COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

August 31, 2022

Ms. Anne Beierle
City of Golden
Director of Public Works
911 Tenth St.
Golden, CO 80401

Re: City of Golden, Empire Pit, Permit No. M-1977-534, Reclamation Memo and Request to address the Mined Land Reclamation Board from Mr. Larry Brown

Ms. Beierle,

The Division of Reclamation, Mining and Safety (Division/DRMS) received a memo and request to address the Mined Reclamation Board (Board/MLRB) on August 29, 2022 from Mr. Larry Brown regarding the Empire Pit permitted by the City of Golden, File No. M-1977-534. A copy of the memo is enclosed for your review. Please submit a response to Mr. Brown's memo to the Division by September 9, 2022.

Mr. Brown and/or those he represents will have an opportunity to address the Board during the public comment portion of the September 21-22, 2022 Board meeting. The Division recommends a representative from the City of Golden is present during the meeting. The City of Golden will have an opportunity to attend the Board meeting virtually and address the Board during the public comment period held at the end of the meeting.

Please submit a request to the MLRB to appear virtually via (ZOOM) during the public comment period. Please submit the request via email to the MLRB Administrator, Camie Mojar at: Camille.mojar@state.co.us, no later than 5:00 PM, September 9, 2022.

If you have any questions, please contact me at peter.hays@state.co.us or (303) 866-3567 Ext. 8124.

Sincerely,

Peter S. Hays
Environmental Protection Specialist

Enclosure – Mr. Brown's memo received on August 29, 2022

Ec: Jared Ebert, Division of Reclamation, Mining & Safety

RECEIVED

AUG 29 2022

DIVISION OF RECLAMATION, MINING & SAFETY-MINERALS

Memo

To: Peter Hays, Environmental Protection Specialist, DRMS
Virginia Brannon, Director DRMS
Jared Ebert, DRMS
Chairman MLRB
Dan Gibbs, Executive Director, Dept. of Natural Resources

From: Larry F. Brown, PhD – Reclamation Consultant

Subject: Adequacy of reclamation, remaining ± 24 acres of permit # M-1977-534,
and
Request to be put on the MLRD's agenda

Date: August 22, 2022

History

The Guanella ranch is located just west of Empire, Colorado on US Highway 40. It's a Colorado Centennial Ranch, established in 1860, and has been owned by the Guanellas ever since. Byron Guanella was instrumental in establishing Guanella Pass in the 1950s and was a Clear Creek County Commissioner for several years. The West Fork of Clear Creek runs through the center of the ranch, and hay has been produced in the meadows for more than 100 years.

In 1976, a portion of the meadow was leased to an aggregate mining company, a Mining/Reclamation permit was issued, and mining began under the new Mined Land Reclamation Act.

Around 2000, the city of Golden increased their interest in the excavation created by the mining as a potential reservoir site to store water.

In 2002, the mining permit was transferred to the city with the intent of creating a reservoir to store water and the Bucklands/Guanellas transferred the lease to the city. The city was anxious to complete construction of the reservoir, so they excavated a huge amount (± 1,000,000 tons) of material and wasted it onto the eastern portion of the site. **The waste material covered the ± 24 acres which is the subject of this memo.**

In 2002, the City offered to purchase the property from the Bucklands/Guanellas. The offer was declined **so the City of Golden (in Jefferson County) condemned the property (in Clear Creek County) using its powers of eminent domain**. The fair market value offered by the City was unacceptable so the matter went to court.

In 2007, after years and many thousands of dollars of legal fees, the fair market value was set by the courts. The reservoir portion of the property now belongs to the City of Golden, **but the ± 24 acres still belongs to the Bucklands/Guanellas.**

Aggregate production ceased about 15 years ago.

In 2013, the City attempted to revegetate the ± 24 acres of waste material without the aid of native topsoil and without the aid of supplemental water.

In 2017, the MLRB released 110 acres (the reservoir portion) of the 139-acre permit. Twenty-four of the remaining 29 acres is the subject of this memo. Some of the land was senselessly contaminated with salt from storing salted sand on the bare ground. The City is presently in the process of remediating that portion of the site.

This situation is **unjust and unfair** because even though mining has long since ceased, the site is still governed by a reclamation/mining permit and **the Bucklands/Guanellas cannot freely use their own land**. This cannot be allowed to go on indefinitely.

In 2021, the Bucklands/Guanellas hired me to determine and document the quality of the vegetation on the 24-acre site. Vegetative cover and diversity are the key factors reflecting the quality of a stand of vegetation.

The following are the methods and results of the sampling:

Introduction and Methods

Vegetation studies were conducted on 24 acres of land still included in the mining permit. The site was measured at the peak of the growing season on July 20, 2022. The intent was to determine the quality of the vegetation.

Vegetative cover was determined using the Point Intercept Method with the aid of a scope. This method provides accurate and reproducible results.

Transects: Four random 50-meter transects were measured on the site. Statistical significance was not an objective and small areas of exceptionally good or bad revegetation were considered inconsequential. Representativeness was the objective.

Transects were laid out with a meter tape. Transects were located randomly throughout the site. The goal was to measure the vegetation at the approximate peak of the growing season. Photos of the site are attached at the end of the report.

Cover: The two types of vegetative cover commonly measured are Absolute Cover and Relative Cover. Absolute Cover measurements reflect overlap of leaves and, in a heavy growth area, can sum to values greater than 100 percent. Relative Cover values reflect

a vertical projection of everything that intercepts rainfall before it hits bare ground. Relative Cover measurements of Total Cover plus Bare Ground sum to 100 percent.

It was not appropriate to determine Absolute Cover this site because of the paucity of growth. This study determined Relative Cover and all references in the report to cover infer Relative Cover.

Total Cover is made up of the following components:

- Live Cover = current year growth
- Moss Cover
- Litter Cover = dead vegetation, both standing and down
- Rock Cover = Rock > ¾ inch diameter (up to a maximum of 20%)

Live Cover and Moss sum to provide Vegetative Cover; Vegetative Cover plus Litter and Rock Cover sum to provide Total Cover; Total Cover and Bare Ground sum to 100 percent, all as shown in Table 1.

One reason vegetation is important in nature is that it intercepts rain droplets before they hit the ground, thereby reducing the impact on the ground, and reducing the potential for erosion. Greater vegetative cover intercepts more droplets and provides more erosion control. Rock (> ¾ inch in diameter) also intercepts droplets and reduces erosion and is also included as a part of total cover (up to a maximum of 20 percent).

Observations consisted of 50 readings (hits) along each 50-meter transect. Each transect is considered a single sample. Live Cover depicts the quality of the vegetative stand, and, when recorded by species, shows the diversity of the stand. Species percentages of the various cover values are determined by dividing the number of hits for a species by the total number of readings.

The scope is leveled before each reading to provide the vertical projection required to accurately determine Vegetative Cover. Sampling consisted of taking one reading perpendicular to the tape with the scope approximately every one meter. Fifty readings per transect is generally considered sufficient to provide an accurate representation of the various cover values.

Diversity: Vegetative Cover is recorded by species to give a measure of diversity. In addition, all species observed on the reclaimed area are listed whether recorded as a hit or not. The survey is best described as a "Pedestrian Survey". It is not a comprehensive effort to find and list every species growing on a site, but it provides a more accurate representation of diversity.

Results

Cover: After 15 years growth, the **average Total Live Vegetative Cover for the four transects was 23%** (see Table 1). A monoculture of 23% Total Vegetative Cover is woefully inadequate reclamation for a former mountain hay meadow. **A reasonable Vegetative Cover at the site should be three times greater – closer to 70 or 75%.**

Numerous examples of cover percentages for reclaimed land are available for comparison. For example, the Black Eagle Mill up Chicago Creek (just 12 miles from Empire and in the same ecosystem was reclaimed and revegetated in the 1990s. After 3 years growth, the total Live Vegetative Cover of the vegetation was 72%.

Diversity: 42 of the 45 Live Cover hits were Crested Wheatgrass. **The site is essentially a monoculture of Crested wheatgrass, a species that should not have been planted at the site.** Crested wheatgrass is a desert species developed for revegetating south-facing road cuts in Utah in the 1960s. It's an undesirable species for this ecosystem. It does about as much good as a weed and it will never do well in a mountain meadow at 8,500 feet elevation.

Only five other species were observed during the "Pedestrian Survey" throughout the site. They were:

- Canada bluegrass – one plant observed (one hit in TR1)
- Kochia scoparia – noxious weed – multiple observations (one hit in TR2)
- Streambank wheatgrass – one plant observed (one hit in TR3)
- Sheep fescue – one plant observed
- Mountain brome – one plant observed

The number of species expected at such a site after all these years should be somewhere around 30 to 50.

Calculating diversity percentages by species for this site would be nonsensical because of the paucity of species.

Diversity at the site is essentially zero.

Quality Assurance: We are confident that, should the City wish to verify our cover values, they would arrive at similar values.

Summary and Conclusion

- Mining has long since ceased.
- A monoculture of 23% Total Vegetative Cover is woefully inadequate for this site.
- Crested wheatgrass, the dominant species, is totally unsuited to this ecosystem.
- A monoculture of 23% Total Vegetative Cover does not comply with the Mined Land Reclamation Act and Regulations.
- Because the site is still governed by a mining/reclamation permit to the City, the Bucklands/Guanellas cannot freely use their own land.
- The site needs to be adequately reclaimed.
- The Mining/Reclamation Permit needs to be released.
- Lastly, we request to be placed on the MLRB agenda to compel the City of Golden to reclaim the site and request release of the permit.

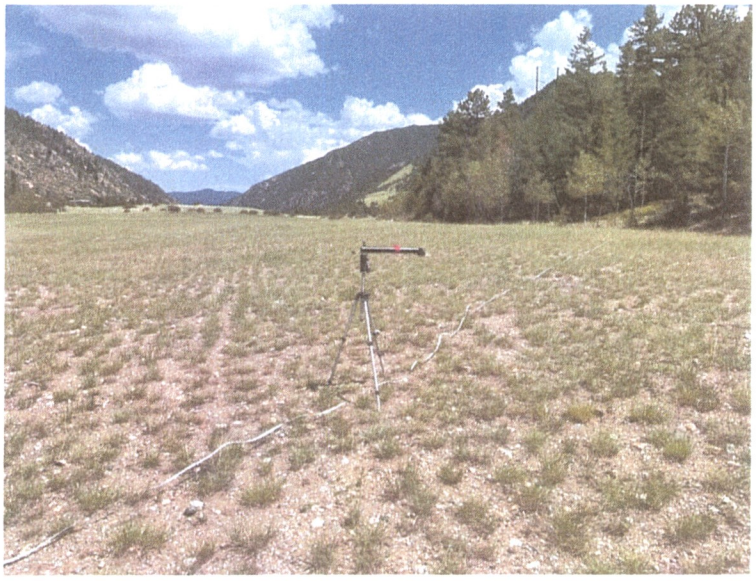
cc: Glenda Guanella
Sally Guanella Buckland
Phil Buckland
Anne Beierle

Table 1. **Relative cover, by species, for the 24 acre site**
Empire Pit/Guanella Reservoir - Permit # M-1977-534

	Transect - -	TR-1		TR-2		TR-3		TR-4		
Common Name	Scientific Name	Hits	% Cover	Hits	% Cover	Hits	% Cover	Hits	% Cover	Average
Crested Wheatgrass	*Agropyron cristatum*	13	26%	11	22%	5	10%	13	26%	
Canada bluegrass	*Poa compressa*	1	2%							
Kochia	*Kochia scoparia*			1	2%					
Slender Wheatgrass	*Elymus trachycaulus*					1	2%			
	Live Cover	14	28%	12	24%	6	12%	13	26%	**23%**
	Moss	0	0%	0	0%	0	0%	0	0%	**0%**
	Vegetative Cover		28%		24%		12%		26%	**23%**
	Litter	5	10%	11	22%	11	22%	9	18%	**18%**
	Rock (>3/4")	5	10%	4	8%	10	20%	12	24%	**16%**
	Total Cover		48%		54%		54%		68%	**56%**
	Bare Soil	26	52%	23	46%	23	46%	16	32%	**44%**
	Total Hits	50	100%	50	100%	50	100%	50	100%	

Typical growth on July 20, 2022

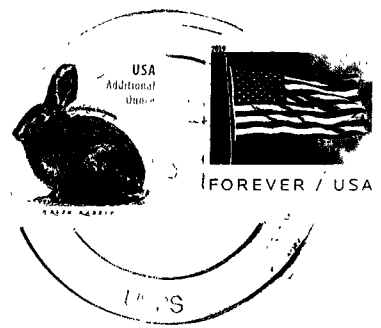
One of the transects, July 20, 2022



Another transect, July 20, 2022

Typical growth adjacent to the 24 acres - no irrigation.
This is what vegetation on the 24 acres should look like today.

Larry Brown
3473 D 3/4 Rd.
Palisade, CO 81526



Mr. David Ebert
Div. of Reclamation, Mining & Safety
Room 215
1001 E. 62nd Ave
Denver, CO 80216