

EP-24-0008\_1 Graupner Subdivision

File Number: MS237

Location: South ½ Section 32, T11S, R64W, 6th P.M.

39.0475, -104.5821

The available referral documents include a Soil and Geology Study (Rocky Mountain Group (RMG), 5/2/2023), Final Plat (Eagle Land Surveying Inc., 8/9/2023), Letter of Intent (MVE, Inc., 8/11/2023), Final Drainage Report (MVE, Inc., 8/2/2023), and other documents. The site will comprise four new rural residential lots within 41.021 acres with individual on-site wastewater treatment systems (OWTS).

The site (39.0475, -104.5821) does not contain steep slopes or flood hazards, nor is it exposed to any geologic hazards that preclude the proposed residential use and density. RMG's characteristics of the site geology appear appropriate to address the potential geologic constraints identified at this site, including expansive soils and the potential for seasonal groundwater (Soil and Geology Study, RMG, 5/2/2023). CGS has no objection to the approval of the final plat. However, we offer the following comments.

1. The site is outside the FEMA floodplain associated with the 100- and 500-year floodplains of both Black Squirrel Creek and Sand Creek. However, natural drainages traverse the site. Erosional setbacks from any drainage/channel within the site should be established along with site grading that provides positive surface drainage and BMPs for stormwater. The county should require setbacks from these natural drainages to be included in the final plat/plans.
2. The project is in a geologic setting and location known for shallow fluctuating groundwater. Groundwater was not encountered in RMG's borings during drilling in March 2023. It is unknown if the borings were constructed as monitoring/observation holes. CGS agrees with RMG (page 7): "Fluctuations in groundwater and subsurface moisture conditions may occur due to variations in precipitation, landscape irrigation, and modifications in land use in the area," and on page 11, "Groundwater information obtained for the current investigation performed prior to the land development phase may or may not be representative of the conditions present at the time of construction." Shallow groundwater conditions are expected to fluctuate with differing precipitation events and seasons. It would be prudent for the county to require a monitoring/observation program conducted through the winter, spring, and fall to verify that the proposed floor levels are at least 4 to 6 feet of the proposed basement slab elevation (per RMG page 11).
3. RMG states (page 12), "if groundwater is encountered at the time of the site-specific subsurface soil investigations within 4 to 6 feet of the proposed basement slab elevation, an underslab drain would be considered in conjunction with the perimeter drain." An underdrain system should be allowed ONLY if it can gravity discharge to a daylight outfall or is connected to an existing underdrain system that gravity discharges to a daylight outfall. Individual foundation perimeter drains are intended to handle small amounts of intermittent, perched water and may NOT be used to mitigate persistent shallow groundwater conditions.
4. A note should be added on the final plat that references the soil and geology study and lists the potential geologic constraints associated with the site.

Submitted 11/13/2023 by Amy Crandall, Engineering Geologist, Colorado Geological Survey (303-384-2632 or [acrandall@mines.edu](mailto:acrandall@mines.edu))