



STATE OF
COLORADO

Eschberger - DNR, Amy <amy.eschberger@state.co.us>

Response to adequacy letter on Miller Pit

Mark Heifner <mheifner610@gmail.com>

Thu, Feb 25, 2021 at 1:25 PM

To: Amy Eschberger <amy.eschberger@state.co.us>

Cc: "Davis, Scott" <SDAVIS@schmidtconstr.com>, "Chavez, Dan" <dchavez@schmidtco.co>

Hi Amy,

Attached is the response to your adequacy letter of TR05 for the Miller Pit M-1982-112. As explained in there using fertilizer and mulch might well create more problems than help. Allowing the mineral nutrients in the now biologically dead soils due to long term stockpiling in combination with the abundant nitrogen fixers in the seed mix would likely create a more gentle transition to productive vegetation using a more natural approach.

If you have any questions, please call.

Mark Heifner

PS: hope you got dug out this morning. I am getting there. 12.5 inches here near Broadway and Evans. Badly needed but what a pain.



Response to Adequacy letter Miller Pit TR05.pdf

76K

Mark A. Heifner

37 East Colorado Avenue • Denver, Colorado 80210-3105 • (303) 777-3371 or (303) 906-8096

February 25, 2021

Amy Eschberger
Division of Reclamation, Mining and Safety
1313 Sherman St. Room 215
Denver, CO 80203

RE: Response to adequacy review on seed mixture technical revision
Miller Pit M-1982-112 TR05

Dear Amy,

Thanks for your review of the technical revision. Below is the response with your question stated first and the response following.

1) Please provide details of any mulching or fertilizer requirements for the revised seed mixtures, including types, mixtures, and rate of application per acre.

RESPONSE:

No mulch or fertilizer will be applied. The reasons are linked to both treatments.

First, the soils replaced have been stockpiled for a few decades and have little or no biological activity as evidenced by the soil in most of the stockpile having essentially no odor - sweet, sour or sulfurous. However, it is rich in organic matter. Mineral nutrient levels are probably quite good, but, without biological activity there is probably little if any nitrogen cycling occurring. Therefore adding fertilizer could boost mineral nutrient levels up too high. This would have an adverse effect on the nitrogen fixing that will occur with the alfalfa and milkvetch which are strong components of the new seed mix. It is well known that high nitrogen soils retard nitrogen fixation in nitrogen fixers because there is no need to fix nitrogen. That is the opposite of what is desired here. We want to create nitrogen cycling.

Second, on sites where strong weed growth is an expectation, fertilization will primarily aid the opportunistic weeds often at the expense of more desirable species. This specific area has a big problem with diffuse knapweed. It will likely be problem enough without making it worse.

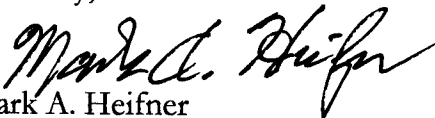
Of course, one of the reasons for using mulch is to help keep the weeds under control. Unfortunately, here with so little biological activity in the soil the high carbon content of mulch would deplete the soil of the mineral nutrients, especially nitrogen, in the replaced soil. That could then require chemical fertilizers to replace the large quantity of natural nutrients consumed by mulch on a biologically dead soil. That would then create a potential problem with nutrient balances that is better created by planting nitrogen fixing plants to initiate the fast nitrogen cycle in the freshly spread soil. Organic nitrogen is much better than inorganic.

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Thus using fertilizer and mulch with these soils and seed mixtures could well create a system that is unbalanced nutritionally and could result in a need for a lot more active management rather than an adaptive management approach.

Hopefully this answers your question.

Sincerely,



Mark A. Heifner

cc: Scott Davis, Schmidt Construction
Dan Chavez, Schmidt Construction