SCI ENGINEERING, INC.
EARTH • SCIENCE • SOLUTIONS
GEOTECHNICAL
ENVIRONMENTAL
NATURAL RESOURCES
CULTURAL RESOURCES
CONSTRUCTION SERVICES

May 19, 2017

Ms. Virginia Wetterau
Hillcrest Redevelopment
19 Old Ranch Road
Laguna Niguel, California 92677

RE: Asbestos Survey Activities
109 South Rucker Avenue (North Tan Building)
Rolla, Missouri
SCI No. 2015-7023.26

Dear Ms. Wetterau:

INTRODUCTION

SCI Engineering, Inc. (SCI) is pleased to submit this report of the analytical test results for samples of suspect asbestos-containing materials (ACMs) collected during the survey performed on May 9, 2017. SCI observed heavy debris throughout the on-site structure limiting certain areas of the structure. The purpose of this survey was to identify ACMs in accessible areas of the above-referenced location. This survey is intended to satisfy the requirements for the asbestos National Emission Standard for Hazardous Air Pollutant for demolition and renovation. It is not intended to be used for Occupational Safety and Health Administration (OSHA) compliance.

The on-site structure is 3,100-square-foot slab-on-grade commercial building with a crawl space, which was constructed in the early 1960s. The exterior was brick/concrete masonry unit with metal windows and a built-up roof. The building utilized a forced air HVAC system. The attic was insulated with fiberglass insulation.

ASBESTOS SURVEY

Thirty-six samples were collected from the on-site structure. Of these 36 samples, 28 were analyzed using a positive stop procedure. These samples were analyzed by Polarized Light Microscopy (PLM). Of the 28 samples analyzed, eight were found to contain asbestos. Analytical test results and chain-of-custody documentation are enclosed. The results of the analysis of all samples are summarized in Table 1.

Table 1 – Summary of Analytical Test Results

Sample Number	Material Location	Material Description	Approx. Qty.	Result	Category
109B-1a	West Half of Building	White 9" X 9" Floor Tile (Under Carpet, on Concrete)	1,550 sf	5-10% Chrysotile in Tile and Mastic	NCI
109B-2a	East Half of Building	Rose 9" X 9" Floor Tile (Under Carpet, on Concrete)	1,550 sf	5-10% Chrysotile in Tile and Mastic	NCI

sf – square feet
NCI – Non-Friable Category I Material

Table 1 – Summary of Analytical Test Results (continued)

Sample Number	Material Location	Material Description	Approx. Qty.	Result	Category
109B-3	Bathroom	Grey Sheet Flooring (on Wood)	25 sf	None Detected in Flooring, Backing or Mastic	--
109B-4	East Room	White/Grey Speckled Sheet Flooring (on Tile)	100 sf	None Detected in Flooring, Backing or Mastic	--
109B-5a	Throughout	Wall Plaster	--	None Detected	--
109B-5b				None Detected	
109B-5c				None Detected	
109B-6a	Throughout	Ceiling Plaster	--	None Detected	--
109B-6b				None Detected	
109B-6c				None Detected	
109B-7a	Throughout, Interior Walls	Drywall System	--	None Detected	--
109B-7b				None Detected	
109B-7c				None Detected	
109B-8a	Exterior CMU Walls	Vermiculite	3,300 sf	<1% Tremolite	Non-ACM
109B-8b				<1% Tremolite	
109B-8c				<1% Tremolite	
109B-9	Throughout (Above Ceiling)	Duct Tape (on Seams Only)	142 lf	85-90% Chrysotile	Friable
109B-10a	Throughout	White 1' X 1' Ceiling Tile (Stapled/Glued)	--	None Detected	--
109B-10b				None Detected	
109B-10c				None Detected	
109B-11a	Throughout	Ceiling Tile Glue (on Wood)	--	None Detected	--
109B-11b				None Detected	
109B-11c				None Detected	
109B-12a	Exterior Walls	Interior Window Caulk	14 Windows	5-10% Chrysotile	NCII
109B-13a	Exterior Doors	Door Caulk	5 Doors	None Detected	--
109B-13b				None Detected	
109B-13c				None Detected	
109B-14a	Roof	Roofing System	3,100 sf	5-10% Chrysotile	NCI

sf – square feet
lf – linear feet
NCI – Non-Friable Category I Material
NCII - Non-Friable Category II Material

DEMOLITION/RENOVATION

According to the Missouri Department of Natural Resources (MDNR), any friable or potentially friable ACM equal to or greater than 260 linear feet or 160 square feet is classified as a regulated ACM (RACM) and must be removed prior to demolition or renovation which would significantly damage the material.

The duct tape is a friable material and exceeds the minimum quantity requirements. This material, therefore, must be removed from the structure prior to demolition.

The window caulk is a Category II non-friable material and according to the rule outlined above, is not, by definition, an RACM. It is the opinion of the MDNR that demolition activities will not render the material friable, and therefore, it is not typically required to be removed prior to demolition.

The floor tile and mastic (represented by samples 109B-1a and 109B-2a) on concrete are Category I non-friable materials and would not normally require removal. However, it is MDNR's opinion that demolition activities including ACM on a concrete floor slab such as breaking up the floor slab and tracking over ACM tile with heavy equipment will render them friable. Because the demolition activities will render the materials friable, they must be removed prior to demolition. If the concrete is not to be ground or used as fill, the ACM mastic can remain in place. In addition, concrete with attached ACM is not considered clean fill.

The building was observed to have a built-up roof. SCI collected a sample of the roofing system which was asbestos-containing. This Category I non-friable material is not required to be removed from the structure prior to demolition. This material should not be ground, abraded, or otherwise significantly damaged as this will render the material friable. The MDNR considers the reduction of ACM containing demolition rubble by repeatedly tracking over it to render the ACM friable.

The CMU insulation was analyzed and detected that the insulation was comprised of less than one percent asbestos. However, NESHAP defines an asbestos-containing material as any material containing greater than one percent asbestos. Therefore, the CMU insulation is not considered an asbestos-containing material and does not have to be removed prior to demolition if mechanical demolition is planned for the structure. It should be noted that OSHA still considers this material to be an ACM. Therefore, if manual renovation is planned, this material must be treated as an ACM.

The Occupational Safety & Health Administration also has regulations (29 CFR Parts 1910 et al, Occupational Exposure to Asbestos, August 10, 1994) regarding removal of asbestos-containing materials which must be followed.

REPORTING

Attached is Demolition and Renovation form which has been filled out to the extent possible by SCI. The remaining information must be completed by you.

This report, as well as the completed EPA Notification of Demolition and Renovation form, must be submitted to the MDNR as follows:

- MDNR, Air Pollution Control, PO Box 176, Jefferson City, MO, 65102, Mr. Todd Schneiders.

It should be noted that following submittal of the notification form, there is a 10-day waiting period before demolition, renovation, or abatement activities can begin.

SCI's asbestos survey entailed visually assessing accessible areas only. If any other suspect asbestos materials are discovered during demolition or renovation, please contact SCI, and we will make arrangements for assessment of these materials. Areas behind walls, under subfloors and above fixed ceilings are considered non-accessible.

If this report is to be used for bidding purposes for asbestos abatement, SCI recommends the contractor visit the site to verify all conditions and quantities.

SCI appreciates the opportunity to be of service to you on this project, and we look forward to working with you in the future. Please contact us if you have any questions or comments regarding the information provided.

Respectfully,

SCI ENGINEERING, INC.

Brian L. Lieb
Missouri State Certified Asbestos Inspector
Certificate Number 7011071013MOII16703

Jessica B. Keeven, CHMM
Project Scientist

BLL/JBK/EPG/hmm/rah

Enclosure

Springfield\2015 Project Files\2015-7023 Dean Lands-North and South Parcels\ES\26\109B S. Rucker (N. Tan Bldg.) - Asbestos Survey.doc

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

ASBESTOS NESHAP NOTIFICATION OF DEMOLITION AND RENOVATION

OPERATOR PROJECT NO.	POSTMARK	DATE RECEIVED	NOTIFICATION NUMBER

I. TYPE OF NOTIFICATION

☒ O – ORIGINAL ☐ C – CANCELLED ☐ R – REVISION, WRITE REVISION NUMBER _____

II. FACILITY INFORMATION (IDENTIFY OWNER, REMOVAL CONTRACTOR, AND OTHER OPERATOR)

OWNER NAME	ADDRESS		
CITY	COUNTY	STATE	ZIP CODE
CONTACT		TELEPHONE NUMBER	

ASBESTOS REMOVAL CONTRACTOR	ADDRESS		
CITY		STATE	ZIP CODE
CONTACT	TELEPHONE NUMBER	TITLE	

DEMOLITION CONTRACTOR	ADDRESS		
CITY		STATE	ZIP CODE
CONTACT	TELEPHONE NUMBER	TITLE	

III. TYPE OF OPERATION

☐ D - DEMO ☐ O – ORDERED DEMO ☐ R – RENOVATION ☐ E – EMERGENCY RENOVATION

IV. IS ASBESTOS PRESENT	LIST TYPE OF ASBESTOS MATERIAL(S) TO BE REMOVED
☒ YES ☐ NO	Floor Tile and Duct Tape

V. FACILITY DESCRIPTION (INCLUDE BUILDING NAME, NUMBER AND FLOOR OR ROOM NUMBER)

BUILDING NAME

ADDRESS
109 South Rucker Avenue (North Tan Building)

CITY	COUNTY	STATE	ZIP CODE
Rolla	Phelps	MO	65401

SITE LOCATION
109 South Rucker Avenue (North Tan Building)

BUILDING SIZE	NUMBER OF FLOORS	AGE IN YEARS
3,100 sf	1	48+

PRESENT USE	PRIOR USE
Vacant	Commercial

VI. PROCEDURE, INCLUDING ANALYTICAL METHOD, IF APPROPRIATE, USED TO DETECT THE PRESENCE OF ASBESTOS MATERIAL. INCLUDE A COPY OF THE ASBESTOS INSPECTION.

Inspection with analysis by Polarized Light Microscopy (PLM)

VII. APPROXIMATE AMOUNT OF ASBESTOS, INCLUDING: **1. REGULATED ACM (RACM)** **2. CATEGORY I ACM** **3. CATEGORY II ACM**	**RACM TO BE REMOVED**	**NONFRIABLE ASBESTOS MATERIAL TO BE REMOVED**		**NONFRIABLE ASBESTOS MATERIAL NOT TO BE REMOVED**	
		CAT I	**CAT II**	**CAT I**	**CAT II**
PIPES (LINEAR FEET)	142 lf				84 lf
SURFACE AREA (SQUARE FEET)		3,100 sf		3,100 sf	
VOL. RACM OFF FACILITY COMPONENT (CUBIC FEET)					

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VIII. SCHEDULED DATES DEMO/RENOVATION (MM/DD/YY)

START: COMPLETE:

IX. SCHEDULED DATES ASBESTOS REMOVAL (MM/DD/YY)	WEEKDAYS WORK HOURS	WEEKEND WORK HOURS
START: COMPLETE:		

X. DESCRIPTION OF PLANNED DEMOLITION OR RENOVATION WORK, AND METHOD(S) TO BE USED

XI. DESCRIPTION OF WORK PRACTICES AND ENGINEERING CONTROLS TO BE USED TO PREVENT EMISSIONS OF ASBESTOS AT THE DEMOLITION AND RENOVATION SITE.

XII. WASTE TRANSPORTER

ADDRESS		
CITY	STATE	ZIP CODE
CONTACT PERSON	TELEPHONE NUMBER	

XIII. WASTE DISPOSAL SITE

NAME		
LOCATION		
CITY	STATE	ZIP CODE
TELEPHONE NUMBER		

XIV. IF DEMOLITION ORDERED BY A GOVERNMENT AGENCY, PLEASE IDENTIFY THE AGENCY BELOW

NAME	TITLE
AUTHORITY	
DATE OF ORDER (MM/DD/YY) INCLUDE A COPY OF THE ORDER.	DATE ORDERED TO BEGIN (MM/DD/YY)

XV. FOR EMERGENCY RENOVATIONS

A. DATE AND HOUR OF EMERGENCY (MM/DD/YY)

B. DESCRIPTION OF THE SUDDEN, UNEXPECTED EVENT

C. EXPLANATION OF HOW THE EVENT CAUSED UNSAFE CONDITIONS OR WOULD CAUSE EQUIPMENT DAMAGE OR AN UNREASONABLE FINANCIAL BURDEN

XVI. DESCRIPTION OF PROCEDURES TO BE FOLLOWED IN THE EVENT THAT UNEXPECTED ASBESTOS IS FOUND OR PREVIOUSLY NONFRIABLE ASBESTOS MATERIAL BECOMES CRUMBLED, PULVERIZED, OR REDUCED TO POWDER.

Stop work and contact a licensed inspector.

XVII. I certify that an individual trained in the provisions of this regulation (40 CFR Part 61, Subpart M) will be on-site during the demolition or renovation and evidence that the required training has been accomplished by this person will be available for inspection during normal business hours (required 1 year after promulgation).

SIGNATURE OF OWNER/OPERATOR	DATE

XVIII. I Certify that the above information is correct.

SIGNATURE OF OWNER/OPERATOR	DATE

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PRECISION ANALYSIS, INC.

BULK SAMPLE ANALYSIS

Client: SCI Engineering, Inc. - St. Charles
Project No.: 2015-7023.26
Project Name: Dean Lands - North and South Parcels

Date Received: 05-11-17
Date Reported: 05-12-17

Technique: Polarized Light Microscopy with Dispersion Staining
In accordance with EPA/600/R-93/116 Test Method

Lab No.	Sample No.	Asbestos Detected & Percentage *	Fibrous Material	Non-Fibrous Material
313749	109B-1a	5-10% Chrysotile	Antigorite	Binders, Vinyl, Aggregate
		5-10% Chrysotile in Mastic		Black Tar Binders
313750	109B-2a	10-15% Chrysotile	Antigorite	Binders, Vinyl, Aggregate
		5-10% Chrysotile in Mastic		Black Tar Binders
313751	109B-3	None Detected		Binders, Vinyl
	Backing	None Detected	Cellulose, Glass Wool	Binders
		None Detected in Mastic		Binders
313752	109B-4	None Detected		Binders, Vinyl
	Backing	None Detected	Cellulose, Glass Wool	Binders
		None Detected in Mastic		Binders
313753	109B-5a	None Detected	Cellulose	Binders, Paint, Aggregate, Mica
313754	109B-5b	None Detected	Cellulose	Binders, Paint, Aggregate, Mica

* The upper detection limit is 100 percent.
The lower detection limit is less than 1 percent.

22 ORVIETO COURT FLORISSANT, MISSOURI 63031 TEL./FAX (314) 838-5052

PRECISION ANALYSIS, INC.

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Date Received: 05-11-17
Date Reported: 05-12-17

Technique: Polarized Light Microscopy with Dispersion Staining
In accordance with EPA/600/R-93/116 Test Method

Lab No.	Sample No.	Asbestos Detected & Percentage *	Fibrous Material	Non-Fibrous Material
313755	109B-5c	None Detected	Cellulose	Binders, Paint, Aggregate, Mica
313756	109B-6a	None Detected	Cellulose	Binders, Paint
313757	109B-6b	None Detected	Cellulose	Binders, Paint
313758	109B-6c	None Detected	Cellulose	Binders, Paint
313759	109B-7a	None Detected	Cellulose	Binders, Mica
313760	109B-7b	None Detected	Cellulose	Binders, Mica
313761	109B-7c	None Detected	Cellulose	Binders, Mica
313762	109B-8a	< 1% Tremolite		Binders, Mica
313763	109B-8b	< 1% Tremolite		Binders, Mica
313764	109B-8c	< 1% Tremolite		Binders, Mica
313765	109B-9	85-90% Chrysotile	Antigorite	Binders
313766	109B-10a	None Detected	Cellulose, Glass Wool	Binders, Paint
313767	109B-10b	None Detected	Cellulose, Glass Wool	Binders, Paint
313768	109B-10c	None Detected	Cellulose, Glass Wool	Binders, Paint

* The upper detection limit is 100 percent.
The lower detection limit is less than 1 percent.

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PRECISION ANALYSIS, INC.

BULK SAMPLE ANALYSIS

Client: SCI Engineering, Inc. - St. Charles
Project No.: 2015-7023.26
Project Name: Dean Lands - North and South Parcels

Date Received: 05-11-17
Date Reported: 05-12-17

Technique: Polarized Light Microscopy with Dispersion Staining
In accordance with EPA/600/R-93/116 Test Method

Lab No.	Sample No.	Asbestos Detected & Percentage *	Fibrous Material	Non-Fibrous Material
313769	109B-11a	None Detected		Binders
313770	109B-11b	None Detected		Binders
313771	109B-11c	None Detected		Binders
313772	109B-12a	5-10% Chrysotile		Binders, Paint
313773	109B-13a	None Detected		Binders, Vinyl, Paint
313774	109B-13b	None Detected		Binders, Vinyl, Paint
313775	109B-13c	None Detected		Binders, Vinyl, Paint
313776	109B-14a	5-10% Chrysotile	Cellulose, Glass Wool	Black Tar Binders, Binders, Paint

* The upper detection limit is 100 percent.
The lower detection limit is less than 1 percent.

Paul Spell
Laboratory Director

AIHA Bulk Asbestos Proficiency Analytical Testing Program ID # 101228
In Association with RTI Center for Measurements and Quality Assurance

The USEPA (United States Environmental Protection Agency) has not determined the health effects of Actinolite or Tremolite presence in Zonolite. The EPA recommends that any presence of asbestos in Zonolite insulation should be treated as an Asbestos Containing Material. Some fibers in the Zonolite insulation material may be processed to less than one micron in length. Because these fibers are not detected by PLM, PLM analysis may yield a false negative result. We recommend qualitative analysis of Zonolite by Transmission Electron Microscopy (TEM).
PLM is not recommended for analysis of vinyl floor tile. Vinyl floor tile often contains milled asbestos with fiber lengths of 1 micrometer or less. Because these fibers are not detected by PLM, PLM analysis may yield a false negative result. We recommend qualitative analysis of vinyl floor tile by Transmission Electron Microscopy (TEM).
Precision Analysis assumes no responsibility for financial or health consequences for action or lack of action taken by our clients or their agents as a result of these analytical reports. Since Precision Analysis was not involved in the collection of these samples, we cannot attest to the proper collection of said samples and therefore are neither responsible nor liable for the accuracy, validity or completeness of the sample collection.

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BULK ASBESTOS CHAIN OF CUSTODY

130 Point West Boulevard
St. Charles, Missouri 63301
636-949-8200 Fax 636-949-8269
www.sciengineering.com

Company :	SCI Engineering, Inc.	Please Provide Results Via:	☐ Fax ■ Email ☐ Mail
Street:	130 Point West Boulevard	To: Brian Lieb	
City/State/Zip:	St. Charles, Missouri 63301	Telephone #: 314-956-8240	Fax #: 636-949-8269
Project Name:	Dean Lands - North and South Parcels	Email: blieb@sciengineering.com	
Project Number:	2015-7023.26		

Turnaround Time (TAT) Options - Please Check One

☐ 3 Hour	☐ 6 Hour	☐ 24 Hour	☐ 48 Hour	☐ 72 Hour	☐ 96 Hour	■ Other 5-day

PLM Bulk Analysis	*TEM Bulk Analysis*
■ PLM-EPA 600	☐ TEM EPA NOB - EPA 600/R-93/116 Section 2.5.5.1
☐ PLM-EPA 600 NOB	☐ Chatfield Protocol (semi-quantitative)
☐ PLM-Point Count	

■ Check Box for Stop Positive

Comments: 109B South Rucker Ave., north tan building, slab-on-grade/crawl, debris throughout building limiting survey

Samplers Name: Brian Lieb | Samplers Signature: [signature] | Date Sampled: 5/9/17

Building Use/Description/Features: commercial | Age: early 60's | Size: 3,100 sf

Windows: metal | Siding: brick/CMU | Roof: B.U.R. | Attic: fiberglass | HVAC: forced air

Sample #	Material Location	Material Description	Approx. Quantity	Condition	Comments
109B - 1ABC	West half of building	white 9x9 f.t.	1,550 sf	good	under carpet on conc
109B- 2ABC	East half of building	rose 9x9 f.t.	1,550 sf	good	under carpet on conc
109B - 3	bathroom	grey sheet flooring	25 sf	good	on wood
109B - 4	East Room	white/grey speckled sheet flooring	100 sf	good	on tile
109B - 5ABC	Throughout	Wall Plaster	--	good	--
109B - 6ABC	Throughout	Ceiling Plaster	--	good	--
109B - 7ABC	Throughout, interior walls	D.W. System	--	good	--
109B - 8ABC	EXT - CMU Walls	Vermiculite	3,300 sf	good	in CMU walls
109B - 9	throughout - above ceiling	Duct Tape	142 lf	good	on seams only

Relinquished:	[signature]	Date: 5/11/17	RECEIVED	Time: 10:25	
Received:	[signature]	Date:	MAY 11 2017	Time: 4:45pm	

BY: [illegible]

Project Name/Number 15-7023.26/Dean Lands

Sample #	Material Location	Material Description	Approx. Quantity	Condition	Comments
109B - 10ABC	throughout	white 1x1 ceiling tile	--	good	stapled/glued
109B - 11ABC	throughout	ceiling tile glue	--	good	on wood
109B - 12ABC	exterior walls	interior window caulk	14 windows	good	--
109B - 13ABC	exterior doors	door caulk	5 doors	good	--
109B - 14ABC	Roof	System	3,100 sf	good	--

RECEIVED
MAY 11 2017
BY: [illegible]