



LEAD-BASED PAINT INVESTIGATION REPORT

S-38-39 (CANNON BRIDGE RD.) BRIDGE OVER COOPER SWAMP
BRIDGE #3870003900400
ORANGEBURG COUNTY, SOUTH CAROLINA

PREPARED FOR:



c/o Mr. Trapp Harris, PE
SCDOT
955 Park Street
Columbia, SC 29201

PREPARED BY:

F&ME Consultants, Inc.
211 Business Park Blvd.
Columbia, South Carolina 29203

January 14, 2025

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

FME Project No.: G7100.009

TABLE OF CONTENTS

1.	Executive Summary.....	1
2.	Lead-Based Paint Background Information.....	3
3.	Introduction.....	3
4.	Investigation Procedures and Results.....	3
5.	Recommemndations.....	4
APPENDICES		4

Appendix A – Site Vicinity Map

Appendix B – General Bridge Plan

Appendix C – Site Photos

Appendix D – EPA LBP Inspector Certification



1. EXECUTIVE SUMMARY

This executive summary is intended as an overview for the convenience of the reader. This report should be reviewed in its entirety prior to making any decisions regarding this project.

F&ME Consultants, Inc. (FME) has completed a Lead-Based Paint (LBP) investigation of the S-38-39 (Cannon Bridge Road) Bridge over Cooper Swamp (Bridge), in Orangeburg County, South Carolina at the request of the South Carolina Department of Transportation (SCDOT) (Client). The purpose of the investigation was to locate, identify, and test components of the Bridge that are painted or coated with LBP. The field investigation was performed on January 9, 2025, in anticipation of the on-alignment replacement of the existing Bridge. Appendix A, Site Vicinity Map is provided to show the location of the Bridge. Appendix B, General Bridge Plan, is provided to show the layout of the Bridge.

Per an agreed-upon scope of work, this LBP Investigation was conducted to identify accessible Bridge components that have been painted or coated with lead-containing materials that have concentrations greater than or equal (\geq) to the regulatory limit of 0.7 milligrams per square centimeter (mg/cm^2). This investigation includes both a visual evaluation of the physical condition of painted materials as well as quantitative testing of surfaces using an XRF LBP analyzer. The XRF documents the concentration of lead, if any, in the overall paint or coating. Bridge components were scanned with a SciAps XRF analyzer (Model # X550 Pb, Serial #03033, Reference Date: 9/12/24) with a limit of detection (LOD) of $0.1 \text{ mg}/\text{cm}^2$.

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. Additionally, the South Carolina Department of Environmental Services (SCDES) requires some waste materials to be disposed of at specific disposal facilities that are able to manage this waste.

At the time of the LBP investigation of the Bridge, there were no noted accessible bridge components that were painted or coated with paint to scan with the XRF analyzer. Refer to Appendix C, Site Photos for pictures of the Bridge. Appendix D includes the inspector's EPA lead-based paint inspector certification.

We appreciate the opportunity to assist you in this project. If you have any questions or require additional information, please feel free to contact our office at (803) 254-4540.

Sincerely,

FME CONSULTANTS



Jeffrey S. Leary

SC Lead Based Paint Inspector

EPA Certification No. LBP-I-18721-3 (Exp. 7/29/27)



Glynn M. Ellen

Environmental Department Manager

2. LEAD-BASED PAINT 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 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 parts per million (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 residential settings.

In contrast, the mission of 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 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 ug/m^3) averaged over an 8-hour period.

Additionally, SCDES requires the use of specific waste disposal sites if materials contain lead concentrations greater than or equal to (\geq) 0.7 mg/cm^2 . Due to the anticipated demolition of the structure, the SCDES lead disposal requirements were used as a threshold.

3. INTRODUCTION

The existing Bridge ($\approx 43.0' \text{ L} \times 33.0' \text{ W}$ inside curb to inside curb) is located on S-38-39 (Cannon Bridge Rd.) and crosses over the Cooper Swamp in Orangeburg County, South Carolina (Bridge Asset #00062). The construction date of the Bridge is unknown. The Bridge structure is a poured-in-place (PIP) four (4) cell concrete box culvert, concrete wing walls, and a two-lane asphalt overlay. Two (2) buried utility cables were noted in the washed-out northeastern corner of the Bridge. These utility cables appear to run the entire length of the Bridge. Refer to Appendix A, Site Vicinity Map, for the location of the structure.



Photo 1: S-38-39 (Cannon Bridge Rd.) Bridge over Cooper Swamp in Orangeburg County, South Carolina.

4. INVESTIGATION PROCEDURES AND RESULTS

The Bridge/culvert was recently damaged during the recent flooding from Hurricane Helene. The soil on the eastern side approach to the Bridge was washed out during Hurricane Helene. FME's LBP Investigation sampling protocol consisted of randomly selecting Bridge components and scanning them with a Sci-Aps X-Ray Fluorescence (XRF) Portable Analyzer (Model # X550 Pb, Serial #03033). However, no accessible painted or coated bridge components were identified to scan with the XRF analyzer for lead. Refer to Appendix C, Site Photos for typical views of the Bridge. Appendix D includes the inspector's EPA lead-based paint inspector certification.

5. RECOMMENDATIONS

The results, conclusions, and recommendations from this investigation are representative of the conditions observed at the site on the date of the field investigation. FME does not assume responsibility for any changes in conditions or circumstances that occur after the date of the field investigation. No other environmental issues were addressed as part of this report.

As previously stated, at the time of the LBP investigation, no accessible painted or coated bridge components were found to scan with the XRF analyzer for lead. If any concealed and/or inaccessible suspect LBP are encountered during the Bridge rehabilitation activities, the affected contractor(s) must stop work, take appropriate actions, and notify the Owner/LBP Consultant for an appropriate response action.

As stated previously, OSHA regulates any measurable level of lead, as it may pose a substantial exposure hazard to workers. Therefore, in these situations, OSHA regulations and safety procedures should be followed. These regulations also list the proper personal protective equipment to be used by the workers disturbing the LBP items and the requirements for personal air monitoring. OSHA's exposure action level (AL) for lead, regardless of respirator use, is an airborne concentration of micrograms per cubic meter ($50 \mu\text{g}/\text{cm}^3$), averaged over an eight-hour period. The action level (AL) is the level at which an employer must begin specific compliance activities as outlined in OSHA's lead standards. By OSHA standards and regulations, the employer shall ensure that no employee is exposed to lead at concentrations greater than fifty of air $50 \mu\text{g}/\text{m}^3$ averaged over an 8-hour period which is the permissible exposure level (PEL).

SCDDDES regulates the proper disposal of LBP and associated debris. SCDES 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 a waste

is a characteristic hazardous waste due to leachability under the South Carolina Hazardous Waste Management Regulations. LBP *residue* with a TCLP analysis results greater than or equal to five milligrams per liter (≥ 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 results less than five milligrams per liter (< 5 mg/l) lead is required to be disposed of in a Class 3 landfill.

We sincerely appreciate the opportunity to be of service to SCDOT on this project. If you have any questions regarding the information presented herein, please contact our office at (803) 254-4540.

APPENDICES

Appendix A – Site Vicinity Map

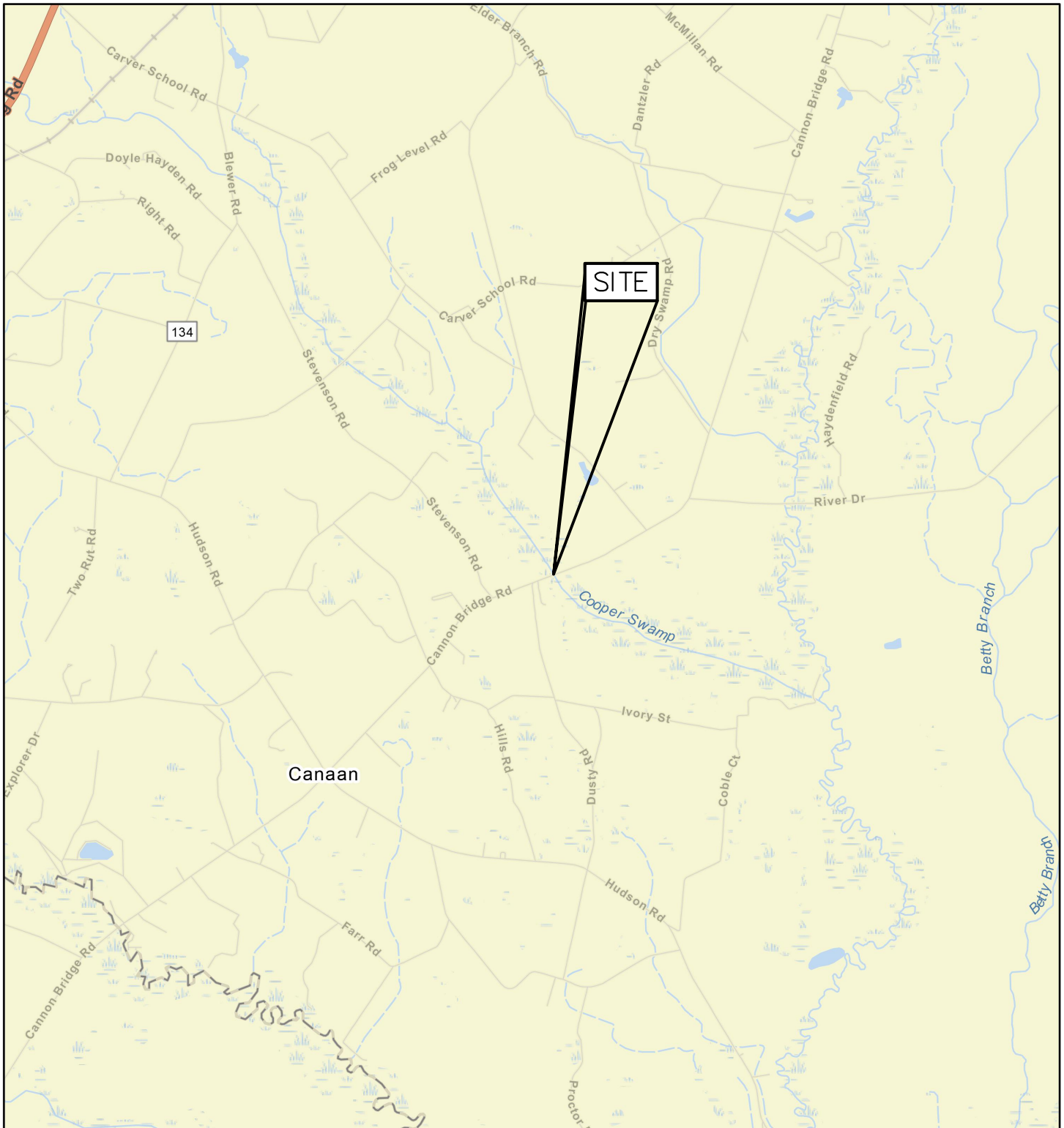
Appendix B – General Bridge Plan

Appendix C – Site Photos

Appendix D – EPA LBP Inspector Certification

Appendix A

Site Vicinity Map



1/10/2025, 11:56:52 AM

1:72,000

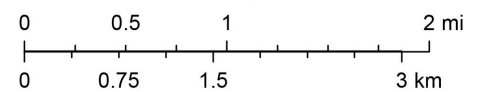


FIGURE
NUMBER:

1

F&ME CONSULTANTS
PROJECT NUMBER:

G67100.009

LEAD-BASED PAINT INVESTIGATION
S-38-39 Bridge over Cooper Swamp
Orangeburg County, SC
Site Vicinity Map
Prepared for: SCDOT
955 Park Street
Columbia, SC 29201



211 BUSINESS PARK BLVD.
COLUMBIA, SC 29203

ORIGINAL:
January 13, 2025

REVISIONS:

1
2
3

SCALE:
AS SHOWN

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

NOTES:

Appendix B

General Bridge Plan

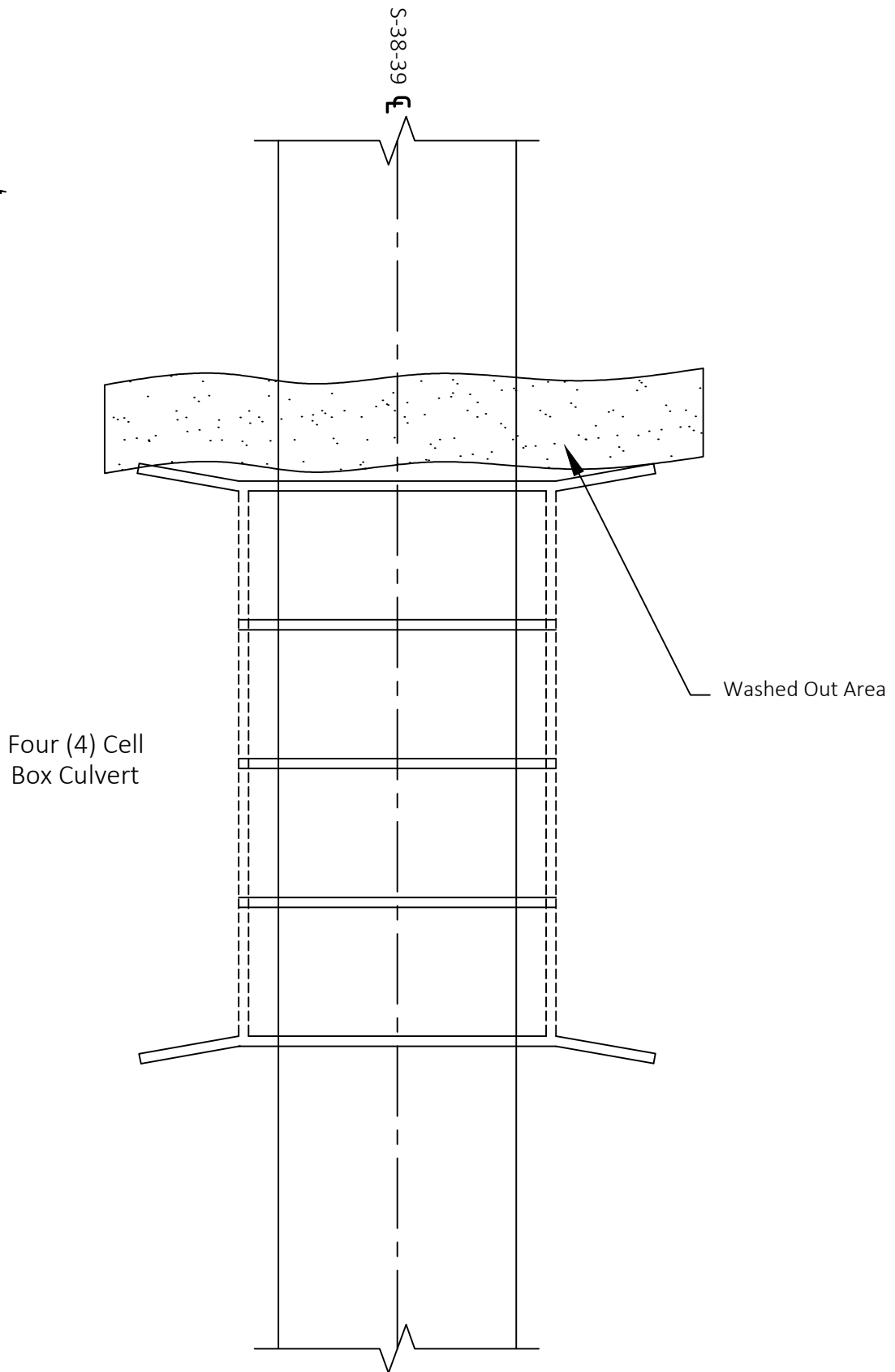


FIGURE NUMBER: 2	F&ME CONSULTANTS PROJECT NUMBER: G7100.009	LEAD-BASED PAINT INVESTIGATION S-9-22 Bridge over Caw Caw Creek Orangeburg County, SC General Bridge Plan Prepared for: SCDOT 955 Park Street Columbia, SC 29201	<div data-bbox="987 1848 1198 1963"> </div> <div data-bbox="980 1990 1203 2037"> 211 BUSINESS PARK BLVD. COLUMBIA, SC 29203 </div>	ORIGINAL: January 13, 2025 REVISIONS: 1 _____ 2 _____ 3 _____ SCALE: N.T.S.	DRWN. BY: MSM CHKD. BY: JSL APPR. BY: GME NOTES: _____ _____ _____ _____ _____
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Appendix C

Site Photos



Photo 1. Top View of Bridge.



Photo 2. Northwestern Corner View of Bridge.



Photo 3. Southwestern Corner View of Bridge.



Photo 4. Underside View of Bridge.



Photo 5. Eastern Side Wash Out of the Bridge.



Photo 6. SCDOT Bridge Asset # Attached to Galvanized Metal Guardrail.



Appendix D

EPA LBP Inspector Certification

United States Environmental Protection Agency

This is to certify that



Jeffrey S Leary

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 July 29, 2027

LBP-I-18721-3

Certification #

March 15, 2024

Issued On



Adrienne Priselac, Manager, Toxics Office

Land Division