

COLORADO GEOLOGICAL SURVEY

1801 19th Street
Golden, Colorado 80401
303.384.2655



Karen Berry
State Geologist

November 29, 2017

Raimere Fitzpatrick
El Paso County Development Services Dept.
2880 International Circle, Suite 110
Colorado Springs, CO 80910

Location:
SW ¼ of NE ¼ of Section 5
T12S, R66W of the 6th PM
39.036°, -104.800°

Subject: Grant Minor Subdivision, El Paso County, CO
El Paso County File Number MS-17-067: CGS Unique No. EP-18-0004

Dear Raimere:

Colorado Geological Survey has reviewed the submittal for this property. For this review we received: request for review (El Paso County, 11.8.17), Letter of Intent (Grant, 7.14.17), Application Form (Grant, 6.25 and 9.5.17), Land Description (unknown entity and date), Fish and Wildlife letter (Fish and Wildlife, 6.22.16), Plat (Pinnacle Land Surveying Company, 7.10.17), Waste Water Report (RMG, 11.6.17), and Geologic and Soils Report (Grant, 9.14.17). We understand that the applicant will divide the single existing parcel into 2 parcels. Lot 1 will be about 11 acres and will retain the existing dwelling. Lot 2 will be about 30 acres of currently vacant land.

The site is located outside of any mapped flood hazard zones, is not undermined, and does not contain, nor is it exposed to, any identified geologic hazards that would preclude the existing and proposed residential use. **CGS therefore has no objection to approval of the minor subdivision as proposed.** However, we have several comments.

We understand that a Report Modification [as defined by El Paso County Subdivision Regulations 8.49(C)(2)(e)] has been authorized for this submittal. The Geologic and Soils Report identifies Pring (map symbols 71,72) and Tomah-Crowfoot (map symbol 93) as the soils underlying the site. As shown in the tables in the Soil Survey, Soil 93 is rated as moderate (slope) for building site and moderate (percs slowly) for septic tank and absorption fields. "Moderate" is defined on page 74 of the Soil Survey: "A moderate limitation indicates that soil properties and site features are unfavorable (emphasis added) for the specified use, but the limitations can be overcome or minimized by special planning or design." The applicant concludes in their report that "There are not adverse Geologic or Soils conditions on the Grant Subdivision." While the constraints posed at the site are not severe, there are limitations that must be recognized and mitigated in the areas mapped as Soil 93. The Geologic and Soils Report should include the limitations of the soil and requirement for special planning and design for both the slopes and the slow percolation rates indicated for Soil 93. The final report should be recorded on the plat.

Soil 93 is found on side slopes of hills, such as at this site. While the shallow pits reported by RMG did not encounter bedrock (or groundwater) at the time they were excavated, the topography (ridge and swale) of the higher portions of the site indicate relatively shallow bedrock (~ <10 feet). Shallow bedrock conditions can produce "perched" groundwater conditions. In addition, the published geologic map identifies "Sheet-wash" (map unit Qsw) in the central portion of the property. Sheet-wash can be prone to consolidation or soil collapse after loading and/or wetting.

Site-specific investigations must be conducted for all future structures proposed for the subdivision. The site specific foundation investigations, including drilling, sampling, lab testing and analysis will be needed, to characterize soil and bedrock engineering properties such as density, strength, water content, and swell and consolidation potential; identify unstable and potentially moisture-sensitive (expansive and collapsible) soils and expansive claystone bedrock; and determine depths to groundwater and bedrock. Additionally, the investigation needs to develop specifications for subgrade preparation and structural fill placement, maximum cut and fill slope angles and heights, and design of foundations, floor systems, retaining walls, and surface and subsurface drainage.

The plat and other documents have a discrepancy that should be corrected regarding the Section number this minor subdivision is located in. It is recorded as Section 22 in the header of the plat and as Section 5 in the Land Description of the plat. Our evaluation indicates that the subdivision is in Section 5.

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

Sincerely,



Jonathan R. Lovekin, P.G.
Senior Engineering Geologist