August 16, 2017

Mr. William E. Schmid, AICP
City Manager
465 Riley Road
Dahlonega, GA 30533

RE: Cursory Observations and Review
Existing Three-Story Structure
24 East Main Street
Dahlonega, GA

Dear Sir:

Per your request and authorization site observations were conducted on the existing building structure on August 8, 2017. The purpose of this site observation was to view the general structural condition of the building and to determine structural framing, including layout and member sizes so that the structural capacity of the floor framing could be determined. The observation was limited due to finish conditions of the building, however, member sizes of the main floor level and the second floor could partially be recorded. Observations of the main floor framing from the basement area provided sufficient information to determine the structural capacity of the main floor. Observations indicated that the second floor was framed in the same general direction with the same floor joists member sizes. Sufficient information was obtained to determine allowable floor loading.

The building at 24 East Main in Dahlonega, is a two-story structure with a full basement. The basement is partially used for storage, the first floor level was occupied by two restaurants and the third floor contains six apartments, of which two are still occupied. The remainder of the building is vacant. The approximate size of the building is 60’ x 80’. The main floor is at street and sidewalk level while the basement slab occurs at grade level at the rear of the building. The second floor is approximately 12 feet above the main level floor. Access to the second floor is by a stairway from grade level to Level 1 and Level 2 at the rear southeast corner of the building. The stairway is open on two sides, however, it is covered with a roof. The exterior wall consist of concrete masonry unit and these walls have been covered with siding material. The masonry units are unique in that they are 5 inches in height and 4 inches thick by 8 inches in length. These are hollow core concrete masonry units. They have been up so that they

provide a 12 inch thick wall and the piers in the basement are also by 12” x 12” unit. We can find no record of this type of masonry ever being developed or used for previous construction. Therefore the strength of these units are completely unknown. The framing on the interior of the building is typical timber framing. Floor joists at the second and first floors are 2 x 8 Southern pine members spaced at approximately 18 inches on center. There are approximately four bays across the width of the building indicating that the joists will be spanning between 14 and 15 feet. Timber beams extend from front to rear of building. The beams are made out of three members, of which two are 3 1/2” x 9 1/2”, and the third member is 1 1/2” x 9 1/2” for an overall beam sizes of 8 1/2” x 9 1/2”. Again, the beams appear to be Southern Yellow pine. The span of the beam is approximately 15 feet. Although we could not confirm it due to finished materials at Level 1 and Level 2, we were advised that the framing pattern in the basement area for the first floor was typical from the first floor to the second floor. This could be partially confirmed in open areas of the Level 1 floor. Roof framing was not available with the exception of one small area which indicated that roof joists and ceiling joists at the second floor were 2 x 6’s. However, it is uncertain as to how they were framed.

Observations of the building based on our limited viewing did not reveal any major signs of structural failure. Observations of the following items are noted:

1. The rear stair and porch have a number of indications of rotting materials in areas most exposed to the weather.
2. The railings around Level 1 and Level 2 porch area have failed and are not structurally adequate or code compliant for the building.
3. The stairs have been constructed with varying riser heights and do not comply with applicable codes.
4. Noticeable floor deflection occur at Levels 1 and 2 in the building. Estimated deflection in certain areas varies from 1 to 2 inches. These deflections occur both in the joists and in the major beams.
5. Many of the beams in Level 1 have been propped in the basement area with timber posts. These posts are supported on the concrete floor slab with no apparent foundation below.
6. Openings in the Level 1 floor framing have not been properly framed or supported.
7. It could not be determined from these observations whether any of the masonry walls or masonry piers have been grout filled.
8. Foundations under the masonry walls or piers are unknown.
9. At the front section of Level 2, a section of the building has been cantilevered out beyond the Level 1 to Level 2 wall and the framing pattern and support cannot be determined.
10. The post supporting the canopy, along the side walk and street curb level, have not been properly maintained. Some posts are crocked and some of the bases have been shifted so that they do not provide adequate support.

Observation of the masonry did not reveal any major cracking or deterioration. There were a number of piers on the exterior of the building which we have assumed were provided as bracing for the masonry wall. Observations on the interior of the building on the basement level did not reveal any signs of settlement of any of the piers or masonry walls. The floor slab did not appear to have any severe cracking in any area.

Floor joists and beams have been structurally analyzed based on the size of the members and the various length of span. An analysis of the Level 1 beams and floor joists both indicate an allowable live load of approximately 30 pounds per square foot. At Level 2 we could only analyze the floor joists which also indicated an allowable live load of approximately 30 pounds per square foot. There is no apparent structural framing system or provisions for this building to resist either wind loading or seismic loading. The exterior walls appear to be the only lateral load resisting system. The capacity of the exterior walls is questionable. It is uncertain what code was applicable for the construction of this building in the 1940's, however, our library has codes for the 1950's which would indicate a live load for restaurants of 100 pounds per square foot, 75 pounds per square foot for retail space, and 40 pounds per square foot for apartments. Those capacities are not available in any area. The same specified live loads for current codes matches the values quoted above. Based on slight observations of the roof framing it is doubtful that the 2 x 6 roof joist noted would support a live load of 20 pounds per square foot per code.

Since this is an old existing building where certain features do not comply with current codes, it could be brought to adequate structural capacity for current use by providing for the following:

1. Provide new beams and posts at mid-span of all Level 1 floor joists, therefore, cutting the span of the joist in half. The beams would have to be three 2 x 12's supported by timber or steel posts at 15 feet on center. A 2'6 x 2'6 x 1' footing would be required at each post.
2. The existing posts at mid-span of the existing beams at Level 1 should be removed and replaced with either a steel or wood post, supported on a properly sized footing of 2'6 x 2'6 x 1'.
3. Framing around existing openings at Level 1 should be reframed to provide adequate support for framing at the opening.
4. Corrective repairs as noted above could provide an allowable live load on Level 1 of either 75 pounds per square foot for retail or 100 pounds per square foot for restaurants or assembly areas.
5. The second floor framing would be more difficult to reinforce. However, with the local building official's approval, an allowable live load of 30 pounds per square foot would probably be adequate for apartment or residential use.
6. Further observations and exposure of the roof framing would be necessary in order to recommend any corrective action.

7. The rear deck and stairs should be renovated in order to provide for a sound structure and code required stairs and rail.
8. The recommended repair and alterations of the building outlined above would not trigger upgrades for lateral loading based on the requirements of chapter 34 of the International Building Code 2012 edition.

Although not structural in nature, the following items should be considered:

1. Second egress stairs from Level 2 apartments.
2. A fire-resistant floor between Level 1 and Level 2
3. Fire-resistant wall in between tenants at either Level 1 or Level 2

It is my professional opinion that this building can be reasonably renovated for current use. If I may provide additional information or be of further service at this time please contact me.

Sincerely,

BENNETT & PLESS, INC.

Rex T. Pless, PE

RTP/nfh