COLORADO GEOLOGICAL SURVEY

1801 19th Street
Golden, Colorado 80401

Karen Berry
State Geologist

January 22, 2019

Kari Parsons
El Paso County
Planning & Community Development
2880 International Circle, Suite 110
Colorado Springs, CO 80910

Location:
Section 35,
T12S, R65W of the 6th P.M.
38.9623, -104.6357

Subject: **The Ranch – Sketch Plan**
File number SKP186; El Paso County, CO; CGS Unique No. EP-19-0051

Dear Ms. Parsons:

Colorado Geological Survey has reviewed The Ranch sketch plan referral. I understand the applicant proposes up to 2100 residential units on 610 acres located southeast of Raygor Road and Stapleton Drive in Falcon. The available referral documents include:

- Set of three sketch plans (N.E.S., Inc., December 21, 2018),
- The Ranch Sketch Plan Letter of Intent (NES, Inc., December 2018),
- Impact Identification Report (CORE Consultants, December 20, 2018),
- Wetland Delineation Report (CORE Consultants, revised December 19, 2018),
- Master Development Drainage Plan for The Ranch (Classic Consulting, November 2018), and
- Geologic Hazard Study and Preliminary Subsurface Soil Investigation, The Ranch (Entech Engineering, July 12, 2018).

CGS previously reviewed this site as Elkhorn Estates/Subdivision; comments were provided in letters dated April 2, 2001, March 1, 2004, March 3, 2009, and December 18, 2009. Concerns involved erosion along drainages, shallow bedrock and groundwater, and expansive clay layers and lenses within the surficial soils and bedrock. A previous Entech report described an active alluvial fan in the north-central portion of the property, but no evidence of an active fan was observed during my site visit (January 17, 2019), nor is a fan visible in imagery or LiDAR-derived hillshades.

The site is located within an "Area of Minimal Flood Hazard," is not undermined, contains only isolated areas of moderate slopes and non-jurisdictional wetlands along drainages, and is not exposed to any geologic hazards that would preclude the proposed residential use and density.

According to available geologic mapping (Madole, R.F., 2003, Geologic Map of the Falcon NW 7.5 Minute Quadrangle, El Paso County, Colorado: Colorado Geological Survey, Open-File Report OF03-08, scale 1:24,000), the site is underlain by conglomerate, sandstone and claystone of the Dawson formation. Alluvium and eolian (wind-deposited) soils overlie the Dawson. Entech provides a valid description of surface and subsurface conditions, soil and bedrock engineering properties, and potential geotechnical constraints. These include: hydrocompaction (settlement or collapse under wetting and loading), loose soils, expansive soils and bedrock, areas of seasonally shallow groundwater and ponded water, artificial fill, and erosion. **Entech's mitigation and preliminary design recommendations are valid.** However:

Existing drainages as conduits of subsurface groundwater/perched water flow. Several of the existing drainages are proposed to remain as open space/trail corridors. The applicant states in the Letter of Intent that some intermittent drainages will be regraded, presumably to allow development. Soils within drainages tend to remain conduits for subsurface flow even after drainage channels have been filled, truncated or relocated. CGS has received complaints from homeowners in the Wolf Ranch area about overactive sump pumps, wet basements, and wet yards because drainages were filled without regard for surface and subsurface water.

CGS recommends excluding from development all existing drainages and areas corresponding to Entech's mapped sw (shallow water) and psw (potentially shallow water) as identified on Entech's Figure 6. Alternatively, Entech's recommendations regarding development within shallow groundwater areas (page 10) may be applied, but CGS agrees that additional investigation to better characterize seasonal water levels is recommended after grading plans have been finalized.

Thank you for the continued opportunity to review and comment on this project. If you have questions or require additional review, please call me at (303) 384-2643, or e-mail carlson@mines.edu.

Sincerely,

Jill Carlson, C.E.G.
Engineering Geologist