

March 29, 2017  
BWSC File Number: 3637824

Mr. Kyle Kirschenmann, PG  
Environmental Program Manager – Hazardous Materials Section  
State of Tennessee, Department of Transportation  
TDOT Environmental Division  
James K. Polk Building, Suite 900  
505 Deaderick Street  
Nashville, TN 37243-0334

**RE: Asbestos Assessment Report**  
**11 Bridges on Various State Routes over Various Crossings**  
**TDOT Const: 38945-4270-04, PIN: 125341.00**  
**Bridge Number: 38S80520001**  
**Haywood County, Tennessee**

Dear Mr. Kirschenmann:

Enclosed is the asbestos assessment report for the above-referenced bridge. A total of 21 samples were obtained during the inspection for asbestos analyses. Asbestos minerals were detected in the samples collected from the rail pads. The rail pads were found to have chrysotile asbestos, and are considered friable. There is approximately 30 square feet of asbestos-containing material on the bridge.

If you have any questions, please contact me at 615-252-4349 (Tom.McComb@bwsc.net).

Sincerely,



Thomas McComb, PG, CPG  
Contract Manager / Project Manager  
Barge Waggoner Sumner & Cannon, Inc.

Enclosure



## **TENNESSEE DEPARTMENT OF TRANSPORTATION ASBESTOS ASSESSMENT REPORT**

11 Bridges on Various State Routes over Various Crossings

TDOT Const: 38945-4270-04, PIN: 125341.00

Bridge Number: 38S80520001

Haywood County, Tennessee



PREPARED BY

**BWSC** | BARGE  
WAGGONER  
SUMNER &  
CANNON, INC.

211 Commerce Street, Suite 600

Nashville, TN 37201

BWSC Project #: 36378-24

March 29, 2017

A handwritten signature in black ink, appearing to read "Andy Foy".

---

Andy Foy (Signature)

Tennessee Asbestos Inspector Accreditation No: A-I-91607-38145

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## 1.0 INTRODUCTION

This report presents the findings of an assessment for asbestos-containing materials (ACM) completed on the bridge identified in Section 1.1. The inspection was completed by Barge Waggoner Sumner & Cannon, Inc. (BWSC) in accordance with the State of Tennessee, Department of Transportation Environmental Division, Social and Cultural Resources Office, Hazardous Materials Section requirements.

### 1.1 TDOT Bridge Identification

The bridge is identified in the TDOT Project System/Bridge Management System as:

Termini: 11 Bridges on Various State Routes over Various Crossings  
TDOT Const: 38945-4270-04  
TDOT PIN: 125341.00  
Bridge Number: 38S80520001  
County: Haywood

### 1.2 General Description

Bridge Number 38S80520001 is located on SR-179 over Overflow at LM 1.09 (38-SR179-01.09) in Haywood County, Tennessee. The bridge is a 57-foot, two-lane, three-span bridge constructed of concrete channel beams with a concrete deck and asphalt wearing surface. The bridge was constructed in 1959. The bridge is scheduled for repair. The bridge location is shown on Figure 1.

## 2.0 INSPECTION

The identification of ACM is performed by collecting bulk samples of suspect materials and having those samples analyzed by a laboratory. ACM are those materials found to contain greater than 1% asbestos by calibrated visual area estimation by Polarized Light Microscopy (PLM).

Bulk sampling is a procedure in which representative homogeneous sampling areas in a structure are identified and then sampled. A homogeneous sampling area is defined as an area that contains material of the same type (uniform in color and texture) and was applied during the same general time. Once the homogeneous sampling areas are identified, bulk samples of suspect materials were obtained from the homogeneous areas at the discretion of our inspectors, based on site conditions and experience.

## **2.1 Personnel and Date(s) of Inspection**

The sampling and field activities were performed on March 8, 2017, by Andy Foy, Accredited State of Tennessee Asbestos Inspector. Copies of the inspector's and BWSC's current accreditation from the State of Tennessee are included in Appendix A.

## **2.2 Visual Survey**

BWSC's survey began with a walk-through and visual survey of the structures located on the property. The visual survey consisted of:

- Sketching the structure and/or verifying the plans provided
- Locating and identifying homogeneous areas (HAs) of suspect materials that may contain asbestos minerals
- Determining applicable sampling locations

## **2.3 Access to Bridge Components**

Individual bridge components were accessed by the following methods:

### **2.3.1 Abutment**

The abutments were made of wood. No samples were collected from the abutments.

### **2.3.2 Bridge Rails (Homogeneous Areas 2 & 3)**

The rails were made of metal, with concrete supports. Three samples labeled 1790-02-04, 1790-02-05, and 1790-02-06 were collected from the rail pad located between the concrete rail supports and the curb. Samples were collected using a razor knife. Three samples labeled 1790-03-07, 1790-03-08, and 1790-03-09 were collected from the concrete rail supports. Samples were collected using hammers and chisels.

### **2.3.3 Underside of Bridge Deck (Homogeneous Areas 4 & 5)**

The underside of the bridge and beams were one homogenous area constructed of concrete. Three samples labeled 1790-04-10, 1790-04-11, and 1790-04-12 were collected from the underside of deck. Three samples labeled 1790-05-13, 1790-05-14, and 1790-05-15 were collected from the slope wall. Samples were obtained using hammers and chisels.

### **2.3.4 Top of Bridge Deck (Homogeneous Areas 1 & 7)**

The bridge had an asphalt wearing surface and concrete curb. Three samples labeled 1790-01-01, 1790-01-02, and 1790-01-03 were collected from the curb. Three samples labeled 1790-07-19, 1790-07-20, and 1790-07-21 were collected from the road stripes. Samples were obtained using hammers and chisels.

### 2.3.5 Bridge Piers/Bents and Support (Homogeneous Area 6)

The bents were made of wood, with concrete foundations. Three samples labeled 1790-06-16, 1790-06-17, 1790-06-18 were collected from the concrete bent foundations. Samples were collected using hammers and chisels.

### 2.3.6 Bridge Drainage

Deck drains were formed in concrete. BWSC did not observe any other method of drainage for the bridge.

### 2.3.7 Other

No other environmental concerns were observed.

## 3.0 ANALYTICAL PROCEDURES

### 3.1 Asbestos Analysis Procedures

The bulk samples are analyzed in the laboratory using PLM coupled with dispersion staining (EPA Method 600/R-93/116). PLM is an analytical method for asbestos identification, which identifies the specific asbestos minerals by their unique optical properties. The optical properties are a result of the mineral's chemical composition, physical atomic structure, and visual morphology. This is the U.S. Environmental Protection Agency (EPA) recommended method of analysis for asbestos identification in bulk samples.

Samples which contain multiple layers, or that have associated mastic or adhesive backing, are analyzed as two or more separate samples when possible.

### 3.2 Laboratory Name and Accreditation

The bulk samples collected for this inspection were analyzed by a laboratory that has received certification from the American Industrial Hygiene Association's (AIHA) Laboratory Accreditation Program. The name and laboratory number of the analytical laboratory that analyzed the samples for this inspection is indicated in Table 1.

**Table 1 - Analytical Laboratory**

|                             |                                   |
|-----------------------------|-----------------------------------|
| <b>Laboratory Name</b>      | Frost Environmental Services, LLC |
| <b>Laboratory ID Number</b> | 198214                            |

## 4.0 REGULATORY OVERVIEW

### 4.1 National Emission Standards for Hazardous Air Pollutants

The EPA's National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations (40 CFR 61, Subpart B) requires that all regulated asbestos-containing materials (RACM) be properly removed prior to any renovation or demolition activities that will disturb them. These regulations define RACM as:

- Friable ACM.
- Category I non-friable ACM that has become friable.
- Category I non-friable ACM that will be or has been subject to sanding, grinding, cutting, or abrading.
- Category II non-friable ACM that has a high probability of becoming, or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material during demolition or renovation operations.

#### 4.1.1 Definitions

Significant definitions related to regulation of asbestos under NESHAPS regulations include:

**Friable asbestos-containing material (ACM)**, is defined by the Asbestos NESHAP, as any material containing more than one percent (1%) asbestos as determined using the method specified in Appendix A, Subpart F, 40 CFR Part 763, Section 1, Polarized Light Microscopy (PLM), that, when dry, can be crumbled, pulverized or reduced to powder by hand pressure. (Sec. 61.141).

**Non-friable ACM** is any material containing more than one percent (1%) asbestos as determined using the method specified in Appendix A, Subpart F, 40 CFR Part 763, Section 1, Polarized Light Microscopy (PLM), that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure. EPA also defines two categories of non-friable ACM, Category I and Category II non-friable ACM, which are described as follows:

**Category I non-friable ACM** is any asbestos-containing packing, gasket, resilient floor covering or asphalt roofing product which contains more than one percent (1%) asbestos as determined using polarized light microscopy (PLM) according to the method specified in Appendix A, Subpart F, 40 CFR Part 763. (Sec. 61.141).

**Category II non-friable ACM** is any material, excluding Category I non-friable ACM, containing more than one percent (1%) asbestos as determined using polarized light microscopy according to the methods specified in Appendix A, Subpart F, 40 CFR Part 763 that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure. (Sec. 61.141).

**"Regulated Asbestos-Containing Material" (RACM)** is (a) friable asbestos material, (b) Category I non-friable ACM that has become friable, (c) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting or abrading, or (d) Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.

**Friable materials** are defined as those which can be crumbled, pulverized, or reduced to powder by hand pressure when dry. The NESHAP regulations also establish specific notification and control requirements for renovation and demolition work.

## 5.0 RESULTS

The results of the asbestos inspection are presented in the following section.

### 5.1 Results of Asbestos Bulk Sample Analysis

A total of 21 samples were obtained from the bridge. A depiction of the sample locations is shown on Figure 2. Multiple samples of each homogeneous area were collected in accordance with State of Tennessee, Department of Transportation Environmental Division, Social and Cultural Resources Office, Hazardous Materials Section requirements and delivered to the laboratory for visual observation and microscopic analysis. The samples were selected based on homogeneous areas of suspect materials, as described in Section 2.2.

Table 2 shows the sampled material that was found to contain asbestos minerals. The analytical results of all the samples collected from the bridge, along with the chain-of-custody records, are included in Appendix C.

**Table 2 – Materials Containing Asbestos Minerals**

| Sample No.                             | Material Type          | Location                                                              | Quantity (Estimated) | NESHAP Cat. | Condition | % Asbestos and Type |
|----------------------------------------|------------------------|-----------------------------------------------------------------------|----------------------|-------------|-----------|---------------------|
| 1790-02-04<br>1790-02-05<br>1790-02-06 | White Fibrous Material | HA 2 – Rail Pad (located between the curb and concrete rail supports) | 30 square feet       | RACM        | Fair      | 60-Chrysotile       |

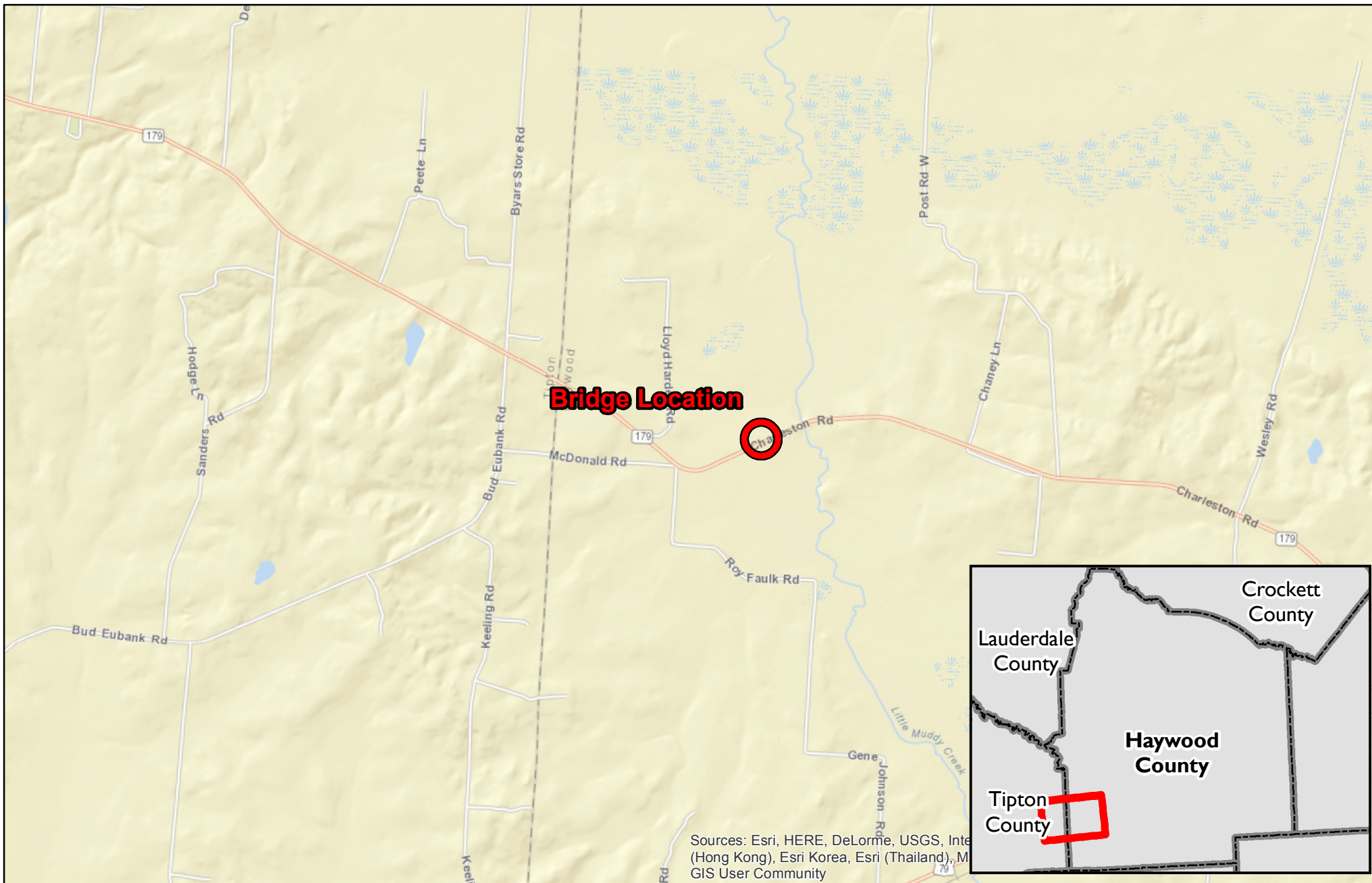
HA = homogeneous area

## 6.0 QUALIFICATIONS

The information presented herein is based on information obtained during the site visit(s) and from previous experience. If additional information becomes available, which might impact our conclusions or recommendations, BWSC requests the opportunity to review the information, reassess the potential concerns, and modify opinions, if warranted.

This report has been prepared on behalf of the Tennessee Department of Transportation. This document is not a Bid Document or a Contract Document. Use of this report or reliance upon information contained in this report by any other party implies an agreement by that party to the same terms and conditions under which service was provided. Furthermore, any party, other than our Client, relying on this document is cautioned that all conclusions made or decisions arrived at based on their review of this document are those solely of the third party, without warranty, guarantee or promise by the author. These findings are relevant to the dates of our services and should not be relied upon to represent conditions at substantially earlier or later dates.

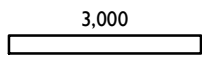
## Figures



Tennessee Department Of Transportation - Asbestos Assessment Report  
March 2017

**11 Bridges on Various State Routes over Various Crossings**  
**TDOT Const: 38945-4270-04, PIN: 125341.00**  
**Bridge Number: 38S80520001**  
**Haywood County, Tennessee**

### Figure 1 - Site Location Map



Scale 1" = 3,000 feet  
Tennessee State Plane (feet) 4100ips  
North American Datum 1983



**BWSC** | BARGE  
WAGGONER  
SUMNER &  
CANNON, INC.



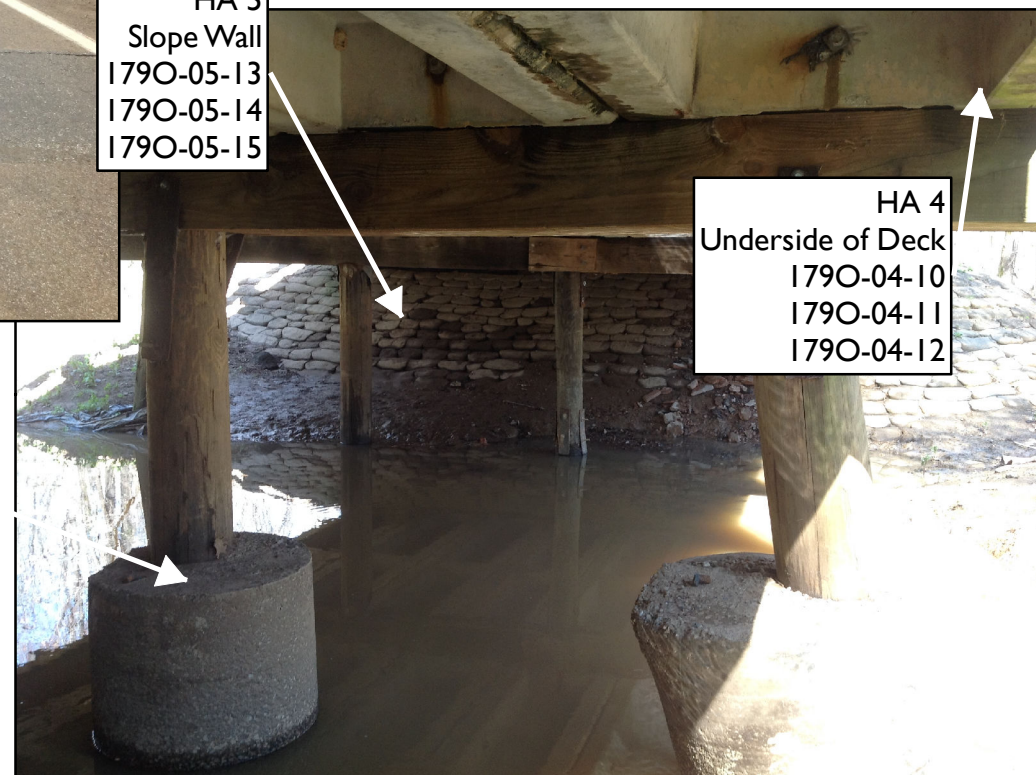
**HA 1**  
 Curb  
 179O-01-01  
 179O-01-02  
 179O-01-03

**HA 5**  
 Slope Wall  
 179O-05-13  
 179O-05-14  
 179O-05-15

**HA 4**  
 Underside of Deck  
 179O-04-10  
 179O-04-11  
 179O-04-12

Not Pictured:  
 HA-2 Rail Pad  
 179O-02-04  
 179O-02-05  
 179O-02-06

**HA 6**  
 Bent Foundation  
 179O-06-16  
 179O-06-17  
 179O-06-18



**Notes:**  
 Locations are typical of the homogeneous area, some sample locations were not visible from the angle of the photo therefore a representative location was labeled.  
 HA = Homogeneous Area

|  |                                                                                                                                                                                                                                                                                                               |                                                                 |
|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
|  | <p>Tennessee Department Of Transportation - Asbestos Assessment Report<br/>         March 2017</p> <p><b>11 Bridges on Various State Routes over Various Crossings</b><br/> <b>TDOT Const: 38945-4270-04, PIN: 125341.00</b><br/> <b>Bridge Number: 38S80520001</b><br/> <b>Haywood County, Tennessee</b></p> | <p><b>Figure 2 -<br/>         Sample Location Depiction</b></p> |
|  |                                                                                                                                                                                                                                                                                                               |                                                                 |

## **Appendix A:**

# **Asbestos Inspection Credentials**



## THE STATE OF TENNESSEE

Department of Environment and Conservation Division of Solid Waste Management  
Toxic Substances Program

William R. Snodgrass Tennessee Tower  
312 Rosa L. Parks Avenue, 14th Floor Nashville TN 37243

By virtue of the authority vested by the Division of Solid Waste Management, the  
Company named below is hereby accredited to offer and/or conduct Asbestos activities  
pursuant to Rule 1200-01-20:

### Barge Waggoner Sumner and Cannon, Inc

211 Commerce Street Suite 600 Nashville TN, 37201

to conduct ASBESTOS ACTIVITIES in schools or public and commercial buildings in Tennessee.  
This firm is responsible for compliance with the applicable requirements of Rule 1200-01-20.

| Discipline    | Type             | Accreditation Number | Effective Date     | Expiration Date    |
|---------------|------------------|----------------------|--------------------|--------------------|
| Accreditation | Re-Accreditation | A-F-410-51910        | September 01, 2016 | September 30, 2017 |



Given under the Seal of the State of Tennessee in Nashville.

This 24th Day of October 2016

Division of Solid Waste Management  
Toxic Substance Program

CN-1324 (Rev 6/13)

RDA-3020

# THE STATE OF TENNESSEE

Department of Environment and Conservation  
Division of Solid Waste Management  
Toxic Substances Program

03/22/2014



Re-Accreditation



**Travis A Foy**

DOB  
22-Apr-1987

Sex  
M

HGT  
6' 3"

WGT  
180

| Discipline       | Accreditation    | Expiration  |
|------------------|------------------|-------------|
| Inspector        | A-I-91607-51610  | Aug-31-2017 |
| Project Designer | A-PD-91607-48515 | Mar-31-2017 |

**Asbestos Accreditation**

## **Appendix B: Photographs**

|                                                            |                                                                                    |
|------------------------------------------------------------|------------------------------------------------------------------------------------|
| <b>Photographer:</b><br>Andy Foy                           |  |
| <b>Date:</b><br>3/8/2017                                   |                                                                                    |
| <b>Description:</b><br>Photograph 1 –<br><br>Bridge number |                                                                                    |

|                                                               |                                                                                     |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>Photographer:</b><br>Andy Foy                              |  |
| <b>Date:</b><br>3/8/2017                                      |                                                                                     |
| <b>Description:</b><br>Photograph 2 –<br><br>View across deck |                                                                                     |

|                                                                                                                                           |                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| <b>Photographer:</b><br>Andy Foy                                                                                                          |  |
| <b>Date:</b><br>3/8/2017                                                                                                                  |                                                                                    |
| <b>Description:</b><br>Photograph 3 –<br><br>Homogeneous Area 1<br>Curb<br><br>Sample Locations<br>179O-01-01<br>179O-01-02<br>179O-01-03 |                                                                                    |

|                                                                                                                                                            |                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <b>Photographer:</b><br>Andy Foy                                                                                                                           |  |
| <b>Date:</b><br>3/8/2017                                                                                                                                   |                                                                                      |
| <b>Description:</b><br>Photograph 4 –<br><br>Homogeneous Area 2<br>Rail pad - <b>ACM</b><br><br>Sample Locations<br>179O-02-04<br>179O-02-05<br>179O-02-06 |                                                                                      |

|                                                                                                                                                   |                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| <b>Photographer:</b><br>Andy Foy                                                                                                                  |  |
| <b>Date:</b><br>3/8/2017                                                                                                                          |                                                                                    |
| <b>Description:</b><br>Photograph 5 –<br><br>Homogeneous Area 3<br>Rail support<br><br>Sample Locations<br>179O-03-07<br>179O-03-08<br>179O-03-09 |                                                                                    |

|                                                                                                                                                        |                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <b>Photographer:</b><br>Andy Foy                                                                                                                       |  |
| <b>Date:</b><br>3/8/2017                                                                                                                               |                                                                                      |
| <b>Description:</b><br>Photograph 6 –<br><br>Homogeneous Area 4<br>Underside of deck<br><br>Sample Locations<br>179O-04-10<br>179O-04-11<br>179O-04-12 |                                                                                      |

|                                                                                                                                                 |                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| <b>Photographer:</b><br>Andy Foy                                                                                                                |  |
| <b>Date:</b><br>3/8/2017                                                                                                                        |                                                                                    |
| <b>Description:</b><br>Photograph 7 –<br><br>Homogeneous Area 5<br>Slope wall<br><br>Sample Locations<br>179O-05-13<br>179O-05-14<br>179O-05-15 |                                                                                    |

|                                                                                                                                                      |                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <b>Photographer:</b><br>Andy Foy                                                                                                                     |  |
| <b>Date:</b><br>3/8/2017                                                                                                                             |                                                                                      |
| <b>Description:</b><br>Photograph 8 –<br><br>Homogeneous Area 6<br>Bent foundation<br><br>Sample Locations<br>179O-06-16<br>179O-06-17<br>179O-06-18 |                                                                                      |

|                                                                                                                                                  |                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| <b>Photographer:</b><br>Andy Foy                                                                                                                 |  |
| <b>Date:</b><br>3/8/2017                                                                                                                         |                                                                                    |
| <b>Description:</b><br>Photograph 9 –<br><br>Homogeneous Area 7<br>Road stripe<br><br>Sample Locations<br>179O-07-19<br>179O-07-20<br>179O-07-21 |                                                                                    |

## **Appendix C:**

# **Asbestos Sample Laboratory Analysis Data**

# FROST ENVIRONMENTAL SERVICES, LLC

101 Ash Court, Hendersonville, Tennessee 37075  
(615) 562-2669 office • (615)-473-9047 cell • email support@frostenvllc.com

## CHAIN OF CUSTODY

PROJECT: Haywood Co. Asbestos Date Collected: 3/8/17-3/9/17

PROJECT LOCATION: Haywood Co, TN Date Received By Lab: 3/10/17

Turnaround Time Requested: 2-3 Hour Same Day 24 Hour 2-3 Day

COLLECTED BY: Andy Foy COLLECTED BY SIGNATURE: Andy Foy

| Sample Number     | Date Collected | Location      | Analysis Requested | Volume |
|-------------------|----------------|---------------|--------------------|--------|
| NC-01-01, 02, 03  | 3/8/17         | Underside     | Asbestos           |        |
| NC-02-04, 05, 06  |                | Stripe        |                    |        |
| NC-03-07, 08, 09  |                | curb          |                    |        |
| 54B-01-01, 02, 03 |                | Bearing pad   |                    |        |
| 54B-02-04, 05, 06 |                | Old underside |                    |        |
| 54B-03-07, 08, 09 |                | New underside |                    |        |
| 54B-04-10, 11, 12 |                | Old curb      |                    |        |
| 54B-05-13, 14, 15 |                | New curb      |                    |        |
| 54B-06-16, 17, 18 |                | Stripe        |                    |        |
| 87B-01-01, 02, 03 |                | curb          |                    |        |
| 87B-02-04, 05, 06 |                | Underside     |                    |        |
| 87B-03-07, 08, 09 |                | Stripe        |                    |        |
| LC-01-01, 02, 03  |                | Old underside |                    |        |
| LC-02-04, 05, 06  |                | Old curb      |                    |        |
| LC-03-07, 08, 09  |                | New curb      |                    |        |
| LC-04-10, 11, 12  |                | New underside |                    |        |

RECEIVED BY: Andy Foy

DATE: 3-10-17

# FROST ENVIRONMENTAL SERVICES, LLC

101 Ash Court, Hendersonville, Tennessee 37075  
(615) 562-2669 office • (615)-473-9047 cell • email support@frostenvllc.com

## CHAIN OF CUSTODY

PROJECT: Haywood Co. Asbestos Date Collected: 3/8/17-3/9/17

PROJECT LOCATION: Haywood Co., TN Date Received By Lab: 3/10/17

Turnaround Time Requested: 2-3 Hour Same Day 24 Hour X2-3 Day

COLLECTED BY: Andy Fay COLLECTED BY SIGNATURE: Andy Fay

| Sample Number      | Date Collected | Location        | Analysis Requested | Volume |
|--------------------|----------------|-----------------|--------------------|--------|
| LC-05-13, 14, 15   | 3/8/17         | Stripe          | Asbestos           |        |
| 1790-01-01, 02, 03 |                | Curb            |                    |        |
| 1790-02-04, 05, 06 |                | Rail pad        |                    |        |
| 1790-03-07, 08, 09 |                | Rail support    |                    |        |
| 1790-04-10, 11, 12 |                | Underside       |                    |        |
| 1790-05-13, 14, 15 |                | Slope wall      |                    |        |
| 1790-06-16, 17, 18 |                | Bent Foundation |                    |        |
| 1790-07-19, 20, 21 |                | Stripe          |                    |        |
| LM-01-01, 02, 03   |                | Curb            |                    |        |
| LM-02-04, 05, 06   |                | Rail pad        |                    |        |
| LM-03-07, 08, 09   |                | Rail support    |                    |        |
| LM-04-10, 11, 12   |                | Underside       |                    |        |
| LM-05-13, 14, 15   |                | Slope wall      |                    |        |
| LM-06-16, 17, 18   |                | Stripe          |                    |        |
| 222B-01-01, 02, 03 |                | Curb            |                    |        |
| 222B-02-04, 05, 06 |                | Stripe          |                    |        |

RECEIVED BY: Ab Lin

DATE: 3-10-17

# FROST ENVIRONMENTAL SERVICES, LLC

101 Ash Court, Hendersonville, Tennessee 37075  
(615) 562-2669 office • (615)-473-9047 cell • email support@frostenllc.com

## CHAIN OF CUSTODY

PROJECT: Haywood Co, Asbestos Date Collected: 3/8/17 - 3/9/17

PROJECT LOCATION: Haywood Co, TN Date Received By Lab: 3/13/17

Turnaround Time Requested: ☐ 2-3 Hour ☐ Same Day ☒ 24 Hour ☐ 2-3 Day

COLLECTED BY: Andy Foy COLLECTED BY SIGNATURE: Andy Foy

| Sample Number               | Date Collected    | Location      | Analysis Requested | Volume |
|-----------------------------|-------------------|---------------|--------------------|--------|
| 222B-03-07,08,09            | 3/8/17            | Rail support  | Asbestos           |        |
| 222B-04-10,11,12            |                   | Underside     |                    |        |
| 222B-05-13,14,15            |                   | Slope wall    |                    |        |
| <del>222B-01-01,02,03</del> | <del>3/9/17</del> |               |                    |        |
| <del>222B-02-04,05,06</del> |                   |               |                    |        |
| <del>222B</del>             |                   |               |                    |        |
| 180B-01-01,02,03            | 3/9/17            | Stripe        |                    |        |
| 180B-02-04,05,06            |                   | New curb      |                    |        |
| 180B-03-07,08,09            |                   | Old curb      |                    |        |
| 180B-04-10,11,12            |                   | Rail support  |                    |        |
| 180B-05-13,14,15            |                   | Old underside |                    |        |
| 180B-06-16,17,18            |                   | New underside |                    |        |
| 180B-07-19,20,21            |                   | Slope wall    |                    |        |
| 180B-08-22,23,24            |                   | Rail pad      |                    |        |
| 180B-09-25,26,27            |                   | Pipe wrap     |                    |        |
| 06-01-01,02,03              |                   | Old curb      |                    |        |

RECEIVED BY: AF

DATE: 3-10-17

# FROST ENVIRONMENTAL SERVICES, LLC

101 Ash Court, Hendersonville, Tennessee 37075  
(615) 562-2669 office • (615)-473-9047 cell • email support@frostenvironmental.com

## CHAIN OF CUSTODY

PROJECT: Haywood Co. Asbestos Date Collected: 3/8/17-3/9/17

PROJECT LOCATION: Haywood Co, TN Date Received By Lab: 3/13/17

Turnaround Time Requested: ☐ 2-3 Hour ☐ Same Day ☐ 24 Hour ☒ 2-3 Day

COLLECTED BY: Andy Foy COLLECTED BY SIGNATURE: Andy Foy

| Sample Number      | Date Collected | Location        | Analysis Requested | Volume |
|--------------------|----------------|-----------------|--------------------|--------|
| 00-02-01, 05, 06   | 3/8/17         | New curb        | Asbestos           |        |
| 00-03-07, 08, 09   |                | Joint           |                    |        |
| 00-04-10, 11, 12   |                | Stripe          |                    |        |
| 00-05-13, 14, 15   |                | Rail pad        |                    |        |
| 00-06-16, 17, 18   |                | Rail support    |                    |        |
| 00-07-19, 20, 21   |                | Old underside   |                    |        |
| 00-08-22, 23, 24   |                | Slope wall      |                    |        |
| 00-09-25, 26, 27   |                | Bent foundation |                    |        |
| 00-10-28, 29, 30   |                | New underside   |                    |        |
| 1800-01-01, 02, 03 |                | Curb            |                    |        |
| 1800-02-04, 05, 06 |                | Stripe          |                    |        |
| 1800-03-07, 08, 09 |                | Rail support    |                    |        |
| 1800-04-10, 11, 12 |                | Joint           |                    |        |
| 1800-05-13, 14, 15 |                | Rail pad        |                    |        |
| 1800-06-16, 17, 18 |                | Underside       |                    |        |
| 1800-07-19, 20, 21 |                | Bent foundation |                    |        |

RECEIVED BY: AF

DATE: 3-10-17

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101 Ash Court, Hendersonville, Tennessee 37075  
(615) 562-2669 office • (615)-473-9047 cell • email support@frostenvllc.com

## CHAIN OF CUSTODY

PROJECT: Haywood Co. Asbestos Date Collected: 3/8-9/17

PROJECT LOCATION: Haywood Co, TN Date Received By Lab: 3/13/17

Turnaround Time Requested: ☐ 2-3 Hour ☐ Same Day ☐ 24 Hour ☒ 2-3 Day

COLLECTED BY: Andy Foy COLLECTED BY SIGNATURE: Andy Foy

| Sample Number      | Date Collected | Location        | Analysis Requested | Volume |
|--------------------|----------------|-----------------|--------------------|--------|
| 1800-08-22, 23, 24 | 3/9/17         | Slope wall      | Asbestos           |        |
| 1800-09-25, 26, 27 | ↓              | Pipe wrap       | ↓                  |        |
| LC2-01-01, 02, 03  |                | Curb            |                    |        |
| LC2-02-04, 05, 06  |                | Stripe          |                    |        |
| LC2-03-07, 08, 09  |                | Rail support    |                    |        |
| LC2-04-10, 11, 12  |                | Rail pad        |                    |        |
| LC2-05-13, 14, 15  |                | Underside       |                    |        |
| LC2-06-16, 17, 18  |                | Bent Foundation |                    |        |
| LC2-07-19, 20, 21  |                | Pipe wrap       |                    |        |
|                    |                |                 |                    |        |
|                    |                |                 |                    |        |
|                    |                |                 |                    |        |
|                    |                |                 |                    |        |
|                    |                |                 |                    |        |
|                    |                |                 |                    |        |
|                    |                |                 |                    |        |
|                    |                |                 |                    |        |

RECEIVED BY: AB Lin

DATE: 3-10-17

**FROST ENVIRONMENTAL SERVICES, LLC**

339 ROCKLAND ROAD, SUITE E, HENDERSONVILLE, TENNESSEE 37075

(615) 562-2669 office - (615) 473-9047 cell - email: lab@frostenvironmental.com



**POLARIZED LIGHT MICROSCOPY (PLM)**  
**LABORATORY ANALYSIS REPORT**  
(EPA/600/R-93/116 (JUNE 1993))

CLIENT: Barge Waggoner Sumner &amp; Cannon, Inc

Date Received: 3/10/2017

PROJECT: Haywood County Asbestos

Date Analyzed: 3/20/2017

LOCATION: Haywood County TN

Date Reported: 3/22/2017

ANALYST: Jody Wilkins

| Sample Number | Location      | Material Description           | Binder (Non-Fibrous) Material | Non-Asbestos Fiber | Asbestos Type & Percent |
|---------------|---------------|--------------------------------|-------------------------------|--------------------|-------------------------|
| NC-01-01      | Underside     | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| NC-01-02      | Underside     | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| NC-01-03      | Underside     | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| NC-02-04      | Stripe        | White Beaded Material          | 100                           | None Detected      | None Detected           |
| NC-02-05      | Stripe        | White Beaded Material          | 100                           | None Detected      | None Detected           |
| NC-02-06      | Stripe        | White Beaded Material          | 100                           | None Detected      | None Detected           |
| NC-03-07      | Curb          | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| NC-03-08      | Curb          | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| NC-03-09      | Curb          | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
|               |               |                                |                               |                    |                         |
| 54B-01-01     | Bearing Pad   | Black Fibrous Material         | 20                            | 80-Cellulose       | None Detected           |
| 54B-01-02     | Bearing Pad   | Black Fibrous Material         | 20                            | 80-Cellulose       | None Detected           |
| 54B-01-03     | Bearing Pad   | Black Fibrous Material         | 20                            | 80-Cellulose       | None Detected           |
| 54B-02-04     | Old Underside | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 54B-02-05     | Old Underside | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 54B-02-06     | Old Underside | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |

Asbestos Containing Material (ACM) is defined as any material containing more than one percent asbestos.

Analysis was performed using EPA/600/R-93/116 (June 1993)), Test Method for the Determination of Asebstos in Bulk Building Materials.

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## POLARIZED LIGHT MICROSCOPY (PLM) LABORATORY ANALYSIS REPORT (EPA/600/R-93/116 (JUNE 1993))

CLIENT: Barge Waggoner Sumner & Cannon, Inc

Date Received: 3/10/2017

PROJECT: Haywood County Asbestos

Date Analyzed: 3/20/2017

LOCATION: Haywood County TN

Date Reported: 3/22/2017

ANALYST: Jody Wilkins

| Sample Number | Location      | Material Description           | Binder (Non-Fibrous) Material | Non-Asbestos Fiber | Asbestos Type & Percent |
|---------------|---------------|--------------------------------|-------------------------------|--------------------|-------------------------|
| 54B-03-07     | New Underside | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 54B-03-08     | New Underside | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 54B-03-09     | New Underside | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 54B-04-10     | Old Curb      | Tan Cementitious Material      | 100                           | None Detected      | None Detected           |
| 54B-04-11     | Old Curb      | Tan Cementitious Material      | 100                           | None Detected      | None Detected           |
| 54B-04-12     | Old Curb      | Tan Cementitious Material      | 100                           | None Detected      | None Detected           |
| 54B-05-13     | New Curb      | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
|               |               | Gray Coating                   | 100                           | None Detected      | None Detected           |
| 54B-05-14     | New Curb      | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
|               |               | Gray Coating                   | 100                           | None Detected      | None Detected           |
| 54B-05-15     | New Curb      | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
|               |               | Gray Coating                   | 100                           | None Detected      | None Detected           |
| 54B-06-16     | Stripe        | White Beaded Material          | 100                           | None Detected      | None Detected           |
| 54B-06-17     | Stripe        | White Beaded Material          | 100                           | None Detected      | None Detected           |
| 54B-06-18     | Stripe        | White Beaded Material          | 100                           | None Detected      | None Detected           |
|               |               |                                |                               |                    |                         |

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CLIENT: Barge Waggoner Sumner & Cannon, Inc

Date Received: 3/10/2017

PROJECT: Haywood County Asbestos

Date Analyzed: 3/20/2017

LOCATION: Haywood County TN

Date Reported: 3/22/2017

ANALYST: Jody Wilkins

| Sample Number | Location      | Material Description           | Binder (Non-Fibrous) Material | Non-Asbestos Fiber | Asbestos Type & Percent |
|---------------|---------------|--------------------------------|-------------------------------|--------------------|-------------------------|
| 87B-01-01     | Curb          | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 87B-01-02     | Curb          | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 87B-01-03     | Curb          | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 87B-02-04     | Underside     | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 87B-02-05     | Underside     | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 87B-02-06     | Underside     | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 87B-03-07     | Stripe        | Yellow Beaded Material         | 100                           | None Detected      | None Detected           |
| 87B-03-08     | Stripe        | Yellow Beaded Material         | 100                           | None Detected      | None Detected           |
| 87B-03-09     | Stripe        | Yellow Beaded Material         | 100                           | None Detected      | None Detected           |
|               |               |                                |                               |                    |                         |
| LC-01-01      | Old Underside | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LC-01-02      | Old Underside | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LC-01-03      | Old Underside | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LC-02-04      | Old Curb      | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LC-02-05      | Old Curb      | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LC-02-06      | Old Curb      | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |

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CLIENT: Barge Waggoner Sumner & Cannon, Inc

Date Received: 3/10/2017

PROJECT: Haywood County Asbestos

Date Analyzed: 3/20/2017

LOCATION: Haywood County TN

Date Reported: 3/22/2017

ANALYST: Jody Wilkins

| Sample Number | Location      | Material Description           | Binder (Non-Fibrous) Material | Non-Asbestos Fiber | Asbestos Type & Percent |
|---------------|---------------|--------------------------------|-------------------------------|--------------------|-------------------------|
| LC-03-07      | New Curb      | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
|               |               | Gray Coating                   | 100                           | None Detected      | None Detected           |
| LC-03-08      | New Curb      | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
|               |               | Gray Coating                   | 100                           | None Detected      | None Detected           |
| LC-03-09      | New Curb      | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
|               |               | Gray Coating                   | 100                           | None Detected      | None Detected           |
| LC-04-10      | New Underside | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LC-04-11      | New Underside | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LC-04-12      | New Underside | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LC-05-13      | Stripe        | White Beaded Material          | 100                           | None Detected      | None Detected           |
| LC-05-14      | Stripe        | White Beaded Material          | 100                           | None Detected      | None Detected           |
| LC-05-15      | Stripe        | White Beaded Material          | 100                           | None Detected      | None Detected           |
|               |               |                                |                               |                    |                         |
| 1790-01-01    | Curb          | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 1790-01-02    | Curb          | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 1790-01-03    | Curb          | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |

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CLIENT: Barge Waggoner Sumner & Cannon, Inc

Date Received: 3/10/2017

PROJECT: Haywood County Asbestos

Date Analyzed: 3/20/2017

LOCATION: Haywood County TN

Date Reported: 3/22/2017

ANALYST: Jody Wilkins

| Sample Number | Location        | Material Description           | Binder (Non-Fibrous) Material | Non-Asbestos Fiber | Asbestos Type & Percent |
|---------------|-----------------|--------------------------------|-------------------------------|--------------------|-------------------------|
| 1790-02-04    | Rail Pad        | White Fibrous Material         | 30                            | 10-Cellulose       | 60-Chrysotile           |
| 1790-02-05    | Rail Pad        | White Fibrous Material         | 30                            | 10-Cellulose       | 60-Chrysotile           |
| 1790-02-06    | Rail Pad        | White Fibrous Material         | 30                            | 10-Cellulose       | 60-Chrysotile           |
| 1790-03-07    | Rail Support    | Gray Cementitious Material     | 100                           | None Detected      | None Detected           |
| 1790-03-08    | Rail Support    | Gray Cementitious Material     | 100                           | None Detected      | None Detected           |
| 1790-03-09    | Rail Support    | Gray Cementitious Material     | 100                           | None Detected      | None Detected           |
| 1790-04-10    | Underside       | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 1790-04-11    | Underside       | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 1790-04-12    | Underside       | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 1790-05-13    | Slope Wall      | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 1790-05-14    | Slope Wall      | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 1790-05-15    | Slope Wall      | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 1790-06-16    | Bent Foundation | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 1790-06-17    | Bent Foundation | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 1790-06-18    | Bent Foundation | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
|               |                 |                                |                               |                    |                         |

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Analysis was performed using EPA/600/R-93/116 (June 1993)), Test Method for the Determination of Asebstos in Bulk Building Materials.

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## POLARIZED LIGHT MICROSCOPY (PLM) LABORATORY ANALYSIS REPORT (EPA/600/R-93/116 (JUNE 1993))

CLIENT: Barge Waggoner Sumner & Cannon, Inc

Date Received: 3/10/2017

PROJECT: Haywood County Asbestos

Date Analyzed: 3/20/2017

LOCATION: Haywood County TN

Date Reported: 3/22/2017

ANALYST: Jody Wilkins

| Sample Number | Location     | Material Description           | Binder (Non-Fibrous) Material | Non-Asbestos Fiber | Asbestos Type & Percent |
|---------------|--------------|--------------------------------|-------------------------------|--------------------|-------------------------|
| 179O-07-19    | Stripe       | White Beaded Material          | 100                           | None Detected      | None Detected           |
| 179O-07-20    | Stripe       | White Beaded Material          | 100                           | None Detected      | None Detected           |
| 179O-07-21    | Stripe       | White Beaded Material          | 100                           | None Detected      | None Detected           |
|               |              |                                |                               |                    |                         |
| LN-01-01      | Curb         | Gray Cementitious Material     | 100                           | None Detected      | None Detected           |
| LM-01-02      | Curb         | Gray Cementitious Material     | 100                           | None Detected      | None Detected           |
| LM-01-03      | Curb         | Gray Cementitious Material     | 100                           | None Detected      | None Detected           |
| LM-02-04      | Rail Pad     | White Fibrous Material         | 30                            | 10-Cellulose       | 60-Chrysotile           |
| LM-02-05      | Rail Pad     | White Fibrous Material         | 30                            | 10-Cellulose       | 60-Chrysotile           |
| LM-02-06      | Rail Pad     | White Fibrous Material         | 30                            | 10-Cellulose       | 60-Chrysotile           |
| LM-03-07      | Rail Support | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LM-03-08      | Rail Support | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LM-03-09      | Rail Support | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LM-04-10      | Underside    | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LM-04-11      | Underside    | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LM-04-12      | Underside    | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |

Asbestos Containing Material (ACM) is defined as any material containing more than one percent asbestos.

Analysis was performed using EPA/600/R-93/116 (June 1993)), Test Method for the Determination of Asebstos in Bulk Building Materials.

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## POLARIZED LIGHT MICROSCOPY (PLM) LABORATORY ANALYSIS REPORT (EPA/600/R-93/116 (JUNE 1993))

CLIENT: Barge Waggoner Sumner & Cannon, Inc

Date Received: 3/10/2017

PROJECT: Haywood County Asbestos

Date Analyzed: 3/20/2017

LOCATION: Haywood County TN

Date Reported: 3/22/2017

ANALYST: Jody Wilkins

| Sample Number | Location     | Material Description           | Binder (Non-Fibrous) Material | Non-Asbestos Fiber | Asbestos Type & Percent |
|---------------|--------------|--------------------------------|-------------------------------|--------------------|-------------------------|
| LM-05-13      | Slope Wall   | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LM-05-14      | Slope Wall   | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LM-05-15      | Slope Wall   | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LM-06-16      | Stripe       | White Beaded Material          | 100                           | None Detected      | None Detected           |
| LM-06-17      | Stripe       | White Beaded Material          | 100                           | None Detected      | None Detected           |
| LM-06-18      | Stripe       | White Beaded Material          | 100                           | None Detected      | None Detected           |
|               |              |                                |                               |                    |                         |
| 222B-01-01    | Curb         | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 222B-01-02    | Curb         | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 222B-01-03    | Curb         | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 222B-02-04    | Stripe       | White Beaded Material          | 100                           | None Detected      | None Detected           |
| 222B-02-05    | Stripe       | White Beaded Material          | 100                           | None Detected      | None Detected           |
| 222B-02-06    | Stripe       | White Beaded Material          | 100                           | None Detected      | None Detected           |
| 222B-03-07    | Rail Support | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
|               |              | Gray Coating                   | 100                           | None Detected      | None Detected           |
|               |              |                                |                               |                    |                         |

Asbestos Containing Material (ACM) is defined as any material containing more than one percent asbestos.

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CLIENT: Barge Waggoner Sumner & Cannon, Inc

Date Received: 3/10/2017

PROJECT: Haywood County Asbestos

Date Analyzed: 3/20/2017

LOCATION: Haywood County TN

Date Reported: 3/22/2017

ANALYST: Jody Wilkins

| Sample Number | Location   | Material Description           | Binder (Non-Fibrous) Material | Non-Asbestos Fiber | Asbestos Type & Percent |
|---------------|------------|--------------------------------|-------------------------------|--------------------|-------------------------|
| 222B-03-08    | Slope Wall | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
|               |            | Gray Coating                   | 100                           | None Detected      | None Detected           |
| 222B-03-09    |            | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
|               |            | Gray Coating                   | 100                           | None Detected      | None Detected           |
| 222B-04-10    | Underside  | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 222B-04-11    | Underside  | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 222B-04-12    | Underside  | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 222B-05-13    | Slope Wall | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 222B-05-14    | Slope Wall | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 222B-05-15    | Slope Wall | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
|               |            |                                |                               |                    |                         |
| 180B-01-01    | Stripe     | White Beaded Material          | 100                           | None Detected      | None Detected           |
| 180B-01-02    | Stripe     | White Beaded Material          | 100                           | None Detected      | None Detected           |
| 180B-01-03    | Stripe     | White Beaded Material          | 100                           | None Detected      | None Detected           |
| 180B-02-04    | New Curb   | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 180B-02-05    | New Curb   | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |

Asbestos Containing Material (ACM) is defined as any material containing more than one percent asbestos.

Analysis was performed using EPA/600/R-93/116 (June 1993)), Test Method for the Determination of Asebstos in Bulk Building Materials.

# FROST ENVIRONMENTAL SERVICES, LLC

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## POLARIZED LIGHT MICROSCOPY (PLM) LABORATORY ANALYSIS REPORT (EPA/600/R-93/116 (JUNE 1993))

CLIENT: Barge Waggoner Sumner & Cannon, Inc

Date Received: 3/10/2017

PROJECT: Haywood County Asbestos

Date Analyzed: 3/20/2017

LOCATION: Haywood County TN

Date Reported: 3/22/2017

ANALYST: Jody Wilkins

| Sample Number | Location      | Material Description           | Binder (Non-Fibrous) Material | Non-Asbestos Fiber | Asbestos Type & Percent |
|---------------|---------------|--------------------------------|-------------------------------|--------------------|-------------------------|
| 180B-02-06    | New Curb      | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 180B-03-07    | Old Curb      | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
|               |               | Gray Rubber Material           | 100                           | None Detected      | None Detected           |
| 180B-03-08    | Old Curb      | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
|               |               | Gray Rubber Material           | 100                           | None Detected      | None Detected           |
| 180B-03-09    | Old Curb      | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
|               |               | Gray Rubber Material           | 100                           | None Detected      | None Detected           |
| 180B-04-10    | Rail Support  | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 180B-04-11    | Rail Support  | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 180B-04-12    | Rail Support  | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 180B-05-13    | Old Underside | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 180B-05-14    | Old Underside | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 180B-05-15    | Old Underside | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 180B-06-16    | New Underside | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 180B-06-17    | New Underside | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 180B-06-18    | New Underside | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |

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Date Received: 3/10/2017

PROJECT: Haywood County Asbestos

Date Analyzed: 3/20/2017

LOCATION: Haywood County TN

Date Reported: 3/22/2017

ANALYST: Jody Wilkins

| Sample Number | Location   | Material Description           | Binder (Non-Fibrous) Material | Non-Asbestos Fiber | Asbestos Type & Percent |
|---------------|------------|--------------------------------|-------------------------------|--------------------|-------------------------|
| 180B-07-19    | Slope Wall | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 180B-07-20    | Slope Wall | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 180B-07-21    | Slope Wall | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 180B-08-22    | Rail Pad   | Gray/White Fibrous Material    | 10                            | 10-Cellulose       | 80-Chrysotile           |
| 180B-08-23    | Rail Pad   | Gray/White Fibrous Material    | 10                            | 10-Cellulose       | 80-Chrysotile           |
| 180B-08-24    | Rail Pad   | Gray/White Fibrous Material    | 10                            | 10-Cellulose       | 80-Chrysotile           |
| 180B-09-25    | Pipe Wrap  | Black Fibrous Tar Material     | 70                            | 30-Cellulose       | None Detected           |
| 180B-09-26    | Pipe Wrap  | Black Fibrous Tar Material     | 70                            | 30-Cellulose       | None Detected           |
| 180B-09-27    | Pipe Wrap  | Black Fibrous Tar Material     | 70                            | 30-Cellulose       | None Detected           |
|               |            |                                |                               |                    |                         |
| OC-01-01      | Old Curb   | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| OC-01-02      | Old Curb   | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| OC-01-03      | Old Curb   | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| OC-02-04      | New Curb   | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| OC-02-05      | New Curb   | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| OC-02-06      | New Curb   | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |

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CLIENT: Barge Waggoner Sumner & Cannon, Inc

Date Received: 3/10/2017

PROJECT: Haywood County Asbestos

Date Analyzed: 3/21/2017

LOCATION: Haywood County TN

Date Reported: 3/22/2017

ANALYST: Jody Wilkins

| Sample Number | Location      | Material Description           | Binder (Non-Fibrous) Material | Non-Asbestos Fiber | Asbestos Type & Percent |
|---------------|---------------|--------------------------------|-------------------------------|--------------------|-------------------------|
| OC-03-07      | Joint         | Gray Rubber Material           | 100                           | None Detected      | None Detected           |
| OC-03-08      | Joint         | Gray Rubber Material           | 100                           | None Detected      | None Detected           |
| OC-03-09      | Joint         | Gray Rubber Material           | 100                           | None Detected      | None Detected           |
| OC-04-10      | Stripe        | White Beaded Material          | 100                           | None Detected      | None Detected           |
| OC-04-11      | Stripe        | White Beaded Material          | 100                           | None Detected      | None Detected           |
| OC-04-12      | Stripe        | White Beaded Material          | 100                           | None Detected      | None Detected           |
| OC-05-13      | Rail Pad      | Gray/White Fibrous Material    | 10                            | 10-Cellulose       | 80-Chrysotile           |
| OC-05-14      | Rail Pad      | Gray/White Fibrous Material    | 10                            | 10-Cellulose       | 80-Chrysotile           |
| OC-05-15      | Rail Pad      | Gray/White Fibrous Material    | 10                            | 10-Cellulose       | 80-Chrysotile           |
| OC-06-16      | Rail Support  | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| OC-06-17      | Rail Support  | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| OC-06-18      | Rail Support  | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| OC-07-19      | Old Underside | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| OC-07-20      | Old Underside | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| OC-07-21      | Old Underside | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
|               |               |                                |                               |                    |                         |

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Date Received: 3/10/2017

PROJECT: Haywood County Asbestos

Date Analyzed: 3/21/2017

LOCATION: Haywood County TN

Date Reported: 3/22/2017

ANALYST: Jody Wilkins

| Sample Number | Location        | Material Description           | Binder (Non-Fibrous) Material | Non-Asbestos Fiber | Asbestos Type & Percent |
|---------------|-----------------|--------------------------------|-------------------------------|--------------------|-------------------------|
| OC-08-22      | Slope Wall      | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| OC-08-23      | Slope Wall      | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| OC-08-24      | Slope Wall      | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| OC-09-25      | Bent Foundation | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| OC-09-26      | Bent Foundation | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| OC-09-27      | Bent Foundation | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| OC-10-28      | New Underside   | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| OC-10-29      | New Underside   | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| OC-11-30      | New Underside   | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
|               |                 |                                |                               |                    |                         |
| 1800-01-01    | Curb            | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 1800-01-02    | Curb            | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 1800-01-03    | Curb            | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 1800-02-04    | Stripe          | White Beaded Material          | 100                           | None Detected      | None Detected           |
| 1800-02-05    | Stripe          | White Beaded Material          | 100                           | None Detected      | None Detected           |
| 1800-02-06    | Stripe          | White Beaded Material          | 100                           | None Detected      | None Detected           |

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LOCATION: Haywood County TN

Date Reported: 3/22/2017

ANALYST: Jody Wilkins

| Sample Number | Location        | Material Description           | Binder (Non-Fibrous) Material | Non-Asbestos Fiber | Asbestos Type & Percent |
|---------------|-----------------|--------------------------------|-------------------------------|--------------------|-------------------------|
| 1800-03-07    | Rail Support    | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 1800-03-08    | Rail Support    | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 1800-03-09    | Rail Support    | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 1800-04-10    | Joint           | Gray Rubber Material           | 100                           | None Detected      | None Detected           |
| 1800-04-11    | Joint           | Gray Rubber Material           | 100                           | None Detected      | None Detected           |
| 1800-04-12    | Joint           | Gray Rubber Material           | 100                           | None Detected      | None Detected           |
| 1800-05-13    | Rail Pad        | Gray/White Fibrous Material    | 10                            | 10-Cellulose       | 80-Chrysotile           |
| 1800-05-14    | Rail Pad        | Gray/White Fibrous Material    | 10                            | 10-Cellulose       | 80-Chrysotile           |
| 1800-05-15    | Rail Pad        | Gray/White Fibrous Material    | 10                            | 10-Cellulose       | 80-Chrysotile           |
| 1800-06-16    | Underside       | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 1800-06-17    | Underside       | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 1800-06-18    | Underside       | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 1800-07-19    | Bent Foundation | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 1800-07-20    | Bent Foundation | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 1800-07-21    | Bent Foundation | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
|               |                 |                                |                               |                    |                         |

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Date Reported: 3/22/2017

ANALYST: Jody Wilkins

| Sample Number | Location     | Material Description           | Binder (Non-Fibrous) Material | Non-Asbestos Fiber | Asbestos Type & Percent |
|---------------|--------------|--------------------------------|-------------------------------|--------------------|-------------------------|
| 1800-08-22    | Slope Wall   | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 1800-08-23    | Slope Wall   | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 1800-08-24    | Slope Wall   | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| 1800-09-25    | Pipe Wrap    | Black Fibrous Tar Material     | 70                            | 30-Cellulose       | None Detected           |
| 1800-09-26    | Pipe Wrap    | Black Fibrous Tar Material     | 70                            | 30-Cellulose       | None Detected           |
| 1800-09-27    | Pipe Wrap    | Black Fibrous Tar Material     | 70                            | 30-Cellulose       | None Detected           |
|               |              |                                |                               |                    |                         |
| LC-01-01      | Curb         | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LC-01-02      | Curb         | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LC-01-03      | Curb         | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LC-02-04      | Stripe       | White Beaded Material          | 100                           | None Detected      | None Detected           |
| LC-02-05      | Stripe       | White Beaded Material          | 100                           | None Detected      | None Detected           |
| LC-02-06      | Stripe       | White Beaded Material          | 100                           | None Detected      | None Detected           |
| LC-03-07      | Rail Support | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LC-03-08      | Rail Support | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LC-08-09      | Rail Support | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |

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Date Analyzed: 3/21/2017

LOCATION: Haywood County TN

Date Reported: 3/22/2017

ANALYST: Jody Wilkins

| Sample Number | Location        | Material Description           | Binder (Non-Fibrous) Material | Non-Asbestos Fiber | Asbestos Type & Percent |
|---------------|-----------------|--------------------------------|-------------------------------|--------------------|-------------------------|
| LC-04-10      | Rail Pad        | White Fibrous Material         | 30                            | 10-Cellulose       | 60-Chrysotile           |
| LC-04-11      | Rail Pad        | White Fibrous Material         | 30                            | 10-Cellulose       | 60-Chrysotile           |
| LC-04-12      | Rail Pad        | White Fibrous Material         | 30                            | 10-Cellulose       | 60-Chrysotile           |
| LC-05-13      | Underside       | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LC-05-14      | Underside       | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LC-05-15      | Underside       | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LC-06-16      | Bent Foundation | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LC-06-17      | Bent Foundation | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LC-06-18      | Bent Foundation | Tan/Gray Cementitious Material | 100                           | None Detected      | None Detected           |
| LC-07-19      | Pipe Wrap       | Black Fibrous Tar Material     | 70                            | 30-Cellulose       | None Detected           |
| LC-07-20      | Pipe Wrap       | Black Fibrous Tar Material     | 70                            | 30-Cellulose       | None Detected           |
| LC-07-21      | Pipe Wrap       | Black Fibrous Tar Material     | 70                            | 30-Cellulose       | None Detected           |
|               |                 |                                |                               |                    |                         |
|               |                 |                                |                               |                    |                         |
|               |                 |                                |                               |                    |                         |
|               |                 |                                |                               |                    |                         |

Asbestos Containing Material (ACM) is defined as any material containing more than one percent asbestos.

Analysis was performed using EPA/600/R-93/116 (June 1993)), Test Method for the Determination of Asebstos in Bulk Building Materials.

## **Appendix D: Health and Safety Plan**

## Health and Safety Plan



|                                           |                              |               |                 |
|-------------------------------------------|------------------------------|---------------|-----------------|
| Project: Haywood County<br>ACM Inspection | Location: Haywood County, TN | Date: 2/28/17 | Job No. 3637824 |
|-------------------------------------------|------------------------------|---------------|-----------------|

|                 |               |              |
|-----------------|---------------|--------------|
| Project Manager | Office Number | Cell Number  |
| Tom McComb      | 615-252-4349  | 615-210-8936 |

|                |               |             |
|----------------|---------------|-------------|
| Onsite Contact | Office Number | Cell Number |
|                |               |             |

## Description of Field Activities

|                                                                             |
|-----------------------------------------------------------------------------|
| Visually inspect bridges, delineate homogeneous areas, sample potential ACM |
|-----------------------------------------------------------------------------|

| ACTIVITY                                                | WEATHER                                      | BOTANY                                  | TOOLS                                          | JOB BRIEFING                                                 |
|---------------------------------------------------------|----------------------------------------------|-----------------------------------------|------------------------------------------------|--------------------------------------------------------------|
| <input type="checkbox"/> Soil Sampling                  | <input type="checkbox"/> Hot                 | <input type="checkbox"/> Poison Ivy/Oak | <input type="checkbox"/> Machete               | <input checked="" type="checkbox"/> Evaluate Surroundings    |
| <input type="checkbox"/> Sediment Sampling              | <input type="checkbox"/> Cold                | <input type="checkbox"/> Poison Sumac   | <input type="checkbox"/> Brush hook            | <input type="checkbox"/> Communications                      |
| <input type="checkbox"/> Surface-Water Sampling         | <input checked="" type="checkbox"/> Mild     | <input type="checkbox"/> Thistle        | <input type="checkbox"/> Pick                  | <input type="checkbox"/> Safety Plan                         |
| <input type="checkbox"/> Ground-Water Sampling          | <input type="checkbox"/> Sunny               | <input type="checkbox"/> Thorns         | <input type="checkbox"/> Ax                    | <input type="checkbox"/> Emergency Numbers                   |
| <input type="checkbox"/> Fish Sampling                  | <input type="checkbox"/> Fair                | <input type="checkbox"/> Needle-like    | <input checked="" type="checkbox"/> Hammer     | <input type="checkbox"/> Lockout/Tagout                      |
| <input type="checkbox"/> Macroinvertebrate Sampling     | <input type="checkbox"/> Rain                | <input type="checkbox"/> Other:         | <input checked="" type="checkbox"/> Knife      | <input type="checkbox"/> Client Requirements                 |
| <input type="checkbox"/> Drilling                       | <input type="checkbox"/> Lightning           |                                         | <input type="checkbox"/> Drill Rig             | <input type="checkbox"/> Insect Repellent                    |
| <input type="checkbox"/> Trenching                      | <input type="checkbox"/> Hail                |                                         | <input type="checkbox"/> Boat                  | <input checked="" type="checkbox"/> Reflective/Colored Vests |
| <input checked="" type="checkbox"/> Asbestos Inspection | <input type="checkbox"/> Sleet/Snow/Ice      |                                         | <input checked="" type="checkbox"/> Truck/ATV  | <input type="checkbox"/> Chemical Information                |
| <input type="checkbox"/> Other:                         | <input type="checkbox"/> Night               |                                         | <input type="checkbox"/> Electrical Equipment  | <input type="checkbox"/> Tool Check                          |
|                                                         | TERRAIN                                      | WILDLIFE                                | <input type="checkbox"/> Other:                | <input type="checkbox"/> Equipment Check                     |
| CONSTITUENTS                                            | <input type="checkbox"/> River               | <input type="checkbox"/> Ticks          |                                                | <input type="checkbox"/> First Aid Kit Check                 |
| <input type="checkbox"/> Strong Acids/Bases             | <input type="checkbox"/> Creek               | <input type="checkbox"/> Spiders        | TRAFFIC                                        | <input type="checkbox"/> Gloves                              |
| <input type="checkbox"/> Metals                         | <input type="checkbox"/> Lake                | <input type="checkbox"/> Chiggers       | <input checked="" type="checkbox"/> Heavy      | <input type="checkbox"/> PFD                                 |
| <input type="checkbox"/> PCBs                           | <input type="checkbox"/> Swamp               | <input type="checkbox"/> Ants/Fireants  | <input type="checkbox"/> Light                 | <input type="checkbox"/> Waders                              |
| <input type="checkbox"/> Pesticides                     | <input type="checkbox"/> Sinkholes/Collapses | <input type="checkbox"/> Wasps/Bees     | <input type="checkbox"/> Boats                 | <input checked="" type="checkbox"/> Steel Toe Boots          |
| <input checked="" type="checkbox"/> Asbestos            | <input type="checkbox"/> Woods               | <input type="checkbox"/> Hornets        | <input type="checkbox"/> Railroad              | <input checked="" type="checkbox"/> Hard Hat                 |
| <input type="checkbox"/> VOCs                           | <input type="checkbox"/> Open & Clear        | <input type="checkbox"/> Dogs           | <input type="checkbox"/> Planes                | <input checked="" type="checkbox"/> Eye Protection           |
| <input type="checkbox"/> SVOCs                          | <input type="checkbox"/> Overgrown           | <input type="checkbox"/> Snakes         | <input checked="" type="checkbox"/> Paved Road | <input type="checkbox"/> Sun Protection                      |
| <input type="checkbox"/> Chlorinated Solvents           | <input type="checkbox"/> Trenches            | <input type="checkbox"/> Hogs/Cattle    | <input type="checkbox"/> Gravel Road           | <input type="checkbox"/> Fall Protection                     |
| <input type="checkbox"/> Lead/Lead Paint                | <input type="checkbox"/> Steep               | <input type="checkbox"/> Bears          | <input type="checkbox"/> Heavy Equipment       | <input type="checkbox"/> Respirator                          |
| <input type="checkbox"/> Radioactive                    | <input type="checkbox"/> Hilly               | <input type="checkbox"/> Raccoons       | <input type="checkbox"/> Other:                | <input type="checkbox"/> Other:                              |
| <input type="checkbox"/> Unknown                        | <input type="checkbox"/> Rocky               | <input type="checkbox"/> Skunks         |                                                |                                                              |
|                                                         | <input type="checkbox"/> Other: Varied       | <input type="checkbox"/> Other:         |                                                |                                                              |

Reflective vest, safety boots, hard hat, eye protection

1. (West): Baptist Memorial Hospital- Tipton: 1995 Hwy 51, Covington, TN 38019  
(East): Jackson-Madison County General Hospital: 620 Skyline Dr, Jackson, TN 38301

2.

Phone Numbers to Police/Fire/Ambulance or 911

| Police       | Fire         | Ambulance    |
|--------------|--------------|--------------|
| 731-772-2412 | 731-772-1396 | 731-772-4979 |

Name:

Signature: \_\_\_\_\_

Date:

[illegible]

