CGS Review Comments
EP-24-0045 Grandview Reserve Phase 3
File No. PUDSP241
Portion of Sections 21, 22, 27, & 28 T12S, R64W, 6th P.M.
38.9906, -104.5552
Grandview Reserve Phase 3

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With this resubmittal, we reviewed the Geologic Hazard Evaluation and Preliminary Geotechnical Investigation (CTL Thompson, Inc., Revised October 7, 2024), Letter of Intent (HR Green Development, LLC, October 17, 2024), PUD Development Plan and Preliminary Plan (HR Green, October 17, 2024), Early Grading and Erosion Control Plan (HR Green, October 16, 2024), and other documents. CTL's report provides a valid description of surface and subsurface conditions and soil and bedrock engineering properties. CTL states on page 8, "The most significant hazard identified at this site is shallow groundwater." We offer the following comments and recommendations.

1. Based on the referral documents, the site is located within a designated FEMA floodplain (Map Numbers 08041C0556G and 08041C0552G, December 7, 2018) and plans are in process to establish new floodplain limits. The PUD Development Plan (Floodplain Notes, note 3) states, "Those lots either partially or entirely located within the current floodplain shall not be platted until the floodplain boundary revision process is completed effectively removing the floodplain limits from these lots," and note 5, "No structures or solid fences are permitted within the designated floodplain area." CGS concurs with the PUD Development Plan that no lots should be associated with the current floodplain. **CGS recommends establishing a setback from the flood hazard boundary to reduce hazards associated with floodwater inundation, erosion, and scour**. CGS looks forward to reviewing the preliminary plat application once the flood limits are approved/revised. No build areas should be added to lots that include hazards.

2. CGS commends CTL for installing monitoring wells within the site. From October 10, 2023 through October 3, 2024, measurements indicated groundwater depths between 0.1 and 14.1 feet. **Based on these updated groundwater levels for one calendar year, the groundwater ranges from at the surface to less than 9 feet below existing grades.** Proposed grading plans still need to be finalized; however, it does not appear that proposed grades will result in significant fill across the site to mitigate shallow groundwater.

3. The letter of Intent states (p. 15), "Due to the known high groundwater conditions there will be no basement foundations proposed within the Phase 3 project limits." However, according to the PUD, "Subsurface drainage concepts are being studied by a hydrogeology consultant to potentially lower groundwater levels throughout the site. Basements may be allowed in those areas where groundwater has been sufficiently lowered."

   Additionally, CTL states (page 3), "Lots where groundwater is expected to be within 10 feet of the proposed surface are restricted from basement construction." CTL's revised report appears to allow some flexibility for basement feasibility for lots where groundwater is greater than 10 feet below the proposed grades. CTL does not provide specific quantities of cut/fill in their report. **CGS recommends that a cut/fill exhibit be included in CTL's study, illustrating the proposed grades and monitoring test holes showing groundwater levels**. CGS agrees with the letter of intent that below-grade levels should not be allowed within the Grandview Reserve Phase 3 development due to the shallow groundwater levels**.**

4. CGS has concerns with the proximity of groundwater to crawlspace level foundation systems, which was a previous concern of CTL (Phase 2, CTL Thompson, Inc., Revised February 27, 2024). The separation distance between the lowest floor levels and maximum anticipated groundwater levels (determined by the monitoring program) should be at least three feet (preferably five feet) and maintained year-round. **CGS recommends that CTL review monitoring holes vs. proposed grades of the lots when available to determine if crawlspace levels are feasible**. CGS agrees with CTL, "Typical foundation drains are capable of dealing with minor surface water infiltration but are not designed as a dewatering system for groundwater."

5. CTL states (page 19), "If groundwater is present within 2 feet of the pond bottom at the time of construction, we recommend installation of a clay liner or geosynthetic liner to prevent groundwater from entering the basin and being lost to evaporation." **CGS recommends that CTL review monitoring holes vs. proposed grades of the detention ponds when available and provide recommendations for a pond liner as applicable**.

6. **CGS recommends that the geologic hazard note (Soil and Geology Conditions) on the preliminary development plan should be updated to identify lot numbers for the geologic constraints, specifically shallow groundwater**. This note should be incorporated into the preliminary and final plats going forward. No build areas should be added to lots with geologic hazards/constraints.

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