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Clint Weirich
Tar Heel Basement Systems
8005 Knightdale Blvd.
Knightdale, NC 27545

Re: Review of Proposed First-Floor Framing Reinforcement — 1963 Temple Road, Bunnlevel, NC 28323

Mr. Weirich,

At your request, Stonewall Structural Engineering, PLLC (Stonewall) was consulted to review and provide recommendations for first-floor framing reinforcement proposed by Tar Heel Basement Systems at the above referenced address. The purpose of the proposed first-floor framing reinforcement is to address issues observed by Tar Heel Basement Systems while on-site September 2, 2025.

Conditions Evaluated

Based on the information provided by Tar Heel Basement Systems, we understand the subject structure to be a conventionally framed, detached, single-family residence with raised first floor framing over a pier/curtain wall foundation system (*see pictures 1-2*). Indicators such as “left,” “right,” “front,” and “back” are referenced as viewing the front of the home.



Picture 1 – Front of home (1963 Temple Road, Bunnlevel, NC 28323)



Picture 2 – Typical crawlspace conditions and first-floor framing

The following issues were reported by Tar Heel Basement Systems:

1. Uneven floors were reported in the front-left section of the home.
 - a. Reported measurements indicated that the floors in the area were down by as much as approximately $\frac{1}{2}$ " relative to the back-right corner.
 - b. Reported investigation from within the crawlspace indicated that (2) joists in the front-left joist bay, located approximately 6'-0" from the left foundation, wall were cracked (see picture 3).

In order to address the issues noted above, Tar Heel Basement Systems has proposed the following first-floor framing reinforcement:

1. Reinforce the reported cracked joists with an additional ply of full depth treated 2x #2 Southern Yellow Pine (SYP). Sistered material should be continuous between end supports.



Picture 3 – Example of a cracked joist

Engineering Assessment and Recommendations

The observed cracked floor joist is possibly the result of prolonged exposure to high moisture levels within the crawlspace. As the moisture content of wood increases, its strength decreases, which can result in excessive deflection (i.e. sagging) when loaded. This increase in deflection can lead to framing members cracking.

Based on our review of the information provided, the proposed first-floor framing reinforcement is recommended to be installed as follows:

1. Reinforce each of the deteriorated joists noted above with an additional full depth ply of 2x #2 Southern Yellow Pine (SYP), fastened to the side of the deteriorated joists using (3)10d common nails at each end and at 12" on-center staggered top and bottom along the lengths of the joists. Sistered material should span continuously between end supports.

General Comments and Limitations

The determinations above were made in accordance with common engineering principles and the intent of the 2018 edition of the *North Carolina Residential Building Code*. Our review and assessment of the proposed reinforcement(s)/foundation repair(s) was limited to the information provided by Tar Heel Basement Systems, and Stonewall was not consulted to visit the subject project site. As such, Stonewall is not liable for any issues arising beyond the scope of information provided to Stonewall. Should additional information become available, or if site conditions are found to vary from those reported, Stonewall is to be notified and consulted regarding possible impacts to the structure's integrity and/or the effectiveness of the recommendations presented.

Sequencing, and means and methods of construction are considered to be beyond the scope of this report. A qualified contractor is to provide adequate temporary shoring prior to cutting or removing any structural load-bearing elements. All work is to conform to applicable provisions of current building standards. Please feel free to contact us should you have any questions or concerns regarding this matter.

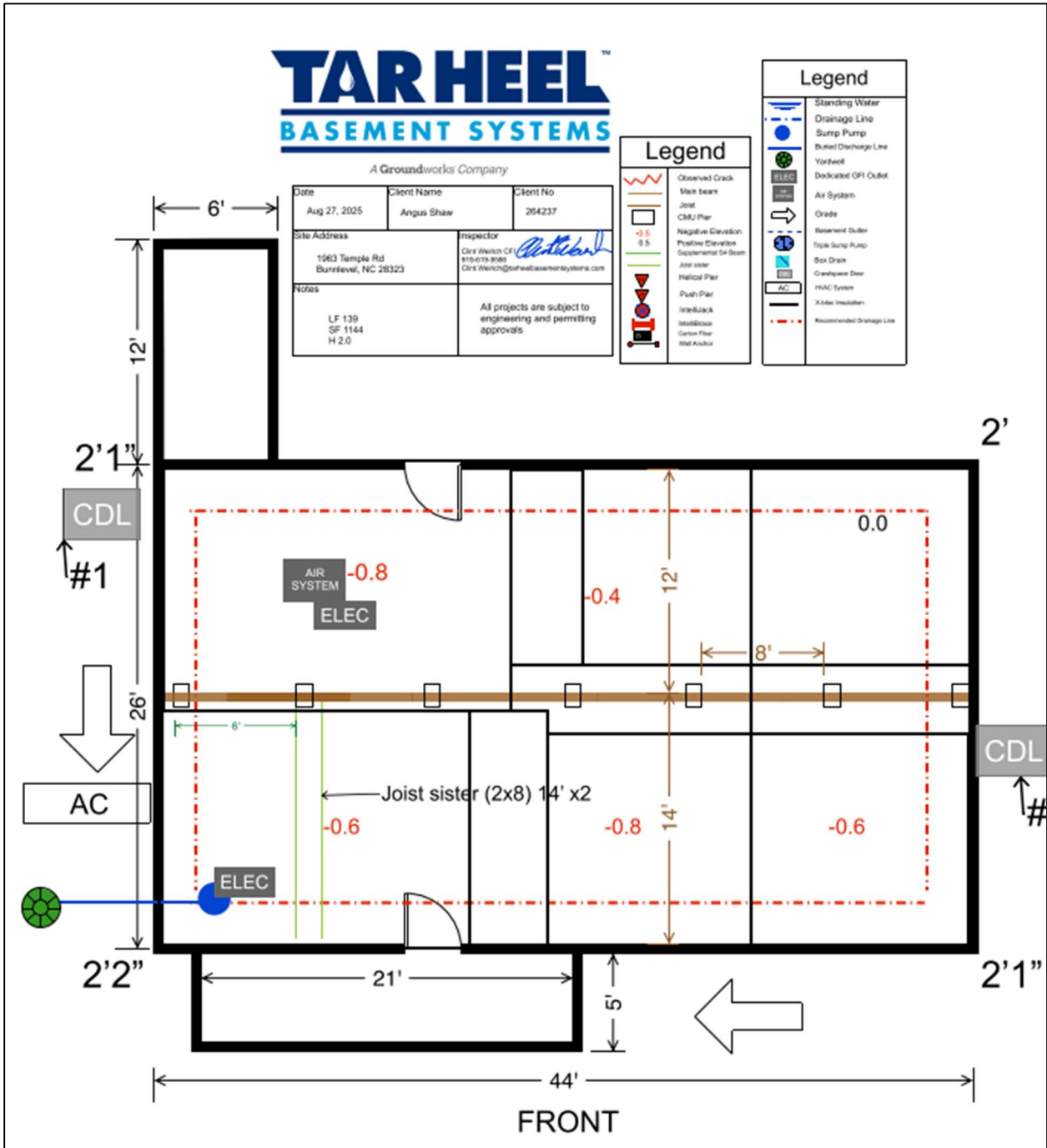
Sincerely,

Matthew C. Murphy, PE
Stonewall Structural Engineering, PLLC
Lic. #P-0951



09/18/2025

DETAIL ADDENDUM



Detail 1 – Repair Schematic
(Provided by Tar Heel Basement Systems)