

## LEAD BASED PAINT INVESTIGATION REPORT

S-41-281 (MATTHEWS RD.) OVER TRIBUTARY TO LAKE MURRAY  
BRIDGE # 417028100100 (SCOPE BRIDGE # 4170028100100)  
SALUDA COUNTY, SOUTH CAROLINA

### PREPARED FOR:



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

### PREPARED BY:

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

May 23, 2019

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

F&ME 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 (FME) has completed a Lead-Based Paint (LBP) Investigation on the S-41-281 (Matthews Rd.) Bridge Over Tributary to Lake Murray in Saluda County, South Carolina, for the South Carolina Department of Transportation (SCDOT) (Trapp Harris). The investigation was performed on May 8, 2019 in anticipation of an on-alignment replacement of the existing bridge structure. Appendix A – Site Vicinity Map is provided to show the location of the bridge. Appendix B – Bridge Plan, is provided to show the bridge lay-out.

The scope of this LBP Investigation was to identify, analyze and assess the condition of LBP or coated bridge components that may be affected by the bridge replacement. This scope includes both a visual evaluation of the physical condition of painted materials as well as quantitative testing of random suspect surfaces using an X-Ray Fluorescence (XRF) Portable Analyzer. The XRF documents the concentration of lead, if any, in the overall paint or coating. Bridge components were scanned with a Heuresis XRF analyzer (Model # Pb200i, Serial #1888, Reference Date: 07/11/18) with a limit of detection (LOD) of 0.1 mg/cm<sup>2</sup>.

LBP is regulated by multiple government agencies, and each requires different response actions when the concentration of lead exceeds specified thresholds. The Occupational Safety and Health Administration (OSHA) regulates worker exposure to lead dust, and as a result considers materials with any lead content to be a potential hazard. Furthermore, the South Carolina Department of Health and Environmental Control (SCDHEC) requires some materials found to contain greater than or equal to ( $\geq$ ) 0.7 mg/cm<sup>2</sup> lead to be disposed of at specialized waste facilities. Appendix C – XRF Data, is provided to present the data in a user-friendly format. Items in red text contain lead in concentrations regulated by SCDHEC and these materials must be addressed upon disposal. Items in blue and red text contain lead in concentrations that must be considered a potential for worker exposure by OSHA.

The results from the XRF quantitative testing indicate that lead is present on the tie-rod washers located along the sides of the bridge and the L-brackets located on the underside of the bridge.



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,

F&ME CONSULTANTS



**Michael S. Mincey**

S.C. Lead-Based Paint Inspector

EPA Certification No. LBP-I-1198708-1(Exp. 02/21/22)



**Glynn M. Ellen**

Environmental Manager



## 2. LBP BACKGROUND INFORMATION

Housing and Urban Development (HUD) defines “LBP” as any coating that has a lead concentration of 1.0 milligrams of lead per square centimeter ( $1.0 \text{ mg/cm}^2$ ) or greater, or if the lead concentration is greater than one half of a percent ( $> 0.5\%$ ) by weight. The Consumer Product Safety Commission (CPSC) currently considers paint to be lead-containing if the concentration of lead exceeds 90 ppm ( $0.009\%$  by weight). In 1978, the CPSC banned the sale of LBP to consumers, and banned its application in areas where consumers have direct access to painted surfaces. Both the CPSC and HUD definitions of lead-containing paint are aimed at protecting the general population from exposure to lead in the residential setting.

In contrast, the mission of the Occupational Safety and Health Administration (OSHA) with respect to lead-containing paint is to protect workers during construction activities that may generate elevated airborne lead concentrations. OSHA states that construction work (including renovation, maintenance, and demolition) carried-out on structures coated with paint having lead concentrations lower than the HUD or CPSC can still result in airborne lead concentrations in excess of regulatory limits. For this reason, OSHA has not defined lead-containing paint, but states that paint having any measurable level of lead ( $\geq 0.01 \text{ mg/cm}^2$ ) may pose a substantial exposure hazard during construction work, depending upon the work performed. Therefore, in these situations, OSHA guidelines and safety procedures should be followed. By OSHA standards and regulations, the employer shall ensure that no employee is exposed to lead at concentrations greater than fifty micrograms per cubic meter of air ( $50 \text{ ug/m}^3$ ) averaged over an 8-hour period.

Additionally, the South Carolina Department of Health and Environmental Control (SCDHEC) requires the use of specialized waste disposal sites if materials contain lead concentrations greater than or equal to ( $\geq$ )  $0.7 \text{ mg/cm}^2$ . It is imperative that these regulations be considered if any present or future replacement and/or demolition activities will impact LBP-containing bridge components.

## 3. INTRODUCTION

FME has completed a Lead-Based Paint (LBP) Investigation on the S-41-281 (Matthews Rd.) Bridge over Tributary to Lake Murray in Saluda County, South Carolina. The scope of this LBP Investigation was to identify, analyze, and assess the condition of LBP or coated bridge components that may be affected by the bridge replacement activities. This investigation was performed on May 8, 2019 in anticipation of an on-alignment replacement of the existing bridge structure.

The results, conclusions and recommendations from 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 occur after the inspection. Use of this document for bidding purposes is not recommended without prior consultation with FME. No other environmental issues are addressed in this report.



## 4. INVESTIGATION RESULTS

The existing bridge structure (~45.5'L x 26.0'W, inside curb to inside curb), is located on S-41-281 (Matthews Rd.) and crosses over Tributary to Lake Murray in Saluda County, South Carolina. The date of construction of the bridge (SCDOT bridge # 417028100100) (Scope bridge # 4170028100100) is unknown. The existing bridge structure is a three (3) span, two lane precast concrete bridge, with an asphalt overlay. The bridge deck rests on concrete bents that are supported by timber piles. The bents are supported by five (5) timber piles with soil partially covering the two (2) end bents. Drainage scuppers consist of a 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 metal telecommunications conduit is attached to the west 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-41-281 (Matthews Rd.) over Tributary to Lake Murray, Saluda County, South Carolina.*

Our LBP Investigation sampling protocol consisted of randomly selecting bridge components on the subject bridge and scanning them with our Heuresis XRF analyzer (Model # Pb200i, Serial #1888, Reference Date: 07/11/18) with a limit of detection (LOD) of 0.1 mg/cm<sup>2</sup>. The components that were tested with the XRF include the following: tie-rod washers, L-brackets and metal sleeves on timber piles.

The XRF results indicate that LBP is present on the tie-rod washers located on the sides of the bridge and the L-brackets located on the underside of the bridge deck. For more information regarding the specific descriptions and locations of the items that were scanned, refer to the Appendix C – XRF Data. Also, Appendix E – Site Photographs, shows top and underside views of the bridge. Appendix D - Personnel Certification provides the LBP certifications for FME personnel.

## 5. RECOMMENDATIONS

The results of this LBP investigation determined that there are lead-based paints or coatings on the tie-rod washers located on the sides of the bridge and the L-brackets located on the underside of the bridge deck. These components can either be thrown away with the general construction and demolition debris, or they can be segregated and taken to a metal recycling facility that accepts lead coated materials. No other coated or painted bridge components containing lead were found. During the bridge demolition activities, some painted surfaces may be exposed. If paint is exposed and it is determined to contain levels of lead  $\geq 0.7$  mg/cm<sup>2</sup>, the coated/painted components will need to be handled and disposed of properly. Proper handling includes the avoidance of creating lead dust, as well as the creation of lead-contaminated soil hazards. Activities that would generate lead dust include



abrasion, scraping, or sanding. As previously stated, OSHA has not defined lead-containing paint, but states that paint having any measurable level of lead may pose a substantial exposure hazard during construction work, depending upon the work performed. In these cases, OSHA regulations and procedures should be followed to protect the personnel carrying out the work on a bridge component containing any amount of lead.

SCDHEC regulates the proper disposal of LBP and associated debris. SCDHEC defines two types of LBP debris. The first is LBP *waste*, which is defined as material such as wood, brick and metal that is painted with LBP. The other is LBP *residue* which is defined as residue that is generated from the removal (e.g., scraped, chipped, sandblasted, or chemical) of LBP from a structure. LBP *waste* that comes from a commercial or residential facility may be disposed of in either a class 2 or 3 landfill, while LBP *residue* from a commercial facility must have a toxicity characteristic leaching procedure (TCLP) analysis to determine the lead content. TCLP analysis is used to determine whether or not a waste is a characteristic hazardous waste due to leachability under the South Carolina Hazardous Waste Management Regulations. LBP *residue* with a TCLP analysis result greater than or equal to five milligrams per liter ( $\geq 5$  mg/l) lead must be disposed of in a Subtitle C landfill (Hazardous Waste). However, LBP *residue* from a commercial facility with a TCLP analysis result less than five milligrams per liter ( $< 5$  mg/l) lead is required to be disposed of in a Class 3 landfill.

If any hidden and/or inaccessible materials suspected or known to contain lead-based paint are encountered during any bridge demolition activities, the persons involved are advised to stop work, follow proper regulatory precautions and procedures, and notify FME for an immediate response action. If you have any questions or require additional information concerning this report, please do not hesitate to contact our office at (803)254-4540. We appreciate the opportunity to be of service in this matter.

This report has been prepared exclusively for the South Carolina Department of Transportation by FME and shall not be disseminated in whole or part to other parties without prior consent from the South Carolina Department of Transportation or FME. Use of this document for bidding purposes is not recommended without prior consultation with FME.



## APPENDICES

Appendix A – Site Vicinity Map

Appendix B – Bridge Plan

Appendix C – XRF Data

Appendix D – Personnel Certification

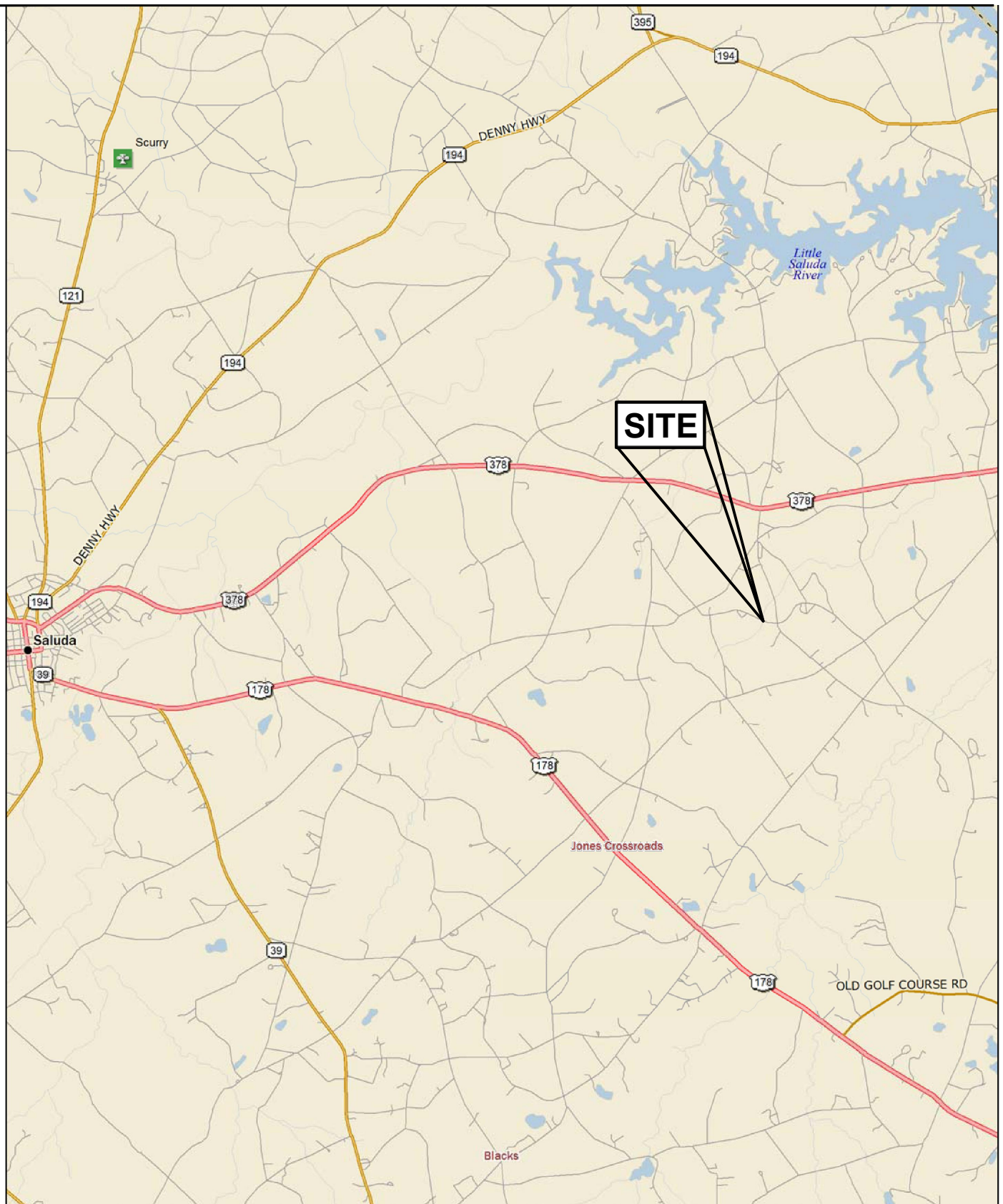
Appendix E – Site Photographs





## Appendix A

### Site Vicinity Map



Data use subject to license.

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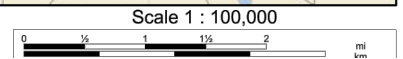
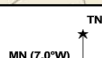


FIGURE  
NUMBER:

1

F&ME CONSULTANTS  
PROJECT NUMBER:

G6100.050

**LEAD-BASED PAINT INVESTIGATION  
S-41-281 (Mathews Rd.) over Tributary to Lake  
Murray**

Saluda 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 22, 2019

REVISIONS:

1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_

SCALE:  
AS SHOWN

DRWN. BY: MSM  
CHKD. BY: MSM

APPR. BY: GME

NOTES:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## Appendix B

### Bridge Plan

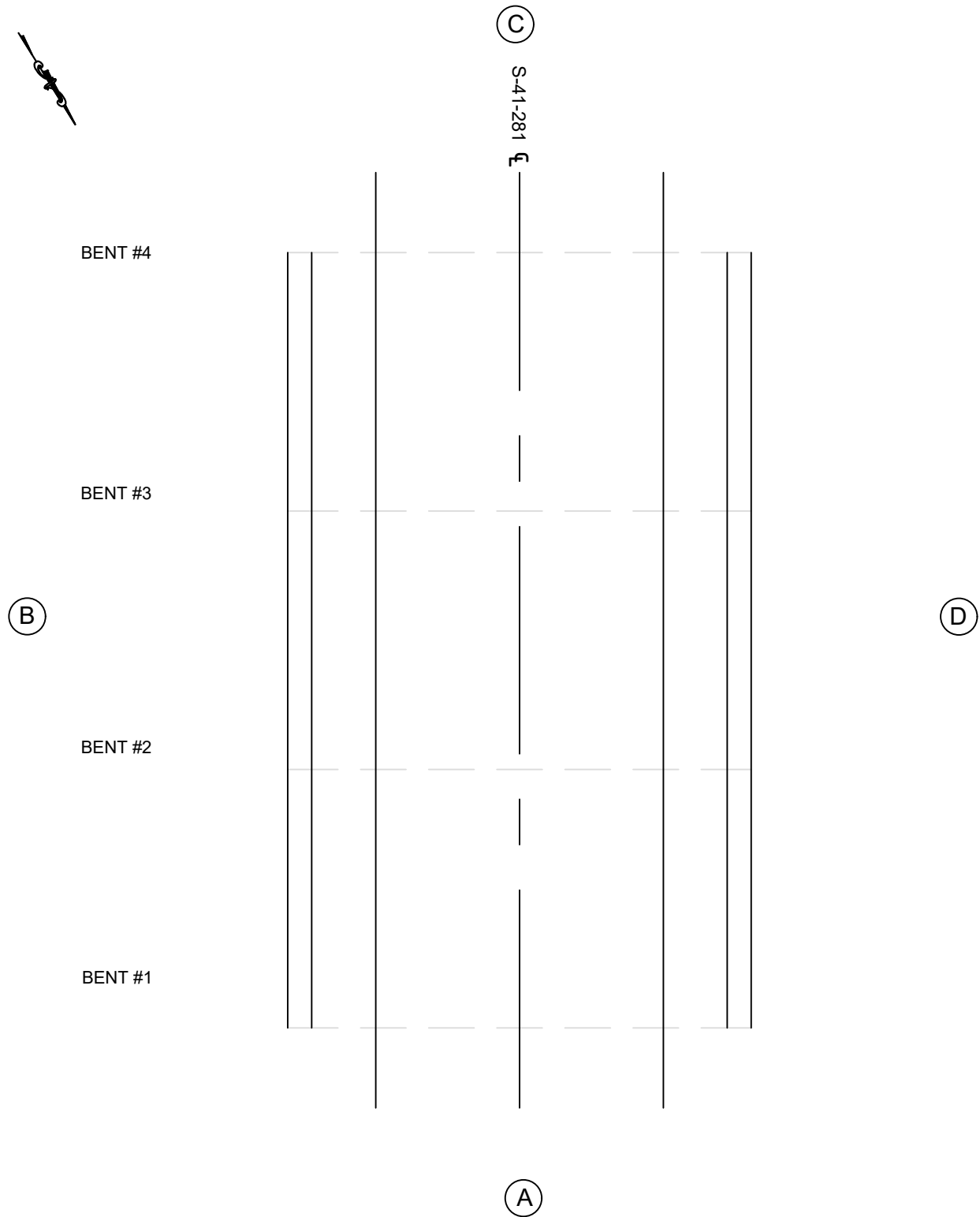


FIGURE  
NUMBER:

2

F&ME CONSULTANTS  
PROJECT NUMBER:

G6100.050

**LEAD-BASED PAINT INVESTIGATION**  
**S-41-281 (Matthews Rd.) over Tributary to Lake**  
**Murray**

Saluda County, SC  
**General Bridge Plan**  
Prepared for: S.C. Department of Transportation  
955 Park Street  
Columbia, SC 29201



2825 BLANDING STREET  
COLUMBIA, SC 29201

ORIGINAL:  
May 22, 2019

REVISIONS:

1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_

SCALE:  
N.T.S.

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

NOTES:

## Appendix C

### XRF Data

## Appendix C – Summary of XRF Data

Date Scanned: 05/8/19

Reading No.	PbC (mg/cm <sup>2</sup> )	Component	Substrate	Side	Condition	Color
1	1.00	Calibrate				
2	1.00	Calibrate				
3	1.04	Calibrate				
4	1.54	Tie-rod Washer	Metal	B	Poor	Orange
5	1.67	Tie-rod Washer	Metal	D	Poor	Orange
6	0.77	L-Bracket	Metal	D	Poor	Orange
7	0.80	L-Bracket	Metal	B	Poor	Orange
8	LOD	Sleeve	Metal	B	Poor	Gray
9	LOD	Sleeve	Metal	B	Poor	Gray
10	LOD	Sleeve	Metal	B	Poor	Gray
11	0.94	Calibrate				
12	0.91	Calibrate				
13	1.01	Calibrate				

LOD (Limit of Detection) = 0.1 mg/cm<sup>2</sup>

Blue text indicates any concentrations of LBP which OSHA considers a potential exposure risk when removed.

Red text indicates concentrations of LBP that have specific disposal requirements regulated by SCDHEC.



## Appendix D

### Personnel Certification

# United States Environmental Protection Agency

This is to certify that



Michael S Mincey

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Inspector

**In the Jurisdiction of:**

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires February 21, 2022

LBP-I-1198708-1

Certification #

February 07, 2019

Issued On



Adrienne Priselac, Manager, Toxics Office

Land Division



## Appendix E

### Site Photos



**Photo 1.** Top View of Bridge Deck.



**Photo 2.** Side View of Bridge



**Photo 3.** SCDOT Bridge Number.



**Photo 4.** Underside of Bridge View.



**Photo 5.** Tie-rod Washer is Positive for Lead.



**Photo 6.** L-Bracket is Positive for Lead.

