BAUER associates, inc.

GEOTECHNICAL CONSULTANTS

January 16, 2019
Job No. 3476.78

Howard & Linda Spillers
170 Dorchester Court
Santa Rosa, CA 95403

Plan Review
Geotechnical Engineering Services
during Final Design
170 Dorchester Court
Larkfield Estates Subdivision
Santa Rosa, California

This letter transmits our comments regarding the following project plans:

1. Sheets T, A1, A2, A3, A5, & A6, dated October 30, 2018, & Sheet A4, dated October 25, 2018, prepared by Kadello & Larsen.

2. Sheets S0.1 – S3.2, dated December 20, 2018, prepared by Taylor & Syfan.

We previously performed a geotechnical investigation for the project and transmitted the results in our January 19, 2018 report. We are performing this plan review as requested by you and in general accordance with the continuing services clause of our February 1, 2018 agreement.

We have reviewed the soil related portions of the referenced plans and find that the plans are in general conformance with the intent of our recommendations. However, we recommend that following comments be incorporated into the project plans:

1) For clarification to the contractor, the typical foundations notes should indicate that: 1) foundations must extend at least 12 inches into firm materials below the weak soils; 2) where expansive soils are exposed in foundation excavations, the foundations must be at least 36 inches below lowest adjacent grade; and 3) where footings are deepened, the deepened foundation excavations can be backfill with unreinforced lean

Westside Center
6470 Mirabel Road
Post Office Box 460
Forestville, CA 95436
707.887.2505

(2 sack) concrete to within 18 inches of lowest adjacent grade. This assumes that weak soils will not be excavated and replaced as engineered fill.

2) The project structural engineer should confirm whether tiebeams can be supported in weak soils or must be deepened into suitable bearing materials similar to other bearing foundations.

3) The entry and garage slabs should be separated from foundations with felt paper, mastic, or other positive and low friction separation. If slabs are connected, the weak soils should be excavated and recompacted for their full depth. Further, expansive soils must be mitigated (i.e. 30 inches of compacted select fill).

4) We did not observe drainage comments on the plans. Site drainage should be carefully installed to mitigate the risk of seepage and to improve site stability. The following comments are provided relative to this concern:

   a) The building areas must be graded to provide positive drainage away from the building foundations.

   b) Underfloor areas should be sloped to drain and provided with outlets. Where the underfloor areas are lower than exterior areas, there will be a risk of seepage into the lower areas, both from rainfall and landscape irrigation. Improved mitigation of this seepage risk can be provided by the installation of interior and perimeter foundations drains.

   c) Roofs should be provided with gutters, and the downspouts connected to non-perforated pipes discharging in erosion resistant areas well away from the structures and slopes. Roof downspouts and surface drains must be maintained entirely separate from subsurface drainage.

   d) Outlets should be provided in the slab rock to reduce the risk of water build up in the slab rock. Increased mitigation could be provided by installation of trench subdrains beneath the slab rock if desired.

As a reminder, it should be expected that the garage and exterior slabs-on-grade will experience differential movements. If better slab performance is required or desired, it will be necessary to overexcavate portions of the weak and expansive soils (if encountered) and replace these with suitable non-expansive fill. We can provide specific recommendations for improved slab performance, as requested.

Providing grading recommendations for the new driveway areas were not part of our investigation scope of work. If desired, we would be pleased to provide supplemental consultation regarding the driveway.

We should observe the start of foundation excavations to note the conditions exposed and provide recommendations to the contractor. We should observe the completed excavations prior to the placement of reinforcing steel and concrete. We will observe the geotechnical and special inspection related items on an "on-call" basis. We can not comment on the adequacy of items we are not contacted to observe. We must be provided with at least 48 hours notice for scheduling our initial site visit, and 24 hours thereafter.

We trust this provides the information you require at this time. If you have questions or wish to discuss this further, please call.

Very truly yours,

BAUER ASSOCIATES, INC.

Bryce Bauer

REGISTERED PROFESSIONAL ENGINEER
BRYCE BAUER
NO. GE 2139
1/16/19
GEOTECHNICAL
STATE OF CALIFORNIA

Bryce Bauer
Geotechnical Engineer

BB (pr/les spillers)
Email only