

ASBESTOS CONTAINING MATERIAL INVESTIGATION REPORT

S-1-96 (BULLS HORN RD.) BRIDGE OVER SHANKLIN CREEK
SCOPE BRIDGE #0170009600100
ABBEVILLE COUNTY, SOUTH CAROLINA

PREPARED FOR:



PREPARED For:

C/O Trapp Harris
955 Park Street
Columbia, South Carolina 29201

PREPARED BY:

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

May 22, 2019

☐ Yes, asbestos was found.
☒ No, asbestos was not found.

FME Project No.: G6100.050

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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 Materials (ACM) Investigation on the S-1-96 (Bulls Horn Road) Bridge over Shanklin Creek, in Abbeville County, South Carolina, for the South Carolina Department of Transportation (Mr. Trapp Harris - Project Manager). The investigation was performed on May 2, 2019, and 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 and/or renovation activities.

Per an agreed upon scope of work, FME performed this investigation to identify any ACM that may be encountered during the demolition of the existing bridge, and to provide recommendations regarding proper handling and disposal of any ACM found. The investigation of the subject bridge identified two (2) suspect materials: timber pile cap felt, and bond break pads. During the field investigation, FME collected three (3) samples of each of the suspect materials and assessed the physical condition of the materials. Laboratory results indicated that **these materials are non-ACM**. Therefore, at this time, no special handling or disposal requirements are required regarding ACM. However, during the course of demolition activities, previously concealed ACM may be discovered. If hidden suspect ACM is encountered, the affected contractor(s) must stop work, take appropriate actions, and notify the Owner/FME for an appropriate response action.

We appreciate the opportunity to assist you in this matter. If you have any questions or require additional information, please feel free to contact our office at (803) 254-4540.

Sincerely,

FME CONSULTANTS



James T. Timmons
Environmental Professional
Asbestos Consultant/Management Planner
SCDHEC License No: MP-00196
Expiration Date 01/21/2020



Glynn M. Ellen
Environmental Department Manager
Asbestos Consultant/Management Planner
SCDHEC License No: ASB-22641
Expiration Date 01/21/2020



2. INTRODUCTION

FME has completed an ACM investigation on the S-1-98 (Bulls Horn Road) Bridge over Shanklin Creek, in Abbeville County, South Carolina. The investigation was performed on May 2, 2019, and was conducted pursuant to SCDHEC, USEPA, NESHAP, and OSHA regulations which require an ACM investigation prior to any demolition and/or renovation activities. See Appendix A – Site Vicinity Map for the location of S-1-96 (Bulls Horn road) Bridge over Shanklin Creek.

It is our understanding that the existing bridge structure will be demolished and replaced with a new replacement bridge. The scope of this investigation was to determine if asbestos was present on the existing bridge structure by identifying and sampling any 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 South Carolina Department of Transportation and shall not be disseminated in whole or part to other parties without prior consent from the South Carolina Department of Transportation or FME. No other environmental issues were addressed as part of this report.

3. EXISTING BRIDGE STRUCTURE

The existing bridge structure (~56.75'L x 24.0'W, inside curb to inside curb), is located on S-1-99 (Bulls Horne Rd.) and crosses over Shanklin Creek in Abbeville County, South Carolina. The construction date of the bridge (No SCDOT bridge # plaque was noted.) (Scope bridge # 0170009600100) is unknown. The existing bridge structure is a five (5) span, two lane precast concrete bridge, with an asphalt overlay. The bridge deck rests on concrete bents that are supported by timber piles. Each bent is supported by five (5) timber piles with concrete footings and a combination of soil and riprap is covering the two (2) end bents. Drainage scuppers were precast holes through the concrete decking with no sleeves. Metal guardrails and wood posts are attached to the concrete curb and gutter. In addition, a two (2) metal conduit lines with telecommunications cabling is attached to the south side of the bridge deck and runs the entire length of the bridge. Refer to Appendix A – Site Vicinity Map, for the location of the structure.



Photo 1 – S-1-96 (Bulls Horn Road) Bridge over Shanklin Creek, in Abbeville County, South Carolina.



4. FIELD ASSESSMENT

During the inspection, all bridge components (i.e. concrete bent caps, piles, and expansion joints) were visually inspected for suspect ACM. Examples of possible suspect materials include bent and pile cap felt, bond-break pads, expansion joint material, and drainage scuppers. The bridge deck rested directly on the bent caps. Timber pile cap felt, and bond break pads were noted during the investigation of the bridge and were the only suspect materials identified during the field investigation. See Appendix B – Sample Location Plan, for detailed sample locations. Also, see Appendix G – Site Photographs, for more details.

4.1 Suspect Materials

The purpose of this investigation was to locate, sample and record the physical characteristics of suspect ACM associated with the subject bridge structure. Therefore, the quantities and physical condition of the suspect materials was assessed, and bulk samples of these materials were submitted for laboratory analysis. The following suspect materials and approximate quantities were identified during this ACM Investigation:

- Timber Pile Cap Felt (<100 SF)
- Bond Break Pads (< 300 SF)

Random samples of the suspect timber pile felt, and bond break pads were collected for laboratory analysis, and their physical characteristics were recorded. Building materials such as concrete, metal, wood, brick, 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. See Appendix C – Summary of Samples, for complete list of all samples taken. Proper sampling and chain-of-custody protocols were followed to ensure appropriate handling and delivery of samples to the analytical laboratory. Refer to Appendix F –Personnel Certifications, for SCDHEC qualifications of Investigation personnel, and Appendix E– Chain of Custody Forms, for documentation of proper handling and delivery of samples.



5. ASSESSMENT RESULTS

During the investigation, the timber pile cap felt and bond break pads were the only suspect materials observed associated with the subject bridge. Three (3) random samples of each of the suspect materials were collected for laboratory analysis, and their physical characteristics were recorded. The remaining bridge materials (i.e. concrete, steel, etc.) were not considered suspect and were not sampled.

The samples of the suspect material were analyzed by polarized light microscopy (PLM) in accordance with EPA 600/R-93/116. A *“first positive stop”* protocol was utilized for this investigation. 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. **The results of the analysis indicated the suspect timber pile cap felt, and bond break pads contained no asbestos.** Results of laboratory analysis are summarized in Appendix C – Summary of Sample Results.

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 inspection. FME does not assume responsibility for any changes in conditions or circumstances that may have occurred after this inspection.

It is our understanding that the existing bridge structure will be demolished. All accessible suspect materials have been sampled and analyzed by an accredited laboratory and found to contain no ACM. 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 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.

We sincerely appreciate the opportunity to be of service to the South Carolina Department of Transportation 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 Sample Results

Appendix D – Laboratory Analysis Reports

Appendix E – Chain of Custody Forms

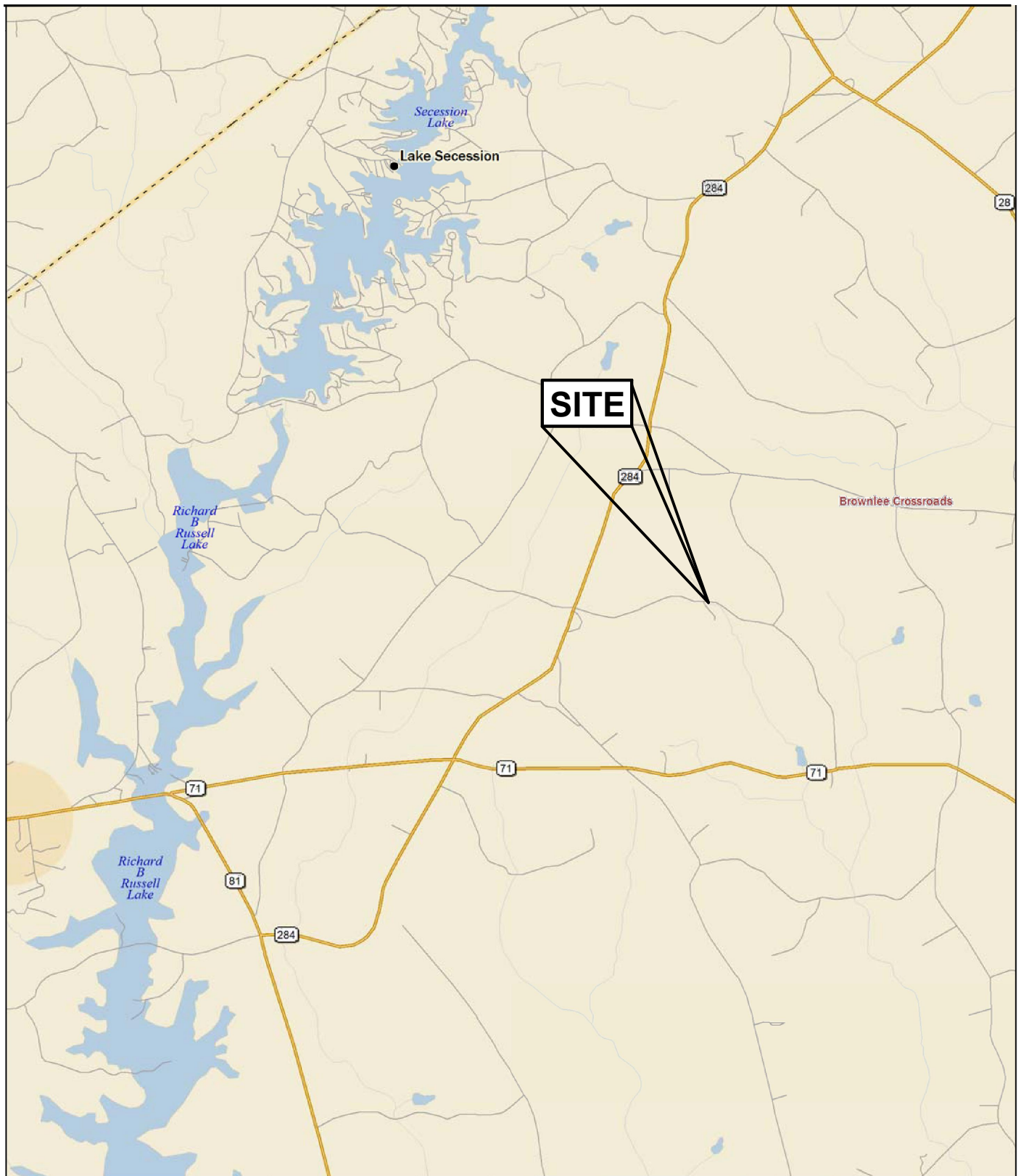
Appendix F – Personnel Certifications

Appendix G – Site Photographs



Appendix A

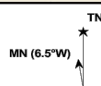
Site Vicinity Map



Data use subject to license.

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www.delorme.com



Scale 1 : 68,750

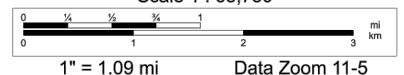


FIGURE
NUMBER:

1

F&ME CONSULTANTS
PROJECT NUMBER:

G6100.050

**ASBESTOS CONTAINING MATERIALS
INVESTIGATION**
S-1-96 (Bulls Horne Rd.) over Shanklin Creek
Abbeville County, SC
Site Vicinity Map

Prepared for: S.C. Department of Transportation
955 Park Street
Columbia, SC 29201



2825 BLANDING STREET
COLUMBIA, SC 29201

ORIGINAL:
May 3, 2019

REVISIONS:

1
2
3

SCALE:
AS SHOWN

DRWN. BY: CTC
CHKD. BY: JTT

APPR. BY: GME

NOTES:

Appendix B

Sample Location Plan

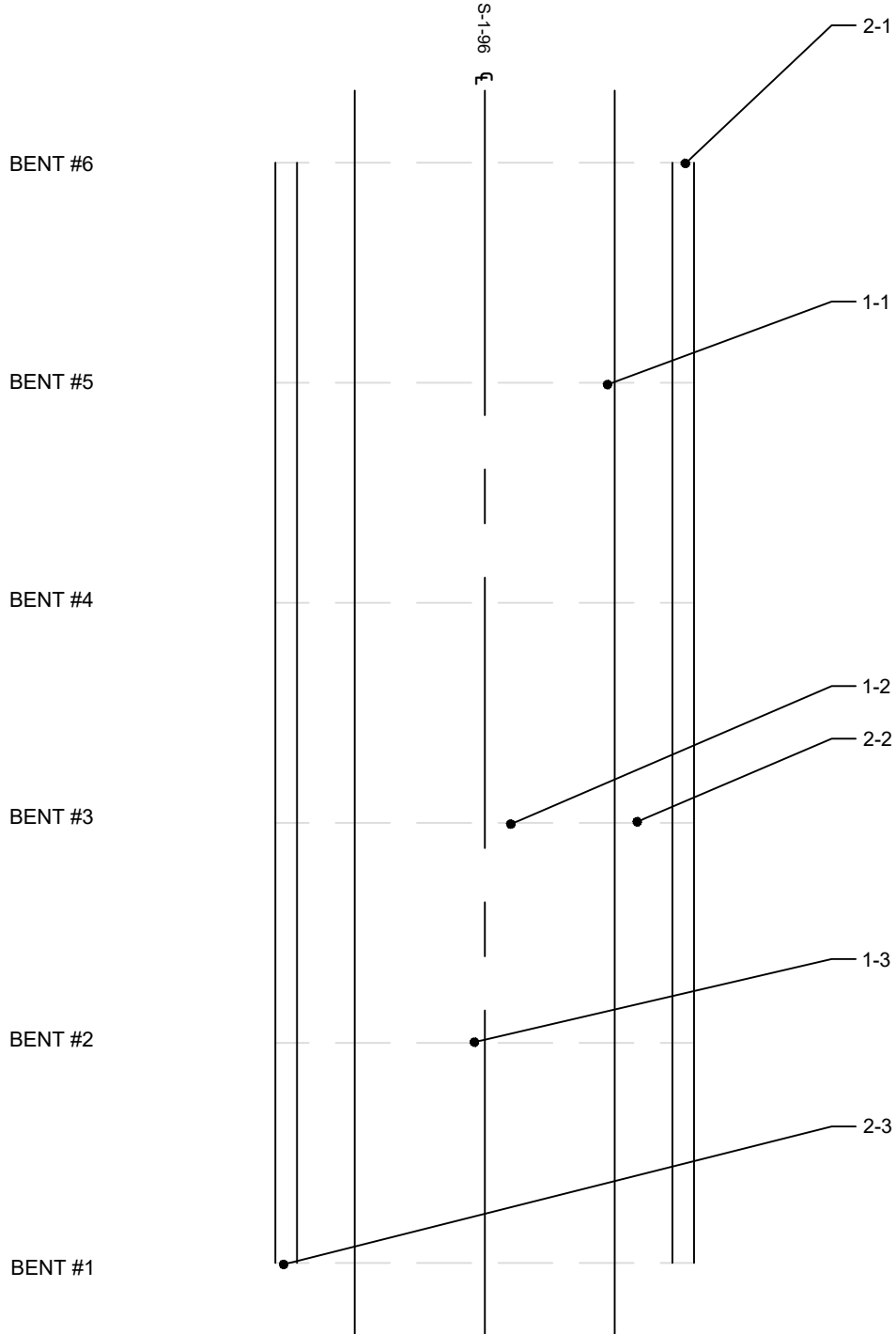


FIGURE
NUMBER:

2

F&ME CONSULTANTS
PROJECT NUMBER:

G6100.050

**ASBESTOS CONTAINING MATERIALS
INVESTIGATION
S-1-96 (Bulls Horne Rd.) over Shanklin Creek
Abbeville County, SC**

Sample Location Plan

Prepared for: S.C. Department of Transportation
955 Park Street
Columbia, SC 29201



2825 BLANDING STREET
COLUMBIA, SC 29201

ORIGINAL:
May 3, 2019

REVISIONS:

1
2
3

SCALE:
AS SHOWN

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

NOTES:

Appendix C

Summary of Sample Results

Appendix C – Summary of Sampling Results

| Sample ID | Description | Appearance | Non-Asbestos % Fibrous | Non-Asbestos % Non-Fibrous | Asbestos % Type |
|----------------|----------------------|-------------------------------------|------------------------|----------------------------|-----------------|
| G-6100.050-1-1 | Timber Pile Cap Felt | Black Fibrous Homogeneous | 60% Cellulose | 40% Non-fibrous (Other) | None Detected |
| G-6100.050-1-2 | Timber Pile Cap Felt | Black Fibrous Homogeneous | 70% Cellulose | 30% Non-fibrous (Other) | None Detected |
| G-6100.050-1-3 | Timber Pile Cap Felt | Black Fibrous Homogeneous | 100% Other | None | None Detected |
| G-6100.050-2-1 | Bond Break Pad | Tan/black Non-fibrous Homogeneous | 2% Cellulose | 98% Non-fibrous (Other) | None Detected |
| G-6100.050-2-2 | Bond Break Pad | Brown/black Non-fibrous Homogeneous | 3% Cellulose | 97% Non-fibrous (Other) | None Detected |
| G-6100.050-2-3 | Bond Break Pad | Brown Non-fibrous Heterogeneous | 100% Other | None | None Detected |



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: 021903060

Customer ID: FMEC62

Customer PO: G6100.050

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: 05/03/2019 9:30 AM

Analysis Date: 05/06/2019

Collected Date: 05/02/2019

Project: ACM Inv. - S-1-96 Bridge over Shanklin Creek - Abbeville County SC

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 021903060-0001 | Timber Pile Cap Felt | Black Fibrous Homogeneous | 60% Cellulose | 40% Non-fibrous (Other) | None Detected |
| 1-2 021903060-0002 | Timber Pile Cap Felt | Black Fibrous Homogeneous | 70% Cellulose | 30% Non-fibrous (Other) | None Detected |
| 2-1 021903060-0003 | Bond Break Material | Tan/Black Non-Fibrous Homogeneous | 2% Cellulose | 98% Non-fibrous (Other) | None Detected |
| 2-2 021903060-0004 | Bond Break Material | Brown/Black Non-Fibrous Heterogeneous | 3% Cellulose | 97% Non-fibrous (Other) | None Detected |

Analyst(s)

Ryan Rains (2)

Scott Combs (2)

Stephen Bennett, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. 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 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. Interpretation and use of test results are the responsibility of the client. All samples received in acceptable condition unless otherwise noted. 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. EMSL recommends gravimetric reduction for all non-friable organically bound materials prior to analysis. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Kernersville, NC NVLAP Lab Code 102104-0, CA ELAP 2689, Virginia 3333-000228, West Virginia LT000321

Initial report from: 05/06/2019 15:06:08



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: 021903060

Customer ID: FMEC62

Customer PO: G6100.050

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: 05/03/2019 9:30 AM

Analysis Date: 05/07/2019

Collected Date: 05/02/2019

Project: ACM Inv. - S-1-96 Bridge over Shanklin Creek - Abbeville County SC

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 021903060-0005 | Timber Pile Cap Felt | Black Fibrous Homogeneous | 100.0 Other | None | No Asbestos Detected |
| 2-3 021903060-0006 | Bond Break Material | Brown Non-Fibrous Heterogeneous | 100.0 Other | None | No Asbestos Detected |

Analyst(s)

Nicole Shutts (2)

Stephen Bennett, 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. Kenersville, NC

Initial report from: 05/08/2019 08:29:39

Appendix E

Chain of Custody Forms



EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

3059 3060
513

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 | | Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email | |
| Email Address: gellen@fmeconsultants.com, mmincey@fmeconsultants.com | | Purchase Order: G6100.050 | |
| Project Name/Number: ACM Inv. - S-1-96 Bridge over Shanklin Creek - Abbeville County SC | | 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: James T. Timmons | | Samplers Signature: | |
| Sample # | Sample Description | Volume/Area (Air) HA # (Bulk) | Date/Time Sampled |
| *1-1 thru 1-3 | Timber Pile Cap Felt | | |
| *2-1 thru 2-3 | Bond Break Material | | |
| | | | |
| | | | |
| | | | |
| Client Sample # (s): 1-1 - 2-3 | | Total # of Samples: 6 | |
| Relinquished (Client): | | Date: 5/2/2019 | Time: 17:00 |
| Received (Lab): | | Date: 5/3/19 | Time: 9:30 |
| Comments/Special Instructions: Samples marked with astrick (*) 3 rd sample TEM 2 EFX 795716057110 | | | |

Appendix F

Personnel Certifications

SCDHEC ISSUED

Asbestos ID Card

James T Timmons



| | | |
|-------------------|-----------------|-----------------|
| SUPERAHERA | SA-02244 | 01/22/20 |
| CONSULTMP | MP-00196 | 01/21/20 |
| AIRSAMPLER | AS-00423 | 01/22/20 |

Expiration Date:

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

Glynn M Ellen



| | | |
|-------------------|------------------|-----------------|
| SUPERAHERA | SA-00455 | 01/22/20 |
| AIRSAMPLER | AS-00079 | 01/22/20 |
| CONSULTPD | PD-00098 | 06/08/19 |
| CONSULTMP | ASB-22641 | 01/21/20 |

Expiration Date:

This card is nontransferable and is 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

APPENDIX G - SITE PHOTOGRAPHS



Photo 1. Top View of Bridge.



Photo 2. East Side View of Bridge.



Photo 3. West Side of Bridge View



Photo 4. Timber Pile Cap Felt.



Photo 5. Bond Brake Pad



Photo 6. Underside of Bridge View

