# Tierra

January 20, 2015

ATKINS 4030 West Boy Scout Boulevard, Suite 700 Tampa, FL 33607

Attn: Mr Brad Bayne, P.E.

RE: DRAFT NESHAP Asbestos Survey Report and Screening for Metals-Based Coatings

SR 60 Eastbound over Peace Creek (FDOT Structure No. 160133) SR 60 Westbound over Peace Creek (FDOT Structure No. 160045)

SR 60 Grade Separation over CSX Railroad

Polk County, Florida FPID: 436559-1-22-01

Tierra Project No.: 6511-10-084A Task Work Order #73

Mr. Bayne:

The purpose of this report is to present the results of an asbestos survey and screening for metals-based coatings performed in December 2014 at the above referenced projects. This survey included review of existing bridge construction plans dated 1950, 1958, 1964, and 1978 in an effort to identify Asbestos Containing Materials (ACMs), if present. We understand that this survey was requested due to the planned renovation and/or demolition of these structures.

- No ACMs were identified from the samples collected. Please refer to the attached laboratory report for details.
- No suspect ACMs or metals-based coatings were identified in Tierra's review of existing bridge construction plans dated 1950, 1958, 1961, 1964, and 1978.
- Laboratory analytical results indicated the presence of metals-based coating on steel mounting plates on the SR 60 Westbound over Peace Creek bridge structure (FDOT No. 160045). Please refer to the attached laboratory report for details.

Tierra appreciates the opportunity to provide this service to ATKINS. If you have any questions regarding this report, please contact our office at your earliest convenience.

Respectfully Submitted,

TIERRA, INC.

Scott S. Crandall, P.E. Florida Licensed Asbestos Consultant License No. EA0000060 Christopher C. Garth AHERA Asbestos Building Inspector Senior Scientist

Mitaha C. South

# DRAFT NESHAP ASBESTOS SURVEY AND SCREENING FOR METALS-BASED COATINGS

SR 60 Eastbound over Peace Creek (FDOT Structure No. 160133) and SR 60 Westbound over Peace Creek (FDOT Structure No. 160045)

SR 60 Grade Separation over CSX Railroad Polk County, Florida

FPID: 436559-1-22-01

Tierra Project No.: 6511-10-084A TWO #73

January 2015



## Prepared for:

ATKINS 4030 West Boy Scout Boulevard, Suite 700 Tampa, FL 33607

Prepared by:

Tierra, Inc. 7351 Temple Terrace Highway Tampa, Florida 33637

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#### **EXECUTIVE SUMMARY**

Tierra conducted a National Emission Standards for Hazardous Air Pollutants (NESHAP) asbestos survey and screening for metals-based coatings of the following two (2) bridge structures located in Polk County, Florida. It is our understanding that the Florida Department of Transportation (FDOT) is planning to renovate and/or demolish the bridge structures.

- SR 60 Eastbound over Peace Creek (FDOT No. 160133)
- SR 60 Westbound over Peace Creek (FDOT No. 160045)

The purpose of the *survey* was to identify and sample suspect Asbestos Containing Materials (ACMs) and screen steel surfaces for suspected metals-based paint and/or protective coatings.

The purpose of this *report* is to provide information regarding the identity, location, condition and approximate quantities of these materials so that proper remediation and disposal methods can be evaluated.

The survey was conducted in December 2014 by an Asbestos Hazard Emergency Response Act (AHERA) accredited inspector in general accordance with the sampling protocols established in Environmental Protection Agency (EPA) 40 Code of Federal Regulations (CFR) 763. A total of twenty-seven (27) bulk samples from the SR 60 Eastbound over Peace Creek bridge structure (FDOT No. 160133 were collected from nine (9) homogeneous areas. Eighteen (18) bulk samples from the SR 60 Westbound over Peace Creek bridge structure (FDOT No. 160045) were collected from six (6) homogeneous areas of suspect ACM.

- No ACMs were identified as a result of laboratory Polarized Light Microscopy (PLM) tests.
- No ACMs were identified in Tierra's review of existing bridge construction plans dated 1950, 1958, 1961, 1964, and 1978.
- Laboratory analytical results indicated the presence of metals-based coating on steel mounting plates on the SR 60 Westbound over Peace Creek bridge structure (FDOT No. 160045).

A Project Location Map is included in **Appendix A**. A Photograph Log of homogenous areas is presented in **Appendix B**. Certifications and Licenses are included in **Appendix C**. The reports of laboratory analysis are provided in **Appendix D**. A Sample Location Sketch is included in **Appendix E**.

This *Executive Summary* provides a brief overview of work activities completed in association with the proposed roadway improvement project. The reader should utilize the detailed information presented within this report for specific information regarding any area of particular interest.

#### 1.0 INTRODUCTION

Tierra conducted an asbestos survey and screening for metals-based coatings of the following bridge structures located in Polk County:

- SR 60 Eastbound over Peace Creek (Structure No. 160133)
- SR 60 Westbound over Peace Creek (Structure No. 160045)

See Appendix A for Project Location Map.

The survey was conducted in December 2014 by Mr. Sammy Awad, an Asbestos Hazard and Emergency Response Act (AHERA) accredited asbestos inspector. The certification for Mr. Awad is provided in **Appendix C.** Suspect Asbestos Containing Material (ACM) samples were collected in general accordance with the sampling protocols outlined in Environmental Protection Agency (EPA) regulation 40 CFR 763. Samples were shipped under chain of custody to an accredited laboratory for analysis by polarized light microscopy (PLM). The work described herein was performed under the direction of Mr. Scott Crandall, P.E., a Florida Licensed Asbestos Consultant (License No. EA0000060). A copy of Mr. Crandall's license is presented in **Appendix C.** The results of laboratory analysis are provided in **Appendix D** and the laboratory's accreditation certificates are provided in **Appendix C**.

## 1.1 Project Objective

We understand this asbestos survey was requested due to the planned renovation and/or demolition of the existing bridge structures. EPA regulation 40 CFR 61, Subpart M, National Emission Standards for Hazardous Air Pollutants (NESHAP), prohibits the release of asbestos fibers and other hazardous air pollutants to the atmosphere during renovation or demolition activities. The asbestos NESHAP requires that potentially regulated asbestos-containing building materials be identified, classified and quantified prior to planned disturbances or demolition activities.

### 2.0 BRIDGE DESCRIPTION

According to the Florida Department of Transportation's (FDOTs) Florida Bridge Information list dated October 1, 2014, the SR 60 Westbound over Peace Creek bridge structure (FDOT No. 160045) was constructed in 1951 and the SR 60 Eastbound over Peace Creek bridge structure (FDOT No. 160133) was constructed in 1965.

Based on existing bridge construction plans, the SR 60 eastbound over Peace Creek bridge structure (160133) is approximately 160 feet in length and 24 feet in width. The SR 60 westbound over Peace Creek bridge structure (160045) is approximately 160 feet in length and 27 feet in width.

Bridge embankment control on both structures is achieved with sand-cement rip-rap sloped pavement stabilizing walls at both ends. Guardrails at the approaches are galvanized "W" channel steel on steel and wooden posts.

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The bridge structures are both cast in place flat span bridges. Each bridge consists of two lanes servicing eastbound and westbound traffic. They are constructed on concrete piles with concrete abutments on both sides supporting a cast in place concrete bridge deck. Barrier walls are located along the sides of both bridge structures. A concrete hand rail and columns are located along the sides of the eastbound bridge structure. See **Appendix B** for photographs of the bridge structures.

## 3.0 FIELD ACTIVITIES

The survey was conducted by Mr. Sammy Awad, an AHERA-accredited asbestos inspector. A copy of the asbestos inspector certificate is presented in **Appendix C**. The survey was conducted in general accordance with the sample collection protocols established in EPA regulation 40 CFR 763. A summary of the survey activities performed is provided below.

#### 3.1 Visual Assessment

Our survey activities began with a visual observation of the structures to identify homogeneous areas of suspect ACM. A homogeneous material consists of building materials that appear similar throughout in terms of color, texture and date of application. Building materials identified as steel, glass, wood, masonry, metal or rubber were not considered suspect ACM. If surfaces are covered with protective coating those materials are noted and sampled.

A visual inspection of the bridge structures was performed to identify metal surfaces with possible metals-based coatings (arsenic, cadmium, chromium, lead, mercury and zinc). Metal coated surfaces were observed on the SR 60 Westbound over Peace Creek bridge structure (FDOT No. 160045) and included three (3) mounting plates used to attach the guardrails to the handrails. One (1) of the mounting plates was approximately 1' x 1' and the other two (2) mounting plates were approximately 2' x 1' in size. See photograph in **Appendix B**. No metals-based coatings were observed on the SR 60 Eastbound over Peace Creek bridge structure (FDOT No. 160133).

### 3.2 Physical Assessment

A physical assessment of each homogeneous area of suspect ACM was conducted to assess the friability and condition of the materials. A friable material is defined by the EPA as a material which can be crumbled, pulverized or reduced to powder by hand pressure when dry. Friability was assessed by physically touching suspect materials.

### 3.3 Sample Collection

Based on results of the visual observation, bulk samples of suspect ACM and protective coatings were collected in general accordance with AHERA sampling protocols. Representative samples of suspect materials were collected in each homogeneous area. Tierra personnel collected bulk samples using wet methods as applicable to reduce the potential for fiber release. Samples were placed in sealable containers and labeled with unique sample numbers using an indelible marker. A discussion of the suspect ACM samples collected during the survey is included in **Section 6.0**.

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#### 3.4 Sample Analysis

Bulk samples of ACM were submitted under chain of custody to Dove Environmental Corp. (Dove) of Miramar, Florida for analysis by polarized light microscopy with dispersion staining techniques per EPA methodology (40 CFR 763, Subpart F). The percentage of asbestos, where applicable, was determined by microscopic visual estimation. Dove's accreditation number under the National Voluntary Laboratory Accreditation Program is 102053-0. See certificate in Appendix C.

The U.S. Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration (OSHA) define asbestos containing material as any material which contains greater than one percent asbestos. When samples analyzed by Polarized Light Microscopy contain asbestos in amounts less than ten percent (<10%), a more exact method of analysis called point counting may be performed at the client's request. The EPA point count method allows a sample in which asbestos was visually detected, but which is visually estimated to have 10% or less asbestos, to be quantified using a point count procedure. If not point counted, a sample in which asbestos was visually detected and estimated (including trace to ≤1%) must be assumed to be greater than 1% and treated as an ACM. The EPA point counting procedure is as follows: an ocular reticule (cross hair or point array) is used to visually superimpose a point or points on the microscope field of view. A total of 400 points superimposed on either asbestos fibers or non-asbestos matrix material must be counted over at least eight different preparations of representative sub-samples. If an asbestos fiber and matrix particle overlap so that a point is superimposed on their visual intersection, a point is scored for both categories. Point counting provides a quantification of the area percent asbestos. Per EPA's regulations, materials which have been point-counted and, therefore, quantitatively determined to have less than or equal to one percent (≤1%) asbestos, can be treated as non-ACM. No samples were point counted during this survey.

A discussion of suspect ACM and suspect metals-based coating samples collected during the survey and findings are included in **Section 6.0**.

#### 4.0 **PLAN REVIEW**

No ACMs were identified in Tierra's review of existing bridge construction plans dated 1950, 1958, 1961, 1964 and 1978.

#### 5.0 **REGULATORY OVERVIEW**

#### 5.1 **Asbestos Regulations**

NESHAP (40 CFR Part 61, Subpart M) regulates asbestos fiber emissions and asbestos waste disposal practices. It also requires the identification and classification of existing building materials prior to demolition or renovation activity. Under NESHAP, asbestos-containing building materials are classified as either friable, Category I non-friable, or Category II nonfriable ACM. Friable materials are those that, when dry, may be crumbled, pulverized or reduced to powder by hand pressure. Category I non-friable ACM includes packings, gaskets, resilient floor coverings and asphalt roofing products containing more than 1% asbestos.

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Category II non-friable ACM are any materials other than Category I materials that contain more than 1% asbestos.

Friable ACM, Category I and Category II non-friable ACM which are in poor condition and has become friable or which will be subjected to drilling, sanding, grinding, cutting or abrading and which could be crushed or pulverized during anticipated renovation or demolition activities are considered Regulated ACM (RACM).

In the State of Florida, asbestos activities are regulated by the Florida Department of Environmental Protection (FDEP). RACM must be removed prior to demolition activities which will disturb the ACM materials. The owner or operator must provide the FDEP with written notification of planned removal activities at least 10 working days prior to the commencement of asbestos abatement activities. Removal of RACM must be conducted by a State of Florida licensed asbestos abatement contractor.

The OSHA Asbestos standard for construction (29 CFR 1926.1101) regulates workplace exposure to asbestos. The OSHA standard requires that employee exposure to airborne asbestos fibers be maintained below 0.1 asbestos fibers per cubic centimeter of air (0.1 f/cc). The OSHA standard classifies construction and maintenance activities which could disturb ACM and specifies work practices and precautions which employers must follow when engaging in each class of regulated work.

## 5.2 Metals-Based Protective Coatings and Lead Based Paint Regulations

Historically, metals such as arsenic, cadmium, chromium, lead, mercury and zinc were added to paints and other coatings as pigmentation and/or to improve performance, color and longevity. Specific regulations regarding lead-based paints have been developed by the EPA.

Lead-based paint is defined as a surface coating or paint containing lead in excess of 1.0 milligram per square centimeter (mg/cm2) or 0.5% by weight (EPA Toxic Substance Control Act, Section 401). 0.5% is equivalent to 5000 parts per million (ppm). Based on regulations contained in the Lead-Based Paint Poisoning Prevention Act (LBPPPA) and promulgated by the Consumer Product Safety Commission (CPSC), lead-based paint is defined as paint containing more than 0.06% lead as of June 1977. In 1978, the CPSC banned the sale of lead-based paint to consumers.

Under EPA regulations arsenic, cadmium, chromium, lead, mercury and zinc impacted wastes generated during abatement activities are handled as either a solid waste or a hazardous waste, depending on the amount and form of each of the metals.

If the maximum level of the contaminant in an extract of a representative sample of the waste stream proposed for disposal, as determined by a Toxicity Characteristic Leaching Procedure (TCLP) laboratory analysis (see *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,* Test Method 1311, EPA Publication SW-846), is less than the regulatory level set in 40 CFR 261.24, then EPA regulations allow the material to be disposed of as solid waste at a solid waste landfill. If the TCLP analysis equals or exceeds the regulatory level, the material must be managed as a hazardous waste.

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The EPA's maximum concentration regulatory levels, as listed on Table 1 - Maximum Concentration of Contaminants for the Toxicity Characteristic, in 40 CFR 261.24, are: arsenic 5.0 milligram per liter (mg/L), cadmium 1.0 mg/L, chromium 5.0 mg/L, lead 5.0 mg/L, and mercury 0.2 mg/L. Zinc is not listed in Table 1.

Impacted materials that are recycled, such as painted steel beams sent to a scrap metal yard, are not considered waste; therefore, they are exempt from waste disposal regulations, however other occupational exposure and recycling regulations may apply.

OSHA established the Lead Standard for the Construction Industry, 29 CFR 1926.62, which applies to all construction work where an employee may be exposed to lead. These exposures include demolition and salvage of structures where lead or material containing lead are present and removal or encapsulation of materials containing lead, as well as alterations and repairs including painting and decorating. The standard defines the occupationally permissible exposure limit and specific requirements for construction work with and in lead materials. OSHA does not have a percentage lead in paint action level in their current construction lead standard. OSHA regulations are driven by airborne lead exposure to workers. OSHA considers the lead regulation enforceable if the presence of *any* lead in paint at detectable concentrations is present when demolition or renovation activities are performed. Any abatement of the lead-based paint or cutting, sanding, and/or grinding of the structures painted with LBP should be performed in accordance with OSHA regulations. OSHA also has established exposure limit for other heavy metals including arsenic, cadmium and chromium.

Demolition activities are regulated under the NESHAP statute for general dust control. Specifications for the proper work practices, controls and disposal should be developed to document compliance with all applicable regulations.

### 6.0 FINDINGS AND RECOMMENDATIONS

## 6.1 Asbestos

A total of twenty-seven (27) bulk samples from the SR 60 Eastbound over Peace Creek bridge structure (FDOT No. 160133) were collected from nine (9) homogeneous areas. Eighteen (18) bulk samples from the SR 60 Westbound over Peace Creek bridge structure (FDOT No. 160045) were collected from six (6) homogeneous areas of suspect ACM. No Asbestos Containing Materials were identified as a result of laboratory Polarized Light Microscopy (PLM) tests. ACMs were not identified during review of the existing bridge construction plans.

A Project Location Map is included in **Appendix A**. A photographic log showing homogenous areas is presented in **Appendix B**. Certifications and Licenses are included in **Appendix C**. The laboratory report of analytical results is included in **Appendix D**. A Sample Location Sketch is included in **Appendix E**.

A summary of the suspect ACMs identified is provided in the following tables, along with the results from the laboratory analysis. Approximate quantities identified in the following tables were based on dimensions obtained during the review of existing bridge construction plans. The Google Earth measuring tool or field observations were used when existing bridge construction plans were illegible.

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Table 1 - Summary of Suspected ACM

Structure No. 160045 – SR 60 Westbound over Peace Creek							
Homogeneous Sample Sample Area No.		Material Description / Sample Location	Approx. Quantity	Lab Results % Asbestos	NESHAP Category		
	001B	Croy concrete with aggregate:	600 ft <sup>2</sup>	Not Detected	N/A		
1	002B	Gray concrete with aggregate;  Bent - End and Intermediate					
	003B	Dent - End and intermediate					
	004B	Black tar paper, Bent – End and Intermediate	25 ft <sup>2</sup>	Not Detected	N/A		
2	005B						
	006B	Bent – End and intermediate					
	007T	Black expansion fill, Deck	40 ft <sup>2</sup>	Not Detected	N/A		
3	T800						
	009T	Deck					
	010S	Gray concrete w/ beige coat,	900 ft <sup>2</sup>	Not Detected	N/A		
4	011S	Barrier wall					
	012S	Darrier Wall					
	013B	Smooth gray concrete, Pile	3,840 ft <sup>2</sup>	Not Detected	N/A		
5	014B						
	015B						
	016B	Light gray concrete, Bridge Deck	320 ft <sup>2</sup>	Not Detected	N/A		
6	017B						
	018B	Dridge Deek					

B-Sample taken from bottom of bridge; T-Sample was taken from top of bridge; S-Sample was taken from side of bridge

Table 2 – Summary of Suspected ACM

Structure No. 160133 – SR 60 Eastbound over Peace Creek						
Homogeneous Sample Sampling Area No.		Material Description / Sample Location	Approx. Quantity	Lab Results % Asbestos	NESHAP Category	
	016B	Croy concrete with a series sets.	558 ft <sup>2</sup>	Not Detected	N/A	
1	017B	Gray concrete with aggregate; Bent - End and Intermediate				
	018B	Bent - End and intermediate				
	019B	Dioak tar nanar	23 ft <sup>2</sup>	Not Detected	N/A	
2	020B	Black tar paper,				
	021B	Bent – End and Intermediate				
	022T	Black expansion fill,	47 ft <sup>2</sup>	Not Detected	N/A	
3	023T	Deck				
	024T	Deck				
	025T	Gray concrete,	640 ft <sup>2</sup>	Not Detected	N/A	
4	026T	Handrail				
	027T					
	028T	Gray concrete w/ black	320 ft <sup>2</sup>	Not Detected	N/A	
5	029T	coat,				
	030T	Deck				
	031S	Light gray concrete,	64 ft <sup>2</sup>	Not Detected	N/A	
6	032S	Wingwall				
	033S	vviiigwaii				
	034B	Smooth gray concrete,	14,112 ft <sup>2</sup>	Not Detected		
7	035B	Pile			N/A	
	036B	1 110				
	037T	Black pad,	96 ft <sup>2</sup>	Not Detected	N/A	
8	038T	Guardrail				
	039T					
	040B	Black Drain Pipe,	32 LF	Not Detected	N/A	
9	041B	Deck				
	042B	hridge: T. Sample was taken from top of b			(1 : 1	

B-Sample taken from bottom of bridge; T-Sample was taken from top of bridge; S-Sample was taken from side of bridge LF-Linear Feet

It should be noted that suspect materials, other than those identified during the survey could exist within the structures in areas not accessible to the inspector at the time of the survey. Should suspect materials other than those which were identified during this survey be uncovered during the renovation/demolition process, those materials should be assumed to be ACM until sampling and analysis can confirm or refute their asbestos content.

SR 60 Westbound over Peace Creek (FDOT No. 160045)

#### 6.2 **Metals-Based Protective Coatings**

Steel surfaces with suspected metals-based paints and/or protective coatings were observed on one (1) of the bridge structures during the survey, SR 60 Westbound over Peace Creek bridge structure (FDOT No. 160045). The gray coating was observed on three (3) steel mounting plates used to attach the guardrails to the handrails. One (1) of the mounting plates was approximately 1' x 1' and the other two (2) mounting plates were approximately 2' x 1' in size.

One (1) composite paint chip sample identified as "PC-1" was collected from the three (3) mounting plates for laboratory analysis. The composite sample was analyzed for Total Metals concentrations, and tested positive for the presence of metals. Based on the EPA definition of Lead Base Paint (LBP), laboratory analytical results for PC-1 do not meet the definition of LBP. See Appendix E for Sample Location Sketch. The laboratory analytical report is included in Appendix **D** and laboratory results are presented in the following summary table:

Table 3: Summary of Suspected Metals-Based Coatings

Paint Sample No.	Material Description	Approx. Quantity	Metal	Lab Results mg/kg	
			Arsenic (As)	30.8	
	Gray coating on three (3) steel mounting plates (one (1) plate approximately 1' x 1' and two (2) plates approximately 2' x 1')		Cadmium (Cd)	57.5	
PC-1		5 ft²	Chromium (Cr)	474	
FC-1			Lead (Pb)	4270	
			Mercury (Hg)	0.00305 U	
			Zinc (Zn)	674,000	

U-Indicates that the compound was analyzed for but not detected above the method detection limit (MDL)

#### 6.3 Recommendations

Based on the presence of metals in the paints, any renovation activities which could result in exposure to workers, such as sand blasting, should be performed in accordance with OSHA regulations to protect workers. Based on the total concentrations of the above metals it does appear that the paint waste would be deemed a hazardous waste. However, the method used to remove the paint has an impact on the outcome of the waste determination (i.e. sandblasting verses solvent based paint removers). A sample of the actual waste generated during the renovation process should be tested prior to disposal.

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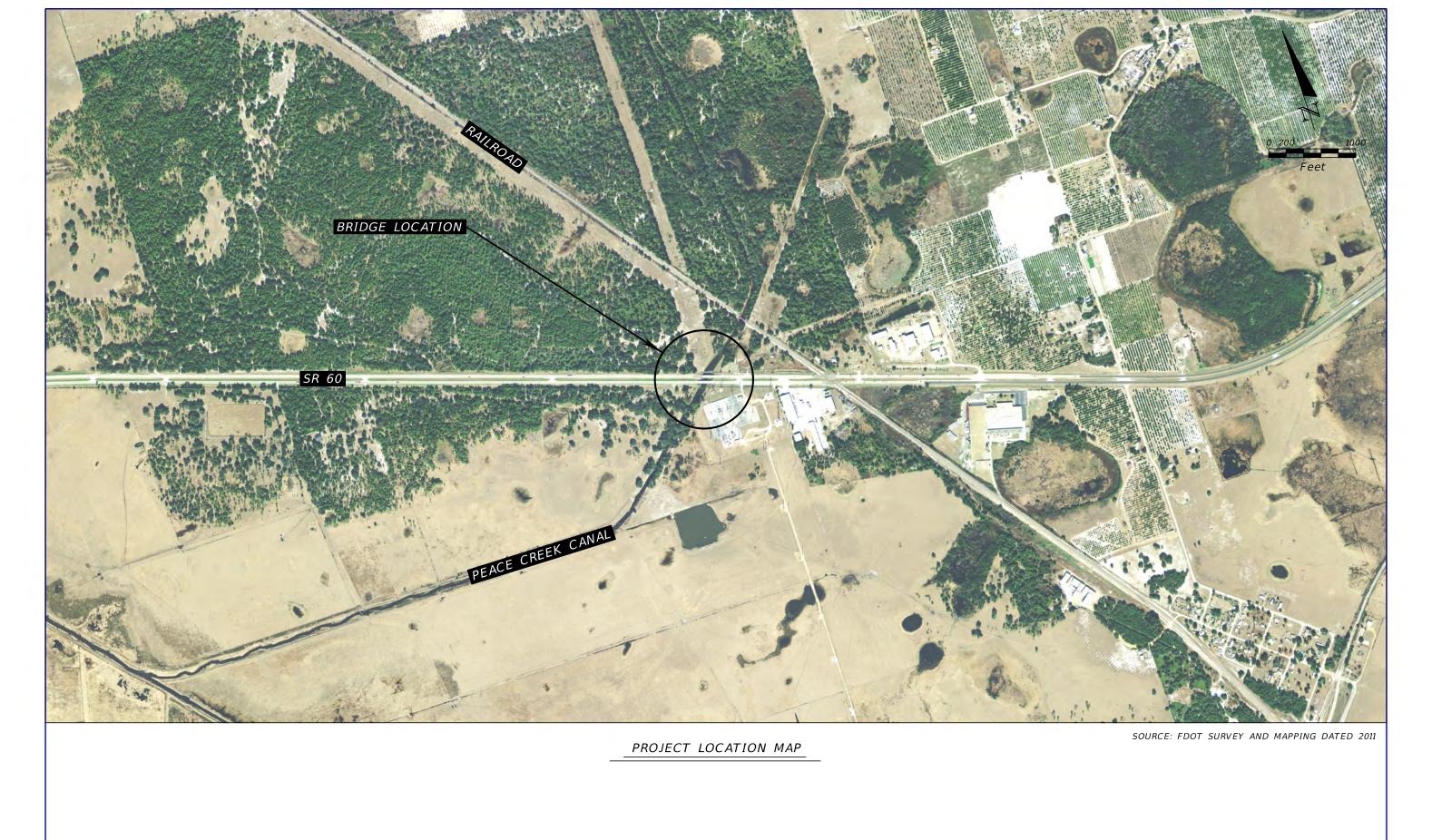
### 7.0 GENERAL COMMENTS

This survey was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results, findings, conclusions and recommendations expressed in this report are based on conditions observed during our survey of the subject bridge structures. The information contained in this report is relevant to the date on which this survey was performed, and should not be relied upon to represent conditions at a later date. Tierra does not warrant the work of regulatory agencies, laboratories or other third parties supplying information which may have been used in the preparation of this report. No warranty, express or implied, is made.

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# **APPENDIX A**

Project Location Map



	REVIS	SIONS			STATE OF FLORIDA		LORIDA	
DATE	DESCRIPTION	DATE	DESCRIPTION	TIEDDA INC	DEPARTMENT OF TRANSPORTATION		IS PORTATION	
				ERRA, INC.			VD1 CACATALAGIV	
				7351 TEMPLE TERRACE HIGHWAY	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
			TIERRA PROJECT NO.: 6511-10-084A	TAMPA, FLORIDA 33637	SR 60	POLK	436559-1-22-01	
		CERTIFICATE OF AUTHORIZATION 6486	3N 00	I OLK	430333-1-22-01			

SR 60 GRADE SEPARATION OVER CSX RAILROAD

SHEET

# **APPENDIX B**

Photograph Log

SR 60 Grade Separation over CSX RR

SR 60 Eastbound over Peace Creek (FDOT No. 160133)

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# SR 60 Westbound over Peace Creek (FDOT No. 160045)



Photo 1: Northeast corner looking west (160045)



Photo 2: Homogeneous Area # 1 (Samples 001B-003B) Gray Concrete w/ Aggregate, End Bent (160045)

SR 60 Grade Separation over CSX RR

SR 60 Eastbound over Peace Creek (FDOT No. 160133)

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Photo 3: Homogeneous Area #2 (Samples 004B-006B) Black Tar Paper, Bent and Homogeneous Area #6 (Samples 016B-018B) Light gray concrete, Deck (160045)



Photo 4: Homogeneous Area # 3 (Samples 007T-009T) Black expansion fill, Deck (160045)

SR 60 Grade Separation over CSX RR

SR 60 Eastbound over Peace Creek (FDOT No. 160133)

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Photo 5: Homogeneous Area #4 (Samples 010S-012S) Gray Concrete, Barrier Wall (160045)



Photo 6: Homogeneous Area #5 (Samples 013B-015B) Smooth gray concrete w/ fiberglass coat, Pile (160045)

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Photo 7: 2' x 1' steel mounting plate on Bridge Structure 160045 (Sample PC-1)

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# SR 60 Eastbound over Peace Creek (FDOT No. 160133)



Photo 8: Near southwest corner looking east (160133)



Photo 9: Homogeneous Area # 1 (Samples 016B-018B) Gray Concrete w/ Aggregate, End Bent (160133)

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SR 60 Eastbound over Peace Creek (FDOT No. 160133)

SR 60 Westbound over Peace Creek (FDOT No. 160045)



Photo 10: Homogeneous Area #2 (Samples 019B-021B) Black Tar Paper, Bent (160133)



Photo 11: Homogeneous Area # 3 (Samples 022T-024T) Black Expansion Fill, Deck (160133)

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Photo 12: Homogeneous Area #4 (Samples 025T-027T) Gray Concrete, Hand Rail and Homogeneous Area # 7 (Samples 034B-036B) Smooth gray concrete, Pile (160133)



Photo 13: Homogeneous Area #5 (Samples 028T-030T) Gray Concrete w/ black coat, Deck (160133)

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SR 60 Eastbound over Peace Creek (FDOT No. 160133)

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Photo 14: View of Homogeneous Area #6 (Samples 031S-033S) Light Gray Concrete, Wingwall (160133)



Photo 15: View of Homogeneous Area #8 (Samples 037T-039T) Black Pad, Guardrail (160133)

NESHAP Asbestos Survey and Screening for Metals-Based Coatings SR 60 Grade Separation over CSX RR

SR 60 Eastbound over Peace Creek (FDOT No. 160133) SR 60 Westbound over Peace Creek (FDOT No. 160045) Tierra Project No.: 6511-10-084A TWO #73



Photo 16: View of Homogeneous Area #9 (Samples 040B-042B) Black Drain Pipe, Deck (160133)

# **APPENDIX C**

Certifications and Licenses



# STATE OF FLORIDA DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

ASBESTOS LICENSING UNIT 1940 NORTH MONROE STREET TALLAHASSEE FL 32399-0783 (850) 487-1395

TIERRA INC SCOTT S CRANDALL 7351 TEMPLE TERRACE HWY TAMPA FL 33637

Congratulations! With this license you become one of the nearly one million Floridians licensed by the Department of Business and Professional Regulation. Our professionals and businesses range from architects to yacht brokers, from boxers to barbeque restaurants, and they keep Florida's economy strong.

Every day we work to improve the way we do business in order to serve you better. For information about our services, please log onto www.myfloridalicense.com. There you can find more information about our divisions and the regulations that impact you, subscribe to department newsletters and learn more about the Department's initiatives.

Our mission at the Department is: License Efficiently, Regulate Fairly. We constantly strive to serve you better so that you can serve your customers. Thank you for doing business in Florida, and congratulations on your new license!



STATE OF FLORIDA DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

**ZA405** 

ISSUED: 09/17/2013

ASBESTOS BUSINESS ORGANIZATION TIERRA INC SCOTT S CRANDALL

IS LICENSED under the provisions of Ch.469 FS. Expiration date: NOV 30, 2015 L1309170004174



The Department of State is leading the commemoration of Florida's 500th anniversary in 2013. For more information, please go to www.VivaFlorida.org.

#### **DETACH HERE**

# STATE OF FLORIDA DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION ASBESTOS LICENSING UNIT

LICENSE NUMBER

ZA405

The ASBESTOS BUSINESS ORGANIZATION Named below IS LICENSED Under the provisions of Chapter 469 FS. Expiration date: NOV 30, 2015

TIERRA INC SCOTT S CRANDALL 7351 TEMPLE TERRACE HWY TAMPA FL 33637



# STATE OF FLORIDA DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION ASBESTOS LICENSING UNIT

### LICENSE NUMBER

EA0000060

The ASBESTOS CONSULTANT - ENGINEER Named below IS LICENSED Under the provisions of Chapter 469 FS. Expiration date: NOV 30, 2016







ISSUED: 09/30/2014

DISPLAY AS REQUIRED BY LAW

SEQ # L1409300007877



Center for Training, Research and Education for Environmental Occupations

certifies

# Sammy M. Awad

Tierra Inc, 7351 Temple Terr. Hwy., Tampa, FL 33637
Having passed a 25-question exam with a score of 70% or higher has successfully met training requirements for

Asbestos Refresher: Inspector

FDBPR Asbestos Licensing Unit: Provider #0000995; Course #FL49-0004731 (½ Day; 3.40 Contact Hours)

(Reaccreditation for Inspector under TSCA Title II/AHERA)

Conducted

04/22/2014

Certificate #: 140396-4458

Exam Date: 04/22/2014

EPA accreditation expires: 04/22/2015 Principal Instructor: Brian Duchene, P.E.

CEUs: .4

FBPR LAC: #0000995; Course #0004731

FBPE PDHs: #0004021; Course #0009083/Educational Institutions: 4 PDHs

Carol Hinton, Associate Director

# United States Department of Commerce National Institute of Standards and Technology



# Certificate of Accreditation to ISO/IEC 17025:2005

**NVLAP LAB CODE: 102053-0** 

# **Dove Environmental Corporation**

Miramar, FL

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

# BULK ASBESTOS FIBER ANALYSIS

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2014-07-01 through 2015-03-31

Effective dates



For the National Institute of Standards and Technology







Department of Health, Bureau of Public Health Laboratories
This is to certify that

E84207

SPECTRUM ANALYTICAL, INC. FEATURING HANIBAL TECHNOLOGY
FLORIDA DIVISION
8405 BENJAMIN ROAD, SUITE A
TAMPA, FL 33634

has complied with Florida Administrative Code 64E-1, for the examination of environmental samples in the following categories

NON-POTABLE WATER - EXTRACTABLE ORGANICS, NON-POTABLE WATER - GENERAL CHEMISTRY, NON-POTABLE WATER - METALS, NON-POTABLE WATER - PESTICIDES-HERBICIDES-PCB'S, NON-POTABLE WATER - VOLATILE ORGANICS, SOLID AND CHEMICAL MATERIALS - EXTRACTABLE ORGANICS, SOLID AND CHEMICAL MATERIALS - METALS, SOLID AND CHEMICAL MATERIALS - PESTICIDES-HERBICIDES-PCB'S, SOLID AND CHEMICAL MATERIALS - VOLATILE ORGANICS

Continued certification is contingent upon successful on-going compliance with the NELAC Standards and FAC Rule 64E-1 regulations. Specific methods and analytes certified are cited on the Laboratory Scope of Accreditation for this laboratory and are on file at the Bureau of Public Health Laboratories, P. O. Box 210, Jacksonville, Florida 32231. Clients and customers are urged to verify with this agency the laboratory's certification status in Florida for particular methods and analytes.

Date Issued: September 15, 2014 Expiration Date: June 30, 2015

Carina Blackmore, DVM, PhD, Dipl. ACVPM, CPM Chief, Bureau of Public Health Laboratories DH Form 1697, 7/04

NON-TRANSFERABLE E84207-32-09/15/2014 Supersedes all previously issued certificates

# **APPENDIX D**

Laboratory Results

8910 MIRAMAR PARKWAY, SUITE 200 MIRAMAR FL 33025 Tel. (954) 374-9274 Fax: (954) 639-7426

# ASBESTOS TEST REPORT

CLIENT : TIERRA INC.

PAGE : 1

ADDRESS: 7351 TEMPLE TERRACE HWY

: 12/19/14

TAMPA FL 33637

DATE

PROJECT: SR 60 WB. OVER PEACE CREEK(160045/6511-10084A SAMPLE ID

TW0#27

CONSULT: SAMMY AWARD

NVLAP Lab Code: 102053-0

LAB NO.

LAYERS: 02

SAMPLE NO.: 001

DESCRIPTION : GRAY CONCRETE W/AGGREGATE

: NO/NO

DATE OF ANALYSIS: 12/19/14

ASBESTOS TYPE: NONE DETECTED

OTHER FIBERS : 5% CELLULOSE NON FIBERS : 55% MINERALS

30% POLYMERS

10% PAINT

LAB NO.

: 02

SAMPLE NO.: 002

: NO/NO

LAYERS: 02 DESCRIPTION : GRAY CONCRETE W/AGGREGATE

DATE OF ANALYSIS: 12/19/14

ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 5% CELLULOSE

NON FIBERS : 55% MINERALS

30% POLYMERS

10% PAINT

LAB NO.

: 03

LAYERS: 02

SAMPLE NO.: 003 DATE OF ANALYSIS: 12/19/14

FRI/HOM \_\_\_

: NO/NO DESCRIPTION : GRAY CONCRETE W/AGGREGATE

ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 5% CELLULOSE

NON FIBERS

: 55% MINERALS 30% POLYMERS

10% PAINT

Dove Environmental Corporation is solely responsible for analysis performed on sample content supplied by client and is NVLAP accredited for Method 40 CFR Pt. 736, App. B to Subpart B BPA/600/R-93/116. Measurement Uncertainty information is available by contacting the Laboratory. Laboratory Reports will be kept for a period of three (3) years electronically. Percentages are visually estimated. Point count performed at clients request only. Results relates only to item analyzed. This report should not be reproduced by client or anyone without written permision from Dove Environmental Corporation. All samples will be stored for a period of 1 month. The use of the term NVLAP does not constitute endorsement by NVLAP or any agency of the United States Government. Floor-Tile is non-homogeneous and results only reflect sample content. 

Analyst 1

8910 MIRAMAR PARKWAY, SUITE 200 MIRAMAR FL 33025 Tel. (954) 374-9274 Fax: (954) 639-7426

## ASBESTOS TEST REPORT

CLIENT : TIERRA INC.

PAGE

ADDRESS: 7351 TEMPLE TERRACE HWY

DATE

: 12/19/14

TAMPA FL 33637

PROJECT: SR 60 WB. OVER PEACE CREEK(160045/6511-10084A SAMPLE ID : D412419 TWO#27

CONSULT: SAMMY AWARD

04

SAMPLE NO.: 004

NVLAP Lab Code: 102053-0

LAB NO. FRI/HOM

: NO/YES

LAYERS: 01

DATE OF ANALYSIS: 12/19/14

DESCRIPTION : BLACK TAR PAPER

ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 10% CELLULOSE NON FIBERS : 20% MINERALS

70% BITUMEN

LAB NO.

: 05

: NO/YES

SAMPLE NO.: 005

FRI/HOM

LAYERS: 01 DATE OF ANALYSIS: 12/19/14

DESCRIPTION : BLACK TAR PAPER

ASBESTOS TYPE: NONE-DETECTED

NON FIBERS : 20% MINERALS

OTHER FIBERS : 10% CELLULOSE

70% BITUMEN

LAB NO.

: 06

LAYERS: 01

SAMPLE NO.: 006

FRI/HOM : NO/YES I DESCRIPTION : BLACK TAR PAPER

DATE OF ANALYSIS: 12/19/14

ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 10% CELLULOSE NON FIBERS : 20% MINERALS

70% BITUMEN

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Analyst 1

8910 MIRAMAR PARKWAY, SUITE 200 MIRAMAR FL 33025 Tel. (954) 374-9274 Fax: (954) 639-7426

## ASBESTOS TEST REPORT

CLIENT : TIERRA INC.

PAGE

ADDRESS: 7351 TEMPLE TERRACE HWY

DATE

: 12/19/14

TAMPA FL 33637

PROJECT: SR 60 WB. OVER PEACE CREEK(160045/6511-10084A SAMPLE ID

: D412419

: 3

TW0#27

CONSULT: SAMMY AWARD

NVLAP Lab Code: 102053-0

LAB NO.

SAMPLE NO.: 007

FR1/HOM

: NO/NO

LAYERS: 02

DATE OF ANALYSIS: 12/19/14

DESCRIPTION

DESCRIPTION : BLACK EXPANSION FILL ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 2% CELLULOSE

NON FIBERS : 10% MINERALS

80% POLYMERS

8% RESINS

LAB NO. FRI/HOM : 08

LAYERS: 02

SAMPLE NO.: 008

: NO/NO DESCRIPTION : BLACK EXPANSION FILL DATE OF ANALYSIS: 12/19/14

ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 2% CELLULOSE

NON FIBERS : 10% MINERALS 8% RESINS

80% POLYMERS

LAB NO.

: 09

TRI/HOM

: NO/NO

LAYERS: 02

SAMPLE NO.: 009 DATE OF ANALYSIS: 12/19/14

DESCRIPTION : BLACK EXPANSION FILL ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 2% CELLULOSE

NON FIBERS : 10% MINERALS

80% POLYMERS

8% RESINS

Dove Environmental Corporation is solely responsible for analysis performed on sample content supplied by client and is NVLAP accredited for Method 40 CFR Pt. 736, App. E to Subpart E BPA/600/R-93/116. Measurement Uncertainty information is available by contacting the Laboratory. Laboratory Reports will be kept for a period of three (3) years electronically. Percentages are visually estimated. Point count performed at clients request only. Results relates only to item analyzed. This report should not be reproduced by client or anyone without written permission from Dove Environmental Corporation. All samples will be stored for a period of 1 month. The use of the term NVLAP does not constitute endorsement by NVLAP or any agency of the United States Government. Floor-Tile is non-homogeneous and results only reflect sample content. 

Analyst 1



8910 MIRAMAR PARKWAY, SUITE 200 MIRAMAR FL 33025 Tel. (954) 374-9274 Fax: (954) 639-7426

# ASBESTOS TEST REPORT

CLIENT : TIERRA INC. ADDRESS: 7351 TEMPLE TERRACE HWY

PAGE

DATE

: 12/19/14

TAMPA FL 33637

PROJECT: SR 60 WB. OVER PEACE CREEK(160045/6511 10084A SAMPLE ID : D412419

CONSULT: SAMMY AWARD

NVLAP Lab Code: 102053-0

LAB NO.

SAMPLE NO.: 010

FRI/HOM

: NO/NO

LAYERS: 02

DATE OF ANALYSIS: 12/19/14

DESCRIPTION : GRAY CONCRETE

ASBESTOS TYPE: NONE-DETECTED

NON FIBERS

OTHER FIBERS : 2% CELLULOSE : 58% MINERALS

30% POLYMERS

10% PAINT

LAB NO.

SAMPLE NO.: 011

DATE OF ANALYSIS: 12/19/14

FRI/HOM

: NO/NO

LAYERS: 02

10% PAINT

DESCRIPTION : GRAY CONCRETE ASBESTOS TYPE: NONE DETECTED

OTHER FIBERS : 2% CELLULOSE

NON FIBERS : 58% MINERALS

30% POLYMERS

LAB NO.

: 12

LAYERS: 02

SAMPLE NO.: 012

DATE OF ANALYSIS: 12/19/14

FRI/HOM : NO/NO
DESCRIPTION : GRAY CONCRETE
ASBESTOS TYPE; NONE-DETECTED OTHER FIBERS : 2% CELLULOSE

NON FIBERS : 58% MINERALS

10% PAINT 30% POLYMERS

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Analyst 1



8910 MIRAMAR PARKWAY, SUITE 200 MIRAMAR FL 33025 Tel. (954) 374-9274 Fax: (954) 639-7426

#### ASBESTOS TEST REPORT

CLIENT : TIERRA INC.

ADDRESS: 7351 TEMPLE TERRACE HWY

TAMPA FL 33637

PROJECT: SR 60 WB. OVER PEACE CREEK(160045/6511-10084A SAMPLE ID : D412419

CONSULT: SAMMY AWARD

LAB NO. FRI/HOM : NO/NO

LAYERS: 02 DESCRIPTION : SMOOTH GRAY CONCRETE FIBERGLASS COAT ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 5% CFILULOSE NON FIBERS : 55% MINERALS

LAB NO. FRI/HOM : 14

FRI/HOM : NO/NO LAYERS: 02
DESCRIPTION : SMOOTH GRAY CONCRETE FIBERGLASS COAT
ASBESTOS TYPE: NONE-DETECTED OTHER FIBERS : 5% CELLULOSE

NON FIBERS : 55% MINERALS

LAB NO. : 15
FRI/HOM : NO/NO LAYERS: 02
DESCRIPTION : SMOOTH GRAY CONCRETE FIBERGLASS COAT LAYERS: 02

ASBESTOS TYPE: NONE-DETECTED OTHER FIBERS : 5% CELLULOSE

NON FIBERS : 55% MINERALS

PAGE

DATE

: 12/19/14

NVLAP Lab Code: 102053-0

SAMPLE NO.: 013

DATE OF ANALYSIS: 12/19/14

10% FIBER-GLASS

30% POLYMERS

SAMPLE NO.: 014

DATE OF ANALYSIS: 12/19/14

10% ΓΙΒΕR-GLASS 30% POLYMERS

SAMPLE NO.: 015 DATE OF ANALYSIS: 12/19/14

10% FIBER-GLASS 30% POLYMERS

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Analyst 1

8910 MIRAMAR PARKWAY, SUITE 200 MIRAMAR FL 33025 Tel. (954) 374-9274 Fax: (954) 639-7426

#### ASBESTOS TEST REPORT

CLIENT: TIERRA INC.

PAGE

ADDRESS: 7351 TEMPLE TERRACE HWY

TAMPA FL 33637

DATE

: 12/19/14

PROJECT: SR 60 WB. OVER PEACE CREEK(160045/6511-10084A SAMPLE ID : D412419

TWO#27

CONSULT: SAMMY AWARD

NVLAP Lab Code: 102053 0

LAB NO.

: 16

SAMPLE NO.: 016

FRI/HOM

: NO/YES

LAYERS: 01

DATE OF ANALYSIS: 12/19/14

DESCRIPTION : LIGHT GRAY CONCRETE

ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 2% CELLULOSE

: 58% MINERALS NON FIBERS

30% POLYMERS

10% PAINT

LAB NO. FR1/HOM

SAMPLE NO.: 017

LAYERS: 01 DATE OF ANALYSIS: 12/19/14

DESCRIPTION : LIGHT GRAY CONCRETE

: NO/YES

ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 2% CELLULOSE

10% PAINT

NON FIBERS : 58% MINERALS 30% POLYMERS

SAMPLE NO.: 018

LAB NO.

: 18

LAYERS: 01

DATE OF ANALYSIS: 12/19/14

FRI/HOM : NO/YES LAYERS
DESCRIPTION : LIGHT GRAY CONCRETE
ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 2% CELLULOSE

NON FIBERS : 58% MINERALS 30% POLYMERS

10% PAINT

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Arialyst 1

Project Name/Number: SR 60 WB Over Pooce Creek (160045) 6511-16-084A TWO #27
Samplers Name/Date: SOMM A AURO 12/5/2014

HA #: \	Sample #: OONB	Friable: Y / N	Condition:	
Material Description:	Concrete Waggregate	Location(s): Ben4 - E	End, NW Corner	Approx Amoun
HA#: \	Sample #: 002B	Friable: Y / N	Condition:	-
Material Description:	- XV	Location(s):  Ben4 - In4	ermediate, 1st from East End	Approx. Amount
HA #: \	Sample #: 003B	Friable: Y / N	Condition:	
Material Description:	ŢĹ	Location(s): Ben+ - B	End , SE Corner	Approx. Amount
HA#: 2	Sample #: 004 R	Friable: Y / N	Condition:	
Material Description:	ach Tar Paper	Location(s): Bent - En	id, NW Corner	Approx. Amount
HA#: 2	Sample #: 005 B	Friable: Y / N	Condition:	
Material Description:	XI.	Location(s): Ben4-In	stermediate, 1st from West end	Approx. Amount:
HA#: 2	Sample #: OOGB	Friable: Y / N	Condition:	
Material Description:	3 (	Location(s): Bent - En	d, SE Corner	Approx. Amount:
IA#: 3	Sample #: 0077	Friable: Y / N	Condition:	
Material Description:	Expansion Fill	Location(s):	West End	Approx. Amount:
IA#: 3	Sample #: 008T	Friable: Y/N	Condition:	
Material Description:	4.1	Location(s): Deck,		Approx. Amount:
A#: 3	Sample #: 009T	Friable: Y / N	Condition:	
Material Description:		Location(s):		Approx.
55	100		East End	Amount:

Page 2 of 3

Project Name/Number: 52 60 WR OVET PEQU CTEEX (160045) 6511-10-084A TWO#27
Samplers Name/Date: Sammy Award 12/5/2014

на#: Ц	Sample #: G105	Friable: Y / N	Condition:	
Material Description:		Location(s):		Approx
Giray (	Concrete	Barrier	Wall - SW Corner	Amount
на#: Ч	5ample #: 0/\ \ \	Friable: Y / N	Condition:	1
Material Description:		Location(s):		Approx.
11	,,	Barrier V	Wall- North Well, Center	Amount
HA#: L	Sample #: 0125	Friable: Y / N	Condition:	
Material Description:	V.	Barrier W	JOH - NE CORNER	Approx. Amount
HA#: 5	Sample #: 01313	Friable: Y / N	Condition:	1
Material Description:		Location(s):		Approx.
Smo F	oth Gray Concrete as	Pile; 1st Inter East Si	mediche Bent From de - North-Most pice	Amount
HA#: 5	Sample #: 0143	Friable: Y / N	Condition:	
Material Description:		Location(s):		Approx.
41	-11		ermediche Bent From le - Worth-most Pile	Amount
HA#: 5	Sample #: OISB	Friable: Y / N	Condition:	-1
Material Description:		Location(s):		Approx.
ij	í į	Pile; 2nd I	intermediate Bent om East Side - Most Pile	Amount
HA#: 6	Sample #: 016 B	Friable: Y / N	Condition:	
Material Description: Light G	irail Concrete	Location(s): Bridge Dec	K - NW Corner	Approx. Amount:
HA#: (6	Sample #: CI7B	Friable: Y / N	Condition:	
Material Description:	3.1	Location(s): Bridge De	CK - SE Corner	Approx. Amount:
HA#: 6	Sample #: 0183	Friable: Y / N	Condition:	
Material Description:	*	Location(s):		Approx.
(1	( )		Deck-NE Corner	Amount:
	,			

Page 3 of 3



DOVE ENVIRONMENTAL CORP.
8910 MIRAMAR PARKWAY, SUITE 200 MIRAMAR FL 33025
Tel. (954) 374-9274 Fax: (954) 639-7426

### ASBESTOS TEST REPORT

LAYERS: 02

CLIENT : TIERRA INC.

ADDRESS: 7351 TEMPLE TERRACE HWY

TAMPA FL 33637

PROJECT: SR 60 CSXRR/6511 10084A TWO #27

160122EB

CONSULT: SAMMY AWARD

FRI/HOM : NO/NO LAYERS: 02

DESCRIPTION : GRAY CONCRETE W/AGGREGATE ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 2% CELLULOSE NON FIBERS : 58% MINERALS

30% POLYMERS

LAB NO. : 02

LAB NO.

FRI/HOM : NO/NO LAYERS: 02 DESCRIPTION : GRAY CONCRETE W/AGGREGATE ASBESIOS TYPE: NONE-DETECTED

OTHER FIBERS : 2% CELLULOSE NON FIBERS : 58% MINERALS 30% POLYMERS

LAB NO. : 03

FRI/HOM : NO/NO LAYERS: DZ DESCRIPTION : GRAY CONCRETE W/AGGREGATE LAYERS: 02

ASBESTOS TYPE: NONE-DETECTED OTHER FIBERS : 2% CELLULOSE NON FIBERS : 58% MINERALS

30% POLYMERS

10% PAINT

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Analyst 1

R. Pepe Ramnath, PhD LABORATORY MANAGER

PAGE : 1

NVLAP Lab Code: 102053 0

SAMPLE NO.: 016

DATE OF ANALYSIS: 12/19/14

SAMPLE NO.: 017

DATE OF ANALYSIS: 12/19/14

SAMPLE NO.: 018

DATE OF ANALYSIS: 12/19/14

: 12/19/14

: D412420

DATE

10% PAINT

10% PAINT

SAMPLE ID



# DOVE ENVIRONMENTAL CORP. 8910 MIRAMAR PARKWAY, SUITE 200 MIRAMAR FL 33025 Tel. (954) 374-9274 Fax: (954) 639-7426

### ASBESTOS TEST REPORT

CLIENT: TIERRA INC.

ADDRESS: 7351 TEMPLE TERRACE HWY

TAMPA FL 33637

PROJECT: SR 60 CSXRR/6511-10084A TWO #27

160122EB

CONSULT: SAMMY AWARD

: 12/19/14 SAMPLE ID : D412420

NVLAP Lab Code: 102053-0

LAB NO. FRI/HOM

: NO/YES LAYERS: 01

SAMPLE NO.: 019 DATE OF ANALYSIS: 12/19/14

PAGE

DATE

DESCRIPTION : BLACK TAR PAPER ASBESTOS TYPE: NONE-DETECTED OTHER FIBERS : 20% CELLULOSE

NON FIBERS : 40% MINERALS

40% BITUMEN

LAB NO. : 05 FRI/HOM : NO.

: NO/YES LAYERS: 01

SAMPLE NO.: 020 DATE OF ANALYSIS: 12/19/14

DESCRIPTION : BLACK TAR PAPER

ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 20% CELLULOSE NON FIBERS : 40% MINERALS

40% BITUMEN

LAB NO.

: 06

LAYERS: 01

SAMPLE NO.: 021

DATE OF ANALYSIS: 12/19/14

FRI/HOM : NO/YES DESCRIPTION : BLACK TAR PAPER ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 20% CELLULOSE NON FIBERS ; 40% MINERALS

40% BITUMEN

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Analyst 1

8910 MIRAMAR PARKWAY, SUITE 200 MIRAMAR FL 33025 Tel. (954) 374-9274 Fax: (954) 639-7426

### ASBESTOS TEST REPORT

CLIENT : TIERRA INC.

ADDRESS: 7351 TEMPLE TERRACE HWY

TAMPA FL 33637

PROJECT: SR 60 CSXRR/6511-10084A TWO #27

160122EB

CONSULT: SAMMY AWARD

NVLAP Lab Code: 102053-0

: 3

LAB NO. FRI/HOM

: NO/NO

LAYERS: 02

SAMPLE NO.: 022 DATE OF ANALYSIS: 12/19/14

PAGE

DATE

SAMPLE ID

: 12/19/14

: D412420

DESCRIPTION : BLACK EXPANSION ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 5% CELLULOSE NON FIBERS : 5% MINERALS

90% POLYMERS

LAB NO.

LAYERS: 02

SAMPLE NO.: 023

DATE OF ANALYSIS: 12/19/14

FRI/HOM : NO/NO L
DESCRIPTION : BLACK EXPANSION
ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 5% CELLULOSE NON FIBERS : 5% MINERALS

90% POLYMERS

LAB NO. FRI/HOM

: NO/NO

LAYERS: 02

SAMPLE NO.: 024

DATE OF ANALYSIS: 12/19/14

DESCRIPTION : BLACK EXPANSION ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 5% CELLULOSE

NON FIBERS : 5% MINERALS

90% POLYMERS

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Analyst 1



8910 MIRAMAR PARKWAY, SUITE 200 MIRAMAR FL 33025 Tel. (954) 374-9274 Fax: (954) 639-7426

### ASBESTOS TEST REPORT

LAYERS: 02

LAYERS: 02

CLIENT : TIERRA INC.

ADDRESS: 7351 TEMPLE TERRACE HWY

TAMPA FL 33637

PROJECT: SR 60 CSXRR/6511-10084A TWO #27

160122EB

CONSULT: SAMMY AWARD

LAB NO.

FRI/HOM

: NO/NO

DESCRIPTION : GRAY CONCRETE ASBESTOS TYPE: NONE-DETECTED OTHER FIBERS : 5% CELLULOSE

NON FIBERS : 55% MINERALS 30% POLYMERS

LAB NO. : 11 FRI/HOM : NO.

FRI/HOM : NO/NO DESCRIPTION : GRAY CONCRETE

ASBESTOS TYPE: NONE DETECTED OTHER FIBERS : 5% CELLULOSE

NON FIBERS : 55% MINERALS

30% POLYMERS

LAB NO. : 12

FRI/HOM : NO/NO DESCRIPTION : GRAY CONCRETE ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 5% CELLULOSE NON FIBERS : 55% MINERALS

30% POLYMERS

PAGE : 4

DATE

: 12/19/14

SAMPLE ID : D412420

NVLAP Lab Code: 102053 0

SAMPLE NO.: 025

DATE OF ANALYSIS: 12/19/14

10% PAINT

SAMPLE NO.: 026

DATE OF ANALYSIS: 12/19/14

10% PAINT

LAYERS: 02 SAMPLE NO.: 027 DATE OF ANALYSIS: 12/19/14

10% PAINT

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Analyst I



8910 MIRAMAR PARKWAY, SUITE 200 MIRAMAR FL 33025 Tel. (954) 374-9274 Fax: (954) 639-7426

### ASBESTOS TEST REPORT

CLIENT: TIERRA INC

ADDRESS: 7351 TEMPLE TERRACE HWY

TAMPA FL 33637

PROJECT: SR 60 CSXRR/6511 10084A TWO #27

160122EB

CONSULT: SAMMY AWARD

: NO/NO

LAYERS: 02 DESCRIPTION : GRAY CONCRETE W/BLACK COAT

ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 2% CELLULOSE NON FIBERS : 58% MINERALS

30% POLYMERS

: 14

FRI/HOM : NO/NO LAYERS: 02 DESCRIPTION : GRAY CONCRETE W/BLACK COAT

ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 2% CELLULOSE NON FIBERS : 58% MINERALS

30% POLYMERS

LAB NO

LAB NO.

LAB NO.

FRI/HOM

: 15 FRI/HOM : NO/NO LAYERS: 02 DESCRIPTION : GRAY CONCRETE W/BLACK COAT

ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 2% CELLULOSE NON FIBERS

: 58% MINERALS

30% POLYMERS

PAGE

1.5

DATE

: 12/19/14

SAMPLE ID : D412420

NVLAP Lab Code: 102053-0

SAMPLE NO.: 028

DATE OF ANALYSIS: 12/19/14

10% PAINT

SAMPLE NO.: 029

DATE OF ANALYSIS: 12/19/14

10% PAINT

SAMPLE NO .: 030

DATE OF ANALYSIS: 12/19/14

10% PAINT

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LAYERS: 02

Analyst 1

8910 MIRAMAR PARKWAY, SUITE 200 MIRAMAR FL 33025 Tel. (954) 374-9274 Fax: (954) 639-7426

### ASBESTOS TEST REPORT

CLIENT: TIERRA INC.

ADDRESS: 7351 TEMPLE TERRACE HWY

TAMPA FL 33637

PROJECT: SR 60 CSXRR/6511 10084A TWO #27

160122EB

CONSULT: SAMMY AWARD

LAB NO. FRI/HOM

FRI/HOM : NO/NO LAYERS: 02 SAMPLE NO.: 031
DESCRIPTION : LIGHT GRAY CONCRETE
ASBESTOS TYPE: NONE-DETECTED

SAMPLE NO.: 031
DATE OF ANALYSIS: 12/19/14

OTHER FIBERS : 2% CELLULOSE NON FIBERS : 58% MINERALS 30% POLYMERS

LAB NO. : 17

FRI/HOM FRI/HOM : NO/NO LAYERS: DESCRIPTION : LIGHT GRAY CONCRETE

ASBESTOS TYPE: NONE DETECTED OTHER FIBERS : 2% CELLULOSE

NON FIBERS : 58% MINERALS

30% POLYMERS

LAB NO. FRI/HOM

: 18 : NO/NO

LAYERS: 02

LAYERS: 02

DESCRIPTION : LIGHT GRAY CONCRETE ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 2% CELLULOSE

NON FIBERS : 58% MINERALS

30% POLYMERS

PAGE ± 6

DATE

: 12/19/14

SAMPLE ID : D412420

NVLAP Lab Code: 102053-0

SAMPLE NO.: 031

10% PAINT

SAMPLE NO.: 032

DATE OF ANALYSIS: 12/19/14

10% PAINT

SAMPLE NO.: 033

DATE OF ANALYSIS: 12/19/14

10% PAINT

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Analyst 1

DOVE ENVIRONMENTAL CORP.
8910 MIRAMAR PARKWAY, SUITE 200 MIRAMAR FL 33025 Tel. (954) 374-9274 Fax: (954) 639-7426

### ASBESTOS TEST REPORT

CLIENT : TIERRA INC.

ADDRESS: 7351 TEMPLE TERRACE HWY

TAMPA FL 33637

PROJECT: SR 60 CSXRR/6511 10084A TWO #27

160122EB

CONSULT: SAMMY AWARD

: NO/YES LAYERS: D1

DESCRIPTION : SMOOTH GRAY CONCRETE ASBESTOS TYPE: NONE-DETECTED

LAB NO. FRI/HOM

OTHER FIBERS : 1% CELLULOSE NON FIBERS : 70% MINERALS

LAB NO. : 20
FRI/HOM : NO/YES LAYERS:
DESCRIPTION : SMOOTH GRAY CONCRETE LAYERS: 01 DATE OF ANALYSIS: 12/19/14

ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 1% CELLULOSE NON FIBERS : 70% MINERALS

LAB NO. : 21
FRI/HOM : NO/YES LAYERS: 01
DESCRIPTION : SMOOTH GRAY CONCRETE
ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 1% CELLULOSE NON FIBERS : 70% MINERALS

29% POLYMERS

PAGE

DATE

29% POLYMERS

29% POLYMERS

: 12/19/14

SAMPLE ID : D412420

NVLAP Lab Code: 102053-0

SAMPLE NO.: 034

SAMPLE NO.: 035

SAMPLE NO.: 036

DATE OF ANALYSIS: 12/19/14

DATE OF ANALYSIS: 12/19/14

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Analyst 1

8910 MIRAMAR PARKWAY, SUITE 200 MIRAMAR FL 33025 Tel. (954) 374-9274 Fax: (954) 639-7426

### ASBESTOS TEST REPORT

CLIENT : TIERRA INC.

ADDRESS: 7351 TEMPLE TERRACE HWY

TAMPA FL 33637

PROJECT: SR 60 CSXRR/6511-10084A TWO #27

160122EB

CONSULT: SAMMY AWARD

PAGE

: 8

DATE

: 12/19/14

SAMPLE ID : D412420

NVLAP Lab Code: 102053-0

LAB NO.

FRI/HOM : NO/YES

LAYERS: 01

SAMPLE NO.: 037 DATE OF ANALYSIS: 12/19/14

DESCRIPTION : BLACK PAD ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 2% CELLULOSE NON FIBERS : 3% MINERALS

95% POLYMERS

LAB NO.

: 23

LAYERS: 01

SAMPLE NO.: 038

FRI/HOM : NO/YES DESCRIPTION : BLACK PAD

DATE OF ANALYSIS: 12/19/14

ASBESTOS TYPE: NONE-DETECTED OTHER FIBERS : 2% CELLULOSE NON FIBERS : 3% MINERALS

95% POLYMERS

LAB NO. FRI/HOM : 24

: NO/YES

LAYERS: 01

SAMPLE NO . 039

DATE OF ANALYSIS: 12/19/14

DESCRIPTION : BLACK PAD ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 2% CELLULOSE NON FIBERS : 3% MINERALS

95% POLYMERS

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Analyst 1

8910 MIRAMAR PARKWAY, SUITE 200 MIRAMAR FL 33025 Tel. (954) 374-9274 Fax: (954) 639-7426

#### ASBESTOS TEST REPORT

CLIENT : TIERRA INC.

PAGE

ADDRESS: 7351 TEMPLE TERRACE HWY

TAMPA FL 33637

DATE

: 12/19/14

PROJECT: SR 60 CSXRR/6511-10084A TWO #27

SAMPLE ID : D412420

160122EB CONSULT: SAMMY AWARD

NVLAP Lab Code: 102053-0

LAB NO. FR1/HOM

LAYERS: 01

SAMPLE NO.: 040

FRI/HOM : NO/YES LA DESCRIPTION : BLACK DRAIN PIPE

DATE OF ANALYSIS: 12/19/14

ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 1% CELLULOSE

NON FIBERS : 60% MINERALS

39% POLYMERS

LAB NO.

SAMPLE NO.: 041

FRI/HOM

: NO/YES

LAYERS: 01

DATE OF ANALYSIS: 12/19/14

DESCRIPTION : BLACK DRAIN PIPE ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 1% CFLLULOSE NON FIBERS : 60% MINERALS

39% POLYMERS

LAB NO.

SAMPLE NO.: 042

LAB NO. : 2/ FRI/HOM : NO/YES LAYERS: 01 DESCRIPTION : BLACK DRAIN PIPE

DATE OF ANALYSIS: 12/19/14

ASBESTOS TYPE: NONE-DETECTED

OTHER FIBERS : 1% CELLULOSE NON FIBERS : 60% MINERALS

39% POLYMERS

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Analyst 1

Project Name/Number: 57 60 C5X77 6511-10-084 A TWO #27 160133 EB

Samplers Name/Date: Sommy Award 12-8-2014

HA#: \	Sample #: 0168	Friable: Y / N	Condition:	
Material Description:		Location(s):		Approx.
Gray Co	uncrete wlflggregate	Bent - En	nd, sw corner	Amount
HA#:	Sample #: 017 R	Friable: Y / N	Condition:	
Material Description:		Location(s):		Арргох.
11	N.	Bent - Ra	Intermediate from vest Side	Amount
HA#: \	Sample #: 018 B	Friable: Y / N	Condition:	
Material Description:		Location(s):		Approx.
N.	130	Bent-En	d, NE Corner	Amount
HA#: Z	Sample #: 019 B	Friable: Y / N	Condition:	
Material Description:		Location(s):		Approx.
Bla	ck Tar Paper	BEN+-	End, E	Amount:
HA#: 2	Sample #: 020 B	Friable: Y / N	Condition:	
Material Description:		Location(s):		Approx.
tl	y.	Bent - #	Intermediate un East Side	Amount:
HA#: 2	Sample #: O21 8	Friable: Y / N	Condition:	
Material Description:		Location(s);		Approx.
n	1U	Bent	- End, W	Amount:
HA#: 3	Sample #: 022 T	Friable: Y / N	Condition:	
Material Description:		Location(s):		Approx.
Block	Expossion Fill	<del>Ukslern</del> Deck	- West End	Amount:
HA#: 3	Sample #: 023 7	Friable: Y / N	Condition:	
Material Description:		Location(s):		Approx.
	. 1	77	- Central	Amount:
а	AL.	Deck		
HA#: 3	Sample #: 024 T		Condition:	
14			4 P CO2 7 IV	Approx.

Project Name/Number: SR 60 CSX ZR 6511-10-08437 100133 EB

Samplers Name/Date: Sammy Awacl 12-8-2014

HA #:	4	Sample #:	025T	Friable: Y / N	Condition:	
Materia	Description:			Location(s):		Approx.
Gray Concrete				Southern Handrail, West End An		
HA #:	4	Sample #:	026T	Friable: Y / N	Condition:	
Materia	Description:		v	Location(s):	rn Handrail, Central	Approx. Amount
HA#:	4	Sample #:	0277	Friable: Y / N	Condition:	
Material	Description:			Location(s):		Approx.
	-ra		× (	NOTAMETN 1	Hardrail, East End	Amount
HA #:	5	Sample #:	028 T	Friable: Y / N	Condition:	
Material	Description:			Location(s):		Approx.
	Gray Co	oncrete al Blo	ck Coct	Deck -	East End	Amount
HA #:	5	Sample #:	29-	Friable: Y / N	Condition:	
Material	Description:		d	Location(s):  Deck	- West End	Approx. Amount:
HA #:	5	Sample #: (	350 T	Friable: Y / N	Condition:	
Material	Description:		į į	Location(s):  Deck	- Central	Approx. Amount;
HA #:	(0	Sample #:	315	Friable: Y / N	Condition:	
Material I	Description:			Location(s):	1 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 -	Approx.
	Light Gir	ag Concrete		SW Wingu	vall	Amount;
HA #:	6	Sample #:	325	Friable: Y / N	Condition:	
Material (	Description:		ď	Location(s):	vinguall	Approx. Amount:
HA #:	6	Sample #:	73.5	Friable: Y / N	Condition:	
Material C	Description:			Location(s):	The state of the s	Approx.
	N		.(	SE WI	ngwall	Amount:

Project Name/Number: 5260 C5X ZZ 6511-10-084/A TWO #27 160133ER

Samplers Name/Date: Sa Nmy Plucol 12-8-2014

HA#: 7	Sample #: 034B	Friable: Y / N	Condition:			
Material Description:	mooth Gray Concrete	Location(s):  1 of Intermediate Bent From East-Am  Southern-MOST Pile				
HA#: 7	Sample #: 035 B	Friable: Y / N	Condition:			
Material Description:	И		mediate Bent From Worthern-most Pile	Approx. Amount		
HA#: 7	Sample #: 036 B	Friable: Y / N	Condition:	1		
Material Description:	XI.	Location(s):	ediate Bent from West Southern-Most Pile	Approx. Amount		
HA#: 8	Sample #: 037T	Friable: Y / N	Condition:			
Material Description:  Black Pad				Approx. Amount		
HA#: 8	Sample #: 038T	Friable: Y / N	Condition:			
Material Description:	V)		Guardrail-West Base Side	Approx. Amount:		
HA#: 8	Sample #: 0397	Friable: Y / N	Condition:			
Material Description:			lustorail-East se side	Approx. Amount:		
на#: 9	Sample #: 040 B	Friable: Y / N	Condition:			
Material Description:	Drain Pipe		- Boltom St End	Approx. Amount;		
HA#: 9	Sample #: 04/B	Friable: Y / N	Condition:			
Material Description:	ч	10,4040,00	K-Boltow Fost End	Approx. Amount:		
на#: 9	Sample #: 04213	Friable: Y / N	Condition:			
Material Description:	11	Location(s):  Deck	- Boltom est End	Approx. Amount:		



### 8910 MIRAMAR PARKWAY SUITE 200,

MIRAMAR, FL 33025

Tel. (954) 374-9274

Fax: (954) 639-7426 E-mail: <u>Dovelabs@dove.comcastbiz.net</u>

Web Address: dovelabs.org

### CHAIN OF CUSTODY / BULK ASBESTOS

Sample #	Homogenous Area	Description	Location	Results
			/	1112
				-
		BOIN SOMPTIOS	0)	
		Sampling		-
		Bolk		
-	Λ.	10 Chilo		
	See 1			
	Please			-
/				
	SZWO CSZ PZ			<u> </u>

Sampler's Name: Sammy Awad
Sampler's Signature:

Sampler's Signature:

Sampler's Signature:

Turn Around (hrs): 8 24 48 other STALLORD

Date Received:

Comment: E-mail to: Cgarth@tierreng.com

# Date Reported: 15-Dec-14



# SPECTRUM ANALYTICAL, INC. Featuring HANIBAL TECHNOLOGY

✓ Final Report
☐ Re-Issued Report
Revised Report

#### Laboratory Report

Tierra 7351 Temple Terrace Highway Tampa, FL 33637 Project # 35

Project: SR 60 Over Peau Creek (WB 160045)

Attn: Chris Garth

<u>Laboratory ID</u>	Client Sample ID	<u>Matrix</u>	Date Sampled	<b>Date Received</b>	
351393301	PC-1	S	05-Dec-14 14:00	09-Dec-14 10:27	

Samples reported on wet weight basis unless method calls for dry weight.

Submitted material will be retained for 30 days unless otherwise requested by client or consumed in analysis.

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. The results relate only to the samples(s) as received. This report may not be reproduced, except in full, without written approval from Spectrum Analytical.

All applicable NELAC or USEPA CLP requirements have been met unless noted in the case narrative.

Please contact the laboratory at 813-888-9507 with any questions regarding the data contained in the laboratory report.

Florida E84207 Texas T104704408-14-6 South Carolina 96011001 North Dakota R-178 California 2908 Louisiana 02025 Kansas E-10385 14-036-0 Arkansas FL020 New Jersey





Respectfully Submitted,

Brian Spann Laboratory Director

Spectrum Analytical, Inc. Florida Division

# Spectrum Analytical, Inc. FL Division featuring Hanibal Technology

#### **DATA QUALIFIER CODES**

State of Florida, Department of Environmental Protection and Department of Health Rehabilitative Services / NELAC

- The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J Estimated value; value not accurate. This code shall be used in the following instances:
  - 1. Surrogate recovery limits have been exceeded.
  - 2. No known quality control criteria exits for the component.
  - 3. The reported value did not meet the established quality control criteria for either precision or accuracy but falls within the NELAC marginal exceedance range.
  - 3M. The reported value did not meet the established quality control criteria for either precision or accuracy and falls beyond the NELAC range for marginal exceedances.
  - 3R.The RPD for the LCSD exceeds the laboratory established control limits.
  - 4. The sample matrix interfered with the ability to make an accurate determination.
  - 5. The data is questionable because of improper laboratory or field protocols (e.g. composite sample was collected instead of a grab sample).
- Off-scale high. Actual value is known to be greater than the value given. To be used when the concentration of the analyte is above the acceptable limit for quantitation (exceeds the linear range of the highest calibration standard) and the calibration curve is known to exhibit a negative deflection.
- Q Sample held beyond acceptable holding time. This code shall be used if the value is derived from a sample that was prepared or analyzed after the approved holding time restrictions for the sample preparation or analysis.
- U Indicates that the compound was analyzed for but not detected above the method detection limit (MDL).
- V Indicates that the analyte was detected at or above the method detection limit in both the sample and the associated method blank and the value in the sample is less than 10 times the value found in the method blank.
- Y The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.

Spectrum Analytical Inc. Lab Reference No./SDG: 3513933

Client: Tierra

#### I. RECEIPT

No exceptions were encountered unless a Sample Receipt Exception Report is attached to the Chain-of-Custody or a communication form is included in the addendum with this package.

#### II. HOLDING TIMES

#### A. Sample Preparation:

All holding times were met.

#### B. Sample Analysis:

All holding times were met.

#### III. METHOD

Samples were analyzed according to Spectrum Analytical's Standard Operating Procedures and Method SW6010C

#### IV. PREPARATION

Soil samples were prepared according to Spectrum Analytical Inc. Laboratory's Standard Operating Procedures and EPA Method 3050B.

#### V. ANALYSIS

#### A. Calibration:

All acceptance criteria were met.

#### B. Blanks:

#### 1. Calibration Blanks:

All acceptance criteria were met.

#### 2. Method Blanks:

All acceptance criteria were met with the exception of:

Blank 254102MB was analyzed with the soil samples on 12/12/14. The following analyte(s) were detected below RL: Zinc at 0.473 mg/Kg Samples coded accordingly.

The hit in the blank was below the reporting limit, therefore, corrective action was not taken.

#### C. Spikes:

#### 1. Laboratory Control Spikes (LCS):

Spectrum Analytical Inc. Lab Reference No./SDG: 3513933

Client: Tierra

An LCS/LCSD set was analyzed. All percent recovery and relative percent difference (RPD) criteria were met.

#### 2. Post Digestion Spike:

All acceptance criteria were met with the exception of:

Post Digestion Spike 351393610A was analyzed with the soil samples on 12/12/14. The following analyte(s) were recovered below criteria: Zinc at 78 % with criteria of (80-120).

The PDS is associated with the QC of a different SDG. The LCS/LCSD pass all quality control criteria. No further action was taken.

#### 3. Matrix Spike/Matrix Spike Duplicate Samples (MS/SD):

A batch MS/SD set was analyzed.

#### D. Duplicate:

No sample duplicates are reported with this method. (Spike duplicates are referenced above in section C. Spikes.)

#### E. Serial Dilution:

All acceptance criteria were met.

#### F. ICP Interference Check Samples:

All acceptance criteria were met.

#### G. Samples:

Sample analysis proceeded normally.

Sample PC-1 required a 5000X dilution due to high concentration of the following analyte(s): Zinc.

Sample PC-1 required a 25X dilution due to high concentration of the following analyte(s): Lead.

Sample PC-1 required a 10X dilution due to high concentration of the following analyte(s): Chromium.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Spectrum Analytical Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designated person, as, verified by the following signature.

Spectrum Analytical Inc. Lab Reference No./SDG: 3513933

Client: Tierra

Name: Troy L. Roberts Title: Inorg. Manager

SIGNED: DATE: 12/15/2014

Spectrum Analytical Inc. Lab Reference No./SDG: 3513933

Client: Tierra

#### I. RECEIPT

No exceptions were encountered unless a Sample Receipt Exception Report is attached to the Chain-of-Custody or a communication form is included in the addendum with this package.

#### II. HOLDING TIMES

#### A. Sample Preparation:

All holding times were met.

#### B. Sample Analysis:

All holding times were met.

#### III. METHOD

Samples were analyzed according to Spectrum Analytical's Standard Operating Procedures and Method SW7471A

#### IV. PREPARATION

Soil samples were prepared according to Spectrum Analytical Inc. Laboratory's Standard Operating Procedures and EPA Method 7471A.

#### V. ANALYSIS

#### A. Calibration:

All acceptance criteria were met.

#### B. Blanks:

#### 1. Calibration Blanks:

All acceptance criteria were met.

#### 2. Method Blanks:

All acceptance criteria were met.

#### C. Spikes:

#### 1. Laboratory Control Spikes (LCS):

An LCS/LCSD set was analyzed. All percent recovery and relative percent difference (RPD) criteria were met.

#### 2. Post Digestion Spike:

All acceptance criteria were met.

Spectrum Analytical Inc. Lab Reference No./SDG: 3513933

Client: Tierra

#### 3. Matrix Spike/Matrix Spike Duplicate Samples (MS/SD):

A batch MS/SD set was analyzed.

#### D. Duplicate:

No sample duplicates are reported with this method. (Spike duplicates are referenced above in section C. Spikes.)

#### E. Serial Dilution:

All acceptance criteria were met.

#### F. ICP Interference Check Samples:

Not Applicable.

#### G. Samples:

Sample analysis proceeded normally.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Spectrum Analytical Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designated person, as, verified by the following signature.

Signature:

Name: Troy L. Roberts Title: Inorg. Manager

SIGNED:

DATE: 12/12/2014

#### - Certificate of Analysis -



#### FLDOH #E84207

To Tierra

7351 Temple Terrace Highway Tampa, FL 33637

**Lab ID** 351393301

Client ID PC-1 Matrix S Work Order

3513933

**Project ID** 

**Collection Information:** 

**Sample Date** 12/5/2014 2:00:00 PM

Parameter	Method	Results	Analysis Date	Prep Date	Units	MDL	RL	Dil F
Arsenic	6010	30.8	12/12/2014 17:44	12/11/2014	MG/KG	0.429	0.857	1
Cadmium	6010	57.5	12/12/2014 17:44	12/11/2014	MG/KG	0.0429	0.429	1
Chromium	6010	474	12/15/2014 13:03	12/11/2014	MG/KG	1.37	4.29	10
Lead	6010	4270	12/15/2014 12:57	12/11/2014	MG/KG	7.29	17.1	25
Zinc	6010	674000	12/12/2014 17:21	12/11/2014	MG/KG	1410	4290	5000
Mercury	7471	0.00305 U	12/12/2014 15:17	12/11/2014	MG/KG	0.00305	0.0165	1

#### - Certificate of Analysis -



#### FLDOH #E84207

То Tierra 7351 Temple Terrace Highway Tampa, FL 33637

**Work Order Project ID** 

Method Blank 254102MB

Method 6010 Matrix SQ

**Associated Lab Samples** 

254102MB 254103LCS 254104LCSD 254105MS 254106MSD 351393301 351393301DL1 351393301DL2 351393301DL3 351393610

3513933

Parameter	Results	Analysis Date	Prep Date	Units	MDL	RL	Dil F	
Arsenic	U	12/12/2014	12/11/2014	MG/KG	0.488	0.976	1	
Cadmium	U	12/12/2014	12/11/2014	MG/KG	0.0488	0.488	1	
Chromium	U	12/12/2014	12/11/2014	MG/KG	0.156	0.488	1	
Lead	U	12/12/2014	12/11/2014	MG/KG	0.332	0.781	1	
Zinc	0.473 I	12/12/2014	12/11/2014	MG/KG	0.322	0.976	1	

**Laboratory Control Sample** 254103LCS

6010 Method SQ Matrix

Parameter	Units	Spike Conc	Result	Spike % Recovery	% Recovery Limits	
Arsenic	mg/Kg	49.9	46.9	94	(80-120)	
Cadmium	mg/Kg	49.9	51.2	102.7	(80-120)	
Chromium	mg/Kg	49.9	48.9	98.1	(80-120)	
Lead	mg/Kg	49.9	49.2	98.7	(80-120)	
Zinc	mg/Kg	49.9	49.3	99	(80-120)	

254104LCSD **Laboratory Control Sample** 

Method 6010 Matrix SQ

Parameter	Units	Spike Conc	Result	Spike % Recovery	% Recovery Limits	RPD	RPD Limit
Arsenic	mg/Kg	48.8	46.7	95.7	(80-120)	0.4	20
Cadmium	mg/Kg	48.8	49.1	100.6	(80-120)	4.2	20
Chromium	mg/Kg	48.8	47.8	98.1	(80-120)	2.2	20
Lead	mg/Kg	48.8	48.5	99.3	(80-120)	1.5	20
Zinc	mg/Kg	48.8	48.2	98.8	(80-120)	2.4	20

Matrix Spike 254105MS Matrix Spike Duplicate 254106MSD

Method 6010 Matrix SQ

Parameter	Units	351393610	Spike	MS Conc	MS % Rec	MSD Conc	MSD % Rec	RPD	% Rec Limits	RPD Limit
Arsenic	mg/Kg	2.63	45.4	48	100	50.4	96.9	4.9	(75-125)	(20)
Cadmium	mg/Kg	0.57	45.4	41.5	90.2	44.7	89.5	7.4	(75-125)	(20)
Chromium	mg/Kg	10.6	45.4	56.8	101.7	51.7	83.3	9.4	(75-125)	(20)
Lead	mg/Kg	27.5	45.4	56.8	64.6 *	61	67.9 *	7	(75-125)	(20)
Zinc	mg/Kg	83.7	45.4	108	52.5 *	119	71.1 *	9.9	(75-125)	(20)

#### - Certificate of Analysis -

#### FLDOH #E84207

To Tierra 7351 Temple Terrace Highway Tampa, FL 33637

**Work Order Project ID** 

3513933

Method Blank 254165MB

**Associated Lab Samples** 

Method 7471 Matrix SQ

254165MB 254166LCS 254167LCSD 254168MS 254169MSD 351393301

351395601

Parameter	Results	Analysis Date	Prep Date	Units	MDL	RL	Dil F
Mercury	U	12/12/2014	12/11/2014	MG/KG	0.00367	0.0198	1

**Laboratory Control Sample** 254166LCS

Method 7471 **Matrix** SQ

Parameter Units Spike Conc Result Spike % Recovery % Recovery Limits Mercury mg/Kg 0.295 0.304 103 (80-120)

**Laboratory Control Sample** 254167LCSD

7471 Method Matrix SQ

**RPD Limit Parameter** Units Spike Conc Spike % Recovery % Recovery Limits **RPD** Result Mercury 0.299 0.31 103.7 (80-120)1.9 20 mg/Kg

Matrix Spike 254168MS

Matrix Spike Duplicate 254169MSD

7471 Method SQ **Matrix** 

Parameter	Units	351395601	Spike	MS Conc	MS % Rec	MSD Conc	MSD % Rec	RPD	% Rec Limits	RPD Limit
Mercury	mg/Kg	0.0822	0.166	0.247	99.3	0.231	84.6	6.5	(75-125)	(25)

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# Sample Receipt Confirmation Sheet

### **Client Information**

SDG:

3513933

Level:

1

Client:

Tierra

Date Rec'd:

12/9/2014 10:27:00 AM

Profile:

15210

Project: Generic

Profile Name: Generic

Sample Verification							
Samples/Cooler Secure?	Yes	COC Present?	Yes				
Temperature of Samples:	20.8	All Samples on COC accounted For?	Yes				
Number of Coolers Received:	1	All Samples Rec'd Intact?	Yes				
Temp Gun ID:	130544071	Sample Vol. Sufficient For Analysis	Yes				
pH Verified?	No	Samples Rec'd W/I Hold Time?	Yes				
pH WNL?	No	Are All Samples to be Analyzed?	Yes				
Samples Received By:	Client	Correct Sample Containers?	Yes				
Tracking Number:		COC Comments written on COC?	Yes				
Profile Picked By:	MG	Samplers Initials on COC?	Yes				
Soil Origin (Domestic/Foreign):	Domestic	Sample Date/Time Indicated?	Yes				
Site Location/Project on COC?	Yes	TAT Requested:	STD				
Client Project # on COC?	Yes	Client Requests Verbal Results?	No				
Project Mgr. Indicated on COC?	Yes	Client Requests Faxed Results?	No				
COC relinquished/Dated by Client?	Yes	Specific Subcontract Indicated?	No				
COC Received/Dated by SA?	Yes	Written on Outside Lab Board?	No				
Written on Internal COC?	Yes	Radioactivity Check?	No				
Lab to Conduct ALL Analyses?	Yes						

#### Comments

Specific tests noted on COC.

LABEL REVIE	>5	
PEER REVIEW	73	

# **End Of Report**

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### **APPENDIX E**

Sample Location Sketches

