Date: November 2, 2017

To: Michael A. Cunningham, Environmental Protection Specialist
Colorado Division of Reclamation Mining and Safety
Department of Natural Resources
1313 Sherman Street, Room 215
Denver, CO 80203

Re: City of Golden, Empire Pit No. M-1977-534-AR01
Reclamation Permit

RECEIVED
NOV 03 2017
DIVISION OF RECLAMATION
MINING AND SAFETY

Dear Mr. Cunningham:

The salt contaminated areas present a challenging problem. If the contamination cannot be removed an infiltration bearer should be installed 18 inches below plants root growth zone then covered with subsoil with adequate clay to slow water and nutrient migration then topped with 6 inches of live natural loam topsoil which includes humus and microorganisms that can sustain plant life before reseeding. May we show you some remaining original stored topsoil that was covered up during the reclamation process?

Concerning to us, about approving Golden's request to release Permit No. M 1977-534-AR01 area surrounding Guanella Reservoir, are the blow out areas on the south bank of the reservoir, see picture 9. They occur during wet years and may continue to enlarge and cause our property on Lincoln Mountain to move causing a landslide.

The reseeding should have a success rate of 80 - 90% after germination and lateral stratification after 2 years. Previously no subsoil or clay material was added to the gravel areas to protect the surface soils or amendments from being blown away by wind or leached away by water both of which have happened. It also should not contain foreign materials such as, stones greater than one inch, asphalt, salt and weed seeds and foreign materials. Notes on "What is soil?" from "The Nature and Properties of Soils," Buckman and Braddy, Cornell University, College Text of Edaphology is attached for reference.

Larger rocks have been added to areas attempting to control erosion rather than concave sloping for proper flow routing. Areas on the south side of the east partial have not been blended into the hillsides or properly reseeded. This may not inhibit pasturing but was not reseeded and sloped to meet the surrounding topography as required, see picture 8. The removed south fence still has not been reinstalled to complete the enclosure. Why does reclamation not include reinstalling fences and repairing fences damaged or buried during the reclamation? In some areas the grading buried part of the fence up to the bottom wire, see picture 10.

Could we meet with you to discuss the Reclamation Process? And would you include us on any correspondence and meetings about the property? Thank you for your consideration.

Sincerely,

Glenda Guanella

Glenda Guanella

Sally Guanella Buckland

Sally Guanella Buckland

 Picture 9 Blow outs on South Bank	 Unseeded Area Picture 8	 Buried Fence Picture 10

What is Soil?

The majority of people have not taken time to find out what soil is. Part of the lack of concern is our different concepts concerning this product of nature. To a mining engineer the soil is the debris covering the rocks or minerals which must be quarried. It is a nuisance. To the highway engineer it is not suitable for a roadbase and must be replaced with rock and gravel. To the soil scientist and farmer soil is the habitat for plants.

Soil is distinguished from rock and gravel regolith below by relatively high organic matter content, an abundance of roots of higher plants and soil organism, more intense weathering and the presence of characteristic horizontal layers. The chemical and physical properties of soils are controlled largely by clay and humus that are required for nutrient exchange and water retention. Soil should contain a balance of both clay and humus in a colloid biological state.

To have thriving life above ground there must be thriving life below ground to a depth or area equal to the height of the plant life above ground. The amount of life below the surface soil should be greater than the life above the surface. The total weight of living matter in an acre of mineral soil should be a minimum of 5,000 pounds.

An acre of health soil should have more than a ton of bacteria and more than a ton of fungi, 445 pounds of earthworms and 830 pounds of insects and arthropods. There could be between 10,000 and 50,000 different microbe species in 1 gram of soil.

The fungal hyphae help create fine roots to pick up and absorb nutrients and water. They unlock the chemical bonds on potassium, sulfur and nitrogen to release or solubilize nutrients and make them available for uptake.

Soil amendments help feed the microbes and fungi but do not make soil without them.

"The Nature annnd Propertiesss of Soils" Buckman and Braddy, Cornell University, College Text of Edaphology