

November 13, 2024

PT Overlook, LLC  
1864 Woodmoor Drive, #100  
Monument, Colorado 80132



**ENTECH**  
ENGINEERING, INC.

505 ELKTON DRIVE  
COLORADO SPRINGS, CO 80907  
PHONE (719) 531-5599

Attn: Joseph DesJardin

Re: Response to CGS Review Comments  
Overlook at Homestead – Filing No. 1  
El Paso, Colorado  
Entech Job No. 230677

Ref: Entech Engineering, Inc., Revised date November 13, 2024. *Soils and Geology Study, Overlook at Homestead – Filing No. 1, Elbert Road, El Paso County, Colorado.* Entech Job No. 230677.

Entech Engineering, Inc., Revised date November 13, 2024. *Wastewater Study, Overlook at Homestead – Filing No. 1, Elbert Road, El Paso County, Colorado.* Entech Job No. 230677.

Colorado Geological Survey, dated October 21, 2024. *EP-24-0022\_2 Overlook at Homestead Filing No. 1, Review Comments by the Colorado Geological Survey.*

Dear Mr. DesJardin:

Entech Engineering, Inc. (Entech) has reviewed the CGS comments dated October 21, 2024 for Overlook at Homestead – Filing No. 1. This letter presents our responses to the CGS comments. The CGS comments are attached to this letter. The responses to their comments are presented below:

#### **ENTECH ENGINEERING, INC. RESPONSES**

**Entech Response to Comment (Rockfall):** Figures 3, 4, and 7 have been updated to show the correct lot numbers for Filing No. 1. Lots impacted by the Rockfall and Potentially Unstable Slopes within Filing No. 1 include Lots 18-26. These areas should be identified as no-build areas. Encroachment should only be allowed after specific analysis for each condition on individual lots.

**Entech Response to Comment (Debris Fans):** Figures 3, 4, and 7 have been updated to show the correct lot numbers for Filing No. 1. Lots impacted by the Debris Fan/Debris Flow Susceptibility include Lots 11-23. These lots should be identified with the potential for debris flow hazards. Mitigation measures should be based on bulked flow dynamics associated with hyperconcentrated flooding for 25 and 100-year storm events.

**Entech Response to Comment (Expansive Soils):** No modifications required.

**Entech Response to Comment (Groundwater):** The subdivision will consist of rural residential lots with individual OWTS and water wells. Additional investigation of each lot will be required prior to construction. The impacts of shallow groundwater areas should be identified on a lot by lot basis prior to construction. Basements should be feasible across the majority of the site. Lot specific subsurface soil investigations, foundation investigations, and tactile test pit evaluations for OWTS will be required for each lot. A minimum separation of 3 feet between foundation components and groundwater levels is recommended. Perimeter foundation drains will be required on structures with usable space below grade. The need for interceptor or underslab drains should be determined during each investigation. These additional drains should be installed as needed with gravity discharge or to a sump if gravity discharge is not achievable.



**Entech Response to Comment (Artificial Fill):** No modifications required.

**Entech Response to Comment (OWTS):** Entech agrees, the site is very limited for conventional on-site wastewater systems (OWTS), due to the low permeability and shallow groundwater. Engineered OWTS should be anticipated for the lots. Final determination and designs should be based on lot specific testing prior to construction.

We trust this has provided you with the information you require. If you have any questions or need additional information, please do not hesitate to contact us.

Respectfully Submitted,

ENTECH ENGINEERING, INC.

A handwritten signature in blue ink, appearing to read "Logan L. Langford", is written over the printed name.

Logan L. Langford, P.G.  
Sr. Geologist

Reviewed by:



Joseph C. Goode, Jr., P.E.  
President

LLL:JCG

Encl.

F:\AA Projects\2023\230677-PT Overlook-Elbert Road Dooley Property-300-SGS\reports\Filing 1\230677 CGS Response.docx

EP-24-0022\_2 Overlook at Homestead Filing No. 1  
File Number: SF2425  
Location: Section 27, T11S, R64W, 6th P.M.  
39.0681, -104.5456

The available referral documents include a Soil and Geology Study (Entech Engineering Inc., June 7, 2024), Final Plat (Edward-James Surveying, Inc., June 5, 2024), Letter of Intent (N.E.S., Inc., September 2024), Final Drainage Report (Kimley Horn and Associates, September 18, 2024), and other documents. Filing No. 1 consists of 36 single-family lots within 202 acres. Geologic hazards and constraints associated with this site have not been reflected on the final plat for Filing No. 1.

Entech's report describes the site's geology, surface and subsurface conditions, and potential development constraints. CGS agrees that the site is suitable for the proposed development, provided Entech's recommendations regarding mitigation of artificial fill, expansive soils, shallow groundwater, potentially unstable slopes, rockfall, and debris flows are strictly adhered to. Even so, to avoid these hazards, some lots will include a limited area for building envelopes and septic systems. It would be prudent for the county to recommend that proposed building envelopes be included in the final plat. Additionally, mitigation measures should be included in the final plat. Note 11 of the final plat consists of a geologic hazards statement; however, specifics of the development are not listed. **CGS recommends that this statement be updated prior to approval of the final plat.** CGS offers the following comments and recommendations; the items in bold should be addressed prior to approval of the final plat.

**Rockfall and potentially unstable slopes.** Entech identified potentially unstable slopes along the mesa with rockfall hazards associated with the rock outcrops. The lots listed on Entech's site plan and the final plat (Edward-James Surveying, Inc., June 5, 2024) are different; **Entech must update their site plan with the correct lot layout for Filing No. 1.** Based on the final plat, Lots 18-26 include rockfall and potentially unstable slope hazards. Entech recommends (p. 10) "A minimum setback of 30 feet from the crest of the cliff/steep slopes." CGS agrees with Entech that these areas can likely be avoided or mitigated due to the size of the lots (~3 to 5 acres). **CGS recommends that the lots that contain these hazards be listed and that the setback from potentially unstable slopes and "no build easements" associated with rockfall hazards be noted on the plat.** Site improvements must not be located within areas mapped with hazards/constraints.

**Debris fans/debris flow susceptibility.** Based on debris flow susceptibility mapping, drainages originating from the steep mesa are areas of debris flow hazards. Although the site is not within a defined floodplain, the drainages with the site may be affected by erosion, flooding, sediment-laden flows, and erosion following heavy precipitation. CGS agrees with Entech (p. 9): "Due to the material type and steepness of the slopes, the potential for significant erosion and sediment-laden flows originating along the heads of these drainages in the southeastern portion of the site following significant precipitation events exists." Also, "Drainage culverts and other drainage infrastructure should be adequately sized for the potential sediment-laden flows." 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 lots affected by debris flow hazards include Lots 11-23 (based on the updated final plat lot layout). CGS recommends that the county require the lots that include debris flow hazards to be noted in the final plat.** CGS reviewed the final drainage report for Filing No. 1. **We recommend that the bulked flow dynamics associated with hyperconcentrated flooding emanating from the**

**drainages for 25- and 100-year storm events and the potential flow velocities are analyzed and mitigation measures provided.**

**Expansive soils and bedrock.** The site is underlain by alluvium and colluvium (silty sands and clays) and soils derived from in situ weathering of the underlying Dawson Formation bedrock. The Dawson consists of sandstones interbedded with lenses of siltstone and claystone. The claystone and clayey soils are typically expansive. Entech provides appropriate mitigation strategies (overexcavation and replacement with non-expansive fill placed using specified water content and compaction criteria, p. 7) for use if expansive soils or bedrock are encountered beneath proposed foundations. Site-specific, design-level geotechnical 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, swell and consolidation potential, and bearing capacity at and below approximate foundation bearing depths, and to determine groundwater levels. This information is needed to determine maximum bearing and minimum dead load pressures (if applicable) and to develop final design criteria for foundations, floor systems, pavements, and subsurface drainage.

**Groundwater, perched water, and foundation drainage recommendations.** The project is in a geologic setting and location known for shallow fluctuating groundwater. Groundwater was encountered in the borings at depths of 3 to 18 feet during drilling. Groundwater was encountered in test holes 2, 7, 8, 17, and 18 at depths of 3 to 8.5 feet below grade within Filing No. 1. **CGS recommends these areas be listed as PSW or SW in Entech's report.** CGS agrees with Entech (p. 6), "Fluctuations in groundwater conditions may occur due to variations in rainfall and other factors not readily apparent at this time." Shallow groundwater conditions are expected to fluctuate with differing precipitation events and seasons. It does not appear that a groundwater monitoring/observation program was performed for Filing No. 1. Therefore, **CGS recommends that no basements be allowed in areas/lots mapped with potentially seasonal shallow groundwater, seasonal shallow groundwater, ponded or flowing water, or springs unless a groundwater and observation program is performed through all four seasons.**

Entech states (p. 9), "Where shallow groundwater is encountered, underslab drains or interceptor drains may be necessary." 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. Additionally, Entech states, "In areas where high subsurface moisture conditions are anticipated periodically, a subsurface perimeter drain will be necessary to help prevent the intrusion of water into areas located below grade." 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.

**Artificial fill** is present in limited areas. CGS agrees that uncontrolled fill will require removal and recompaction beneath foundations. Any trash, waste, etc., should be properly removed from the site.

**OWTS suitability.** According to the El Paso County Soil Survey, the site is very limited in its suitability for conventional on-site wastewater systems (OWTS), described as septic tank absorption fields in the soil survey, due to low-permeability soils and shallow groundwater. CGS agrees with RESPEC's report (p. 5), "It is anticipated that the majority of the lots will require designed systems." Lot-specific testing will be needed to determine the need for and to design conventional or engineered sewage disposal systems.