

August 18, 2024

Kyle Benson, Fire Chief  
Golden Gate Canyon Fire Protection District

RE: Grading and Drainage Conditions Review/Comments  
Golden Gate Canyon Fire Station #83  
25231 Golden Gate Canyon Rd, Golden, CO 80403  
Engineering Job No. E24-0122

Kyle,

The purpose of this letter is provide our professional opinion on drainage affecting this unmanned fire station at the above location, and recommend upgrades to prevent continual sediment nuisance conditions and periodic building flooding. We visited the site on Tuesday, June 18, 2024. The site is located off Golden Gate Canyon Road and consists if a two bay wood/metal framed garage structure with bathroom addition. There is a private shared driveway located on the west side of the building, along with a natural drainage between the private drive and the building from the valley above. The hillside behind the building is steep and has a private driveway serving a residence that cuts across behind the building approximately 200' uphill. Evidence of drainage from the property above enters onto the fire station property behind the structure, carrying sediment and debris, which deposits out in the parking area, behind and along the east side of the building, and periodically floods the building through the east side access door and under the wall rear wall framing. We observed several attempted corrections to the site, including a rough concrete curb along the rear outside wall, a drain pan down the west side of the structure, and a culvert from the northwest rear corner into the natural drainage located to the west of the building that have not mitigated the problem, nor been able to effectively mitigate the sediment and drainage issues on the fire station property. Our comments are as followings.

1. Reviewing aerial imagery from both Jefferson County GIS and Google Earth Imagery, prior to 2018, the conditions reviewed were not present (**Reference Image 1**).
2. After 2018, 2020 Jefferson County GIS imagery shows distinct erosion below the driveway above directly behind the fire station (**Reference Image 2**) and sediment contamination onto the fire department property (**Reference Image 3 & 4**).
3. Inspection of the driveway above the fire station revealed that a cross culvert was added under the driveway before the gate, which is conveying hillside drainage above the driveway, and driveway drainage under the driveway directly uphill behind the fire station which is creating these conditions reviewed. Reference video link: [https://www.dropbox.com/scl/fi/lercvf97bn1rbwvmhasom/20240618\\_Culvert-above.mp4?rlkey=5bnenkyvqz5dw9d5d30vevpec&dl=0](https://www.dropbox.com/scl/fi/lercvf97bn1rbwvmhasom/20240618_Culvert-above.mp4?rlkey=5bnenkyvqz5dw9d5d30vevpec&dl=0)
4. Changing natural drainage patterns that adversely affect neighboring properties is a violation of Jefferson County Zoning Resolution, Jefferson County Land Development Regulation, and Jefferson County Storm Drainage Design and Technical Criteria, as well as Colorado State Statue and Colorado Department of Public Health and Environment (CDPHE) Regulations. Several sections are briefly referenced below.

**5. Jefferson County Zoning Resolution**

5.1. Protection of Adjoining Property:

- a) Section 16.F.13 (Standards for Stormwater Drainage): When surface drainage is discharged onto any adjoining property, it shall be discharged in such a manner that it will not cause an increased hazard to the stability of cut and fill slopes or any building or structure.

5.2. Erosion and Sediment Control:

- a) Section 16.F.14 All Land disturbance activities must conform to the performance standards as detailed in this section and shall protect property from stormwater runoff, erosion, and sediment transport. Land disturbance activities require an erosion and sediment control plan to be implemented. Stabilization measures must be taken upon completion of such activities to prevent accelerated erosion and sediment migration.

## **6. Jefferson County Land Development Regulation**

### **6.1. Drainage Standards (Section 18):**

- a) In compliance with Federal Emergency Management Agency's National Flood Insurance Program, all developments shall a) Be consistent with the need to minimize flood damage and c) Have adequate drainage provided to reduce exposure to flood damage.
- b) Drainage shall be designed in compliance with Storm Drainage Design and Technical Criteria.
- c) Drainage easements are required for all drainage facilities in accordance with the Storm Drainage Design and Technical Criteria to ensure proper water management and reduce flood exposure.

## **7. Jefferson County Storm Drainage Design and Technical Criteria**

### **7.1. Drainage Problem Areas (Section 3.3.3):**

- a) Developments in areas with significant drainage problems must address downstream conditions and implement techniques such as over-detention, downstream improvements, reduction of impervious areas, and stormwater retention.

### **7.2. Basin Transfer (Section 3.3.5):**

- a) Inter-basin transfer of storm drainage runoff is generally not allowed to prevent the transfer of drainage problems from one property to another.

## **8. Colorado Revised Statutes**

### **8.1. Drainage Law:**

- a) **Civil Law Rule:** Under the civil law rule, also known as the Natural Flow Rule, a landowner may be held liable if they change the natural flow of water on their land and it results in harm to another owner. Colorado Revised Statutes (C.R.S.) § 37-84-101: This statute establishes the rights and responsibilities regarding the drainage of water. Property owners are generally responsible for the natural drainage on their land and must not alter it to the detriment of neighboring properties.

## **9. Colorado Department of Public Health and Environment (CDPHE) Regulations**

### **9.1. Stormwater Management:**

- a) Regulation 61 - Colorado Discharge Permit System Regulations: These regulations are part of the Colorado Water Quality Control Act, and designed to be in conformity with the Federal Clean Water Act and regulations.
- b) These regulations apply to all operations discharging to waters of the State from a point source. It outlines requirements for erosion and sediment control measures to protect water quality.

## **10. Enforcement and Compliance**

- 10.1. If there are drainage issues due to unpermitted changes by a neighbor, options for property owners include:

- a) Filing a Complaint with the Jefferson County Planning and Zoning.
- b) Seek Mediation through local dispute resolution services.
- c) Legal Action: Property owners may need to consult with an attorney to explore legal remedies under state and local laws.

**Recommended Corrections:**

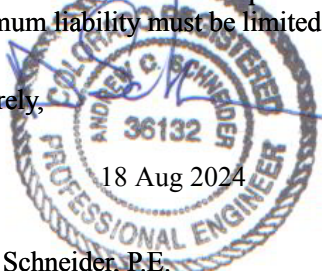
1. The obvious and easiest correction is to have the property owner above remove the cross culvert that was installed, dumping all the drainage onto the slope below the driveway directly above and behind the fire station, and grade the roadside ditch past the gate to direct all drainage into the existing natural drainage collection system that parallels the private drive adjacent to the fire station. This corrects the problem of the added culvert and restores the historical drainage pattern.
2. Should this not be allowed due to property lines or other potential conflicts, the property owner above could be directed to install an armored rip-rap lined cut-off swale in the hillside above the fire station below the culvert point source discharge and graded to direct all flows to the west into the existing drainage collection system below the driveway, above the fire station before the drainage crosses onto fire department property. A design can be provided upon request. This would effectively allow the driveway cross culvert to remain, but correct the issues created from the errant drainage being directed directly into the back of the fire station property.
3. Alternative 3 to more immediately correct the drainage/sediment control problem on the fire station property while the above are being pursued through proper channels, would be to excavate and install a concrete drain pan below the existing retaining wall behind the building with perimeter curb to protect (the parking area and building), collect and direct all drainage to the west into the existing culvert to the existing drainage collections system on the west side of the station. A design can be provided upon request.

**Summary**

The specific sections from the Jefferson County regulations outline the requirements for managing drainage, erosion, and sediment control to prevent water damage and sediment migration to neighboring properties. We believe that a driveway cross culvert was added by the property owner above and is now creating an adverse drainage and sediment issue for the fire station property below. Compliance with these regulations is essential to address the impacts of any unpermitted changes that alter drainage patterns.

The opinions in this report are limited to observations and conclusions for the property at 25231 Golden Gate Canyon Rd, Golden, CO. We reserve the right to review any additional information concerning this property and to amend our opinions accordingly. Please understand that no warranty is either expressed or implied in this inspection. The remarks in this letter do not provide an insurance policy, nor a warranty service. In the event of an oversight, maximum liability must be limited to the fee paid.

Sincerely,



Drew Schneider, P.E.  
Insight Engineering, Inc.



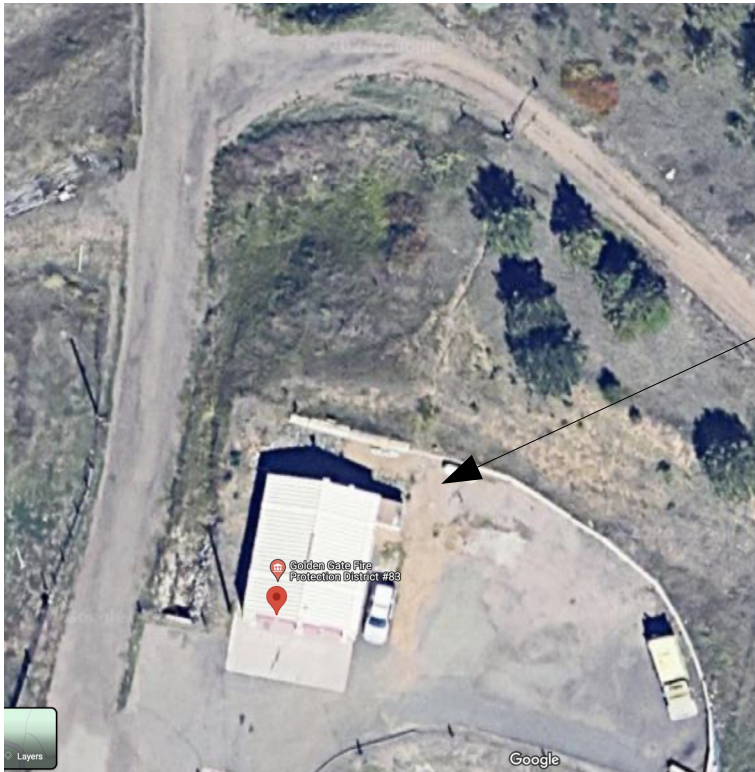
No evidence of erosion

Image 1 – 2018 Jeffco GIS aerial image



Evidence of erosion from driveway cross culvert above

Image 2 – 2020 Jeffco GIS aerial image



Sediment deposition on station property

Image 3 – Google Earth Image showing sediment migration/deposition behind the fire station



Image 4 – Sediment deposition behind the station