COLORADO GEOLOGICAL SURVEY

1801 Moly Road
Golden, Colorado 80401

Matthew L. Morgan
State Geologist and Director

February 27, 2025

BrieAnna Simon
Development Services
Town of Castle Rock
100 N. Wilcox Street
Castle Rock, CO 80104

Location:
Portions of N½ Section 31 and S½
Section 30, T7S, R66W of the 6th P.M.,
Portions of SE¼ Section 25 T7S,
R67W of the 6th P.M.
39.405, -104.826

Subject: Canyons Far South – Site Development Plan SDP23-0041 and Planning Development Plan PDP25-0002, Town of Castle Rock, Douglas County, CO; DU-24-0008

Dear BrieAnna:

As requested (Email, February 6, 2025), the Colorado Geological Survey has reviewed the Canyons Far South Site Development Plan and Planning Development Plan referral for residential and commercial development on 409 acres consisting of 515 single-family homes on 150 acres, 11.8 acres of commercial use, and open space, roads, and infrastructure on approximately 232.7 acres. The available referral documents include the Site Development Plan (Hines, 1/21/2025), Narrative (PCS Group, January 30, 2025), and other documents. A Land Suitability Analysis Report for Canyons Far South Planning Areas 1, 2, 3, 4, & 5 (PCS Group, November 2023), which included as Appendix D a Geologic and Preliminary Geotechnical Investigation for Canyons South Option Parcel (CTL|Thompson, Inc. (CTL), Project No. DN51,896-115-R1, dated May 19, 2023) was previously reviewed for this development. CGS's review comments from January 10, 2024 are still valid and contained herein.

CTL's characterization of subsurface conditions, preliminary geotechnical recommendations, and Figure 3 refusal depth and elevation for delineating areas where hard bedrock and difficult excavation conditions are likely to be encountered are valid. CGS has the following comments and recommendations.

Steep slopes and drainages. The revised planning areas PA1 through PA5 generally avoid steep slopes and drainages. CTL references potentially unstable slopes along McMurdo Gulch. However, other drainages and steep slopes exist within the planning areas. Setbacks from the crest and toe of all steep slopes (especially the steep slope south and east of PA2) and the crest of all drainages **are strongly recommended** to reduce the risk of damage due to erosion and local instability.

Debris flow susceptibility. The eastern area of PA3 is within a mapped debris-flow susceptible area (Debris Flow Susceptibility Map of Douglas County, Colorado: McCoy et al., CGS Open File Report OF-18-08). CTL states (page 6), "We did not observe evidence of slumps, mudflows, or debris flows outside the drainages. Where development encroaches on steep slopes, sensitive site design will be necessary." The debris deposition/inundation hazard and the need for mitigation or avoidance should be evaluated in this area by a qualified professional.

Expansive soils and bedrock. CTL states in their report and presented in Figure 4 that a low to high risk for expansive soil and bedrock exists within the project area and preliminarily recommends (page 15) that "sub-

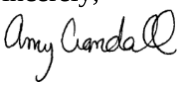
excavation may extend to depths of 5 to 10 feet below basement foundation elevations." CGS agrees with CTL that:

1. "Further investigation is recommended to evaluate extent of sub-excavation" (page 15). CGS recommends this investigation be performed following grading operations to determine the extent of sub-excavation.
2. "After grading is completed, design-level investigations should be performed on a lot-specific basis" (page 20).

The applicant's geotechnical consultant should review grading and construction plans, when available, to verify consistency with CTL's grading, slope, and other recommendations. Erosional setbacks should be established from steep slopes and all drainages. Provided CTL's recommendations are strictly adhered to, CGS has no objection to approval of the Canyons Far South SDP and PDP referrals.

Thank you for the opportunity to review and comment on this project. If you have questions or require further review, please call me at 303-384-2632 or email acrandall@mines.edu.

Sincerely,



Amy Crandall, P.E.
Engineering Geologist

Response:
The geotechnical recommendations will be followed and further evaluations and recommendations will be provided by the geotechnical engineer with the construction plans.