

COLORADO GEOLOGICAL SURVEY

1801 19th Street
Golden, Colorado 80401
303.384.2655



April 19, 2018

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

Location:
West Section 5,
T11S, R65W of the 6th PM
39.1219°, -104.6973°

Karen Berry
State Geologist

**Subject: Hudson Minor Subdivision, El Paso County, CO;
File Number MS182; CGS Unique No. EP-18-0033**

Dear Nina:

Colorado Geological Survey has reviewed the subject referral. For this review we received: Application, (2.26.18), Letter of Intent (Jerome W. Hannigan, February-March, 18), Grading and Erosion Control Plan (JPS, 1.24.18), Construction Drawings (JPS, 3.8.18), Modified Geology and Soils Report (author unknown, date 3.1.18), and various other documents. We performed a site reconnaissance on 4.16.18.

The submitted modified geology and soils report provides a valid description of surface conditions. However, it does not discuss geologic hazards and engineering constraints imposed by the geology. A geologic hazard report will be required (per county ordinance) prior to final Plat for these lots. The site is not undermined, is located outside of any mapped FEMA flood hazard zones, and does not contain, nor is it exposed to, any identified geologic hazards that would preclude the proposed residential use and density. However, steep slopes will limit locations of house sites. **CGS has no objection to approval of this 4-lot minor subdivision provided that building sites are limited to areas outside of steep slopes. Steep slopes should be designated no-build areas on the plans.**

Slopes. The property is located within ground that includes slopes exceeding 30% as shown in the light colored areas in Figure 1. An initial no-build area should be defined by the county or the applicant for areas with slopes greater than about 30%. Lot specific studies will be required that should evaluate slopes in relation to building site locations.



Figure 1. Slope map showing areas greater than 30% as calculated from a 1 meter digital elevation model (DEM) derived from LIDAR images.

Geologic hazards, soils and bedrock engineering properties, and foundation design. The site has alluvium (QTa) of unknown depth overlying bedrock (TKda5) of the Dawson and exposed bedrock in places. Typical geologic hazards and

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engineering constraints can include, shallow hard bedrock, seasonally perched shallow groundwater, erosion, expansive soils associated with the Dawson, and as already pointed out, steep slopes. These geologic hazards must be addressed by a professional geologist prior to final plat (per County Ordinance). This can be done as part of lot-specific geotechnical investigation, prior to building permit application, consisting of drilling, sampling, lab-testing and analysis needed to: characterize soil and bedrock engineering properties such as density, strength, water content, and swell/consolidation potential; determine depths to groundwater and bedrock, verify the feasibility of full-depth basement, if planned; and provide earthwork, foundation, floor system, surface and subsurface drainage, and pavement recommendations for design purposes.

OWS. Due to percolation tests (reported to exceed 60 minutes) the applicant states the septic systems will need to be engineered systems. Along with low percolation, steep slopes will also require engineering for the systems. Since engineered septic systems tend to require more maintenance and have shorter life spans than conventional systems, a backup OWS location should be identified on each lot.

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