August 26, 2020

Diane & Micah Tomlinson
11477 Womack Cemetery Road
Montgomery, Texas 77316

RE: Engineering Report on Structural Integrity of Residence located at 149 Waterstone Drive, Waterstone Subdivision, Montgomery, Texas

Dear Mr. & Ms. Tomlinson,

Pursuant to your request, I have completed my analysis of the referenced residence, and offer the following comments.

1. Visual observations ascertain that the residence in question is a one-story, timber stud wall with brick and stone veneer and artificial wood (Hardiplank™) siding structure, on a reinforced concrete base slab supported by a similar material foundation. Records indicate that this edifice is approximately eight (8) year's old.

2. The structural components investigated were the roof framing, load-bearing walls, window and door apertures, and foundation. The investigative method employed was empirical. The equipment utilized included a direct/differential level, a flashlight, tape measure and compass.

3. Although no serious vertical or diagonal tension cracks were observed in the exterior face of either the brick veneer and/or corresponding foundation grade beam along the perimeter of the structure, the following deficiencies were noted at the described locations (compass directions):

    a. A diagonal shear crack was observed at the northeast corner of the foundation (grade bam/benign);
    b. Hairline cracks were observed in three different locations along the tile flooring, all of which are considered due mainly to temperature differentials, and are also benign; and,
    c. Drainage along all sides of the structure, as well as landscaping, appeared proper and well maintained, with the exception of some areas along the westernmost and easternmost sides, where the exterior grade beam appeared slightly overexposed.

4. With the exception of the deficiencies heretofore mentioned, further inspection of the interior revealed no significant sheet rock cracks in walls or ceilings, and subsequent level checks of the remaining walls and floors indicate no excessive deflection (unevenness) or significant movement of this edifice.

5. Finally, an inspection of the roof framing revealed no separation of the rafters from the main ridge beam. The ridge beam appears capable of carrying the rafter loads. However, the roof structure does appear to need additional cross-bracing (more commonly referred to as *collar ties*).

6. The aforementioned cracking at the locations indicated is the result of extremely *minor* movements (vertical or horizontal), temperature differentials (thermal expansion) or some other condition not deleterious to the structure (such as workmanship...etc.), none of which are, in my opinion, settlement or movement related, nor are furthermore considered serious enough to warrant repairs.

7. Based on the foregoing observations, it is my opinion that the foundation for the referenced residence is structurally sound, and no further remedial action is recommended at this time. It is, however, recommended that all exterior grade beams be backfilled (or excavated) to within four (4) inches of the top of concrete. Finally, it is recommended that additional collar ties be installed within the Roof Framing area to prevent further movement.

If you have any questions, please contact me.

It is a pleasure to serve and assist you professionally.

Sincerely,

Ernest W. DeLuca, P. E.

EWD/lvd