Foothills Environmental, Inc.

Industrial Hygiene, Safety & Environmental Services

Asbestos Abatement Work Plan for Popcorn Ceiling In Units 103, 203, 205, 301, 303, 305 and 307 Wheeler Terrace Apartments (2021) Casper College, Casper, Wyoming

FEI Project Number: AS21026
March 28, 2021

Foothills Environmental, Inc.

Industrial Hygiene, Safety & Environmental Services

ASBESTOS ABATEMENT WORK PLAN FOR POPCORN CEILING IN UNITS 103, 203, 205, 301, 303, 305 and 307 WHEELER TERRACE APARTMENTS CASPER COLLEGE CASPER, WYOMING

March 28, 2021

Prepared for: **Eric Rulofson, Facilities Operations Director**
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FEI Project Number: AS21026
(Purchase Order #P0036972)

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ASBESTOS ABATEMENT WORK PLAN FOR WHEELER TERRACE APARTMENTS UNITS 103, 203, 205, 301, 303, 305 and 307 CASPER COLLEGE CASPER, WYOMING

1 INTRODUCTION

Foothills Environmental, Inc. (FEI) is using information from previous sampling at Wheeler Terrace Apartments owned by Casper College (CC) located in Casper, Wyoming. The purpose of this project is to remove asbestos-containing materials (ACM) from the ceilings in seven (7) units that will be impacted as part of repair activities planned for the summer of 2021. Removal of ACM popcorn ceiling includes removal of two layers of drywall in containment as well. Fiberglass insulation may be above the ceilings on the top floor apartments. Ceiling replacement will be performed by a separate contractor.

2 SCOPE OF WORK

Work specified herein shall be the removal and disposal of asbestos-containing popcorn ceiling, fiberglass insulation, and two layers of drywall substrate at the Site by competent persons trained, knowledgeable, and qualified in the techniques of asbestos abatement. The replacement of drywall and ceiling texture will be completed by a separate contractor. The abatement contractor (Contractor) hired to complete abatement must comply with all applicable federal, state, and local laws and regulations, and be capable of performing the work specified in this Work Plan. In addition, it is the Contractor's responsibility to obtain any necessary permits and make all notifications to Wyoming Department of Environmental Quality (WDEQ) prior to beginning work, and to update notifications as required.

2.1 Asbestos Materials for Abatement

The following table lists locations, materials, percentage, and type of asbestos, as well as the approximate quantities of asbestos to be removed. Drawings of material locations and work areas are located in Attachment 1 and Photographs of materials are in Attachment 2.

TABLE 1
Materials to be removed from Wheeler Terrace Apartments by Contractor

Material Description	Material Location	Material Type	Friability	Asbestos Content	Approximate Quantity
Sprayed on Acoustical Popcorn Ceiling, fiberglass insulation and 2 layers of Drywall	103, 203, 205, 301, 303, 305 and 307	Surfacing	Friable	6-8% Chrysotile	Approximately 600 sf/unit 4,200 SF TOTAL See drawings and photographs

Refer to drawings in Attachment 1 for locations and types of materials.

Notes:
1. The quantities identified herein are APPROXIMATE. The Contractor is responsible for verifying actual material quantities and site conditions. The Contractor must obtain any permits, provide WDEQ notices and seek approval for any variances that are required to perform the work.
2. Work includes the removal and disposal of identified ACM and two layers of drywall which act as the substrate for the material.
3. Electrical and water services will be provided by the owner.
4. The Contractor is responsible for providing any lifts or scaffolding required for access to ACM for removal. Lift operators must be trained in proper use of the type of lift being used. All personnel utilizing the lift for ACM removal must be trained and tied off at all times with appropriate harnessing and fall protection devices.
5. Scaffolding, if required, will require inspection and sign-off by an OSHA Competent Scaffolding person before initial use and prior to each shift.
6. The Contractor is responsible for moving any objects, fixtures, and any objects left in the work area to access ACM for removal.
7. The Contractor is responsible for verifying that electrical lines are identified and are Locked Out and Tagged Out (LOTO) if needed before work is completed around the lines. Coordinate this with CC Safety Officer.
8. The Contractor is responsible for demolition to access ACM where scheduled for removal where necessary.
9. Every effort was made to identify ACM materials; however, other ACM materials may be present beneath or otherwise hidden. If discovered, bring new suspect materials to the attention of the Owner or Owner Representative prior to disturbance of those materials.

2.2 General Work Procedures

General Procedures

- **Remove and clean light fixtures, fans, smoke detectors and vents installed in ceiling. FEI will inspect fixtures before removing them from containment. CC will reuse the fixtures after replacement of drywall ceilings. Coordinate removal of any other equipment and attached items for reuse. Any breakage must be reported immediately to CC/FEI.**

- Restrooms may only be used in areas where contractor is currently working. If no restrooms are available, contractor must provide temporary restrooms.

- Staging area for equipment and personnel will be at the closest entrance to each work area. A small truck for waste load-out may be parked at each entrance during load out of demolition debris and ACM only. Schedule such activities with CC. Security for any equipment and/or trucks left onsite is the sole responsibility of the contractor. Owner will not be responsible for theft or vandalism of contractor's equipment left onsite.

- Hours of work will be scheduled with CC.

- **The quantities identified herein are approximate. The contractor is responsible for verifying material quantities and site conditions. Any discrepancies or omissions must be brought to the attention of CC prior to acceptance of project. By accepting a contract, contractor agrees with all conditions for completing the work including general work areas, quantities, schedules and procedures.**

- **Project hours** for each work area are listed below:

Hours will be 7:00 a.m. to sunset, Monday-Friday unless otherwise coordinated and approved by CC.

Popcorn Ceiling Removal

Popcorn ceiling contains friable Chrysotile asbestos and must be addressed accordingly. Full containments are expected for all friable materials. Texture may be removed by removal of drywall (2 layers). Assume that critical barriers may have to be placed above ceiling (in joists) to maintain negative pressure. All other mechanical methods are prohibited without prior authorization by FEI. The following procedures must be followed at a minimum, but all work is to be performed according to Occupational Safety and Health Administration (OSHA), Environmental Protection Agency (EPA), and all other applicable laws and regulations for removal and disposal of ACM:

- Securing Work Area
  - Work areas should be vacated and secured (where feasible) by scheduling, locking doors (from inside the area if possible) or other means. If this is not feasible, access to the work area should be restricted, such as by asbestos barrier tape around the perimeter of the work area and at access points. If barrier tape is used to denote a work area, it should be placed 5 to 10 feet (1.5 to 3 meters) outside of any polyethylene protection used in the work area. Install barrier tape by taping or tying it to fixed objects. Do not block access to any emergency exits and post OSHA required "danger" signs at all entrances to the work area. It might be desirable to have a visual barrier installed several feet in front of warning signs to avoid having warning signs readily visible to occupants. A "keep out of construction area" sign should be posted on visual barriers. A visual barrier would be arranged so that a person who goes past the visual barrier will then see required warning signs.
- General Abatement Sequence

- The Contractor shall conduct abatement activities in accordance with the following mandatory sequence:
  1) Install critical barriers

  2) Establish negative pressure

  Note: *The removal of non-ACM building materials and components may only take place after negative air pressure is established in the containment work areas.*

  3) Construct the decontamination area

  4) Pre-clean surfaces

  5) Cover fixed objects

  6) Construct the containment

  7) Conduct abatement

  8) Conduct final visual inspection

  9) Conduct final clearance air monitoring

  10) Conduct the tear-down

- Respirators and Performing Fit Checks
  - The Contractor is required to have a respiratory protection program. Wearers should inspect their respirators before each use of the respirator. Fit checks should be performed in accordance with the Respiratory Protection Program by each worker each time they don a respirator. Both positive and negative pressure fit checks should be performed.
- Protective Clothing and Decontamination
  - Protective clothing for workers shall consist of disposable coveralls, gloves and boots. Coveralls should have hoods and booties attached. They should provide complete coverage of the body with the exception of hands and face.
  - Eye, hearing, and head protection should also be used where needed. Rubber slip-resistant boots or other non-slip footwear is to be worn for all activities. Steel-toed boots should be used in areas where foot hazards exist. Do not use coveralls with loose foot coverings for activities that involve climbing ladders or working on scaffolding.
  - Protective clothing shall be removed as follows:
    - HEPA vacuum all parts of protective clothing while standing at perimeter of decontamination unit. Enter decontamination unit and, leaving respirator in place, remove protective clothing and fold inside out as it is removed. Place clothing into a disposal bag and label as ACM waste. Enter shower with respirator still in place and shower. After showering enter clean room and remove respirator.
  - Personnel decontamination facilities shall consist of an Equipment (Dirty) Room, Shower, and a clean room constructed in accordance with general requirements for Decontamination Units.
  - The Waste Load Out shall consist of two separate chambers or in a direct loadout to a lined rolloff.
  - All load-out and disposal procedures shall be in accordance with applicable federal, state, and local regulations and project specifications.
- Air Monitoring

  - Air monitoring during abatement activities shall consist of OSHA personal monitoring (conducted by Contractor), area monitoring and ambient air monitoring during removal activities (conducted by Owner or Owners representative).
  - All air monitor pumps shall be pre and post calibrated to a primary standard. Flow rates, times and areas/personnel sampled shall be recorded.
- Pre-cleaning Work Areas and Wet Wiping
  - Pre-cleaning of work areas shall be performed prior to the start of abatement work activities to remove accumulated debris and dust that could be disturbed during abatement work. Pre-cleaning shall include picking up dust and debris with a HEPA filtered vacuum, as well as wet wiping non-porous surfaces.
- Critical Barriers
  - All critical barriers will consist of 1 layer of 6mil poly on all opening, windows and vents.
- Negative Pressure Ventilation
  - The Contractor shall maintain a negative pressure differential of -0.02 inches of water in the regulated work areas until final visual and clearance air monitoring complete.

AIR CHANGE CALCULATIONS ***for a 2000 cfm negative air machine (NAM)***

$$\textbf{\textit{AIR CHANGES}} = \frac{A}{B \times C}$$

Where: A = *Room volume in cubic feet (l x w x h)*
B = *15 minutes*
C = *Estimated rated capacity of NAM (1,500 cfm)*

- Containment Construction and Removal
  - Full containments for asbestos removal shall be constructed.
  - Danger signs will be posted at locations, and approaches to locations, where airborne concentrations of asbestos exceed or can reasonably be expected to exceed the PEL. Signs will be posted at a distance sufficiently far from the work area to permit an employee to read the sign and take the necessary protective measures to avoid exposure. Additional signs may need to be posted following construction of workplace containment barriers.
- Asbestos Waste Storage, Transportation and Disposal
  - Containerizing and transport of asbestos wastes shall be in accordance with applicable regulations.
  - Asbestos waste that is not directly loaded into a dumpster may be temporally stored in the work area provided it is protected to prevent leakage.
  - All ACM waste must be wrapped in two layers of 6 mil polyethylene sheeting or double-bagged in 6 mil polyethylene bags labeled with the appropriate OSHA label for asbestos and must also bear the generator label as required by EPA's 40 CFR 61 Subpart M NESHAP Standard.
  - All asbestos generated waste will be transported directly from the work areas to a secured area (dumpster or truck).
  - When asbestos waste is taken to the landfill, it will be transported in accordance with all applicable federal, state and local regulations.
  - Dispose of waste following procedures required by landfill. Provide waste manifests to CC within 30 days of project completion

2.3 Inspections by Owner/Owners Representative

1. All inspections shall take place during normal working hours. If inspections occur past normal working hours, the Contractor shall bear the costs incurred by CC/FEI as result of the additional labor of CC/FEI.

2. When the CC/FEI has an on-site representative, the Contractor shall give the CC/FEI advance notice of an impending inspection. Where the CC/FEI does not have an on-site representative, then a 24-hour advance notice of impending inspection is required.

3. If the inspection detects items to be corrected, then the area will be termed "failed" and will need to have corrective action taken by the Contractor.

4. The Contractor must allow for a two (2) hour notice period before the re-inspection of the failed area may begin (this may be waived by CC/FEI). Items of work requiring inspection sign-off by CC/FEI are:

    a. Pre-Abatement (Area Preparation) Inspection. Removal of asbestos and necessary demolition shall not take place until CC/FEI has inspected area preparation work and given approval.
    b. Final Visual Inspection - The area shall not be encapsulated or locked down until CC/FEI has inspected and given approval of the final cleaning and area decontamination. The containment must be completely dry, during the inspection with no water droplets, remains or saturation on polyethylene sheeting or other surfaces in the containment.

5. It will be necessary that the Contractor successfully confine fiber release to the designated work area. FEI's obligations are solely to Owner. In meeting such obligations CC/FEI may increase the burdens and expense of the Contractor, his Sub-Contractors or employees, or the surety of them. Nothing in the performance of CC/FEI services in connection with this project implies the undertaking for the benefit of, or which may be enforced by, the Contractor, his Sub-Contractors, or employees, or the surety of any of them. It is not the function of CC/FEI to specify all of the means by which the Contractor will attain the intended results, nor to state all of the environmental conditions that must be present for the safety of workers who are employed to produce the intended results, or for the safety of others during construction. The Contractor shall establish means and environmental conditions that meet applicable laws and regulations.

2.4 Air Monitoring

Outside Work Area: Air monitoring is expected to be completed on a daily basis by FEI during removal. If any air sample taken near the Work Area exceeds the EPA background level (clearance level) of 0.01 fibers per cubic centimeter (f/cc) by Phase Contrast Microscopy (PCM) analysis, the Contractor shall immediately and automatically stop all work except corrective action. FEI's Industrial Hygiene Representative will work with the Contractor to determine the source of the high reading and work with the Contractor to determine a course of corrective action.

1. Background Asbestos Level
   a. Air monitoring shall be conducted during normal occupancy and samples shall not be collected in an aggressive manner.
   b. Where PCM is used as the method of analysis the standard is 0.01 f/cc, which is equivalent to 10,000 fibers per cubic meter of air (f/m^3). The NIOSH 7400 Method shall be used to analyze samples. The number of samples to be taken shall be determined by the certified air monitoring specialist. Where TEM is used as the method of analysis, the standard is 70 structures/millimeter^2 (s/mm^2). TEM analysis shall be conducted pursuant to the protocol in 40 C.F.R. Part 763, Appendix A to Subpart E (EPA 1995).
   c. All air monitoring collected for background purposes shall be performed by the Owner's representative who is independent of the Abatement Contractor to avoid possible conflict of interest.
2. In the event that airborne fiber levels outside a Work Area exceed the background level when analyzed by PCM (when verified by TEM), the Contractor shall comply with the following actions. If the high reading was the result of a failure of Work Area isolation measures initiate the following additional actions:
   a. Immediately erect secondary barriers to isolate the affected area from the balance of the building. Erect Critical Barriers at the next existing structural isolation of the involved space (e.g. wall, ceiling, floor). Impart negative pressure in the enclosed area.
   b. Decontaminate the affected area.
   c. Require that respiratory protection be worn in affected area until area is cleared for re-occupancy.
   d. Leave Critical Barriers in place until completion of work and insure that the operation of the pressure differential system in the work area results in a flow of air from the balance of the building into the affected area.
   e. After passage of Visual Inspection in the effected work area remove barriers separating the work area from the affected area. Final air samples will be taken within the affected area.
3. Elevated Ambient Levels – Industrial Hygiene representative will collect air samples in the general work areas prior to work beginning and analyze by PCM. If the analytical result exceeds the 70 s/mm^2 by TEM or 0.01 f/cc by PCM, whichever is applicable, then the existing level determined by the results of sampling will be the background level.
4. In the event that areas beyond the work area become contaminated with asbestos, asbestos-containing dust/debris, and/or visible emissions from the work area, the Contractor shall be responsible for all costs associated with cleaning and subsequent testing (visual inspection, air sampling and bulk analysis) of these areas.
5. If the high reading was the result of other causes initiate corrective action as required by the applicable regulations at the direction of the Owner.

Effect on Contract Sum: Complete corrective work with no change in the Contract Sum if high airborne fiber counts were caused by Contractor's activities. The Contract Sum and schedule will be adjusted for additional work caused by high airborne fiber counts beyond the Contractor's control. Contractor is responsible for all costs associated with TEM verification where PCM samples exceed 0.01 f/cc, and any subsequent cleaning and additional sampling costs regardless of TEM sample results.

2.5 Material Demolition

Work includes removal of ACM and drywall substrate (2 layers) only. Non-ACM fiberglass insulation may be above the ceiling on the upper floor apartments. This material must be removed in containment and disposed as ACM waste. No other demolition is expected. Save and clean all ceiling light fixtures, vents, smoke alarms and ceiling fan fixtures for reuse by CC. Contractor will clean fixtures and save in containment until FEI completes a visual inspection. Fixtures will then be passed out for storage and reuse by CC.

3 SCHEDULE

The project is scheduled to begin May 17, 2021 and abatement is to be completed no later than June 18, 2021. The window provides 30 days for completion; however, CC wishes to have the work completed sooner. This will be an evaluation factor. Contractor will provide a schedule with a bid in order to assist CC with selection of a contractor and to provide information for scheduled events at the facility. Any costs incurred by the owner's representative to be on site after the time indicated to complete the project will be the responsibility of the Contractor. Costs include but are not limited to travel, lodging, analytical fees, per Diem and professional fees. Schedule details are listed below:

Work Schedule Window
Abatement Start Date – May 17, 2021 (Coordinate with CC Project Mgr.)
Abatement Completion – At latest by June 18, 2021

4 SUBMITTALS

The following sections detail the required submittals for the project.

4.1 Plan of Action

Prepare a brief plan of the procedures proposed for use in complying with the requirements of this work plan and all applicable regulations. Include in the plan the general locations and layouts of decontamination areas, the sequencing of asbestos work (work areas), methods to be used to assure the safety of occupants and visitors to the site, disposal plan including staging and waste loadout procedures, and location of approved disposal site. The Contractor is solely responsible for

construction means, methods, techniques and sequences, and procedures with respect to complying with applicable regulations.

4.2 Technical Submittals

The contractor shall submit all technical documentation as specified in this section using the list and schedule provided in Table 2 below.

TABLE 2

Pre-start Submittals (Minimum five days prior)	**Daily Submittals**	**Contract Closeout (Two weeks after)**
• Respiratory Protection Program	Daily Field Logs	Disposal Manifests
• Hazard Communication Program	Daily Entry/Exit Sign-in Sheets	Owner's Final Inspection
• Medical Response Program	Visitor Documentation Forms	Change Orders
• Accident Reports		Photographs
• List of Personnel Used		
• Personnel Certifications		
• Project Design (Plan of Action)		
• Project Sequencing and Schedule		
• Disposal Facility Information		
• WDEQ Notice (10 days prior to start of work)		

5 PROJECT COORDINATION

The intent of this project is to remove friable ACM prior to planned ceiling replacement in the seven (7) units. The Contractor shall execute the work under this Contract with minimal disturbance to facility activities outside the work area. A schedule shall be coordinated with CC to minimize effects of abatement operations and possible interruptions of power or water. Coordination shall include informal meetings with CC and onsite representatives such as the following:

- **Inspect** areas in which work will be performed, prior to commencement of work. Prepare a listing of damage to structure, surfaces, and equipment or of surrounding areas, which could be misconstrued as damage resulting from the work. Contractor may photograph or videotape existing conditions as necessary to document conditions. Submit to the CC for record purposes prior to starting work.

- **Informal Pre-construction Conference** to be convened by the Contractor prior to start of any work. The conference will be scheduled before start of construction, at a time convenient to CC, but no later than the day of the start of the project. Meet at the project site or convene a telephone conference, or as otherwise directed. Authorized representatives of CC/FEI will be in attendance. An authorized representative of the Contractor and its project supervisor and other concerned parties shall attend the conference. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work. Contractor will document the meeting and distribute meeting minutes no later than three days after the meeting.

- **Project Closeout-** Before requesting final inspection for certification of final acceptance and final payment, a project punchlist must be completed and accepted by CC/FEI. The punchlist shall state that each item has been completed or otherwise resolved for acceptance and shall be endorsed and dated by CC/FEI.

6 INSURANCE

The Contractor shall procure and maintain insurance as indicated by CC contract documents.

7 QUALIFICATIONS AND LIMITATIONS

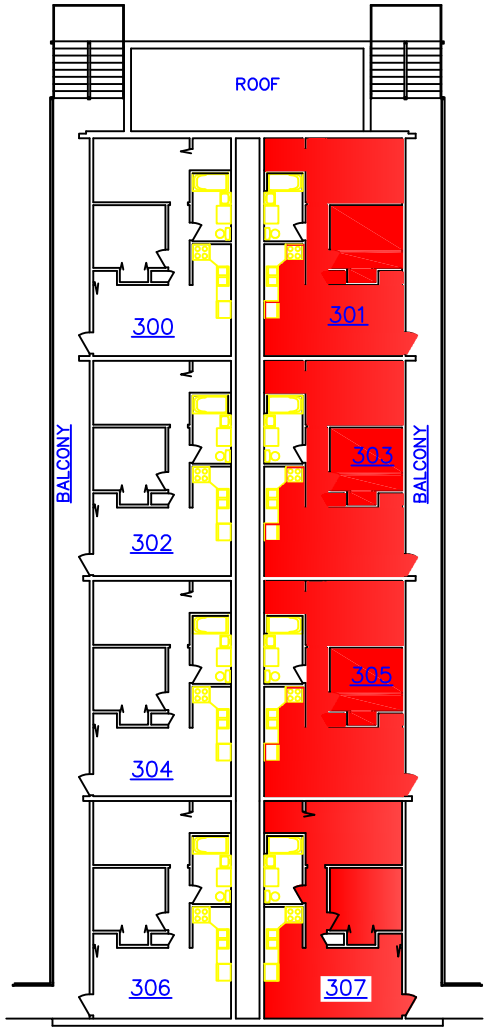
FEI completed this work plan in a manner consistent with current professional practices. Information was limited to previous sampling information and analyses described in the report provided by the client.

Procedures are prepared for use by the contractor, but do not limit the contractor from performing its work according to any regulations not included in this document.

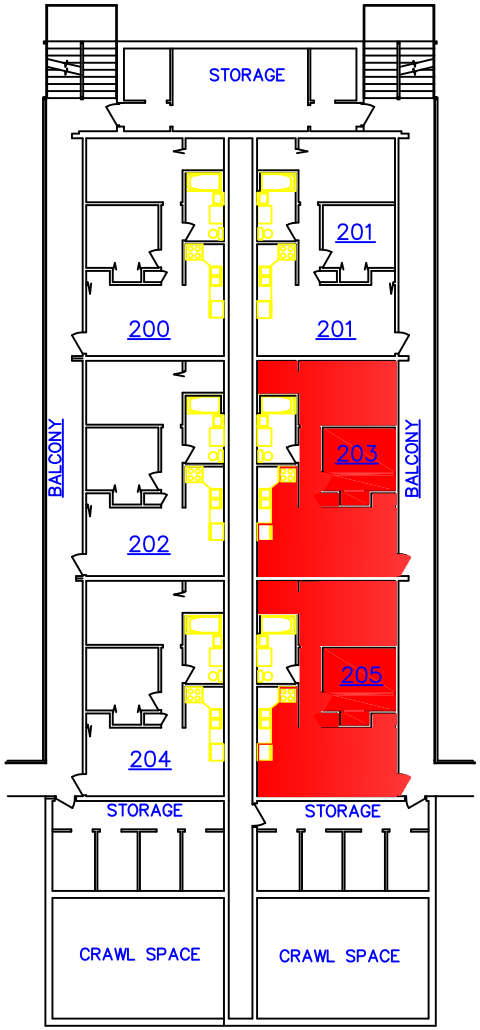
This report is intended for use only by the client or its designees. Any future use of this report by anyone other than the above-referenced client will require authorization by FEI.

ATTACHMENT 1

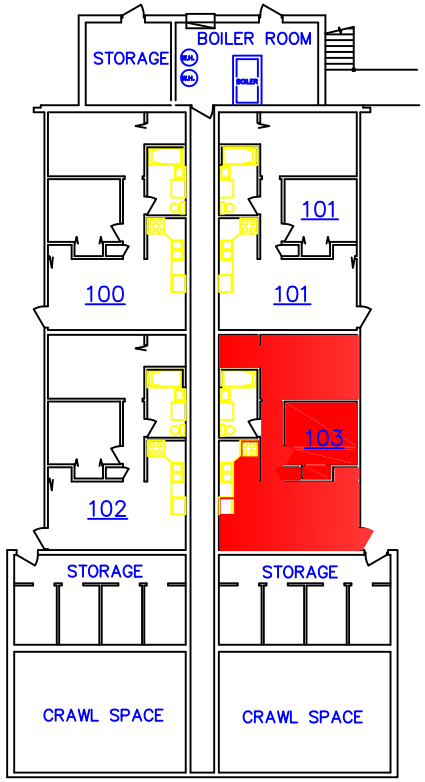
DRAWINGS



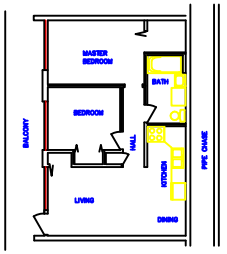
THIRD FLOOR PLAN (8 APTS)
WHEELER TERRACE APTS



SECOND FLOOR PLAN (6 APTS)
WHEELER TERRACE APTS

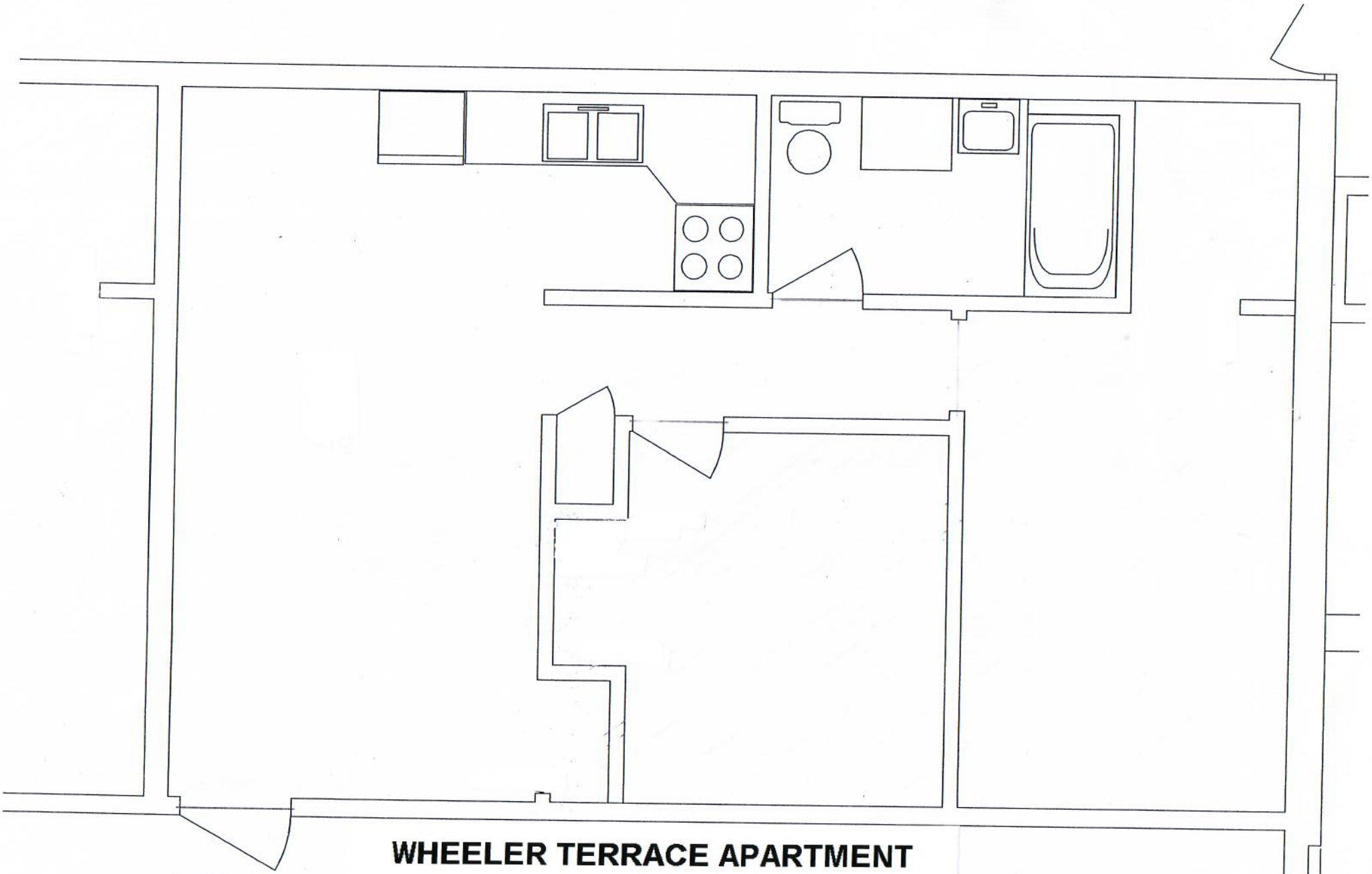


FIRST FLOOR PLAN (4 APTS)
WHEELER TERRACE APTS



TYPICAL FLOOR PLAN (18 REQ'D)
WHEELER TERRACE APTS

ACM Popcorn Ceiling to be removed



WHEELER TERRACE APARTMENT

3-22-21

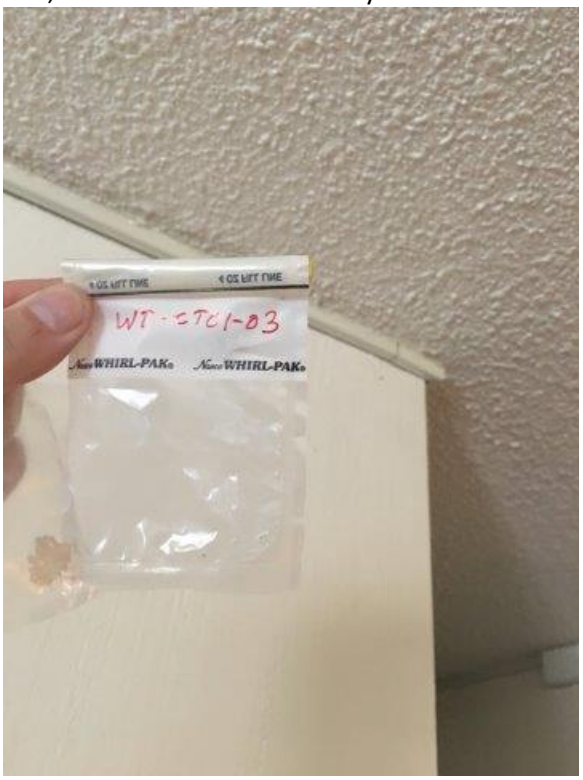
ATTACHMENT 2

PHOTOGRAPHS

Photographs – Wheeler Terrace

WT-CT01-01-Popcorn Ceiling Texture- Room 306, southwest corner-6% Chrysotile

WT-CT01-02-Popcorn Ceiling Texture- Room 306, northwest corner-Non-Detect



WT-CT01-03-Popcorn Ceiling Texture- Room 306,corner of kitchen and hallway- 6% Chrysotile

WT-CT01-04- Popcorn Ceiling Texture- Room 307, corner of kitchen and hallway-8% Chrysotile

Photographs – Wheeler Terrace

Photo of fire sprinkler line that must be protected during abatement

Photo of smoke alarm and light assembly that must be removed, cleaned and saved for reuse by Owner

ATTACHMENT 3

PREVIOUS INSPECTION DATA

Foothills Environmental, Inc.

Industrial Hygiene, Safety & Environmental Services

June 28, 2019

Tom Popilek c/o
Eric Rulofson
Facilities Operations Director
Casper College
Maintenance Building, Rm 301B
125 College Drive
Casper, WY 82601

RE: Limited ACM Inspection at Wheeler Terrace Apartments
FEI Project Number AS19078

Dear Mr. Rulofson:

On June 6, 2019 Foothills Environmental Inc. (FEI) conducted a limited asbestos inspection of suspect asbestos-containing materials (ACM) at the above-referenced site. These materials may be affected during current construction and/or planned repair activities at the site.

SUSPECT MATERIALS COLLECTED

The inspection was limited to Units 103, 306 and 307 of the building. Samples were collected of popcorn ceiling only. The following suspect materials were identified for sampling during the limited inspection:

- CT01 – Popcorn Ceiling Texture

SAMPLING PROCEDURES AND ACM DEFINITION

Mr. Ben Wilson, an Asbestos Inspector certified by the Environmental Protection Agency (EPA) conducted the limited asbestos inspection on June 6, 2019. Sampled materials were wetted with an amended water solution to minimize the release of airborne fibers during sample collection. A sample collection hand tool, cleaned after the collection of each sample, was used to remove a small sample of suspect material. Each suspect material was placed into a small plastic bag, labeled, and sealed. Upon completion of sampling activities, samples were placed into a sealed container along with chain of custody forms and delivered for analysis to Reservoirs Environmental Services Inc. (RESI) in Denver, Colorado. RESI an independent laboratory accredited by the National Voluntary Accreditation Program (NVLAP) and the American Industrial Hygiene Association (AIHA) analyzed the bulk samples utilizing Polarized Light Microscopy (PLM).

An ACM is defined by the EPA as a material with an asbestos content of greater than one percent (1%) by calibrated visual area estimate when analyzed by Polarized Light Microscopy (PLM). Materials containing 1% or less asbestos are considered Trace by EPA. The Occupational Safety and Health Administration (OSHA) Construction Asbestos Standard 29 CFR 1926.1101 contains work practice and engineering control requirements and prohibitions that must be observed regardless of the percentage of asbestos in installed construction materials. Even though these materials are not regulated under the NESHAP for demolition, consideration must be given for worker exposure during any activities that may disturb them.

Other suspect materials are present in other areas of the structure but were not sampled as part of this limited inspection. Some materials were damaged but most materials were intact and in their installed locations at the time of this inspection. FEI did not inspect outside of the proposed scope of work, underground conduit, electrical panels instruments or other appurtenances.

BULK SAMPLE INSPECTION SUMMARY

The inspection was completed by separating materials into Homogeneous Areas. A homogeneous area (material) is defined as an area containing a material that appears similar throughout with regard to color, texture, and date of application. Individual systems that were inspected, but not suspected to contain asbestos, are not included in this report. Such systems include concrete, carpet, fiberglass, plastic, and wood products.

From the list of suspect homogeneous areas, a physical assessment was performed for each material on the list. Each material on the list was further classified into one of three categories, which have specific sampling requirements for each category.

Surfacing Materials: Refers to spray or troweled applied surfaces such as plaster ceilings and walls, fireproofing, textured paints, textured plasters, and spray-applied acoustical surfaces.

Thermal System Insulation: Refers to insulation used to inhibit heat gain or loss on pipes, boilers, tanks, ducts, and various other building components.

Miscellaneous Materials: Refers to friable and non-friable products and materials that do not fit in any of the above two (2) categories such as resilient floor covering, baseboards, mastics, adhesives, roofing material, caulking, glazing, and siding. This category also contains wallboard, joint compound, and ceiling tiles.

The condition of suspect materials was evaluated as “good”, “damaged”, or “significantly damaged” using the following parameters:

Good: material with no visible damage or deterioration or showing only very limited damage or deterioration.

Damaged: material which has deteriorated or sustained physical injury such that the internal structure (cohesion) of the material is inadequate or, if applicable, which has delaminated such that the bond to the substrate (adhesion) is inadequate or which for any other reason lacks fiber cohesion or adhesion qualities. Damaged material are those that are <10% scattered or <25% localized.

Significantly Damaged: material which has extensive and severe damage. Significantly damaged materials are those that are >10% scattered or > 25% localized.

The physical assessment also includes evaluating the friability of the material. By definition, "friable" materials are those that can be crumbled or reduced to powder by hand pressure when dry. Each suspect material was classified as friable (F), Category I non-friable (Cat. I), or Category II non-friable (Cat. II), according to the U.S. EPA National Emissions Standard for Hazardous Air Pollutants (NESHAP) definitions.

The following table summarizes sample results collected for this project. A copy of analytical results is attached to this report for your reference. Room numbers (where indicated) are as described on Figure 1 in the attachments.

The following table summarizes results from samples collected at **Wheeler Terrace Apartments**:

Data #	Sample Number	Material Description	Sample Location	Condition	Approx. ACM Quantity	Building/ Room	Analytical Result
1	**WT-CT01-01**	**Popcorn Ceiling Texture**	**Room 306, southwest corner, at damage, ceiling**	**D / F**	**Not measured**	**Wheeler Terrace**	**6% Chrysotile in texture***
2	WT-CT01-02		Room 306, northwest corner, living room, ceiling	G / F		Wheeler Terrace	ND
3	**WT-CT01-03**		**Room 306 corner of kitchen and hallway, ceiling**	**G / F**		**Wheeler Terrace**	**6% Chrysotile in texture***
4	**WT-CT01-04**		**Room 307, corner of kitchen and hallway, ceiling**	**G / F**		**Wheeler Terrace**	**8% Chrysotile in texture***
5	WT-CT01-05		Room 307, northeast corner, living room, ceiling	G / F		Wheeler Terrace	ND
6	**WT-CT01-06**		**Room 103, southeast corner, living room, ceiling**	**G / F**		**Wheeler Terrace**	**8% Chrysotile in texture***
7	**WT-CT01-07**		**Room 103, over door in bedroom, ceiling**	**G / F**		**Wheeler Terrace**	**8% Chrysotile in texture***

F= friable
NF=non-friable

†= approximate total square feet of drywall

G=good
D=damaged
SD=significantly damaged

ND=none detected
*= multiple layers

Bold = ACM

ASBESTOS CONTAINING MATERIALS (ACM) GREATER THAN 1%

- CT01, Popcorn Ceiling Texture

MATERIALS CONTAINING 1% OR LESS (TRACE)

- None of the materials sampled for this limited asbestos inspection contained Trace asbestos.

CONCLUSIONS and RECOMMENDATIONS:

The Environmental Protection Agency (EPA) defines an Asbestos Containing Material (ACM) as a material containing more than 1% asbestos. The popcorn ceiling texture, CT01, was identified as ACM.

Drywall Texturing Compound is classified as a surfacing material and is generally non-friable as long as the texturing compound remains painted and in good condition. If the texturing compound is damaged by cutting, drilling, sanding etc., or damaged by water or fire, the texturing compounds could become friable and release fibers. OSHA has classified the removal of drywall texturing compound as ***Class I*** asbestos work, the most hazardous class of asbestos jobs. Class I asbestos work involves the removal of asbestos-containing or presumed asbestos-containing thermal insulation and sprayed-on or troweled-on surfacing material. Texturing compound must be removed by properly trained personnel according to the National Emission Standard for Hazardous Air Pollutants (NESHAP), prior to building demolition or renovation. Work must also comply with Notification and work requirements of the Wyoming Department of Environmental Quality (WDEQ) and disposed as ACM waste at an approved landfill.

LIMITATIONS:

FEI represents that our services are performed within the limits prescribed by applicable regulations and in a manner consistent with the level of care and skill ordinarily exercised by other professional consultants under similar circumstances. No other representation is made to the client, expressed or implied, and no warranty or guarantee is included or intended.

The building was occupied during the inspection; therefore, destructive testing was not completed as part of this investigation. It should be scheduled after the building is unoccupied and before development of a Scope of Work for ACM removal.

Limited areas of the structures were inspected for ACM. Attempts were made to identify and access suspect materials; however, the potential for additional unidentified materials may exist within inaccessible areas, such as behind walls, in chases, beneath carpeted areas, in machinery, in equipment, underground etc. Any suspect materials located in these areas should be assumed asbestos-containing until sample collection can be performed during destructive testing and subsequent analyses prove otherwise.

Conclusions of the report are professional opinions based solely upon site observations and interpretations of analyses as described in our report. The opinions presented herein apply to site conditions at the time of our investigation, and interpretation of current regulations pertaining to regulated materials. Therefore, our opinions and recommendations may not apply to future conditions that may exist at the building, which we have not had the opportunity to evaluate. The regulations should always be verified prior to any work involving regulated materials.

Within the limitations of scope, schedule, and budget, our services have been executed in accordance with generally accepted practices in this area at the time this report was prepared. No other hazardous materials/wastes were investigated. No other conditions, expressed or implied, should be assumed.

Please do not hesitate to contact me at (303) 232-2660 if you have any questions regarding this report.

Best regards,

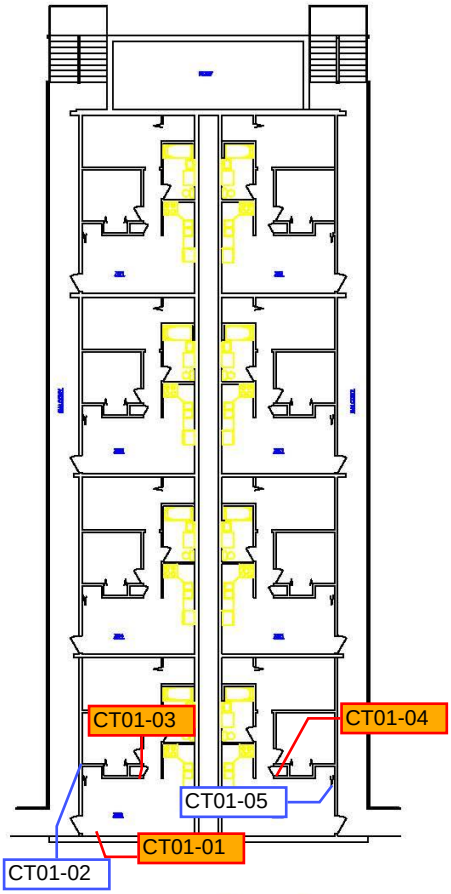
Ben Wilson
Industrial Hygienist
Asbestos Inspector # 25420

Reviewed by:

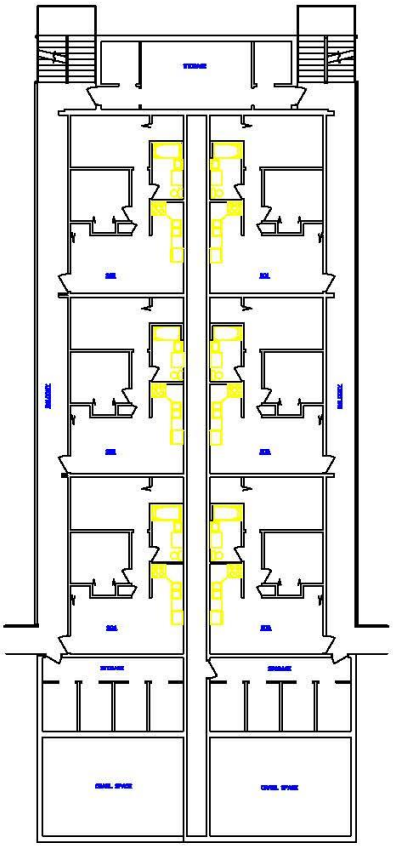
Daniel Benecke
Senior Environmental Scientist
Asbestos Inspector #1947

Attachments: Laboratory Report
Sample Location Drawings
Photographs
Certificates

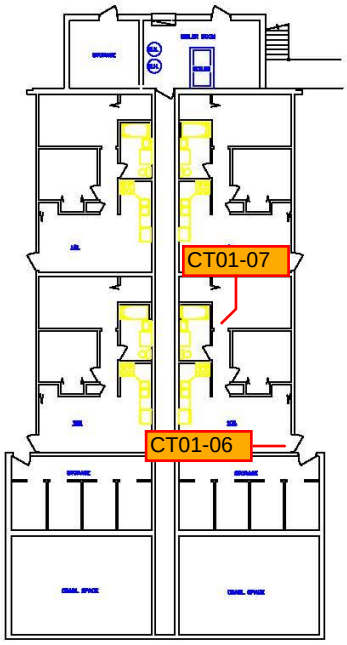
SAMPLE LOCATIONS DRAWING



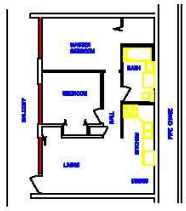
THIRD FLOOR PLAN (8 APTS)
WHEELER TERRACE APTS



SECOND FLOOR PLAN (6 APTS)
WHEELER TERRACE APTS



FIRST FLOOR PLAN (4 APTS)
WHEELER TERRACE APTS



TYPICAL FLOOR PLAN (18 REQ'D)
WHEELER TERRACE APTS

Non-ACM Sample Location

ACM Sample Location

N

Wheeler Terrace 475 College Dr. Casper, WY 82601	FEI Project #AS19078	Date: 6/19/19	Figure 1
	Approved by: NV	Drawn By: BCW	
	Foothills Environmental, Inc. 11099 W 8th Avenue Lakewood, CO 80215		

REI LAB **Reservoirs Environmental, Inc.**

June 10, 2019

Subcontract Number: **NA**
Laboratory Report: **RES 436876-1**
Project # / P.O. # **AS19078**
Project Description: **Wheeler Terrace Apts**

Dan Benecke
Foothills Environmental, Inc. (Lakewood)
11099 W. 8th Avenue
Lakewood CO 80215

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 436876-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

AnneMarie R. Kieffer for

Jeanne Spencer
President

RESERVOIRS ENVIRONMENTAL INC.

NVLAP Lab Code 101896-0

TABLE: PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number: **RES 436876-1**
Client: **Foothills Environmental, Inc. (Lakewood)**
Client Project Number / P.O.: **AS19078**
Client Project Description: **Wheeler Terrace Apts**
Date Samples Received: **June 06, 2019**
Method: **EPA 600/R-93/116 - Short Report, Bulk**
Turnaround: **Priority**
Date Samples Analyzed: **June 10, 2019**

ND=None Detected
TR=Trace, <1% Visual Estimate
Trem/Act=Tremolite/Actinolite

Client Sample Number	LAYER	Physical Description	Sub Part (%)	Asbestos Content: Mineral	Asbestos Content: Visual Estimate (%)	Non Asbestos Fibrous Components (%)	Non-Fibrous Components (%)
WT-CT01-01	A	White micaceous compound	30	**Chrysotile**	**6**	0	94
	B	Backing adhesive white foamy texture w/ off white paint	70		**ND**	0	100
WT-CT01-02	A	White foamy texture w/ off white paint	100		**ND**	0	100
WT-CT01-03	A	White micaceous compound	10	**Chrysotile**	**6**	0	94
	B	White foamy texture w/ off white paint	90		**ND**	0	100
WT-CT01-04	A	Off white paint	10		**ND**	0	100
	B	White micaceous texture	90	**Chrysotile**	**8**	0	92
WT-CT01-05	A	White foamy texture w/ off white paint	100		**ND**	0	100
WT-CT01-06	A	Off white paint	10		**ND**	0	100
	B	White micaceous texture	90	**Chrysotile**	**8**	0	92
WT-CT01-07	A	Off white paint	10		**ND**	0	100
	B	White micaceous texture	90	**Chrysotile**	**8**	0	92

TEM Analysis recommended for organically bound material (i.e. floor tile) if PLM results are <1%.

Piper-Lenore O. Murphy

Analyst / Data QA

Due Date:_____
Due Time:_____

RES 436876

Reservoirs Environmental, Inc.

5801 Logan St. Denver, CO 80216 • Ph: 303 964-1986 • Fax 303-477-4275 • Toll Free :866 RESI-ENV

Page 1 of 1

After Hours Cell Phone: 720-339-9228

INVOICE TO: (IF DIFFERENT)		CONTACT INFORMATION:	
Company: Foothills Environmental, Inc.	Company:	Contact: Dan Benecke	Contact:
Address: 11099 W. 8th Avenue	Address:	Phone:	Phone:
Lakewood, CO 80215		Fax:	Fax:
		Cell/pager: 720-471-2642	Cell/pager:
Project Number and/or P.O. #: AS19078		Final Data Deliverable Email Address:	
Project Description/Location: WHEELER TERRACE APTS.		dan@foothillsusa.com	

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm & Sat. 8am - 5pm

PLM / PCM / TEM ____ RUSH (Same Day) X PRIORITY (Next Day) ___STANDARD (3-5 Day)
(Rush PCM = 2hr, TEM = 6hr.)

CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm

Metal(s) / Dust** ___ RUSH ___ 24 hr. ___3-5 Day
RCRA 8 / Metals & Welding Fume Scan / TCLP** __RUSH (3 Day)__5 Day __10 Day
Organics ___ 24 hr. ___ 3 day ___5 Day

Prior notification is required for RUSH turnarounds.

MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm

E.coli and/or Coliforms* ___ 24-48 Hour Other: _____
Pathogens* ___ 24-48 Hour
Microbial Growth* ___ 5-10 Day
Legionella ___ 10 Day
Mold ___ RUSH ___24 Hr ___48 Hr ___3 Day ___5 Day

TAT dependent on speed of microbial growth.

Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.

Special Instructions: AUTO P.C. TRACE

REQUESTED ANALYSIS

VALID MATRIX CODES

Air = A	Bulk = B
Dust = D	Paint = P
Soil = S	Wipe = W
Swab = SW	F = Food
Drinking Water = DW	Waste Water = WW
O = Other	

ASTM E1792 approved wipe media only

LAB NOTES:

Client sample ID number (Sample ID's must be unique)	PLM - Short report, Point Count, Long report, Qualitative	TEM - AHERA, Level II, 7402, ISO, +/- (Air, Bulk or Dust), Quant, Semi-Quant, Micro-vac, ISO-Indirect Preps	PCM - 7400A, 7400B, OSHA	DUST - Total, Respirable	METALS - Analyte(s) RCRA 8, TCLP, Welding Fume, Metals Scan, pH	ORGANICS - METH, TSS	MICROBIOLOGY: Pathogens: Aerobic Plate Count, Salmonella, E.coli O157:H7, Listeria, S.aureus, Camphlobacter: +/- or Quantification	MICROBIOLOGY: E.coli and/or Coliforms: +/- or Quantification	MICROBIOLOGY: Microbial Growth: Aerobic Plate Count ID, Bacteria or Y & M: +/- or Quantification	MICROBIOLOGY: Legionella: +/- or Quantification	MICROBIOLOGY: Other: Bioburden, LAL or Environmental	MICROBIOLOGY: Mold: Spore Trap or Bulk: +/-, Identification, Quantification	SAMPLER'S INITIALS OR OTHER NOTES:	Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yy	Time Collected hh/mm a/p	EM Number (Laboratory Use Only)
1 WT-CT01-01	X														B		6/6/19		
2 " -02	X																		
3 " -03	X																		
4 " -04	X																		
5 " -05	X																		
6 " -06	X																		
7 " -07	X																		
8																			
9																			
10																			
11																			
12																			
13																			

Number of samples received: _____ (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: _____ Date/Time: 6/6/19

Laboratory Use Only
Received By: _____ Date/Time: 6/6/19 4:30P Carrier: Hand / FedEx / UPS / USPS / Drop Box / Courier

Sample Condition: On Ice Yes / No | Sealed Yes / No | Intact Yes / No
Temp. (F°) _____

Results:	Contact	Phone	Email	Fax	Date	Time	Initials	Contact	Phone	Email	Fax	Date	Time	Initials
	Contact	Phone	Email	Fax	Date	Time	Initials	Contact	Phone	Email	Fax	Date	Time	Initials

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Denver, CO 80221,
United States of America
Colorado State Approval No. 22651

Certificate of Achievement

This certificate is awarded to:

Ben Wilson

In recognition of satisfactory completion of the EPA-approved initial asbestos training course under section 206 of the Toxic Substance Control Act (TSCA), Title II entitled:

BUILDING INSPECTOR

Course Dates:	March 18 - 20, 2019
Examination Date:	March 20, 2019
Expiration Date:	March 20, 2020
Course Hours:	24.0

Verify this Credential

Danaya N. Benedetto
CEO & Training Program Manager

Credential License ID:
12714719

CHC Training
Safety Quality Compliance Integrity
Est. 2007
Accredited Alumni

Frank Hulce
Instructor

CHC Training Certificate No.
I19-0351-AI-CO

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