

ASBESTOS CONTAINING MATERIAL INVESTIGATION REPORT

US-15 CULVERT OVER INDIAN FIELD SWAMP
BRIDGE #182001501101
DORCHESTER 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

October 17, 2019

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

FME Project No.: G6100.120

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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 US-15 Culvert over Indian Field Swamp, in Dorchester County, South Carolina, for the South Carolina Department of Transportation (Mr. Trapp Harris - Project Manager). The investigation was performed on October 9, 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 culvert, and to provide recommendations regarding proper handling and disposal of any ACM found. The investigation of the subject culvert identified one (1) suspect material: expansion joint material. During the field investigation, FME collected three (3) samples of the suspect material and assessed its physical condition. Laboratory results indicated that **this material is 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



Michael S. Mincey
Environmental Professional
Asbestos Consultant/Management Planner
SCDHEC License No: MP-00161
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 US-15 Culvert over Indian Field Swamp, in Dorchester County, South Carolina. The investigation was performed on October 9, 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 US-15 Culvert over Indian Field Swamp.

It is our understanding that the existing culvert structure will be demolished and replaced with a new bridge along the existing alignment. 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 South Carolina Department of Transportation and shall not be disseminated in whole or part to other parties without prior consent from 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 (~23.0'L x 32.2'W, inside curb to inside curb), is located on US-15 and crosses over Indian Field Swamp in Dorchester County, South Carolina. The date of construction of the Culvert (SCDOT bridge # 182001501101) is noted on the National Bridge Inventory Database as 1929 with an expansion noted to have occurred in 1938. The existing culvert structure is a one (1) span, two lane cast in place concrete culvert, with an asphalt overlay. The bridge deck rests on concrete wing walls. No drainage supports were noted on either side of the culvert. Precast concrete guardrails were also noted. Two (2) utility conduits were attached on the east side of the culvert deck, and one (1) utility conduit was attached on the west side of the culvert deck. Refer to Appendix A – Site Vicinity Map, for the location of the structure.



Photo 1 – US-15 Culvert over Indian Field Swamp in Dorchester County, SC



4. FIELD ASSESSMENT

During the inspection, all components of the culvert were visually inspected for suspect ACM. Examples of possible suspect materials include expansion joint material, sealants, and drainage scuppers. The culvert deck rested directly on the concrete walls. An expansion joint/bond break material was noted during the investigation of the culvert and was the only suspect material 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 culvert 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 material and approximate quantity was identified during this ACM Investigation:

- Expansion Joint/Bond Break Material (<100 SF)

Random samples of the suspect expansion joint/bond break material were collected for laboratory analysis, and its 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, expansion joint/bond break material was the only suspect material observed associated with the subject culvert. Three (3) random samples of the suspect material was collected for laboratory analysis, and its physical characteristics was 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. Of the three (3) samples taken during this investigation, two (2) samples were analyzed by PLM and one (1) sample was TEM-confirmed. **The results of the analysis indicated the suspect expansion joint material 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 culvert 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.

Please note that SCDHEC considers a building material to be positive if the material contains >1% of asbestos. However, OSHA considers a material positive if any asbestos is detected through laboratory analysis. Therefore, for the purposes of this report, the expansion joint/bond break material (<0.1% Chrysotile) is considered as a non-ACM. However, for the renovations that will impact these materials, the contractor should be informed and OSHA regulations regarding worker protection should be followed.

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

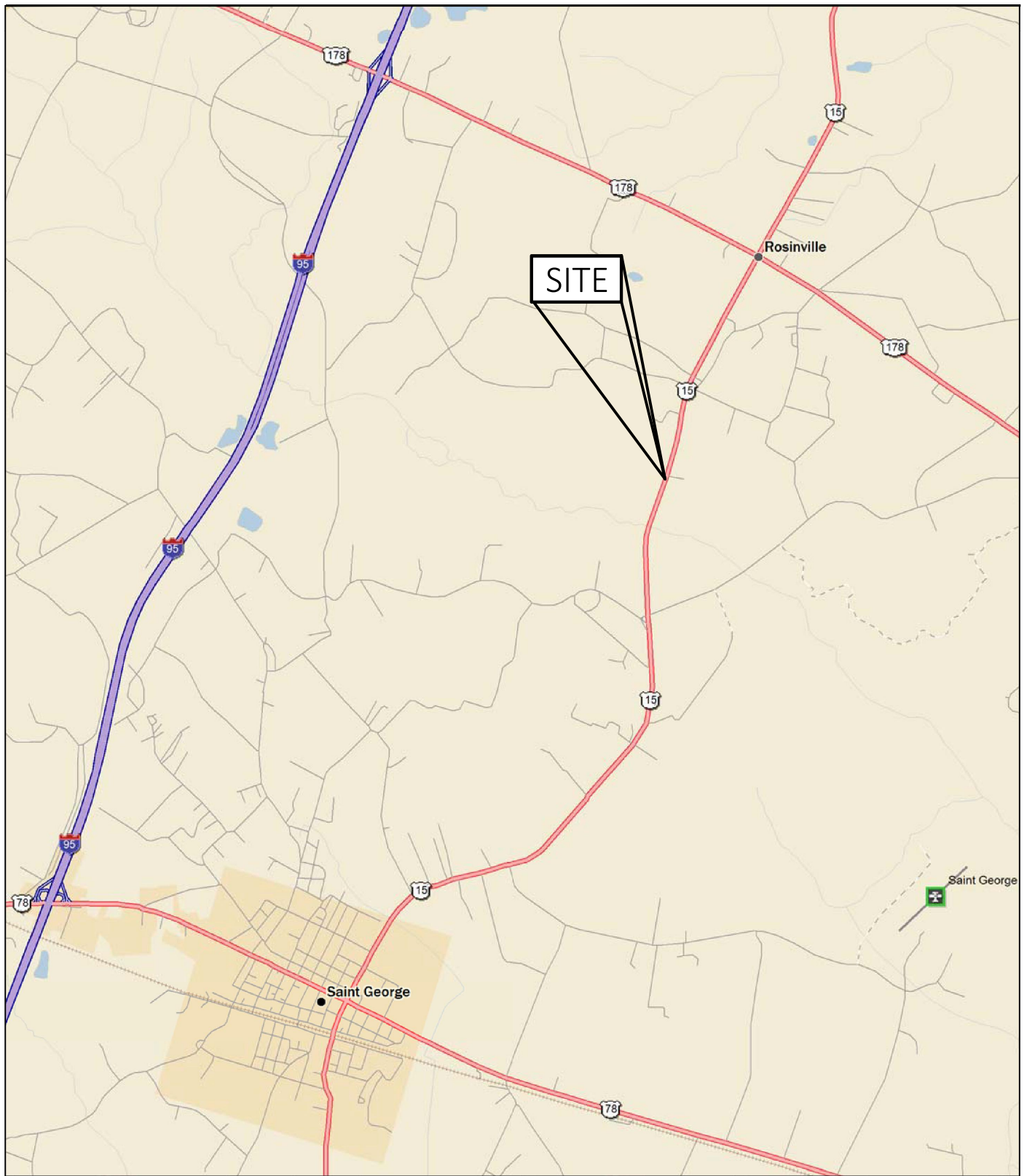
Appendix F – Personnel Certifications

Appendix G – Site Photographs



Appendix A

Site Vicinity Map



Data use subject to license.

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www.delorme.com

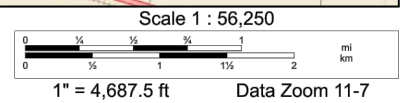
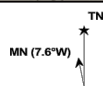


FIGURE
NUMBER:

1

F&ME CONSULTANTS
PROJECT NUMBER:

G6100.120

ASBESTOS CONTAINING MATERIALS INVESTIGATION
US-15 Culvert over Indian Field Swamp
Dorchester 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:
October 10, 2019

REVISIONS:

1
2
3

SCALE:
AS SHOWN

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

NOTES:

Appendix B

Sample Location Plan

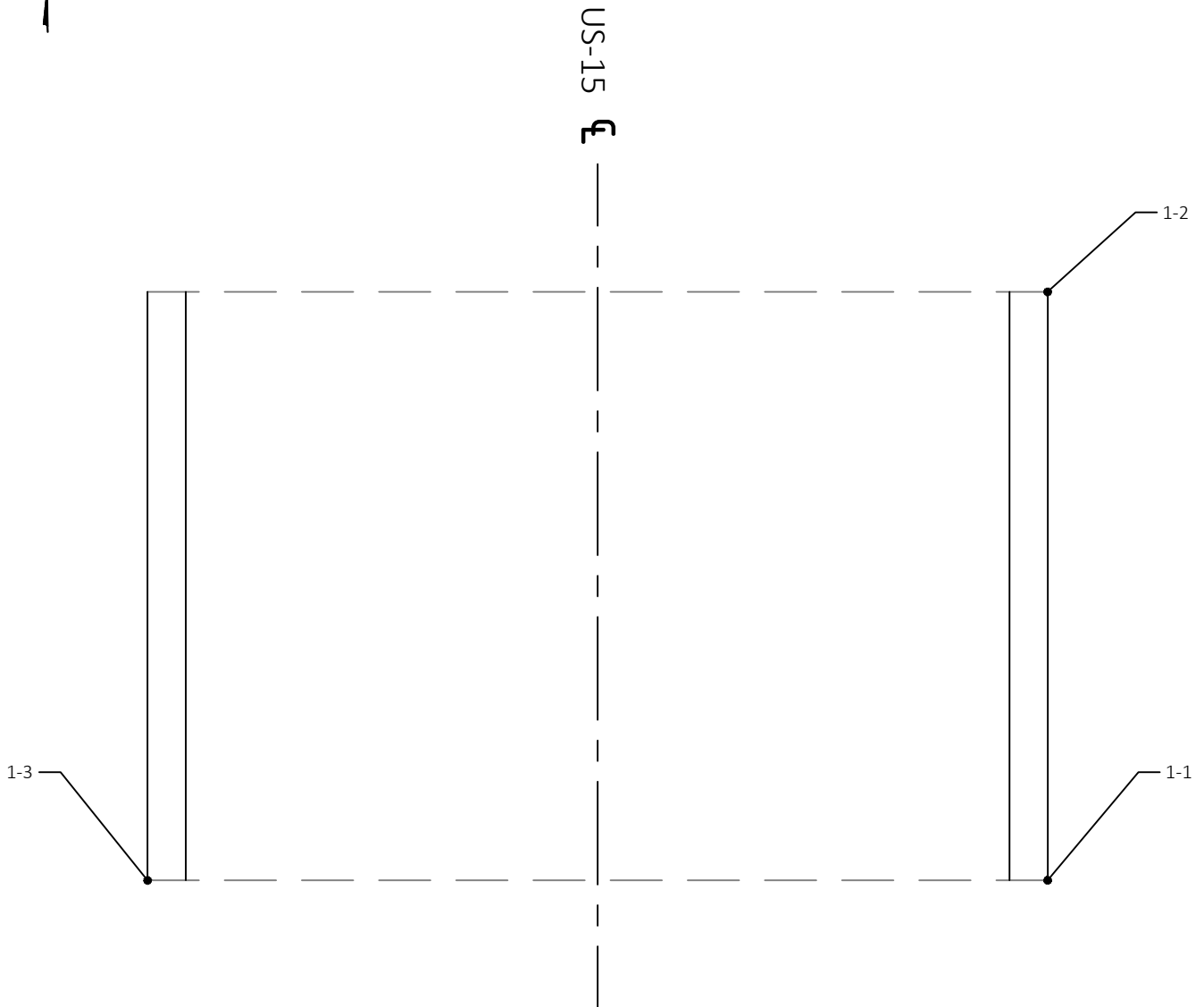


FIGURE
NUMBER:

2

F&ME CONSULTANTS
PROJECT NUMBER:

G6100.120

ASBESTOS CONTAINING MATERIALS INVESTIGATION
US-15 Culvert over Indian Field Swamp
Dorchester 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:
October 10, 2019

REVISIONS:

1 _____
2 _____
3 _____

SCALE:
N.T.S.

DRWN. BY: MSM
CHKD. BY: MSM
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
1-1	Expansion Joint Material	Black Fibrous Homogeneous	10% Cellulose 1% Synthetic	89 % Non-Fibrous (Other)	None Detected
1-2	Expansion Joint Material	Brown/Gray/Black Fibrous Heterogeneous	5% Cellulose 1% Synthetic <1% Hair	94% Non-Fibrous (Other)	None Detected
1-3	Expansion Joint Material	Black Fibrous Heterogeneous	100.0 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: 021907025

Customer ID: FMEC62

Customer PO: G6100.120

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: 10/10/2019 10:00 AM

Analysis Date: 10/11/2019

Collected Date: 10/09/2019

Project: ACM Inv.- US-15 Culver RBO Indian Field Swamp

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 021907025-0001	Expansion Joint Material	Black Fibrous Homogeneous	10% Cellulose 1% Synthetic	89% Non-fibrous (Other)	None Detected
1-2 021907025-0002	Expansion Joint Material	Brown/Gray/Black Fibrous Heterogeneous	5% Cellulose 1% Synthetic <1% Hair	94% Non-fibrous (Other)	None Detected

Analyst(s)

Ryan Rains (1)

Scott Combs (1)

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: 10/11/2019 16:23:27



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: 021907025

Customer ID: FMEC62

Customer PO: G6100.120

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: 10/10/2019 10:00 AM

Analysis Date: 10/15/2019

Collected Date: 10/09/2019

Project: ACM Inv.- US-15 Culver RBO Indian Field Swamp

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 021907025-0003	Expansion Joint Material	Black Fibrous Heterogeneous	100.0 Other	None	No Asbestos Detected

Analyst(s)

Stephen Bennett (1)

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. Kernersville, NC

Initial report from: 10/15/2019 11:14:25

Appendix E

Chain of Custody Forms



EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

7025

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: G6100.120	
Project Name/Number: ACM Inv. - US-15 Culver RBO Indian Field Swamp		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: Mike Mincey <i>Mike Mincey</i>		Samplers Signature:	
Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
*1-1 thru 1-3	Expansion Joint Material		
Client Sample # (s): 1-1 - 1-3		Total # of Samples: 3	
Relinquished (Client): <i>Mike Mincey</i>		Date: 10/9/2019	Time: 17:00
Received (Lab): <i>[Signature]</i>		Date: 10/10/19	Time: 10am
Comments/Special Instructions: Samples marked with astrick (*) 3 rd sample TEM ② EFX 79099682 2406			

Appendix F

Personnel Certifications

SCDHEC ISSUED

Asbestos ID Card

Glynn M Ellen



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

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

Michael Mincey



		Expiration Date:
CONSULTMP	MP-00161	01/21/20
AIRSAMPLER	AS-00272	01/22/20
SUPERAHERA	SA-01424	01/22/20

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

APPENDIX G - SITE PHOTOGRAPHS



Photo 1. Top View of Culvert.



Photo 2. East Side View of Bridge.



Photo 3. Underside View of Culvert



Photo 4. Expansion Joint Material.



Photo 5. Underside of Culvert.



Photo 6. Culvert Identification Placard

