

**ASBESTOS & LEAD-BASED PAINT  
ASSESSMENT REPORT  
I-77 BRIDGES OVER I-20 & I-20 RAMP  
STRUCTURE NOS. 4010007731400 AND 4010007711400  
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

☐

Yes, Asbestos Was Found

☒

No, Asbestos Was Not  
Found

☒

Yes, Lead Paint Was Found

☐

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 I-20 & I-20 Ramp  
Structure Nos. 4010007731400 and 4010007711400  
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 I-20 and I-20 Ramp 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 I-20 and I-20 ramp in Columbia, Richland County, South Carolina. The bridges are identified as structure numbers 4010007731400 and 4010007711400. 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 south bound bridge consists of a two-lane roadway over metal decking supported by concrete piers. The north bound bridge consists of a two-lane roadway over metal decking resting on steel beams supported by concrete piers.

### **Asbestos**

No suspect ACMs were observed on the structures.

### **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  $0.7 \text{ mg/cm}^2$  are considered lead-based paint and are applicable to OSHA regulation. Lead in concentrations applicable to SCDHEC and EPA disposal regulations was identified in the **green painted bolt plates and I beam 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 ( $30 \text{ } \mu\text{g/m}^3$ ) during an eight-hour day and a permissible exposure level of fifty micrograms per cubic meter ( $50 \text{ } \mu\text{g/m}^3$ ). 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 the I-20 and I-20 ramp in Columbia, Richland County, South Carolina (Figures 1 and 2). The bridges are identified as structure number 4010007731400 (south bound) and 4010007711400 (north 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 south bound bridge consists of a two-lane roadway over metal decking. The north bound bridge consists of a two-lane roadway over metal decking. The bridges consist of metal decking resting on steel beams supported by concrete piers. The bridges are approximately 375 feet long and 40 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 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.

## 2.2 Findings and Results

The asbestos assessment performed on the I-77 Bridges over I-20 and I-20 ramp in Columbia, Richland County, South Carolina, **did not** identify any suspect ACMs.

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

## 3. LEAD-BASED PAINT ASSESSMENT

### 3.1 Assessment Procedures

Lead content in the paint coating was 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:

- Green 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 were identified in the **green painted bolt plates and I-beam 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 C.

## **4. CONCLUSIONS AND RECOMMENDATIONS**

### **Asbestos**

The asbestos and lead-based paint assessment conducted on the north and south bound I-77 Bridges over I-20 and I-20 ramp in Columbia, Richland County, South Carolina, **did not** identify suspect asbestos-containing materials. If 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 and I-beam 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

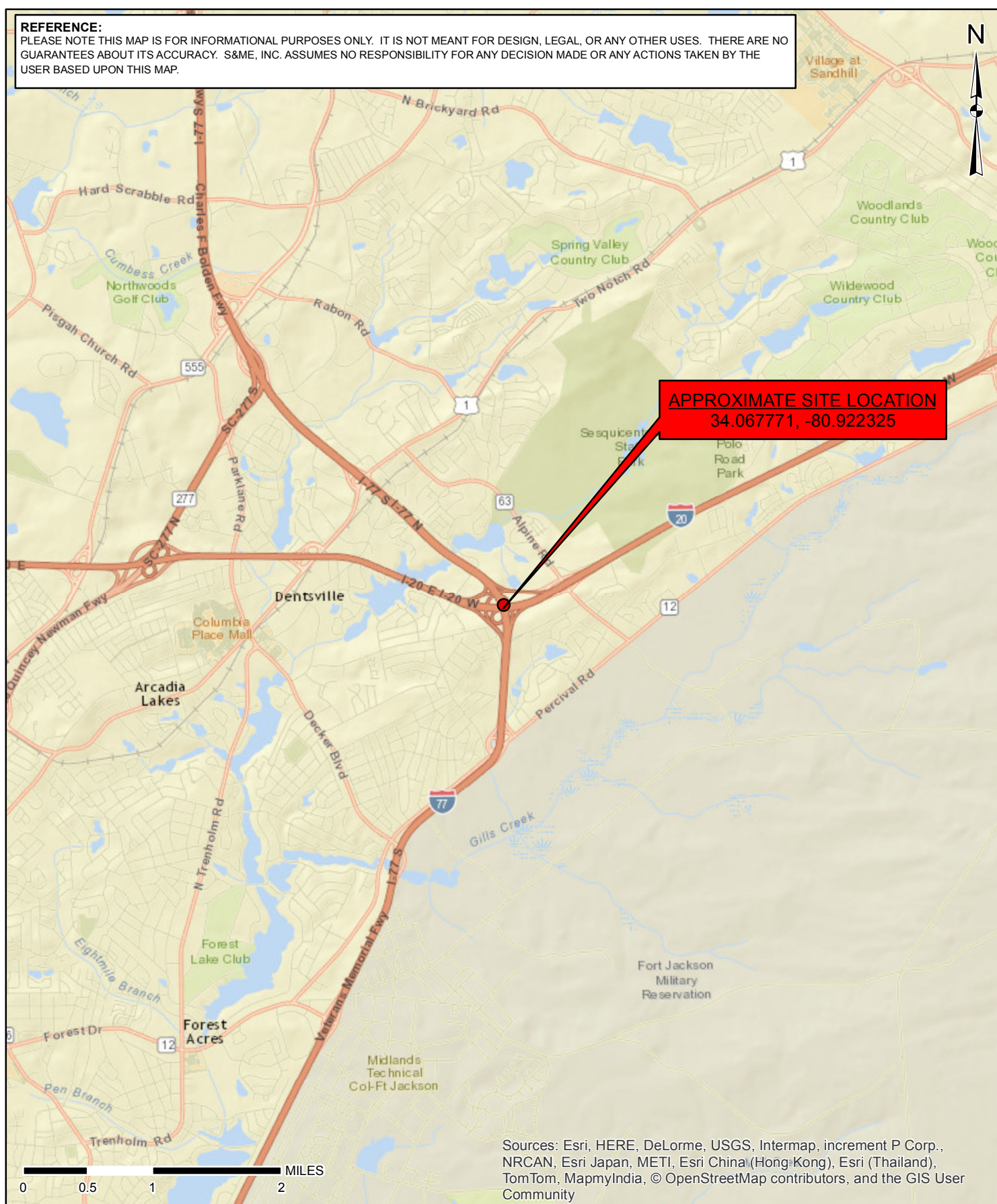
*Air Sampler AS-00237  
Building Inspector BI-00885  
Asbestos Supervisor SA-01266*

## **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.



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 I-20 and I-20 Ramp

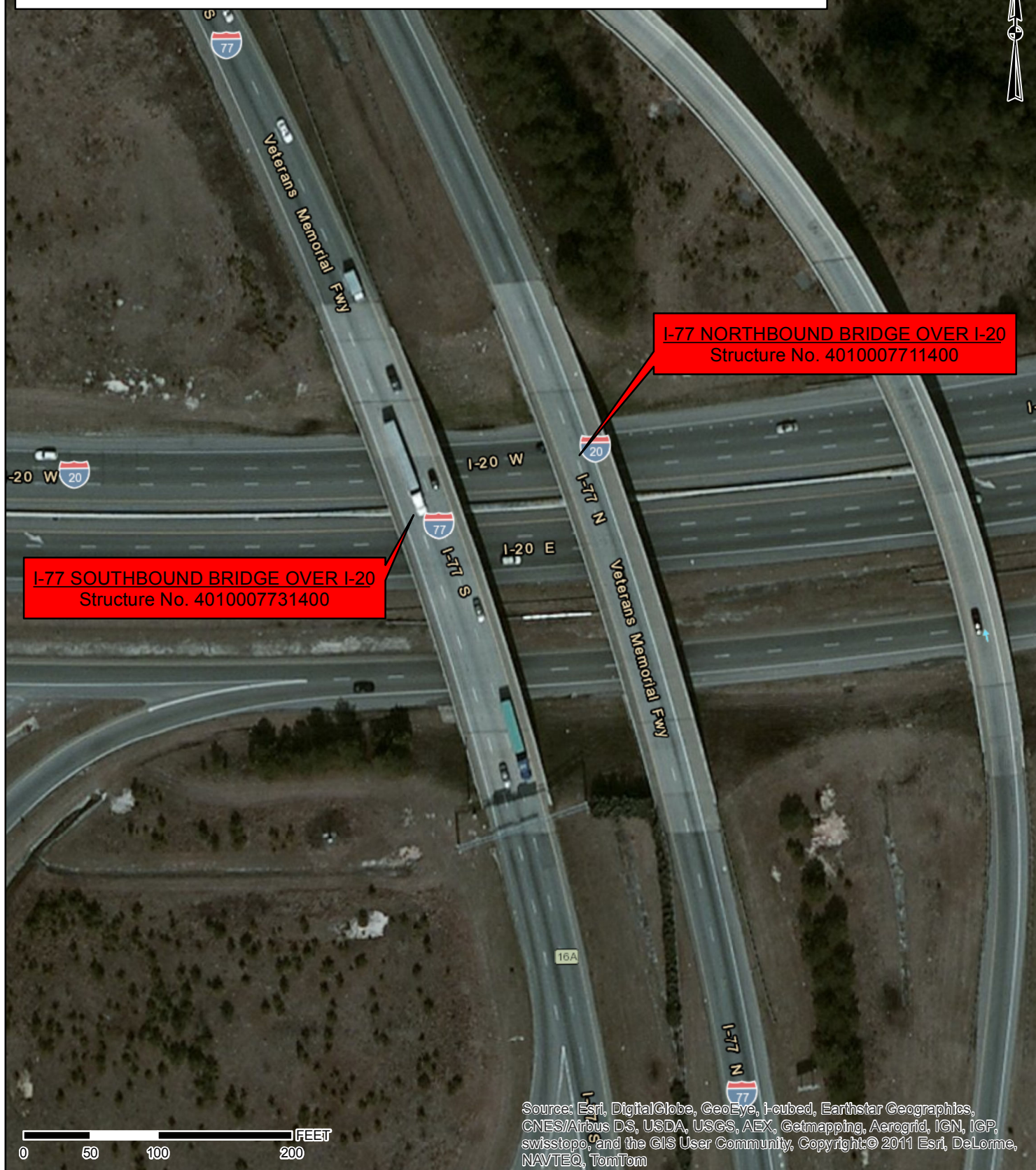
Columbia, Richland County, South Carolina

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.



SCALE: 1 IN = 100 FT

CHECKED BY: TB

DRAWN BY: OA

DATE: 12/1/2014



PROJECT NO: 1461-14-046

**Site Map**

I-77 Bridges Over I-20 and I-20 Ramp  
Columbia, Richland County, South Carolina

SOURCE: ESRI RESOURCE CENTER - IMAGERY BASEMAP, 2010

FIGURE NO.

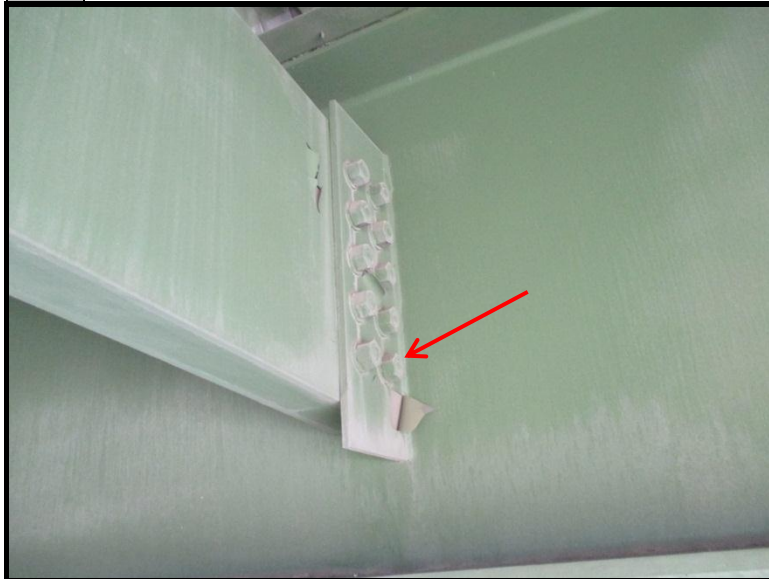
2



1 View of the southbound I-77 bridge over I-20 and I-20 Ramp.



2 View of the northbound I-77 bridge over I-20 and I-20 Ramp.



3 The green paint on the I-beam brace tested positive for lead-based paint (0.7-0.8 mg/cm<sup>2</sup>).



4 The green paint on the bolt plate tested positive for lead-based paint (1.4-2.6 mg/cm<sup>2</sup>).

## **APPENDIX C**

### **SUMMARY OF XRF LEAD SPECTRUM ANALYZER READINGS**

Serial # 1629R  
 PAINT  
 Project No.: 1461-14-046  
 Site: I-77 Over I-20 & I-20 Ramp  
 Date: October 9, 2014  
 Ranges (NEG<INC<POS): Device PCS



Reading Number	Area	Room	Feature	Substrate	Condition	Color	Result	XRF Reading (mg/cm²)
26	I-77	North Bound	I-Beam	Metal	Good	Green	NEG	0.2
27	I-77	North Bound	I-Beam	Metal	Good	Green	NEG	0.5
28	I-77	North Bound	Cross member	Metal	Good	Green	NEG	0.4
29	I-77	<b>North Bound</b>	<b>I-Beam brace</b>	<b>Metal</b>	<b>Good</b>	<b>Green</b>	<b>POS</b>	<b>0.8</b>
30	I-77	<b>North Bound</b>	<b>Bolt Plate</b>	<b>Metal</b>	<b>Good</b>	<b>Green</b>	<b>POS</b>	<b>2.6</b>
31	I-77	<b>North Bound</b>	<b>Bolt Plate</b>	<b>Metal</b>	<b>Good</b>	<b>Green</b>	<b>POS</b>	<b>2</b>
32	I-77	South Bound	I-Beam	Metal	Good	Green	NEG	0.6
33	I-77	South Bound	Cross member	Metal	Good	Green	NEG	0.4
34	I-77	South Bound	I-Beam Brace	Metal	Good	Green	NEG	0.2
35	I-77	<b>South Bound</b>	<b>Bolt Plate</b>	<b>Metal</b>	<b>Good</b>	<b>Green</b>	<b>POS</b>	<b>1.4</b>
36	I-77	<b>South Bound</b>	<b>I-Beam Brace</b>	<b>Metal</b>	<b>Good</b>	<b>White</b>	<b>POS</b>	<b>0.7</b>