JDS Consulting
ENGINEERING • DESIGN • ENERGY

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**Date:** **10/06/2025**

**To:** **Joseph Davis**
Caruso Homes
206 High House Road
Cary, NC 27512
jdavis@carusohomes.com
240-539-6282

**Re:** **Over-Sized Foundation Specification**
Location: 265 Mill Bend Dr. Fuquay-Varina, NC
JDS Project No.: RDU2509372, RDU2510405
Date of Inspection: 09/09/25 (Revised 9/22/25, Revised 10/6/25)

A representative of JDS Consulting arrived on site to observe the issues reported to us by the client, which are presented, along with our recommendations, in this report.

**Observations**
The client requests oversized foundation wall specifications for the front porch front walls. The front wall and front porch wall will be approximately 12'-8" tall maximum, and the front porch rear wall will be approximately 12'-0" tall maximum.

**Recommendations**

<u>Where the front porch walls will be 12'-0" to 12'-8" maximum tall;</u>
**Footing:**

1) The existing footing is inadequate for the anticipated wall height.
2) Excavate a 1'-6" footing extension on the toe side of the footing, matching the existing footing depth. Additionally, excavate a 12" wide by 30" deep key at the toe side. Total depth of the footing extension will be 40".
    a. Dowel and epoxy #4 rebar spaced 12" on center into the mid-depth of the existing footing a minimum of 6". The rebar will extend out of the existing footing horizontally, and then turn down 90° into the center of the key, extending to the bottom of the key.
    b. Install a horizontal #4 rebar running the length of the footing, tied at the 90° bend of the rebar mentioned in a.
    c. Install a horizontal #4 rebar running the length of the footing at the bottom of the key, tied to the rebar mentioned in a.
    d. Note: The key can be omitted wall that will butt up against the garage slab. The footing extension is still required however.
3) **Before placing concrete with a minimum strength of 3,000 psi, ensure the footing preparation is inspected and approved.**
4) **The toe of the footing required a minimum of 24" of compacted fill to be placed above the footing.**

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**CMU Foundation Wall:**

1) Dowel and epoxy vertical #5 rebar, spaced 8" on center, a minimum of 6" into the footing such that the rebar is 3" from the earth side of the wall. The rebar will extend a minimum of 24" above the footing.
2) Construct a 12" CMU wall centered on the original footing reinforced with vertical #5 rebar at 16" on center. Ensure the rebar overlaps the full 24" length of the rebar extending out of the footing. **After completion of the bottom 1/3rd, the contractor shall ensure rebars have been inspected and approved.**
3) The wall should be no more than 12'-8" tall (measured from the top of the footing) with maximum 10'-8" of unbalanced fill.
4) At the front porch, #4 rebar hooks should be installed at 16" o.c. along the top of the wall, embedded minimum 16" into the wall, and bent 90 degrees to extend minimum 48" into the adjacent porch slabs.

**Before filling the wall solid the client shall ensure the walls have been inspected and approved.**

<u>Where the front porch will be maximum 11'-4" tall;</u>

**Footing:**

5) The existing footing is inadequate for the anticipated wall height.
6) Excavate a 1'-6" footing extension on the toe side of the footing, matching the existing footing depth. Additionally, excavate a 12" wide by 30" deep key at the toe side. Total depth of the footing extension will be 40".
    a. Dowel and epoxy #4 rebar spaced 12" on center into the mid-depth of the existing footing a minimum of 6". The rebar will extend out of the existing footing horizontally, and then turn down 90° into the center of the key, extending to the bottom of the key.
    b. Install a horizontal #4 rebar running the length of the footing, tied at the 90° bend of the rebar mentioned in a.
    c. Install a horizontal #4 rebar running the length of the footing at the bottom of the key, tied to the rebar mentioned in a.
    d. Note: The key can be omitted wall that will butt up against the garage slab. The footing extension is still required however.
7) **Before placing concrete with a minimum strength of 3,000 psi, ensure the footing preparation is inspected and approved.**
8) **The toe of the footing required a minimum of 12" of compacted fill to be placed above the footing.**

**CMU Foundation Wall:**

5) Dowel and epoxy vertical #5 rebar, spaced 8" on center, a minimum of 6" into the footing such that the rebar is 3" from the earth side of the wall. The rebar will extend a minimum of 24" above the footing.
6) Construct a 12" CMU wall centered on the original footing reinforced with vertical #5 rebar at 16" on center. Ensure the rebar overlaps the full 24" length of the rebar extending out of the footing. **After completion of the bottom 1/3rd, the contractor shall ensure rebars have been inspected and approved.**

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7) The wall should be no more than 11'-4" tall (measured from the top of the footing) with maximum 10'-4" of unbalanced fill.
8) At the front porch, #4 rebar hooks should be installed at 16" o.c. along the top of the wall, embedded minimum 16" into the wall, and bent 90 degrees to extend minimum 48" into the adjacent porch slabs.
9) **Before filling the wall solid the client shall ensure the walls have been inspected and approved.**

Where the front porch walls will be maximum 10'-8" tall;

**Footing:**

1) The existing footing is inadequate for the anticipated wall height.
2) Excavate a 1'-0" footing extension on the toe side of the footing, matching the existing footing depth. Additionally, excavate a 12" wide by 26" deep key at the toe side. Total depth of the footing extension will be 36".
    a. Dowel and epoxy #4 rebar spaced 12" on center into the mid-depth of the existing footing a minimum of 6". The rebar will extend out of the existing footing horizontally, and then turn down 90° into the center of the key, extending to the bottom of the key.
    b. Install a horizontal #4 rebar running the length of the footing, tied at the 90° bend of the rebar mentioned in a.
    c. Install a horizontal #4 rebar running the length of the footing at the bottom of the key, tied to the rebar mentioned in a.
    d. Note: The key can be omitted at walls that will butt up against the garage slab. The footing extension is still required however.
3) **Before placing concrete with a minimum strength of 3,000 psi, ensure the footing preparation is inspected and approved.**
4) **The toe of the footing required a minimum of 12" of compacted fill to be placed above the footing.**

**CMU Foundation Wall:**

1) Dowel and epoxy vertical #5 rebar, spaced 16" on center, a minimum of 6" into the footing such that the rebar is 3" from the earth side of the wall. The rebar will extend a minimum of 24" above the footing.
2) Construct a 12" CMU wall centered on the original footing reinforced with vertical #5 rebar at 16" on center. Ensure the rebar overlaps the full 24" length of the rebar extending out of the footing. **After completion of the bottom 1/3rd, the contractor shall ensure rebars have been inspected and approved.**
3) The wall should be no more than 10'-6" tall (measured from the top of the footing) with maximum 9'-6" of unbalanced fill.
4) At the front porch, #4 rebar hooks should be installed at 16" o.c. along the top of the wall, embedded minimum 16" into the wall, and bent 90 degrees to extend minimum 48" into the adjacent porch slabs.
5) **Before filling the wall solid the client shall ensure the walls have been inspected and approved.**

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**Notes:**

- **Install a 9-gauge galvanized ladder wire between every course of CMU.**
- **All cells should be grouted solid for the full height of the wall.**
- **All rebar shall be centered in the wall unless otherwise noted.**
- **At the top of the wall, the 12" CMU may transition to 8" CMU to create a 4" ledge for the porch slab to be placed upon.**
- **The porch slab should be reinforced with a #4 rebar grid spaced 16" o.c. in both directions.**
- **All rebar should have a minimum of 3" of clear cover on all sides.**
- **All rebar splices should have a minimum 24" of overlap length.**
- **Design assumes 2,000 psf soil bearing capacity, with a maximum of 35 psf active soil pressure.**
- **Temporary shoring is required for unbalanced fill greater than 48", until wall is fully cured.**
- **Gently backfill front porch with clean washed #57 stone.**

If you have any questions or if I can be of further assistance to you on this project, please contact me at 984-344-4691.

Respectfully Submitted,
Patrick Ruff


Reviewing Engineer:
Maxwell C. Danskin, PE