

COLORADO GEOLOGICAL SURVEY

1801 19th Street
Golden, Colorado 80401



Karen Berry
State Geologist

August 29, 2018

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

Location:
Portions of
Sections 32, 33, 27, 28, T12S, R65W and
Sections 4, 5, T13S, R65W, of the 6th PM
38.725, -104.659

Subject: Sterling Ranch Filing No. 2, Final Plat, File No. SF1820
El Paso County, CO; CGS Unique No. EP-19-0014

Dear Kari:

The Colorado Geological Survey (CGS) has reviewed the Final Plat submittal for Sterling Ranch Filing No. 2. We understand from the letter of intent that the Final Plat includes 49 single-family lots, 1 tract for future residential lots, 10 tracts for landscaping, public improvements and public utilities, the widening of Vollmer Road adjacent to the filing, and the construction of Marksheffel and Sterling Ranch Road within the filing. CGS previously reviewed the Sterling Ranch Sketch Plan in our letter dated December 19, 2007.

The submitted documents include:

- Application and Letter of Intent
- Final Drainage Report, M&S Civil Consultants, March 2018,
- Grading, Erosion, and Stormwater Quality Control Plan, M&S Civil Consultants, March 14, 2018,
- Geologic Hazard/Land Use Study and Preliminary Subsurface Soil Investigation, Entech Engineering, October 21, 2006,
- Geologic Hazard Evaluation, Entech Engineering, January 20, 2009, and,
- other various documents.

Geologic Hazard Report and Final Plat: Entech's report(s) identify areas of geologic hazards and provides preliminary conceptual plans for mitigation of these hazards. An unnumbered plat note between notes 25 and 26 states: "*The following lots and tracts have been found to be impacted by geologic hazards. Mitigation measures and a map of the hazard area can be found in the report (Entech, 2009) ...The following lots and tracts are impacted: Unstable slopes: Lots 21 through 30 Shallow groundwater: Tracts C, D and E Seasonal shallow groundwater: Tracts B, D, I, and J*". The copies of the geotechnical reports we received do not include all the figures. Figure 5 and 8 are missing from the 2009 report. Figure 5 (2009 report) is the Development Plan/Test Boring Location Plan and Figure 8 (2009 report) is the Geology Map/Engineering Geology map. We are unable to verify that the areas identified with geologic hazards by Entech are the same areas discussed in the plat notes. We would appreciate the opportunity to review these figures compiled by Entech.

Entech notes that mitigation of some of the identified geologic hazards can be accomplished through site grading. They state (p.11, 2009 report): "*Specific slope stabilization recommendations are beyond the scope of this report. Further investigation is recommended as grading plans are developed.*" CGS concurs with Entech's recommendation for further geotechnical investigation and recommendations now that grading plans have been developed.

We recommend that the geotechnical engineer provide engineering recommendations based on the Final Plat,

Grading and Drainage Plans for at least the following issues:

- the location of preliminary building setback lines in unstable and potentially unstable slope areas, and/or comments on planned site grading and if it will mitigate these (and other) hazards, and
- feasibility of basements in areas of seasonal and permanent shallow groundwater

These geotechnical recommendations should evaluate both the proposed lots and tracts and be included in the plat notes.

Soil and bedrock engineering properties.

Entech makes appropriate *preliminary* geotechnical recommendations based on the results of six borings, limited SPT's (standard penetration tests, an *in situ* test indicating relative density) and limited laboratory testing. They have identified sporadic areas of highly expansive soils and have apparently mapped areas with collapsible soils (hydrocompaction) within the site. We concur with Entech's recommendation that additional lot-specific investigations be conducted for all proposed structures.

- The site specific foundation investigations, including drilling, sampling, lab testing and analysis will be needed, once building locations are finalized 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; determine depths to groundwater and bedrock; evaluate the feasibility of full-depth basements, if planned; identify overexcavation areas, if stabilization (of loose soils) is determined to be necessary; and provide earthwork, foundation, floor system, surface and subsurface drainage, and pavement recommendations for design purposes.

Grading Erosion and Stormwater Plans

These plans reference a soils report by CTL Thompson. If a report has been prepared by CTL Thompson we recommend that it be submitted for review or the reference be changed to the report of record (i.e. Entech). The grading plan states in note 27 that a portion of the property "*is located within a designated FEMA floodplain...*" We can find no indication of this on the plat.

CGS concurs with Entech that there are no geologic conditions that preclude development at this location. However, as stated in our previous letter for the development sketch-plan there are "*geologic issues that may adversely affect development...*" **CGS cannot recommend approval of the Final Plat as currently proposed without a building setback line shown in at least lots 21-30 and statements on feasibility of basements (i.e. no basement areas) within the property.** We look forward to reviewing a revised Final Plat, and any additional analysis, revised plans and updated geotechnical recommendations.

Thank you for the opportunity to review and comment on this project. If you have questions or require further review, please call 303-384-2654, or e-mail jlovekin@mines.edu.

Sincerely,



Jonathan R. Lovekin
Senior Engineering Geologist