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Zach Kibler
Tar Heel Basement Systems
8005 Knightdale Blvd.
Knightdale, NC 27545

Re: Review of Proposed First-Floor Framing Reinforcement — 25 Dinghy Drive, Sanford, NC 27332

Mr. Kibler,

At your request, Stonewall Structural Engineering (SSE) 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(s) is to address issues observed by Tar Heel Basement Systems while on-site July 8, 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/girder foundation system with perimeter masonry foundation walls (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
(25 Dinghy Drive, Sanford, NC 27332)



Picture 2 – Typical crawlspace conditions and
first-floor framing

The following first-floor framing issues were observed by Tar Heel Basement Systems while on site:

1. Drywall cracks and uneven floors were reported near the middle of the home.
 - a. It was reported that the joists in the middle joist bay were sagging.

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

1. An approximate 18'-0" of supplemental S4x7.7 beam is proposed to be installed to support the joists in the middle joist bay. The new beam is proposed to be supported by (3) equally spaced IntelliJacks.



Picture 5 – Drywall cracks



Picture 6 – Uneven floors

Engineering Assessment and Recommendations

The observed sagging floor framing 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.

Based on our review of the information provided, the proposed foundation repair are recommended to be installed as follows:

1. Install the proposed supplemental S4x7.7 dropped girder within the middle $\frac{1}{3}$ of the joists. The new girder should span across the locations shown in the attached repair schematic (see *Detail 1*) over IntelliJack supports on well-compacted 18"x18"x18" gravel footings spaced no more than 6'-6" apart (see *Detail 2*).
 - a. The supplemental dropped girder may be comprised of multiple segments provided splices between adjoining segments are located over supports.
 - b. Where feasible/practical, the ends of the new supplemental girder are recommended to start/stop under walls such that the changes in floor stiffness are less noticeable.

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 first-floor framing reinforcement was limited to the information provided by Tar Heel Basement Systems, and SSE was not consulted to visit the subject project site. As such, SSE is not liable for any issues arising beyond the scope of information provided to SSE. Should additional information become available, or if site conditions are found to vary from those reported, SSE 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.

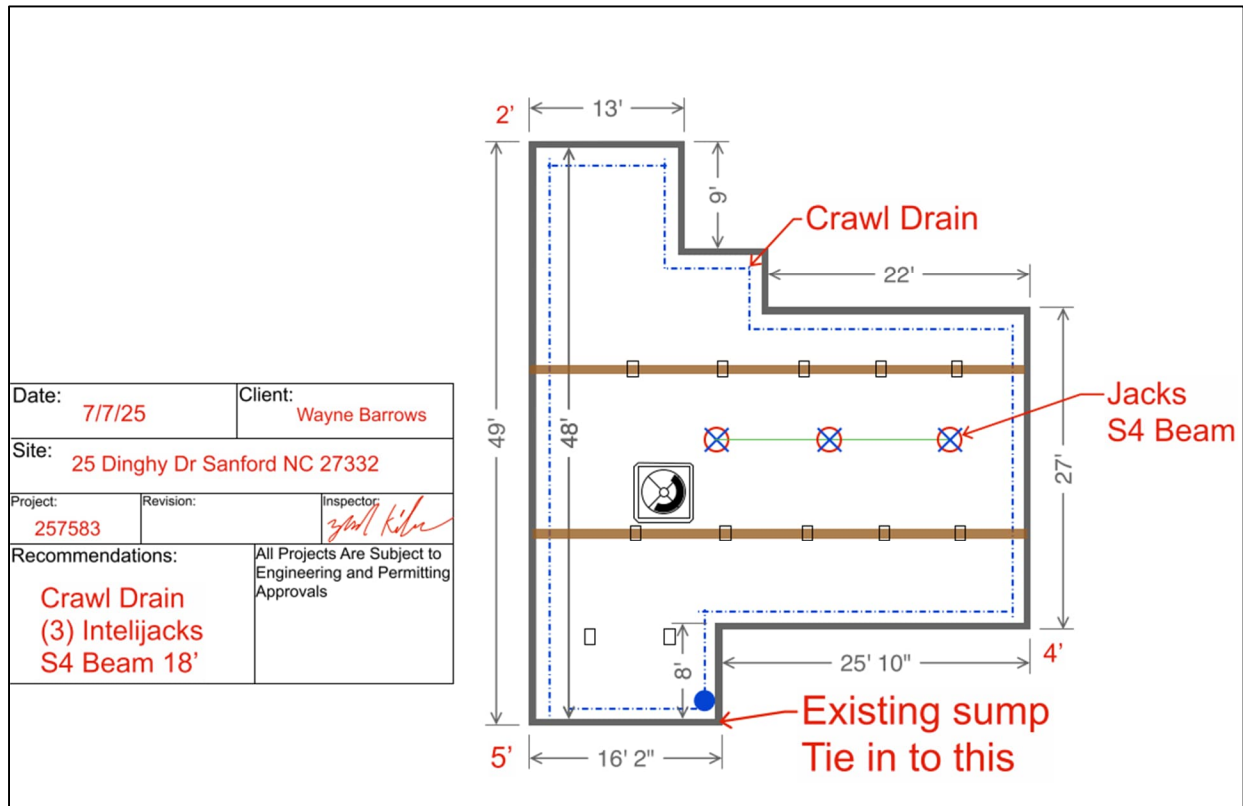
Sincerely,

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

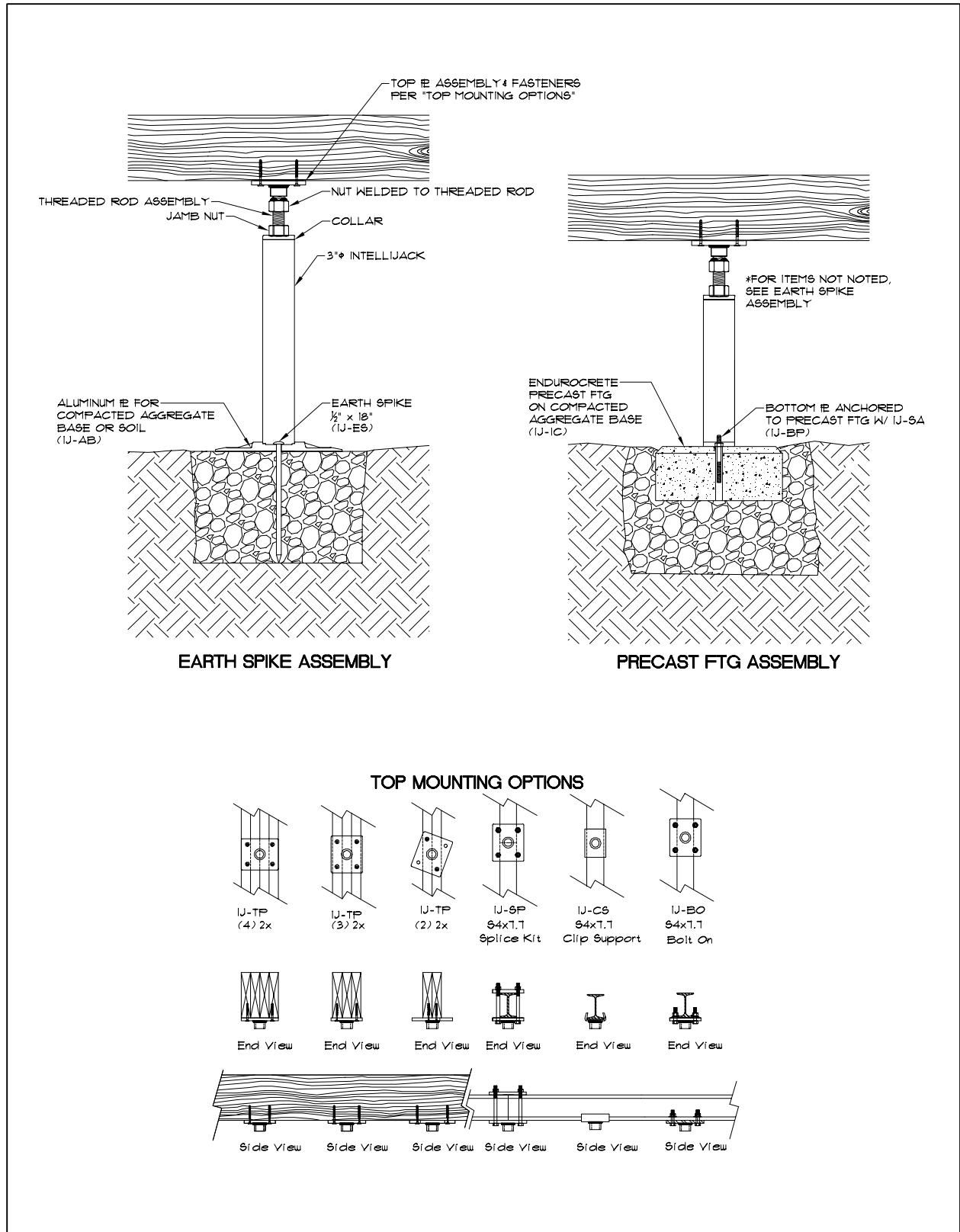


07/29/2025

DETAIL ADDENDUM



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



Detail 2 – IntelliJack Specifications