



ASBESTOS CONTAINING MATERIAL INVESTIGATION REPORT

S-765 (HANGING ROCK CHURCH RD.) RBO
HANGING ROCK CREEK
LANCASTER COUNTY, SOUTH CAROLINA
PREPARED FOR:



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

PREPARED BY:

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

September 22, 2022

☐ ACM was found.
☒ ACM was not found.

F&ME Project No.: G6656.004

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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 S-765 (Hanging Rock Church Rd.) Bridge over Hanging Rock Creek (Bridge) in Lancaster County, South Carolina at the request of HDR (Client). The field investigation was performed on September 19, 2022, 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 two (2) suspect materials: bond break pad material and timber pile cap felt. During the field investigation, FME personnel collected samples of these materials and assessed the materials physical condition. **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 ACM 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 01/16/2023



Glynn M. Ellen

Environmental Department Manager
Asbestos Consultant/ Management Planner
SCDHEC License No: ASB-22641
Expiration Date 01/16/2023



2. INTRODUCTION

FME has completed an ACM investigation of the S-765 (Hanging Rock Church Rd.) over Hanging Rock Creek, in Lancaster County, South Carolina. The investigation was performed on September 19, 2022. 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 on the existing horizontal 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 (~90'.0"L x 24.0"W, inside curb to inside curb), is located on S-765 (Hanging Rock Church Rd.) and crosses over Hanging Rock Creek in Lancaster County, South Carolina. The date of construction of the Bridge is unknown. The structure is a two (2) lane, three (3) span Bridge constructed with pre-cast, pre-stressed concrete channel beams for the Bridge decking, and concrete curbing with an asphalt overlay. Each end bent is supported by five (5) timber piles and poured-in-place bent caps. Predrilled drainage holes were noted along the sides of the Bridge to allow for water drainage. Timber guardrails are attached to the concrete curbing on each side 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.



Photo 1: S-765 (Hanging Creek Church Rd.) over Hanging Creek in Lancaster County, South Carolina.

4. FIELD ASSESSMENT

During the investigation, all accessible bridge components (i.e., timber bent caps, and timber piles) were visually inspected for suspect ACM. Examples of possible suspect materials include bent and pile cap felt, bearing pads, expansion joint material, and drainage scuppers. The concrete bridge deck rested directly on the concrete bent caps which are supported by timber piles. Two (2) suspect materials were observed/visible on the Bridge. The suspect materials noted on the Bridge were the bond break pad found between the bent cap and bridge deck, and timber pile cap felt on top of timber piles. 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, timber pile cap felt, and the bearing pad material were identified associated with the Bridge. A total of six (6) samples were taken, three (3) of each of the suspect materials for laboratory analysis, and their 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 the suspect materials were analyzed by polarized light microscopy (PLM) in accordance with EPA 600/R-93/116. 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 four (4) samples were analyzed by PLM and two (2) samples were TEM-confirmed. **The results of the analysis indicated that the suspect bond break pad material and timber pile cap felt sampled during this investigation contained no 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 structure is to be demolished in anticipation of an on-alignment replacement of the existing Bridge. **The results of the analysis indicated that the bond break pad material and timber pile cap felt 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 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

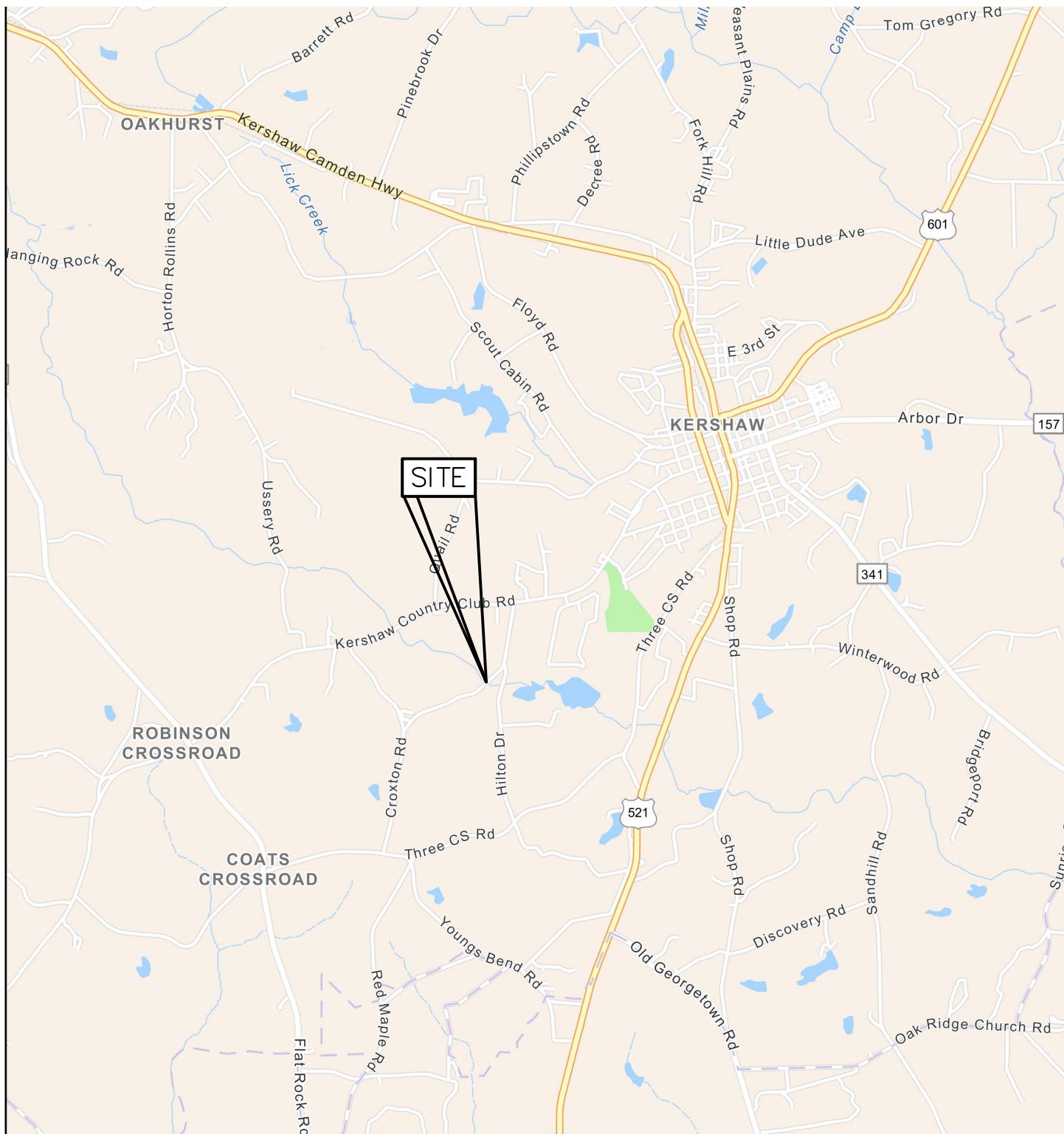
Appendix E – Chain of Custody Form

Appendix F – Personnel Certifications

Appendix G – Site Photographs

Appendix A

Site Vicinity Map



1:72,000

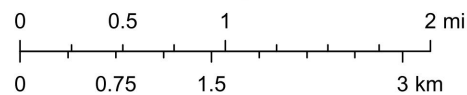


FIGURE
NUMBER:

1

F&ME CONSULTANTS
PROJECT NUMBER:

G6656.004

ASBESTOS CONTAINING MATERIALS INVESTIGATION
S-765 RBO Hanging Rock Creek
Lancaster County, SC
Site Vicinity Map
Prepared for: HDR, Inc.
1201 Main Street, Suite 800
Columbia, SC 29201



1825 BLANDING STREET
COLUMBIA, SC 29201

ORIGINAL:
September 19, 2022

REVISIONS:

1 _____
2 _____
3 _____

SCALE:
AS SHOWN

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

NOTES:

Appendix B

Sample Location Plan

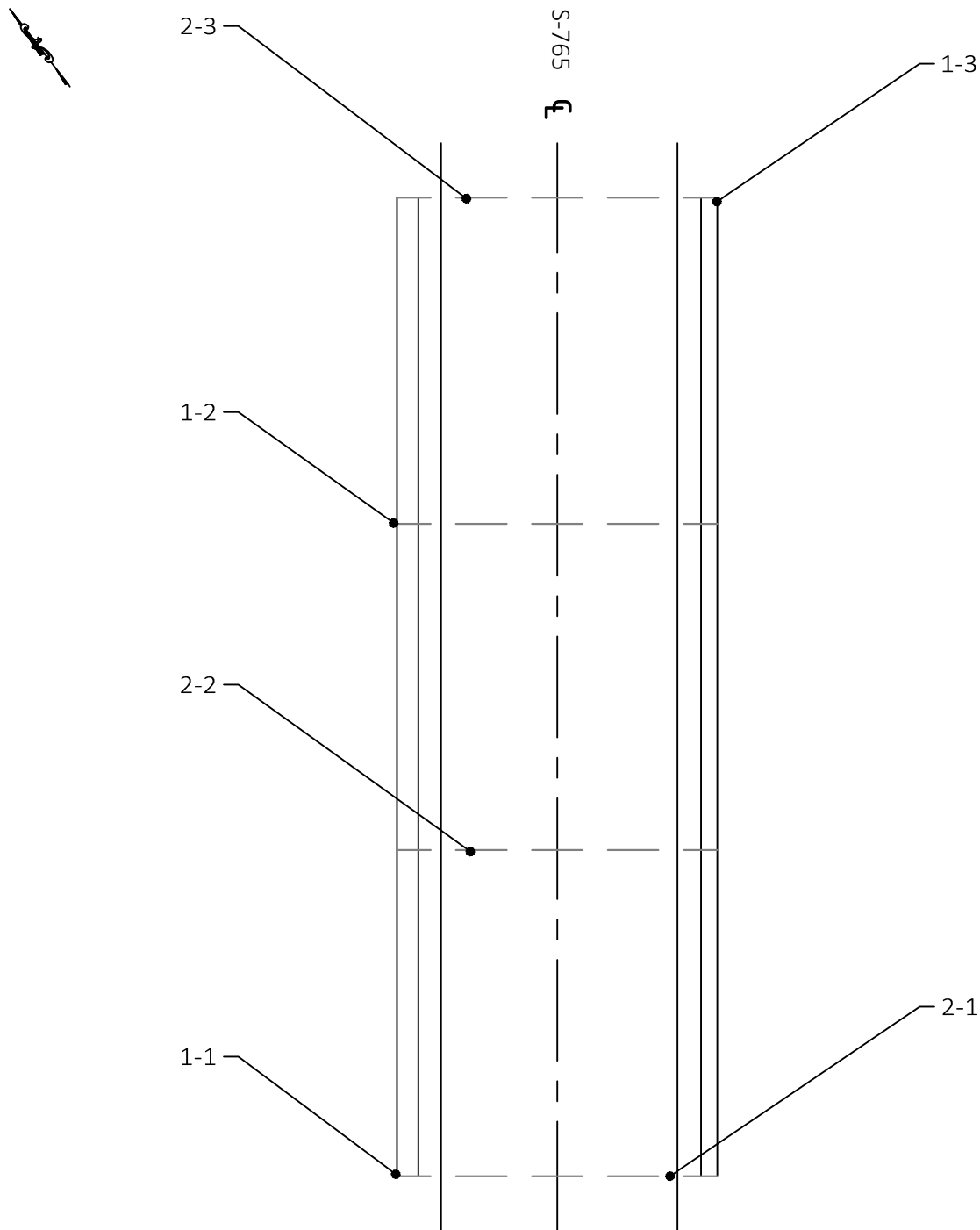


FIGURE
NUMBER:

2

F&ME CONSULTANTS
PROJECT NUMBER:

G6656.004

ASBESTOS CONTAINING MATERIALS INVESTIGATION
S-765 RBO Hanging Rock Creek
Lancaster County, SC
Sample Location Plan
Prepared for: HDR, Inc.
1201 Main Street, Suite 800
Columbia, SC 29201



1825 BLANDING STREET
COLUMBIA, SC 29201

ORIGINAL:
September 16, 2022

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	Bond Break Pad Material
1-2	Bond Break Pad Material
1-3	Bond Break Pad Material
2-1	Timber Pile Cap Felt
2-2	Timber Pile Cap Felt
2-3	Timber Pile Cap Felt



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: 022206953

Customer ID: FMEC62

Customer PO: G6656.004

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: 09/20/2022 9:45 AM

Analysis Date: 09/20/2022

Collected Date:

Project: S-765 RBO Hanging Rock Creek

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
1-1 022206953-0001	Black Bond Break Pad Material	Black Fibrous Homogeneous	3% Cellulose	97% Non-fibrous (Other)	None Detected
1-2 022206953-0002	Black Bond Break Pad Material	Black Non-Fibrous Homogeneous	3% Cellulose	97% Non-fibrous (Other)	None Detected
2-1 022206953-0003	Timber Pile Cap Felt	Black Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
2-2 022206953-0004	Timber Pile Cap Felt	Black Non-Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected

Analyst(s)

Cameron Evans (2)

Philip Szabo (2)

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: 09/21/2022 08:34:31



EMSL Analytical, Inc.

706 Gralin Street Kenersville, NC 27284

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

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

EMSL Order: 022206953

Customer ID: FMEC62

Customer PO: G6656.004

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: 09/20/2022 9:45 AM
Analysis Date: 09/21/2022
Collected Date:

Project: S-765 RBO Hanging Rock 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 022206953-0005	Black Bond Break Pad Material	Brown/Black Non-Fibrous Heterogeneous	100.0 Other	None	No Asbestos Detected
2-3 022206953-0006	Timber Pile Cap Felt	Brown/Black Non-Fibrous Heterogeneous	100.0 Other	None	No Asbestos Detected

Analyst(s)

Stephen Bennett (2)

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. Kenersville, NC

Initial report from: 09/22/2022 08:49:53

Appendix E

Chain of Custody Form

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only)

022206953

 X
 706 GRAYSON ST
 KERNERSVILLE NC 27234
 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		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email	
Email Address: gellen@fmeconsultants.com, jtimmons@fmeconsultants.com,		Purchase Order: G6656.004	
Project Name/Number: S-765 RBO Hanging rock Creek		EMSL Project ID (Internal Use Only):	
U.S. State Samples Taken: SC		CT Samples: <input checked="" 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 checked="" type="checkbox"/> 24 Hour <input checked="" type="checkbox"/> 48 Hour <input 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: James T. Timmons		Samplers Signature:	
Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
*1-1 thru 1-3	Black Bond Break Pad Material		
*2-1 thru 2-3	Timber Pile Cap Felt		
Client Sample # (s): 1-1 - 2-3		Total # of Samples: 6	
Relinquished (Client):		Date: 09/19/2022	Time: 1600
Received (Lab):		Date: 9/20/22	Time: 0935
Comments/Special Instructions: TEM 3 rd NOB.			
EFX-7964 7852 1326			

Appendix F

Personnel Certifications

SCDHEC ISSUED

Asbestos ID Card

Glynn M Ellen



**AIRSAMPLER
CONSULTMP
CONSULTPD
SUPERAHERA**

**AS-00079
ASB-22641
PD-00098
SA-00455**

Expiration Date:

**01/16/23
01/16/23
07/13/22
01/17/23**

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:

01/17/23

01/16/23

01/17/23

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. South Side View of Bridge.



Photo 4. Timber Pile Cap Felt.



Photo 5. Bearing Pad Material.



Photo 6. North Side View of Bridge.

