

**ASBESTOS & LEAD-BASED PAINT  
ASSESSMENT REPORT  
I-77 BRIDGEs OVER EDGEWATER DRIVE  
STRUCTURE NOS. 4010007731800 AND 4010007711800  
COLUMBIA, RICHLAND COUNTY, SOUTH CAROLINA  
S&ME Project No. 1461-14-046**

Prepared for:

HDR, INC.  
3955 Faber Place Drive, Suite 300  
North Charleston, South Carolina 29405-8580

Assessment Performed by and Report Prepared by:



Travis Knight

(SCDHEC Accreditation #BI-00885)

10/9/14

Date

- |                                     |                            |                                     |                              |
|-------------------------------------|----------------------------|-------------------------------------|------------------------------|
| <input type="checkbox"/>            | Yes, Asbestos Was Found    | <input checked="" type="checkbox"/> | Yes, Lead Paint Was Found    |
| <input checked="" type="checkbox"/> | No, Asbestos Was Not Found | <input type="checkbox"/>            | No, Lead Paint Was Not Found |



134 Suber Road  
Columbia, South Carolina 29210  
(803) 561-9024

December 2, 2014



December 2, 2014

HDR, Inc.  
3955 Faber Place Drive, Suite 300  
North Charleston, South Carolina 29405-8580

Attention: Mr. David Kinard  
[david.kinard@hdrinc.com](mailto:david.kinard@hdrinc.com)

**Reference: Asbestos and Lead-Based Paint Assessment Report**  
I-77 Bridges Over Edgewater Drive  
Structure Nos. 4010007731800 and 4010007711800  
Columbia, Richland County, South Carolina  
S&ME Project No. 1461-14-046

Dear Mr. Kinard:

S&ME, Inc. (S&ME) is pleased to provide the enclosed report detailing our asbestos and lead-based paint assessment of the north and south bound I-77 Bridge over Edgewater Drive in Columbia, Richland County, South Carolina. The work was performed in general accordance with the Sub-consultant Agreement for Professional Services between S&ME, Inc. and HDR, Inc. dated July 8, 2014. The report includes the executive summary, project background, assessment procedures, findings and results, and conclusions and recommendations regarding the structures as related to asbestos-containing materials and lead-based paint coatings.

This report is provided for the use of HDR, Inc. and South Carolina Department of Transportation. Use of this report by any other parties will be at such party's sole risk and S&ME, Inc. disclaims liability for any such use or reliance by additional parties. The results presented in this report are indicative of conditions only during the time of the inspection and of the specific areas referenced.

We appreciate the opportunity to provide HDR and South Carolina Department of Transportation with our industrial hygiene/environmental services, and we look forward to our continued association. If you have any questions concerning this report, please do not hesitate to call us at (803) 561-9024.

Sincerely,  
**S&ME, Inc.**

Travis Knight  
Project Professional  
(SCDHEC Accreditation #BI-00885)

Thomas Behnke, P.G., CHMM  
Environmental Services Manager

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## EXECUTIVE SUMMARY

S&ME performed an asbestos and lead-based paint assessment of the north and south bound I-77 Bridges over Edgewater Drive in Richland County, South Carolina (Figures 1 and 2). The bridges are identified as structure numbers 4010007731800 and 4010007711800. The purpose of the assessment was to identify asbestos-containing materials (ACMs) and lead-based paint coatings associated with the structures prior to renovation actions.

The north and south bound bridge consists of a two-lane asphalt roadway over a concrete deck resting on concrete piers. The north end of the north and south bound bridge consists of a concrete deck resting on steel beams supported by concrete piers.

### Asbestos

Suspect ACMs observed, sampled and analyzed as part of this assessment consisted of a tar paper between concrete bents. No other suspect materials were observed. The Environmental Protection Agency (EPA) and South Carolina Department of Health & Environmental Control (SCDHEC) define materials as asbestos-containing if an asbestos content greater than one percent (>1%) is detected in a representative sample. Asbestos in concentrations greater than one percent was **not** identified as a result of this assessment.

### Lead-Based Paint

The bridge components and associated asphalt pavements contained several visible suspect coatings consisting of:

- Green painted bolt plate, beams and braces
- White painted side stripe – Not accessible due to traffic safety concerns
- Yellow painted center side stripe – Not accessible due to traffic safety concerns

For the purpose of this assessment, painted surfaces exceeding the SCDHEC disposal limit of 0.7 mg/cm<sup>2</sup> are considered lead-based paint and are applicable to OSHA regulation. Lead in concentrations applicable to SCDHEC disposal regulations were identified in the **green painted bolt plates, I-beams and braces**. We were unable to test the white and yellow lane striping on the bridge for traffic safety reasons. Consequently, the traffic striping on the north bound and south bound bridges are presumed to contain lead until such time they can be safely tested.

OSHA does not recognize a threshold level of lead for definition purposes, only the presence or absence of lead. The current OSHA regulations recognize an airborne action level of thirty micrograms of lead per cubic meter of air (30 µg/m<sup>3</sup>) during an eight-hour day and a permissible exposure level of fifty micrograms per cubic meter (50 µg/m<sup>3</sup>). XRF testing data is included in Appendix D.

## **1. BACKGROUND**

S&ME was contracted to perform an asbestos and lead-based paint assessment of the north and south bound I-77 Bridges over Edgewater Drive in Columbia, Richland County, South Carolina (Figures 1 and 2). The bridges are identified as structure number 4010007731800 (north bound) and 4010007711800 (south bound). The work was requested and authorized by HDR, Inc. We understand that the bridges are scheduled for renovation. The asbestos and lead-based paint assessment was performed on October 9, 2014.

The north and south bound bridge consists of a two-lane roadway over concrete decking. The bridges consist of concrete decking resting on concrete piers. The north end of the north and south bound bridge consists of concrete decking resting on steel beams supported by concrete piers. The north bound and south bound bridges are approximately 415 feet long and 41 feet wide. The bridges are shown in Photographs 1 through 4 in Appendix B.

The identification of ACMs will aid in the prevention of occupational exposures and/or environmental releases of airborne asbestos during destructive activities. Identification of ACMs also complies with Title 40 Code of the Federal Regulations, part 61, and State regulation 61-86.1 enforced by the SCDHEC, along with Title 29 Code of Federal Regulations, part 1926 enforced by OSHA. The following report describes the assessment procedures used and conclusions and recommendations regarding the subject structures as related to ACMs.

The lead-based paint assessment was performed to identify existing lead-based paint finishes associated with the subject structures. The identification of these materials will aid in the prevention of occupational exposure (OSHA) and/or environmental releases of airborne lead dust in accordance with 29 CFR 1926.62 (Lead in Construction) and provide information to facilitate proper disposal of lead-based paint waste in accordance with the SCDHEC and EPA during destructive activities.

## **2. ASBESTOS ASSESSMENT**

### **2.1 Assessment Procedures**

The assessment was performed by observing and sampling suspect asbestos-containing materials. Significant destructive testing was not performed; therefore the possibility exists that suspect asbestos-containing materials may be present in inaccessible areas. If additional suspect materials are discovered during the planned renovation activities, destructive actions to the suspect ACM should not proceed until bulk samples are collected and analyzed for asbestos content.

A sampling strategy was developed to provide representative samples of suspect asbestos-containing materials in accordance with OSHA, SCDHEC and EPA. Bulk samples were then extracted from suspect ACMs and recorded on a chain of custody record and submitted to S&ME's asbestos laboratory in Charlotte, North Carolina for analysis via the following methods:

#### *Polarized Light Microscopy (PLM)*

The suspect materials were analyzed by trained microscopists using PLM techniques coupled with dispersion staining in accordance with EPA Test Method Title 40 Code of Federal Regulations, Chapter I (1-1-87 edition), Part 763, Subpart F-APPENDIX A. This method identifies asbestos mineral fibers based on six optical characteristics: morphology, birefringence, refractive index, extinction angle, sign of elongation and dispersion staining colors. The laboratory analysis reports the specific type of asbestos identified (there are six asbestos minerals) and the percentage of asbestos present.

#### *Transmission Electron Microscopy (TEM)*

In accordance with SCDHEC Regulation 61-86.1, Transmission Electron Microscopy (TEM) confirmation analysis is required to be performed on one sample of any non-friable organically bound material (NOB) that tests negative via PLM analysis. The TEM analysis was performed by EMSL in Charlotte, NC using EPA 600 Method in accordance with ASTM E2356.

Both the PLM and the TEM laboratories are accredited by the National Voluntary Laboratory Accreditation Program (NVLAP), which is administered by the National Institute of Standards and Technology.

### **2.2 Findings and Results**

The asbestos survey conducted on October 9, 2014 included the quantification and random bulk sampling of various suspect asbestos-containing materials associated with the two bridge structures. The suspect material consisted of tar paper between the concrete bents. The EPA and SCDHEC define materials as asbestos-containing if an asbestos content >1% is detected in a representative sample. Asbestos fibers were not identified by PLM analysis in the tar paper materials. In accordance with SCDHEC

Regulation 61-86.1, TEM analysis was performed on one sample of each of the following non-friable, organically-bound (NOB) materials from each bridge that displayed a result of no asbestos detected via PLM analysis:

- Tar paper

The TEM analyses reported <0.1% chrysotile is present in the tar paper.

Of the representative materials sampled and analyzed during this assessment, asbestos in concentrations >1% was **not** identified.

The following table summarizes the sample number, location, type of material tested, approximate quantity of the material sampled, condition of the material, and corresponding result for each sample.

A copy of the inspector's SCDHEC license is provided in Appendix A. Figures and Photographs are provided in Appendix B.

**TABLE I: SUMMARY OF ASBESTOS BULK SAMPLE ANALYSIS**

Sample Number	Location	Material	<sup>2</sup> Approx. Quantity	Asbestos Type	<sup>1</sup> Percent	Condition	Potential for Disturbance	Hazard Assessment
<b>I-77 Bridges</b>								
TP-1	N. Bound, N. Side of N. Bent	Tar Paper	200 SF	NAD	NA	NA	NA	NA
TP-2	N. Bound, N. Side of N. Bent			NAD	NA	NA	NA	NA
TP-3 (TEM)	S. Bound, S. Side of N. Bent			Chrysotile	<0.1%	NA	NA	NA

NAD = No Asbestos Detected      NA = Not Applicable      SF = square feet

<sup>1</sup>The EPA, SCDHEC and OSHA defines a material as asbestos containing if an asbestos content greater than one percent (>1%) is detected in a representative sample.

<sup>2</sup>The quantities are estimated, and should not be used for bidding purposes, as field conditions should be verified

## 2.3 Abbreviations and Hazard Assessment Key

In accordance with the EPA and SCDHEC, a confirmed ACM is assigned a hazard assessment based on its present condition and potential for disturbance. The hazard assessment is used as a tool for prioritization in remedial actions regarding ACM(s). The following key exhibits the criteria that compose the hazard assessment.

### Present Condition

F = Friable

NF = Non-friable

G = Good (Very localized limited damage)

D = Damaged (Damage of less than 10% distributed and less than 25% localized)

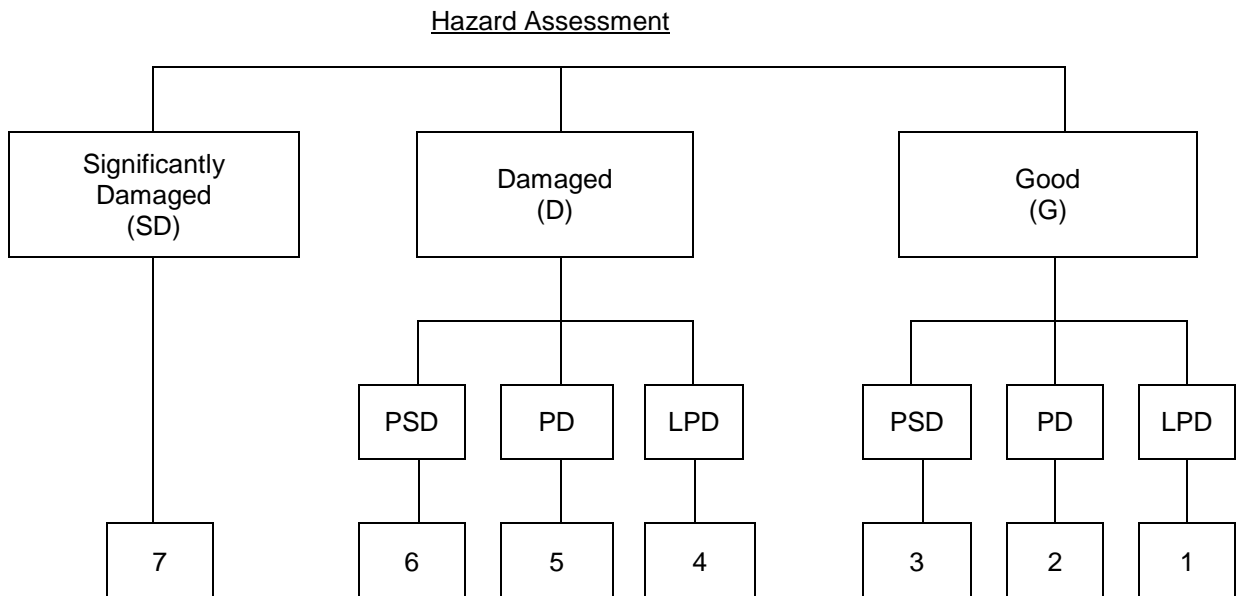
SD = Significantly Damaged (Damage equal to or greater than 10% distributed, 25% localized)

### Potential for Future Disturbance

LPD = Low Potential for Disturbance (Contact, Vibration, and Air Erosion all of Low Concern)

PD = Potential for Damage (Contact, Vibration, or Air Erosion of Moderate Concern)

PSD = Potential for Significant Damage (Contact, Vibration, or Air Erosion of High Concern)



### 3. LEAD-BASED PAINT ASSESSMENT

#### 3.1 Assessment Procedures

Lead content in suspect paint coatings were measured with a LPA-1 X-Ray Fluorescence (XRF) spectrum analyzer (serial # 1629R). Suspect painted finishes are selected based on the color of the topcoat and the underlying paint layers and/or the substrate on which it was applied. The possibility exists that lead-based paint finishes are present in inaccessible areas.

SCDHEC defines a lead-based paint as any paint containing lead at concentrations of 0.7 milligrams per square centimeter ( $0.7 \text{ mg/cm}^2$ ) or greater by XRF testing. For the purpose of this assessment, paint containing  $0.7 \text{ mg/cm}^2$  or greater was considered a lead-based paint finish. Components painted with lead-based paint ( $\geq 0.7 \text{ mg/cm}^2$ ) must be disposed in a permitted Class Two (C&D) or Class Three Subtitle D, Municipal Solid Waste (MSW) landfill.

OSHA does not recognize a threshold level of lead for definition purposes, only the presence or absence of lead. The current OSHA regulations recognize an airborne action level of thirty micrograms per cubic meter ( $30 \text{ } \mu\text{g/m}^3$ ) during an eight-hour day and a permissible exposure limit of fifty micrograms per cubic meter ( $50 \text{ } \mu\text{g/m}^3$ ).

#### 3.2 Findings and Results

The bridge components and associated asphalt pavements contained several visible suspect coatings consisting of:

- Gray painted bolt plate, beams and braces
- White painted side stripe (not accessible due to traffic safety concerns)
- Yellow painted side stripe (not accessible due to traffic safety concerns)

For the purpose of this assessment, painted surfaces exceeding the SCDHEC disposal limit of  $0.7 \text{ mg/cm}^2$  are considered lead-based paint and are applicable to OSHA regulation. Lead in concentrations applicable to SCDHEC disposal regulations was identified in the **green painted bolt plates, I-Beams and braces**. We were unable to test the white and yellow lane striping on the I-77 roadway for traffic safety reasons. Consequently, the traffic striping on the south bound and north bound bridges are presumed to contain lead until such time they can be safely tested. Disturbance of these materials is regulated by the OSHA regulation 29 CFR 1926.62 (Lead in Construction). XRF testing data is included in Appendix D.

## **4. CONCLUSIONS AND RECOMMENDATIONS**

### **Asbestos**

The asbestos and lead-based paint assessment conducted on the north and south bound I-77 Bridges over Edgewater in Columbia, Richland County, South Carolina, **did not** identify asbestos-containing materials. If additional suspect materials are discovered during the planned renovation activities, bulk samples must be collected and analyzed for asbestos content prior to continuation of work. A copy of this report should be provided to the contractor(s) to assist with compliance with applicable State and Federal regulations.

### **Lead-Based Paint**

The **green painted bolt plates, I-beams and braces** were identified as containing lead levels exceeding the SCDHEC disposal limit of  $0.7 \text{ mg/cm}^2$ . It is currently presumed the traffic striping on the I-77 roadway contains lead levels exceeding the SCDHEC disposal limit of  $0.7 \text{ mg/cm}^2$ . Additionally, painted components coated with lead containing paint applicable to OSHA regulation 29 CFR 1926.62 (Lead in Construction) was also detected. Destructive actions (sanding, burning, demolition, component removal, paint preparation) to the lead-containing paint surfaces will require the contractor to comply with the standards of SCDHEC and OSHA, including but not limited to proper disposal, initial exposure monitoring, the use of personal protective equipment, and medical surveillance. If additional painted components are discovered during renovation activities, the paint should be tested prior to any destructive actions (sanding, burning, demolition, component removal, paint preparation) or disposal.

SCDHEC Regulation 61-107.19 permits demolition materials painted with lead-based paint ( $\geq 0.7 \text{ mg/cm}^2$ ) to be disposed in a permitted Class Two (C&D) or Class Three Subtitle D, Municipal Solid Waste (MSW) landfill. However, accumulations of paint waste (chips, dust, or flakes) from the identified areas of lead-based paint may be classified as hazardous waste, which requires disposal in a Subtitle C (hazardous waste) landfill. The hazardous waste regulations include Title 40 Code of Federal Regulations parts 260 through 272. A sample of accumulated paint waste should be collected for analysis via Toxicity Characteristic Leaching Procedure (TCLP) to determine the waste's lead content and hazardous waste characteristics.

## **APPENDIX A**

### **COPY OF SCDHEC INSPECTOR LICENSES**




**South Carolina  
Department of Health and Environmental Control  
Asbestos License**

**Travis L. Knight**

SCDHEC ISSUED  
Asbestos ID Card

Travis Knight



AIRSAMPLER	AS-00237	Expires 03/24/15
CONSULTBI	BI-00885	01/23/15
SUPERHERA	SA-01266	03/24/15

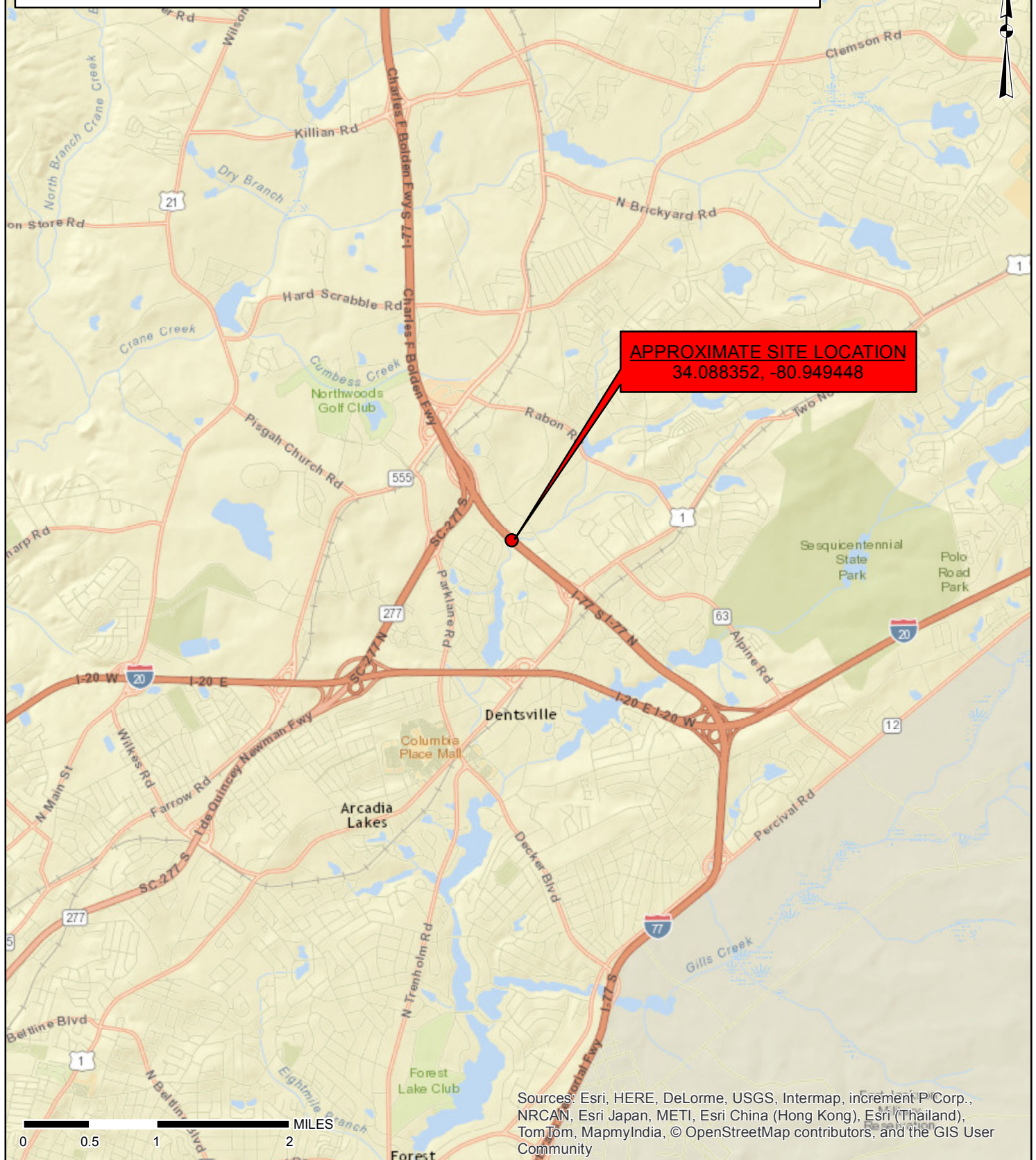
*Air Sampler AS-00237  
Building Inspector BI-00885  
Asbestos Supervisor SA-01266*

## **APPENDIX B**

### FIGURES AND PHOTOGRAPHS

**REFERENCE:**

PLEASE NOTE THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. IT IS NOT MEANT FOR DESIGN, LEGAL, OR ANY OTHER USES. THERE ARE NO GUARANTEES ABOUT ITS ACCURACY. S&ME, INC. ASSUMES NO RESPONSIBILITY FOR ANY DECISION MADE OR ANY ACTIONS TAKEN BY THE USER BASED UPON THIS MAP.



**APPROXIMATE SITE LOCATION**  
34.088352, -80.949448

Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp.,  
NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand),  
TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User  
Community

SCALE: 1 IN = 1 MI

CHECKED BY: TB

DRAWN BY: OA

DATE: 12/1/2014



PROJECT NO: 1461-14-046

SOURCE:

ESRI RESOURCE CENTER - WORLD STREET MAP

## Location Map

I-77 Bridges Over Edgewater Drive  
Columbia, Richland County, South Carolina

FIGURE NO.

1

**REFERENCE:**

PLEASE NOTE THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. IT IS NOT MEANT FOR DESIGN, LEGAL, OR ANY OTHER USES. THERE ARE NO GUARANTEES ABOUT ITS ACCURACY. S&ME, INC. ASSUMES NO RESPONSIBILITY FOR ANY DECISION MADE OR ANY ACTIONS TAKEN BY THE USER BASED UPON THIS MAP.



**I-77 NORTHBOUND BRIDGE OVER S-1722 & JACKSON CREEK**  
Structure No. 4010007711800

**I-77 SOUTHBOUND BRIDGE OVER S-1722 & JACKSON CREEK**  
Structure No. 4010007731800

0 50 100 200 FEET

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, Copyright:© 2011 Esri, DeLorme, NAVTEQ, TomTom

SCALE: 1 IN = 100 FT

CHECKED BY: TB

DRAWN BY: OA

DATE: 12/1/2014



PROJECT NO: 1461-14-046

SOURCE: ESRI RESOURCE CENTER - IMAGERY BASEMAP, 2010

**Site Map**

I-77 Bridges Over Edgewater Drive  
Columbia, Richland County, South Carolina

FIGURE NO.

2



**1** View of the north side of the north bound I-77 bridge over Edgewater Drive.



**2** View of the center portion of the I-77 bridge over Edgewater Drive.



**3** The green painted I-beams, bolt plates and braces tested positive for lead-based paint.



**4** The tar paper associated with the bridge tested negative for asbestos.

## **APPENDIX C**

### **ASBESTOS BULK SAMPLE ANALYSIS SHEETS AND CHAIN OF CUSTODY RECORDS**

**EMSL Analytical, Inc.**

376 Crompton Street, Charlotte, NC 28273

Phone/Fax: (704) 525-2205 / (704) 525-2382

<http://www.EMSL.com>[charlottelab@emsl.com](mailto:charlottelab@emsl.com)

EMSL Order: 411406659

CustomerID: S&amp;ME50

CustomerPO: 1461-14-046

ProjectID:

Attn: **Owen Astwood**  
**S&ME, Inc.**  
**134 Suber Rd.**  
**Columbia, SC 29210**

Phone: (803) 561-9024  
Fax: (803) 561-9177  
Received: 10/10/14 10:00 AM  
Analysis Date: 10/14/2014  
Collected: 10/9/2014

Project: **I-77 Bridges over Edgewater**

## Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	<u>Non-Asbestos</u>		<u>Asbestos</u>
			% Fibrous	% Non-Fibrous	% Type
TP-1 411406659-0001	North Bound, N. Side of N. Bent/ Tar Paper	Black Fibrous Homogeneous	50% Cellulose	50% Non-fibrous (other)	<b>None Detected</b>
TP-2 411406659-0002	North Bound, N. Side of N. Bent/ Tar Paper	Black Non-Fibrous Homogeneous	50% Cellulose	50% Non-fibrous (other)	<b>None Detected</b>

Analyst(s)

Eric Loomis (1)

Kyle Collins (1)

Lee Plumley, Laboratory Manager  
or other approved signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported 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. 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. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%

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

Initial report from 10/15/2014 08:28:32

**EMSL Analytical, Inc.**

376 Crompton Street, Charlotte, NC 28273

Phone/Fax: (704) 525-2205 / (704) 525-2382

<http://www.EMSL.com>[charlottelab@emsl.com](mailto:charlottelab@emsl.com)

EMSL Order: 411406659  
CustomerID: S&ME50  
CustomerPO: 1461-14-046  
ProjectID:

Attn: **Owen Astwood**  
**S&ME, Inc.**  
**134 Suber Rd.**  
**Columbia, SC 29210**

Phone: (803) 561-9024  
Fax: (803) 561-9177  
Received: 10/15/14 8:45 AM  
Analysis Date: 10/16/2014  
Collected: 10/9/2014

Project: **I-77 Bridges over Edgewater**

**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
TP-3 411406659-0003	South Bound, S. Side of N. Bent/ Tar Paper	Brown/Black Fibrous Heterogeneous	100	<0.1 Fibrous (other)	<0.1% Chrysotile

Analyst(s) \_\_\_\_\_

Lee Plumley, 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. Charlotte, NC

EMSL ANALYTICAL, INC.  
LABORATORY • PRODUCTS • TRAINING

# Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (Lab Use Only):

411406659

Charlotte, NC 28273

PHONE: (704) 525-2205

FAX: (704) 525 2382

Company: S&ME, Inc.		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different If Bill to is Different note instructions in Comments**	
Street: 134 Suber Road		Third Party Billing requires written authorization from third party	
City: Columbia	State/Province: SC	Zip/Postal Code: 29210	Country: United States
Report To (Name): Owen Astwood		Telephone #: 803-561-9024	
Email Address: oastwood@smeinc.com		Fax #:	Purchase Order: 1461-14-046
Project Name/Number: I-77 Bridges OVER EDGEWATER		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email <input type="checkbox"/> Mail	
U.S. State Samples Taken: SC		CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt	
Turnaround Time (TAT) Options* - Please Check			
<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 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.			
PLM - Bulk (reporting limit)		TEM - Bulk	
<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"/> NIOSH 9002 (<1%) <input type="checkbox"/> NY ELAP Method 198.1 (friable in NY) <input type="checkbox"/> NY ELAP Method 198.6 NOB (non-friable-NY) <input type="checkbox"/> OSHA ID-191 Modified <input type="checkbox"/> Standard Addition Method		<input checked="" type="checkbox"/> TEM EPA NOB - EPA 600/R-93/116 Section 2.5.5.1 <input type="checkbox"/> NY ELAP Method 198.4 (TEM) <input type="checkbox"/> Chatfield Protocol (semi-quantitative) <input type="checkbox"/> TEM % by Mass - EPA 600/R-93/116 Section 2.5.5.2 <input type="checkbox"/> TEM Qualitative via Filtration Prep Technique <input type="checkbox"/> TEM Qualitative via Drop Mount Prep Technique Other <input type="checkbox"/>	
<input type="checkbox"/> Check For Positive Stop - Clearly Identify Homogenous Group		Date Sampled: Oct. 9, 2014	
Samplers Name: Owen Astwood		Samplers Signature: <i>[Signature]</i>	
Sample #	HA #	Sample Location	Material Description
TP-1		North Band, N. side of N. bent	TP Paper } N.O.B.
2		" " "	↓
3		South Band, S. side of N. bent	↓
Client Sample # (s):		Total # of Samples:	
Relinquished (Client): <i>[Signature]</i>		Date: 10/9/14 - FedEx	Time: 1435
Received (Lab): <i>[Signature]</i>		Date: 10/10/14	Time: 10:00AM EMSL FX
Comments/Special Instructions: N.O.B. = 2 PLMs and 1 TEM if both PLMs are negative		8050 7723 0014	

## **APPENDIX D**

### SUMMARY OF XRF LEAD SPECTRUM ANALYZER READINGS

Serial # 1629R  
PAINT  
Project No.: 1461-14-046  
Site: I-77 Over Edgewater Drive  
Date: October 9, 2014  
Ranges (NEG<INC<POS): Device PCS



Reading Number	Area	Room	Feature	Substrate	Condition	Color	Result	XRF Reading (mg/cm²)
23	I-77	North Bound	Cross Member	Metal	Good	Green	POS	>9.9
24	I-77	North Bound	I-Beam	Metal	Good	Green	POS	>9.9
25	I-77	North Bound	Bolt Plate	Metal	Good	Green	POS	>9.9