



November 9, 2016

Ms. Amy Traversa
First Selectman
26 North Main Street
P.O. Box 29
Marlborough, CT 06447

RE: Asbestos and Lead-Based Paint Inspection
17 East Lake Road, Marlborough, CT
NorthStar Project 161101

Dear Ms. Traversa:

NorthStar Environmental Management LLC (NorthStar) is pleased to present herewith the findings of our Asbestos/Lead-based Paint Inspection conducted on the subject building, on November 4, 2016. The primary purpose of the survey was to inventory Asbestos-Containing Materials (ACM) and Lead-Based Paint on the subject building that might need to be abated or managed prior to demolition activities.

The subject building is a 1¾ story single-family residence. The building was constructed in the 1930's with wood framing and siding, asphalt shingle roofing, and a partial basement accessed from a bulk head. No visible asbestos insulation was observed on the furnace, hot water heater or duct work in the basement. The first floor consisted of a living room, den, kitchen, laundry room and bathroom. Half of the first floor contained carpeting over pressboard over wood. The kitchen, laundry and bathroom contained linoleum over wood with rubber-based cover molding. NorthStar was unable to check beneath the wood for older layers of resilient flooring since the house was occupied at the time of our assessment. The bathroom contained a plastic tub/shower enclosure. We were also unable to check the mastic behind the enclosure as the facility was still in use. The roof contained three distinct layers of asphalt shingles with no felt underlayment. Samples were obtained of all three layers from the rear addition, front porch and main roof.

A composite soil sample consisting of three surficial grab samples was obtained from the area of the former aboveground fuel oil storage tank.

Pre-demolition Asbestos Inspection

The pre-renovation asbestos inspection included assessment of suspect asbestos-containing building materials within and on the subject building. Building materials containing greater than 1% asbestos are required to be abated prior to renovation or demolition activities. Materials containing asbestos in concentrations of less than 1% must be handled in a manner that is protective of worker health and safety.

The asbestos survey performed by NorthStar was conducted in general accordance with requirements and guidelines set forth in 40 CFR Part 763, Asbestos Hazard Emergency Response

Act (AHERA), 29 CFR Parts 1926.1101, Inspection Procedures of Occupational Exposure to Asbestos, and 40 CFR Part 61 NESHAP. All building materials inside the target inspection areas were inventoried and grouped into categories of homogeneous building materials. Homogeneous building materials are suspect asbestos-containing materials that are of the same composition and appearance throughout, and which appear to have been installed at the same time. Each homogeneous building material was then sampled and submitted to the laboratory to determine its asbestos content. Sample analyses were conducted by an NVLAP certified laboratory. Most analyses were conducted using EPA Method 600 by Polarized Light Microscopy.

Asbestos sample results are presented in Appendix A. Table 1, presented below, summarizes the building materials that were sampled, indicates the sample locations and material locations, and presents sample results as percent asbestos. Room numbers within the subject building are illustrated in Figures 1 and 2.

No asbestos was detected by PLM analysis in the sheetrock walls and ceilings including associated joint compound and textured paint throughout the building. No asbestos was detected in the particle board flooring located beneath the carpeting in the den and living room. No asbestos was detected in the rubber-based cove molding and associated mastic in Rooms 6, 7 and 8. All layers of roofing shingles were non-detected for asbestos. The tan linoleum in Rooms 7 and 8 (Bath and Laundry) contained 10 to 15 % Chrysotile asbestos. This material will need to be removed by a licensed asbestos contractor prior to demolition of the building. No mastic was visible in association with the asbestos-containing linoleum. The tan linoleum and tan mastic in Room 6 (Kitchen) was non-detected for asbestos. The two linoleums had different patterns but were of the same vintage. NorthStar recommends that the linoleum in Room 6 be reanalyzed using a Transmission Electron Microscope (TEM) analysis to verify that the material contains no asbestos.

In accordance with Section 19a-332a-3 of the Regulations of Connecticut State Agencies, written notice of demolition or renovation must be provided to the CT Department of Public Health (DPH) 10 business days prior to the start of asbestos abatement activity for asbestos projects involving more than 10 linear feet or 25 square feet of asbestos-containing material. Notice may be provided on the CTDPH Asbestos Abatement Notification Form (revised 2/25/97). For demolition or renovation projects involving less than or equal to 10 linear feet or 25 square feet or for projects believed to involve zero asbestos, the CT DPH does not require notification, however, the Administrator of the United States Environmental Protection agency must be notified. The licensed asbestos abatement contractor should be able to provide the appropriate notifications. A list of Abatement contractors licensed with the State of Connecticut can be found on the Connecticut Department of Public Health website.

Because the dwelling was occupied at the time of our inspection, NorthStar could not check for possible additional layers of flooring beneath the linoleum and wood underlayment on the first floor (Rooms 6, 7 and 8), behind sheetrock walls (possible insulated duct work to the second floor), or behind the plastic tub and shower enclosure (mastic). These areas should be assessed and sampled if necessary once the building is no longer occupied.

Table 1.
Asbestos analytical results by material-type

Sample No. & Replicate	Material Description	Sample Location	Material Location	% Asbestos by PLM
1-A	Gypsum wall board	Room 1	Throughout	ND
1-A	Grey joint compound	Room 1		ND
1-B	Gypsum wall board	Room 6		ND
1-B	White joint compound	Room 6		ND
1-C	Gypsum wall board	Room 5		ND
2-A	Gypsum ceiling with textured paint	Room 1	Throughout	ND
2-B	Gypsum ceiling with textured paint	Room 6		ND
2-B	White joint compound	Room 6		ND
2-C	Gypsum ceiling with textured paint	Room 8		ND
3-A	Tan linoleum over wood	Room 6	Room 6 (kitchen; 76 square feet)	ND
3-A	Tan Mastic	Room 6		ND
3-B	Tan linoleum over wood	Room 6		ND
3-B	Tan Mastic	Room 6		ND
3-C	Tan linoleum over wood	Room 6		ND
3-C	Tan Mastic	Room 6		ND
4-A	Tan linoleum over wood	Room 8	Rooms 7 & 8 (Bath and laundry Rms; 98 square feet)	10 Chrysotile
4-B	Tan linoleum over wood	Room 8		10 Chrysotile
4-C	Tan linoleum over wood	Room 7		15 Chrysotile
5	Particle board flooring beneath carpet	Rm 1	Rooms 1 & 2	ND
6-A	Tan base cove molding	Room 8	Rooms 6, 7, 8	ND
6-A	Brown Mastic	Room 8		ND
6-B	Tan base cove molding	Room 6		ND
6-B	Brown Mastic	Room 6		ND
6-C	Tan base cove molding	Room 7		ND
6-C	Tan Mastic	Room 7		ND
R-1T	Top layer of shingles	Roof on rear addition laundry & bath	Roof on rear addition	ND
R-1M	Middle layer of shingles			ND
R-1B	Bottom layer of shingles			ND
R-2T	Top layer of shingles	Roof on front porch	Front Porch	ND
R-2M	Middle layer of shingles			ND
R-2B	Bottom layer of shingles			ND
R-3T	Top layer of shingles	Roof on main building	Main roof	ND
R-3M	Middle layer of shingles			ND
R-3B	Bottom layer of shingles			ND
R-4T	Top layer of shingles	Roof on main building	Main roof	ND
R-4M	Middle layer of shingles			ND
R-4B	Bottom layer of shingles			ND

Note: ND = not detected; Room designations are illustrated in Figures 1 and 2.

Pre-renovation Lead-Based Paint Inspection

The purpose of the survey was to determine the presence of lead-based paint within the building that could be affected by demolition activities, and which may require abatement prior to demolition. The inspection was conducted by Connecticut licensed inspector Mr. Andrew Miller of Connecticut Lead Paint Solutions LLC. The testing instrument used is a Niton XLp 300A Lead Paint, Spectrum Analyzer, serial #16387. A reading of 1.0 milligram lead per square centimeter of surface area (1.0 mg/cm²) or greater is defined as a toxic level of lead, by the State of Connecticut, Department of Public Health, Regulations for Lead Poisoning Prevention and Control, 19a-111-1 a. The inspection was conducted to identify lead-based paint prior to demolition activities so that these materials can be properly handled prior to demolition activities. As such, the inspection is not a comprehensive inspection such as would be required for a residential building with children. Representative interior and exterior surfaces were included in the inspection.

Lead-based paint was detected on the natural wood exterior clapboard siding on sides A and B of the house, on the natural wood siding near the main entrance to the house (side D), and on the western most exterior wall on side C of the house. More recently added T1-11 exterior siding (located on much of the rear addition and porch) did not contain lead-based paint. No surfaces inside the building contained lead-based paint. Considering that lead-based paint was only detected on approximately 60% of the exterior siding and 0% of the interior surfaces, NorthStar estimates conservatively that approximately 20% of the entire structure contains lead-based paint. The average lead concentration on lead-based paint surfaces was 10 mg/cm².

Demolition waste slated for disposal must be tested using the Toxicity Characteristic Leaching Procedure (TCLP) to determine if it is a hazardous waste due to its lead content (i.e., exceeds 5 mg/L of lead). Given that the lead-based paint detected on the subject building is limited to a small portion of the total building mass, it is likely that a composite sample of the total building demolition waste material would produce a TCLP result for lead of less than 5 mg/L. At such time as the building is no longer occupied, a composite sample should be collected from all portions of the building and analyzed for leachable lead using the TCLP method in order to confirm that the building demolition waste can be disposed of as a non-hazardous waste.

Lead-based paint results are presented in Appendix B.

Area of Former Aboveground Fuel Oil Storage Tank:

NorthStar collected three surficial soil samples from the area of the former aboveground fuel oil storage tank. The three soil samples were composited to form one composite soil sample designated S-1. Sample S-1 was submitted to Connecticut Testing Labs for analysis of petroleum hydrocarbons using the CT ETPH method. No ETPH were detected in sample S-1 indicating that there was no measurable impact to the site environment from the former tank. The laboratory datasheet is presented in Appendix C.

Follow-up Recommendations:

As previously indicated, the asbestos-containing linoleum in Rooms 7 and 8 will require abatement prior to demolition of the building. NorthStar recommends that the linoleum in Room 6 be reanalyzed using a Transmission Electron Microscope (TEM) analysis to confirm the PLM analysis that the material contains no asbestos.

Because the dwelling was occupied at the time of our inspection, NorthStar could not check for possible additional layers of flooring beneath the linoleum and wood underlayment on the first floor (Rooms 6, 7 and 8), behind sheetrock walls (possible insulated duct work to the second floor), or behind the plastic tub and shower enclosure (mastic). These areas should be assessed and sampled if necessary once the building is no longer occupied. One composite building sample should be collected and analyzed for lead using the TCLP method to confirm that the building could be disposed of as a non-hazardous demolition waste.

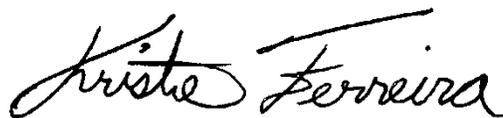
The abatement contractor should insure that no lead-containing dust or chips are generated from the lead-based paint containing siding during demolition that could impact air, soil or the lakes water.

Limitations

This study was performed and the report prepared on behalf of The Town of Marlborough Connecticut solely for use in a preliminary inspection of Asbestos-Containing Building Materials Lead-Based Paint. Inspection services provided by NorthStar were undertaken to inspect interior and exterior structures for asbestos-containing materials and Lead-Based Paint in accordance with generally accepted sampling and surveying methods. No other warranty, expressed or implied, is made. Absolute assurance that all possible asbestos-containing materials or other hazardous building materials at the site were identified cannot be provided. NorthStar cannot be responsible for conditions or materials that the inspector did not observe due to lack of access or which were not otherwise reasonably observable (e.g., behind walls, under floors, under stored materials, within operating equipment). If suspect materials are encountered during the course of abatement or demolition activities, NorthStar should be notified immediately and the materials should be sampled and analyzed. The conclusions in this report are professional opinions based solely upon these findings. The findings and conclusions are intended exclusively for the purpose outlined herein within the scope of work and at the site location identified above.

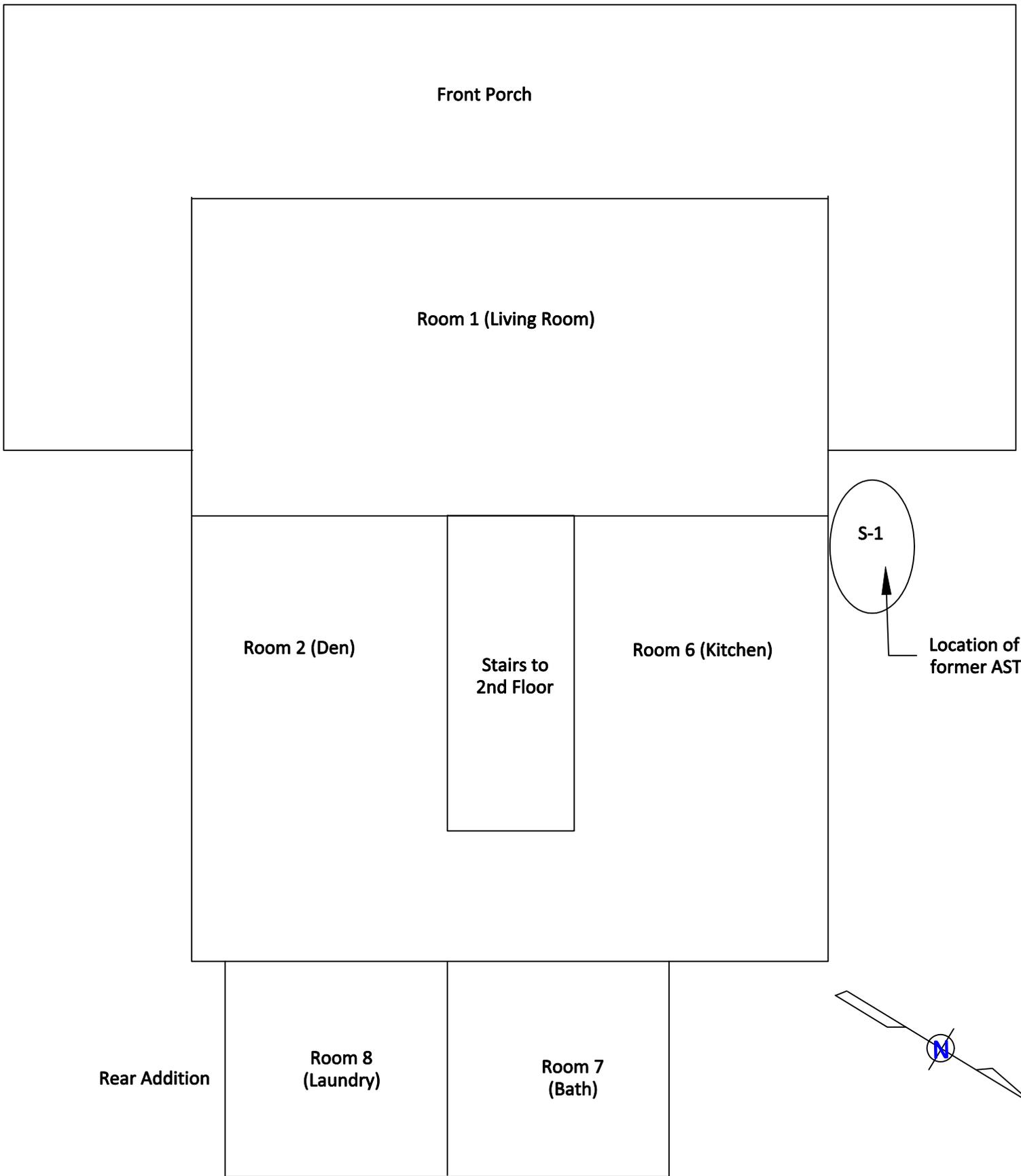
We trust that the report presented herein will satisfy your current requirements. We appreciate the opportunity to be of service to your office. Should you have any questions or comments, please do not hesitate to contact the undersigned.

Very truly yours,
NorthStar Environmental Management, LLC



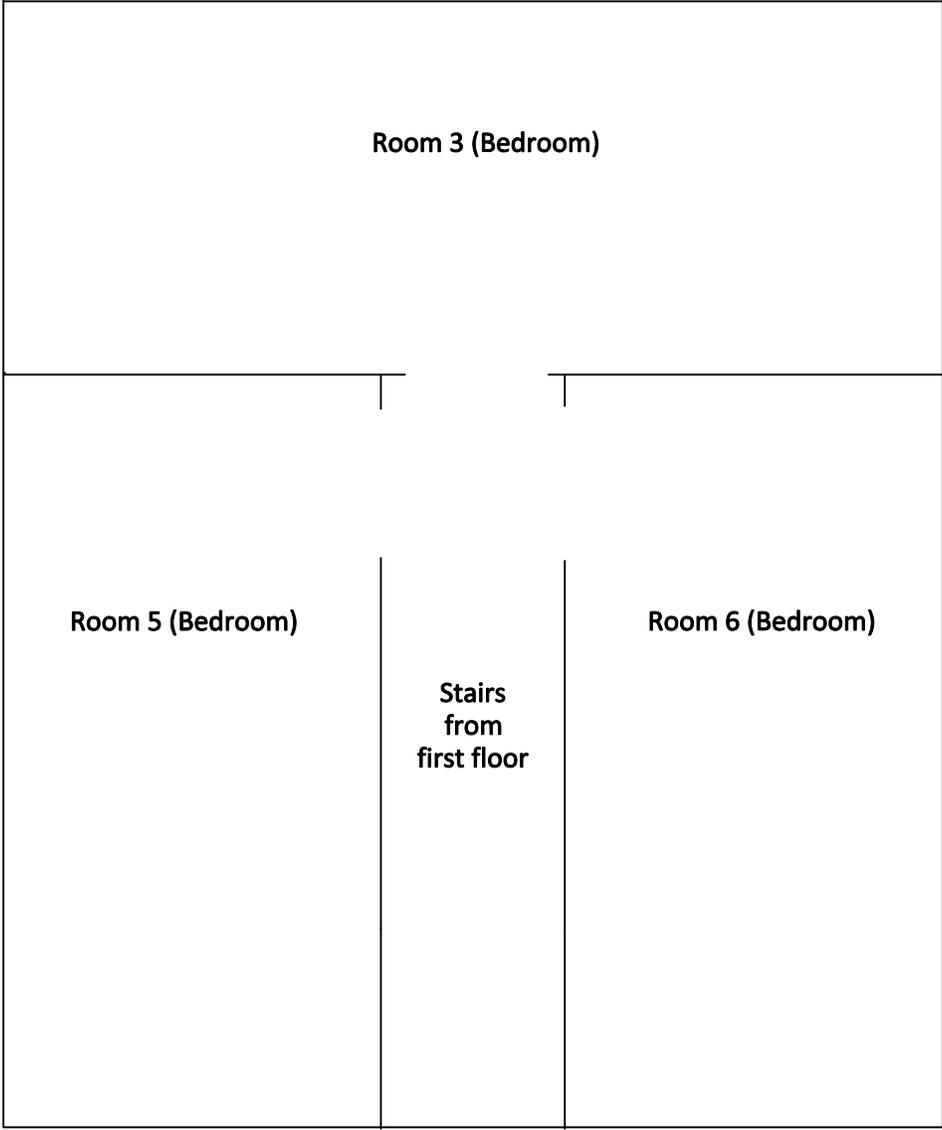
Kristie Ferreira, LEP
CT Asbestos Consultant No. 160

Figures

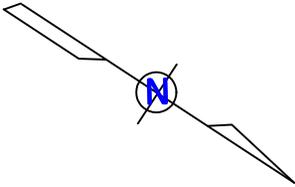


Project No.	161101
Date	11/07/16
Drawn By	JnB
Reviewed by:	KAF
Scale	Not to scale

Front Porch



Rear Addition



NorthStar

Environmental Management, LLC
800 Village Walk No. 325
Guilford, Connecticut 06437-2468

Figure 2.
Second Floor
17 East Lake Road
Marlborough, CT

Project No.	161101
Date	11/07/16
Drawn By	JnB
Reviewed by:	KAF
Scale	Not to scale



NORTHSTAR
ENVIRONMENTAL MANAGEMENT, LLC

Appendices



NORTHSTAR
ENVIRONMENTAL MANAGEMENT, LLC

Appendix A

Asbestos Laboratory Results

CERTIFICATE OF ANALYSIS

Client: North Star Environmental Mgmt.
800 Village Walk, No. 325
Guilford CT 06437

Report Date: 11/7/2016
Report No.: 523342 - PLM
Project: 17 East Lake Rd.
Project No.: 161101

Client: NOR871

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6075481	Description: Brown/Grey Sheetrock	Location: Rm 1, Throghout
Client No.: 1-A	Facility:	
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<i>None Detected</i>	10 Cellulose	90

Lab No.: 6075481(L2)	Description: Grey Joint Compound	Location: Rm 1, Throghout
Client No.: 1-A	Facility:	
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<i>None Detected</i>	None Detected	100

Lab No.: 6075482	Description: Brown/Grey Sheetrock	Location: Rm 6, Throghout
Client No.: 1-B	Facility:	
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<i>None Detected</i>	5 Cellulose	95

Lab No.: 6075482(L2)	Description: White Joint Compound	Location: Rm 6, Throghout
Client No.: 1-B	Facility:	
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<i>None Detected</i>	None Detected	100

Lab No.: 6075483	Description: Brown/Grey Sheetrock	Location: Rm 5, Throghout
Client No.: 1-C	Facility:	
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<i>None Detected</i>	5 Cellulose	95

Lab No.: 6075484	Description: Brown/Grey Sheetrock	Location: Rm 1, Throghout
Client No.: 2-A	Facility:	
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<i>None Detected</i>	5 Cellulose	95

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 11/7/2016
Date Analyzed: 11/07/2016
Signature: 
Analyst: Vane Smith

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: North Star Environmental Mgmt.
800 Village Walk, No. 325
Guilford CT 06437

Report Date: 11/7/2016
Report No.: 523342 - PLM
Project: 17 East Lake Rd.
Project No.: 161101

Client: NOR871

PLM BULK SAMPLE ANALYSIS SUMMARY

<p>Lab No.: 6075485 Client No.: 2-B</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: Brown/Grey Sheetrock Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> 5 Cellulose</p>	<p>Location: Rm 6, Throghout</p> <p><u>Percent Non-Fibrous Material:</u> 95</p>
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<p>Lab No.: 6075485(L2) Client No.: 2-B</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: White Joint Compound Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> None Detected</p>	<p>Location: Rm 6, Throghout</p> <p><u>Percent Non-Fibrous Material:</u> 100</p>
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<p>Lab No.: 6075486 Client No.: 2-C</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: Brown/Grey Sheetrock Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> 10 Cellulose</p>	<p>Location: Rm 8, Throghout</p> <p><u>Percent Non-Fibrous Material:</u> 100</p>
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<p>Lab No.: 6075487 Client No.: 3-A</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: Tan Vinyl Sheet Flooring Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> 15 Cellulose Trace Mineral Wool</p>	<p>Location: Rm 6, Kitchen</p> <p><u>Percent Non-Fibrous Material:</u> 85</p>
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<p>Lab No.: 6075487(L2) Client No.: 3-A</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: Tan Mastic Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> None Detected</p>	<p>Location: Rm 6, Kitchen</p> <p><u>Percent Non-Fibrous Material:</u> 100</p>
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<p>Lab No.: 6075488 Client No.: 3-B</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Description: Tan Vinyl Sheet Flooring Facility:</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> 15 Cellulose Trace Mineral Wool</p>	<p>Location: Rm 6, Kitchen</p> <p><u>Percent Non-Fibrous Material:</u> 85</p>
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Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 11/7/2016
Date Analyzed: 11/07/2016
Signature: 
Analyst: Vane Smith

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: North Star Environmental Mgmt.
800 Village Walk, No. 325
Guilford CT 06437

Report Date: 11/7/2016
Report No.: 523342 - PLM
Project: 17 East Lake Rd.
Project No.: 161101

Client: NOR871

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6075488(L2)
Client No.: 3-B

Description: Tan Mastic
Facility:

Location: Rm 6, Kitchen

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6075489
Client No.: 3-C

Description: Tan Vinyl Sheet Flooring
Facility:
Percent Non-Asbestos Fibrous Material:
15 Cellulose
Trace Mineral Wool

Location: Rm 6, Kitchen

Percent Asbestos:
None Detected

Percent Non-Fibrous Material:
85

Lab No.: 6075489(L2)
Client No.: 3-C

Description: Tan Mastic
Facility:

Location: Rm 6, Kitchen

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6075490
Client No.: 4-A

Description: Tan Vinyl Sheet Flooring
Facility:

Location: Rm 8

Percent Asbestos:
10 Chrysotile

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
90

Lab No.: 6075491
Client No.: 4-B

Description: Tan Vinyl Sheet Flooring
Facility:

Location: Rm 8

Percent Asbestos:
10 Chrysotile

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
90

Lab No.: 6075492
Client No.: 4-C

Description: Tan Vinyl Sheet Flooring
Facility:

Location: Rm 7

Percent Asbestos:
15 Chrysotile

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
85

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 11/7/2016
Date Analyzed: 11/07/2016
Signature: 
Analyst: Vane Smith

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: North Star Environmental Mgmt.
800 Village Walk, No. 325
Guilford CT 06437

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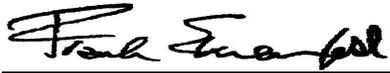
Client: NOR871

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6075493 Client No.: 5	Description: Brown Fibrous Facility:	Location: Rm 1
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 100 Cellulose	<u>Percent Non-Fibrous Material:</u> None Detected
Lab No.: 6075494 Client No.: 6-A	Description: Tan Rubber Facility:	Location: Rm 8
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100
Lab No.: 6075494(L2) Client No.: 6-A	Description: Brown Mastic Facility:	Location: Rm 8
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100
Lab No.: 6075495 Client No.: 6-B	Description: Tan Rubber Facility:	Location: Rm 6
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100
Lab No.: 6075495(L2) Client No.: 6-B	Description: Brown Mastic Facility:	Location: Rm 6
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100
Lab No.: 6075496 Client No.: 6-C	Description: Tan Rubber Facility:	Location: Rm 7
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 11/7/2016
Date Analyzed: 11/07/2016
Signature: 
Analyst: Vane Smith

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: North Star Environmental Mgmt.
800 Village Walk, No. 325
Guilford CT 06437

Report Date: 11/7/2016
Report No.: 523342 - PLM
Project: 17 East Lake Rd.
Project No.: 161101

Client: NOR871

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6075496(L2)
Client No.: 6-C

Description: Tan Mastic
Facility:

Location: Rm 7

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6075497
Client No.: R-1T

Description: White/Grey Shingle
Facility:

Location: Rear Addition (Laundry/Bath)

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
10 Cellulose

Percent Non-Fibrous Material:
90

Lab No.: 6075498
Client No.: R-1M

Description: Tan/Black Shingle
Facility:

Location: Rear Addition (Laundry/Bath)

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
2 Cellulose

Percent Non-Fibrous Material:
98

Lab No.: 6075499
Client No.: R-1B

Description: Black Shingle
Facility:

Location: Rear Addition (Laundry/Bath)

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
10 Cellulose

Percent Non-Fibrous Material:
90

Lab No.: 6075500
Client No.: R-2T

Description: Tan Shingle
Facility:

Location: Front Porch

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
10 Cellulose

Percent Non-Fibrous Material:
90

Lab No.: 6075501
Client No.: R-2M

Description: Green/Black Shingle
Facility:

Location: Front Porch

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
10 Cellulose

Percent Non-Fibrous Material:
90

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 11/7/2016
Date Analyzed: 11/07/2016
Signature: 
Analyst: Vane Smith

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: North Star Environmental Mgmt.
800 Village Walk, No. 325
Guilford CT 06437

Report Date: 11/7/2016
Report No.: 523342 - PLM
Project: 17 East Lake Rd.
Project No.: 161101

Client: NOR871

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6075502 Client No.: R-2B <u>Percent Asbestos:</u> <i>None Detected</i>	Description: Green/Black Shingle Facility: <u>Percent Non-Asbestos Fibrous Material:</u> 10 Cellulose	Location: Front Porch <u>Percent Non-Fibrous Material:</u> 90
Lab No.: 6075503 Client No.: R-3T <u>Percent Asbestos:</u> <i>None Detected</i>	Description: Green/Black Shingle Facility: <u>Percent Non-Asbestos Fibrous Material:</u> 10 Cellulose	Location: Main Roof <u>Percent Non-Fibrous Material:</u> 90
Lab No.: 6075504 Client No.: R-3M <u>Percent Asbestos:</u> <i>None Detected</i>	Description: Green/Black Shingle Facility: <u>Percent Non-Asbestos Fibrous Material:</u> 10 Cellulose	Location: Main Roof <u>Percent Non-Fibrous Material:</u> 90
Lab No.: 6075505 Client No.: R-3B <u>Percent Asbestos:</u> <i>None Detected</i>	Description: Grey/Black Shingle Facility: <u>Percent Non-Asbestos Fibrous Material:</u> 10 Cellulose	Location: Main Roof <u>Percent Non-Fibrous Material:</u> 90
Lab No.: 6075506 Client No.: R-4T <u>Percent Asbestos:</u> <i>None Detected</i>	Description: White/Green Shingle Facility: <u>Percent Non-Asbestos Fibrous Material:</u> 10 Cellulose	Location: Main Roof <u>Percent Non-Fibrous Material:</u> 90
Lab No.: 6075507 Client No.: R-4M <u>Percent Asbestos:</u> <i>None Detected</i>	Description: Green/Black Shingle Facility: <u>Percent Non-Asbestos Fibrous Material:</u> 10 Cellulose	Location: Main Roof <u>Percent Non-Fibrous Material:</u> 90

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 11/7/2016
Date Analyzed: 11/07/2016
Signature: 
Analyst: Vane Smith

Approved By: 
 Frank E. Ehrenfeld, III
 Laboratory Director

CERTIFICATE OF ANALYSIS

Client: North Star Environmental Mgmt.
800 Village Walk, No. 325
Guilford CT 06437

Report Date: 11/7/2016
Report No.: 523342 - PLM
Project: 17 East Lake Rd.
Project No.: 161101

Client: NOR871

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6075508
Client No.: R-4B

Description: Green/Black Shingle
Facility:

Location: Main Roof

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
10 Cellulose

Percent Non-Fibrous Material:
90

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 11/7/2016

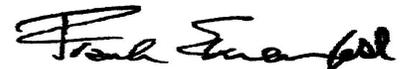
Date Analyzed: 11/07/2016

Signature:



Analyst: Vane Smith

Approved By:



Frank E. Ehrenfeld, III
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Appendix to Analytical Report

Customer Contact: Kristie Ferreira
Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Pete Lesniak
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

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This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

CERTIFICATE OF ANALYSIS

Client: North Star Environmental Mgmt.
800 Village Walk, No. 325
Guilford CT 06437

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Project No.: 161101

Client: NOR871

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at customerservice@iatl.com.

- 1) Note: No mastic provided for analysis.
- 2) Note: Insufficient mastic provided for analysis.
- 3) Note: Insufficient material provided for analysis.
- 4) Note: Insufficient sample provided for QC reanalysis.
- 5) Note: Different material than indicated on Sample Log / Description.
- 6) Note: Sample not submitted.
- 7) Note: Attached to asbestos containing material.
- 8) Note: Received wet.
- 9) Note: Possible surface contamination.
- 10) Note: Not building material. 1% threshold may not apply.
- 11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
- 12) Note: Asbestos detected but not quantifiable.
- 13) Note: Multiple identical samples submitted, only one analyzed.
- 14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
- 15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gänge, homogeneous exfoliated books of mica, or mixed mineral composites). Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

- 1) **Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.
- 2) **Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.
- 3) **Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.
- 4) **Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.
- 5) **Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.

*With advance notice and confirmation by the laboratory.

**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).



NORTHSTAR
ENVIRONMENTAL MANAGEMENT, LLC

Appendix B

Lead-Based Paint Results

Index	FL	ROOM	SIDE	COMPONENT	SUBSTRATE	COLOR	CONDITION	Results	PbC
1				Calibration- Surface			1.53mg/cm ²	Positive	1.60 ± 0.10
2				Calibration- Surface			1.04mg/cm ²	Positive	1.10 ± 0.10
4				Calibration- Surface			1.04mg/cm ²	Positive	1.00 ± 0.10
5				Calibration- Surface			1.04mg/cm ²	Positive	1.10 ± 0.10
6				Calibration- Surface			0.01mg/cm ²	Negative	0.00 ± 0.02
7	1st	Room 1	A	Window Sill	Wood	Brown	Intact	Negative	0.00 ± 0.02
8	1st	Room 1	A	Window Casing	Wood	Brown	Intact	Negative	0.00 ± 0.02
9	1st	Room 1	D	Door	Metal	White	Intact	Negative	0.00 ± 0.02
10	1st	Room 1	D	Door Casing	Metal	Brown	Intact	Negative	0.00 ± 0.02
11	1st	Room 1	C	Wall	Drywall	White	Intact	Negative	0.00 ± 0.02
12	1st	Room 2	D	Window Sill	Wood	Brown	Intact	Negative	0.00 ± 0.02
13	1st	Room 2	D	Window Casing	Wood	Brown	Intact	Negative	0.00 ± 0.02
14	1st	Room 2	C	Door	Wood	Brown	Intact	Negative	0.00 ± 0.02
15	1st	Room 2	C	Door Jamb	Wood	Brown	Intact	Negative	0.00 ± 0.02
16	1st	Room 2	B	Closet Door	Wood	Brown	Intact	Negative	0.00 ± 0.02
17	1st	Room 2	D	Wall	Drywall	Bone	Intact	Negative	0.00 ± 0.02
18	1st	Room 2	C	Ceiling	Drywall	White	Intact	Negative	0.00 ± 0.02
19	1st	Kitchen	B	Window Casing	Wood	Brown	Intact	Negative	0.00 ± 0.02
20	1st	Kitchen	A	Opening Jamb	Wood	Brown	Intact	Negative	0.00 ± 0.02
21	1st	Kitchen	B	Cabinet Door Lwr	Wood	Brown	Intact	Negative	0.00 ± 0.02
22	1st	Kitchen	B	Cabinet Body	Wood	Brown	Intact	Negative	0.00 ± 0.02
23	1st	Bath	B	Window Casing	Wood	Brown	Intact	Negative	0.00 ± 0.02
24	1st	Bath	A	Door	Wood	Brown	Intact	Negative	0.00 ± 0.02
25	1st	Bath	A	Door Jamb	Wood	Brown	Intact	Negative	0.00 ± 0.02
26	1st	Bath	D	Cabinet Door Lwr	Wood	Brown	Intact	Negative	0.00 ± 0.03
27	1st	Bath	A	Wall	Drywall	White	Intact	Negative	0.00 ± 0.02
28	1st	Laundry Room	C	Window Sill	Wood	Brown	Intact	Negative	0.00 ± 0.02
29	1st	Laundry Room	C	Window Casing	Wood	Brown	Intact	Negative	0.00 ± 0.02
30	1st	Laundry Room	D	Door	Metal	White	Intact	Negative	0.00 ± 0.02
31	1st	Laundry Room	A	Wall	Drywall	White	Intact	Negative	0.00 ± 0.02
32	1st	Stairwell	B	Stair Stringer	Wood	Brown	Intact	Negative	0.00 ± 0.02
33	1st	Stairwell	A	Stair Tread	Wood	Brown	Intact	Negative	0.00 ± 0.02
34	2nd	Stairwell	A	Door	Wood	Brown	Intact	Negative	0.00 ± 0.02
35	2nd	Stairwell	A	Door Jamb	Wood	Brown	Intact	Negative	0.00 ± 0.02
36	2nd	Room 3	A	Window Casing	Wood	Brown	Intact	Negative	0.00 ± 0.02
37	2nd	Room 3	D	Window Sash Int.	Wood	Brown	Intact	Negative	0.00 ± 0.02
38	2nd	Room 3	B	Closet Door	Wood	Brown	Intact	Negative	0.00 ± 0.02
39	2nd	Room 3	B	Closet Casing	Wood	Brown	Intact	Negative	0.00 ± 0.02
40	2nd	Room 3	C	Wall	Drywall	Bone	Intact	Negative	0.00 ± 0.02
41	2nd	Room 4	B	Window Casing	Wood	Brown	Intact	Negative	0.00 ± 0.02
42	2nd	Room 4	B	Window Sash Int.	Wood	Brown	Intact	Negative	0.00 ± 0.02
43	2nd	Room 4	D	Door Casing	Wood	Brown	Intact	Negative	0.00 ± 0.02
44	2nd	Room 4	D	Wall	Drywall	White	Intact	Negative	0.00 ± 0.02
45	2nd	Room 5	D	Window Casing	Wood	Brown	Intact	Negative	0.00 ± 0.02
46	2nd	Room 5	D	Window Sash Int.	Wood	Brown	Intact	Negative	0.00 ± 0.02
47	2nd	Room 5	B	Door Casing	Wood	Brown	Intact	Negative	0.00 ± 0.02
48	2nd	Room 5	A	Floor	Wood	Brown	Intact	Negative	0.02 ± 0.02
49	2nd	Room 5	A	Wall	Drywall	White	Intact	Negative	0.00 ± 0.02
50		Exterior	A	Ext. Siding Rht	Wood	White	Intact	Positive	17.90 ± 7.20

17 East Lake Rd, Marlborough, CT 06447

Index	FL	ROOM	SIDE	COMPONENT	SUBSTRATE	COLOR	CONDITION	Results	PbC
51		Exterior	A	Ext. Siding Lft	Wood	White	Peeling	Positive	12.90 ± 5.80
52		Exterior	A	Window Casing	Wood	Green	Fair	Negative	0.01 ± 0.06
53		Exterior	A	Corner Trim Lft	Wood	Green	Fair	Positive	1.70 ± 0.50
54		Exterior	A	Porch Floor	Wood	Unpainted	Fair	Negative	0.02 ± 0.05
55		Exterior	A	Porch Lwr Wall	Paneling	White	Intact	Negative	0.00 ± 0.02
56		Exterior	B	Porch Lwr Wall	Paneling	White	Intact	Negative	0.00 ± 0.02
57		Exterior	B	Ext. Siding Ctr	Wood	White	Peeling	Positive	3.70 ± 2.10
58		Exterior	B	Ext. Siding Lft	Wood	White	Peeling	Positive	11.70 ± 4.30
59		Exterior	B	Window Casing	Wood	Green	Intact	Negative	0.16 ± 0.12
60		Exterior	C	Ext. Siding Rht	Wood	White	Peeling	Positive	10.80 ± 3.50
61		Exterior	C	Ext. Siding Ctr	Paneling	White	Damaged	Negative	0.00 ± 0.02
62		Exterior	D	Ext. Siding Rht	Paneling	White	Damaged	Negative	0.00 ± 0.02
63		Exterior	D	Ext. Siding Ctr	Wood	White	Peeling	Negative	0.02 ± 0.06
64		Exterior	D	Ext. Siding Ctr	Wood	White	Intact	Negative	0.01 ± 0.04
65		Exterior	D	Ext. Siding Lft	Wood	White	Intact	Negative	0.00 ± 0.02
66		Exterior	D	Ext. Siding Lft	Wood	White	Intact	Negative	0.00 ± 0.02
67		Exterior	D	Ext. Siding (Near Dr)	Wood	White	Intact	Positive	11.20 ± 4.40
68				Calibration- Surface			1.53mg/cm ²	Positive	1.40 ± 0.10
69				Calibration- Buried			1.04mg/cm ²	Positive	1.10 ± 0.10
70				Calibration- Buried			1.04mg/cm ²	Positive	1.10 ± 0.10
71				Calibration- Buried			1.04mg/cm ²	Positive	1.10 ± 0.10
72				Calibration- Buried			0.01mg/cm ²	Negative	0.00 ± 0.02

How to read the data sheets

Starting from the left side column.

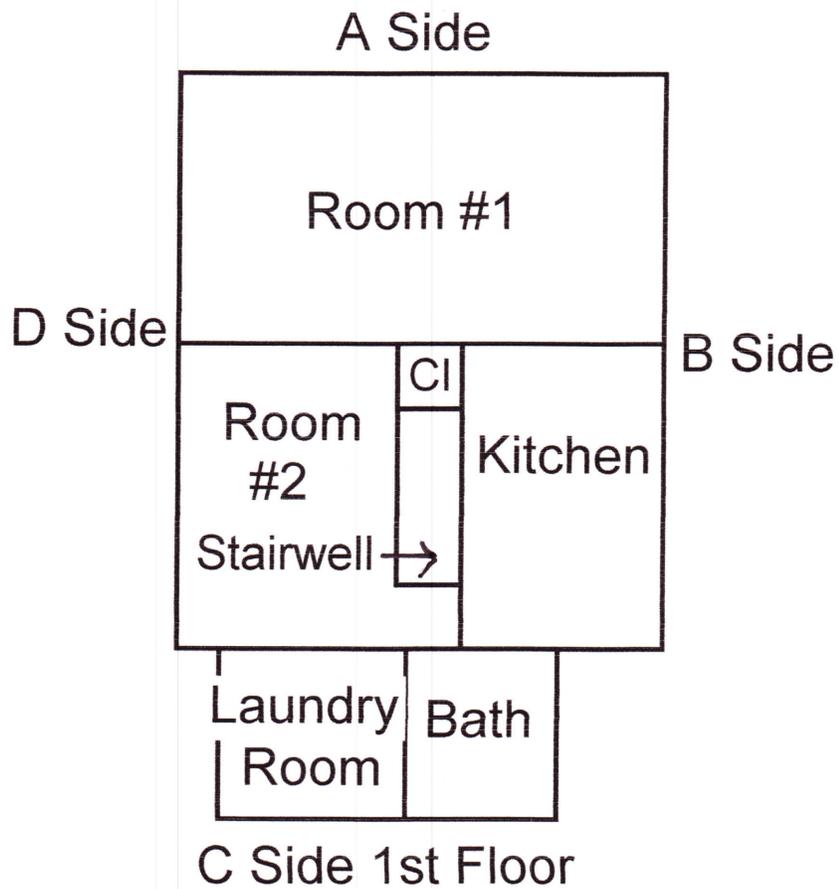
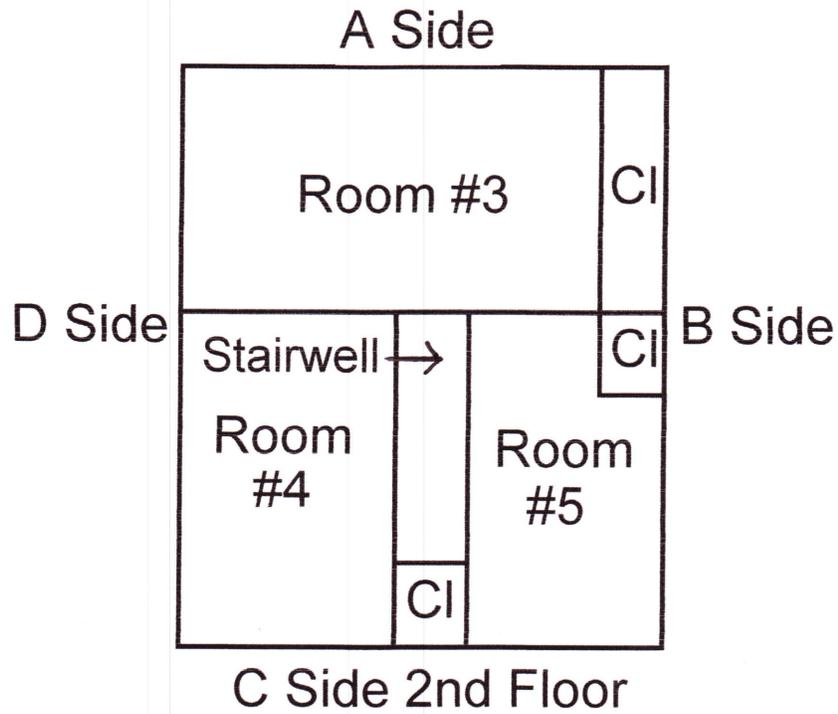
Index	The instrument assigns a number to every reading.
Fl.	Floor
Room	Indicated which room or area was tested. The room or area is also detailed on the floor plan.
Side	The side of the room that faces the street is the A Side, the B side is clockwise to the A wall, the C wall is opposite the A wall and so on. For the exterior the A side is the front facing the street, the B side is clockwise, the C side is the rear ect. See attached floor plan for more details.
Component	Indicates which building component was tested, window, door, wall ect. Many components have sub-components such as a window <i>casing</i> or window <i>sash</i> . If there is more than 1 similar building component on a wall in a room or area, than the component may be further described as being the Lft for left, Ctr for center or Rht for right. This would be as you face the wall.
Substrate	Indicates what building material the component was constructed of. Wood, Drywall, Metal, ect.
Color	Indicates the color of the test surface. The color selected is influenced by many factors including lighting, contrasting colors, smoke films among others.
Condition	Indicates the condition of the paint film or the substrate. The ratings are as follows; Intact, a paint film with no cracked or peeling paint; Fair, the paint film is cracked or chipped but paint chips can not be picked off; Poor, the paint film is cracked or chipped and paint chips can be picked off; Peeling; the paint film is very loose and can fall off with little or no external effort; Defective-Sub, Defective substrate. Substrate conditions are only listed if it affects the condition of the paint film. The worse visible condition is noted.
Result	Indicates the results of that test. Either Positive, equal to or greater than 1.0 milligrams lead per square centimeter of surface ($1.0\text{mg}/\text{cm}^2$), Negative meaning below the action level of $1.0\text{mg}/\text{cm}^2$ or Null if the reading was interrupted and not completed. The Null reading is almost always followed by a complete reading from the same surface. All positive reading lines are in red print.
PbC	This is the range of the lead concentration in the dry paint. The testing instrument narrows the reading down to plus or minus from the main (1 st) number.

Calibration Readings

At the beginning and end of the inspection, calibration tests are done on known control standards and the readings recorded to note the accuracy of the testing device. The calibration line on the data sheets provides the measured lead concentration of the control standards (in the Condition column) and whether the lead is at the surface of the control standard. The actual test reading is recorded in the Pbc column.

On the data sheets any lead reading $1.0\text{mg}/\text{cm}^2$ or greater is positive for lead-based paint and the line for that reading is in red print. The calibration readings are from the known control standards and not from any painted surfaces on the property tested. A property that has been certified as being “free of lead-based paint” will still have positive calibration readings listed on the report.

Cl = Closet



17 East Lake Rd, Marlborough, CT 06447



**NORTHSTAR
ENVIRONMENTAL MANAGEMENT, LLC**

Appendix C Soil Sample Results

Date Samples Received: 11/04/16

Client Name : Northstar Environmental Mgmt.	Date Extracted: 11/07/16
CTL Lab No.: 1116078	Date Analyzed: 11/08/16
Job/PO No. : 161101	Analyst: JP
Report. Date: 11/08/16	

RESULTS OF ANALYSIS

Matrix Type : **S**
CTL Sample No.: **16827**
Field ID : **S-1**

Parameters	RL				
CT ETPH-mg/kg	50	ND			

RL= Reporting Limit ND= Not Detected

Matrix Type: W= Water/Aqueous S= Soil/Solid O= Oil/Hydrocarbon