kernersville, NC

Initial report from: 02/15/2023 08:18:21

Appendix E

Chain of Custody Form

EMSL ANALYTICAL, INC.
LABORATORY PRODUCTS-TRAINING

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

1274

EMSL ANALYTICAL, INC.
706 GRALIN ST.
KERNERSVILLE, NC 27284
PHONE: (336) 992-1025
FAX: (336) 992-4175

Company Name : F&ME Consultants		EMSL Customer ID: FMEC62	
Street: 3112 Devine Street		City: Columbia	State/Province: SC
Zip/Postal Code: 29205	Country: USA	Telephone #: 803-254-4540	Fax #: 803-254-4542
Report To (Name): Glynn Ellen, Jim Timmons		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email	
Email Address: gellen@fmeconsultants.com, jtimmons@fmeconsultants.com		Purchase Order: G6658.006	
Project Name/Number: S 215 RBO Fairforest Creek		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: <input checked="" type="checkbox"/> Same <input type="checkbox"/> 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			
<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 checked="" type="checkbox"/> 96 Hour <input type="checkbox"/> 1 Week <input type="checkbox"/> 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			
PCM - Air <input type="checkbox"/> Check if samples are from NY <input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> w/ OSHA 8hr. TWA 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 - 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 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: Jim Timmons		Samplers Signature:	
Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
*1-1 thru 1-3	Expansion Joint Material		
*2-1 thru 2-3	Black Steel Column Coating		
*3-1 thru 3-5	Concrete Column Coating		
Client Sample # (s): 1-1 - 3-5		Total # of Samples: 11	
Relinquished (Client):		Date: 02/09/2023	Time: 17:00
Received (Lab):		Date: 2-10-23	Time: 9:00am
Comments/Special Instructions: SC Guidelines, * TEM 3rd Sample			

Appendix F

Personnel Certifications

SCDHEC ISSUED

Asbestos ID Card

Glynn M Ellen



AIRSAMPLER	AS-00079	Expiration Date: 01/22/24
CONSULTMP	ASB-22641	01/23/24
CONSULTPD	PD-00098	07/12/23
SUPERAHERA	SA-00455	01/22/24

This card is nontransferable and considered invalid if loaned or given to another person for identification. This card will also be invalid if altered or defaced. This card is property of SCDHEC. It must be returned to the department if the holder's accreditation is revoked or if this card is invalidated. Any person performing regulated asbestos activities without current accreditation shall be subject to legal sanction. This card must be returned upon expiration and/or issuance of a new card.

YOU MUST HAVE THIS IDENTIFICATION CARD WITH YOU ON THE JOB.

For information of corrections contact: SCDHEC - Asbestos Section
2600 Bull Street
Columbia, SC 29201
(803) 898-4289

SCDHEC ISSUED

Asbestos ID Card

James T Timmons



**AIRSAMPLER
CONSULTMP
SUPERAHERA**

**AS-00423
MP-00196
SA-02244**

Expiration Date:

01/22/24

01/23/24

01/22/24

This card is nontransferable and considered invalid if loaned or given to another person for identification. This card will also be invalid if altered or defaced. This card is property of SCDHEC. It must be returned to the department if the holder's accreditation is revoked or if this card is invalidated. Any person performing regulated asbestos activities without current accreditation shall be subject to legal sanction. This card must be returned upon expiration and/or issuance of a new card.

YOU MUST HAVE THIS IDENTIFICATION CARD WITH YOU ON THE JOB.

For information of corrections contact: SCDHEC - Asbestos Section
2600 Bull Street
Columbia, SC 29201
(803) 898-4289

Appendix G

Site Photographs



Photo 1. Top View of Bridge Deck.



Photo 2. Underside View of Bridge.



Photo 3. Southeast Side View of Bridge.



Photo 4. Northwest Side View of Bridge.



Photo 5. New Bridge Addition Underside View.



Photo 6. SCDOT Bridge Number Placard Attached to the Concrete Guardrail.

