Lewicki & Associates
ENGINEERING | GEOLOGY | ENVIRONMENTAL

February 11, 2022

Robert Zuber
Colorado Division of Reclamation, Mining, and Safety
1313 Sherman St, Rm 215
Denver, CO 80203
(303) 866-3567

Delivered Via Email
RE: Bennett's Gravel Pit, Permit M-1979-166
TR-05 Fourth Adequacy Review - Response

Mr. Zuber:

Please accept this letter on behalf of Elam Construction, Inc. as the response to fourth adequacy review of the Technical Revision No. 5 of Bennett's Gravel Pit, dated February 4, 2022. Outstanding items are addressed below. Items that have been addressed in previous adequacy responses are omitted for clarity.

DRMS Item 12, bullet 2:

- *The plan to reclaim all existing disturbance as well as the disturbance proposed in Phases 1 and 2 with TR-05.*
    - *State any limits to mining and reclamation. For example, will the reclamation of existing disturbance be performed prior to beginning the proposed mining operations? During my inspection in August 2021 it was clear that much of the shoreline of the existing pond has not been reclaimed, most notably on the north side.*
    - ***Please clarify the sentence on page E-1 that discusses 2000 feet of highwall. How many linear feet of shore of the existing pond must be reclaimed? What is the total length of new highwall that will be reclaimed? Please differentiate between the total length of reclamation and the 1000 feet of active highwall in the proposed pit. Some of this information is in Exhibit L, but should be included in Exhibit E to provide a comprehensive reclamation plan.***

The 2000 feet of highwall noted in Exhibit E is the maximum mount of highwall that the operator can have active at any time. This linear distance currently is made up of about 900' of highwall along the northside of the existing pond and roughly 1000' of highwall within the active mining pit. The total was rounded up for simplicity. In the future, this total highwall length may be distributed through mining slopes within the site in any manner that the operator sees fit.

DRMS Item 12, bullet 5:

- *Volumes and approximate haul distances for fill material and topsoil.*
  - ***In Exhibit E, the text states that haul distances are shown in Table E-2, but that appears to be an error. Please explain or reference the table in Exhibit L.***

Exhibit E has been corrected to remove the typo.

  - ***In addition to volumes and haul distances, Exhibits E and L should explain the areas for topsoil, seeding, and mulching. Please recalculate the subset of the disturbed area that will require these particular reclamation activities. The current number of 15.3 acres appears to be too large.***

Exhibit E has been revised to include a sentence stating that the wildlife habitat listed in Table E-2 is the total area requiring topsoiling, seeding, and mulching.

Exhibit L has been revised to show the area of topsoiling, seeding, and mulching that must be covered by the bond.

Attachment List

Please refer to the accompanying attachments with this response:

Bennett Pit Revised Exhibits C, E, & L

Regards,

Ben Langenfeld, P.E.
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Mining Plan Map

Exhibit C

Map C-2 Phase 1 Mining Plan

Map C-3 Phase 2 Mining Plan

Map C-4 Cross Sections

Reclamation Plan Exhibit E

1. General Reclamation Plan

The total area to be reclaimed under this permit is roughly 25.1 acres of disturbed area out of the 32.6-acre permit area. The remaining 7.5 acres are either undisturbed, or within the southwest 3 acres of the that have been reclaimed as of February 2022. Phase 1 reclamation plans can be seen on Map F-1. Reclamation at the end of Phase 1 will involve the backfilling of 2000 feet of highwall, topsoiling of areas to be seeded, gravelling of the industrial area, and seeding of all non-water, non-industrial areas. No more than 2000 feet of highwall may be unreclaimed on the site at any time. This 2000 feet may be split amongst different portions of highwall in different locations, such as it is in February 2022. Reclamation at the end of Phase 2 will be the same, but with a larger lake and smaller industrial area. Phase 2 reclamation can be seen on Map F-2.

The goal of reclamation is to repurpose the land to be used as groundwater lakes with surrounding wildlife habitat with an area in the north remaining for industrial use. Reclamation will consist of backfilling and grading all mining slopes to a maximum 3H:1V slope from the mining crest to 10 feet below the normal water surface of the lakes. All permanent and portable facilities will be removed from the site. All berms will be flattened. Non-industrial disturbed area will be topsoiled and revegetated as the final steps of reclamation. An inflow/outflow structure will be constructed at the southeast of the site between the reclaimed pond and Gunnison River, as can be seen on Maps F-1 and F-2.

During all phases of mining, approximately 6 inches of topsoil and 4.5 feet of overburden will be removed. These materials will be stockpiled on site or direct placed for reclamation. Stockpiles remaining in place more than 90 days will be vegetated to prevent erosion. The stockpiled materials will aid in reclamation of the site. Table E-1 shows the volumes needed to reclaim as well as the estimated volumes of topsoil and overburden that will be removed prior to mining.

Table E-1 – Reclamation Volumes

Phase	Topsoil Stripped (CY)	Overburden Stripped (CY)	Topsoil Required (CY)	Overburden Backfill Required (CY)
1	4,991	44,917	2,832	16,274
2	11,170	100,526	8,139	30,044
Totals	16,160	145,443	10,970	46,319

After each phase is completed, the mining slopes will be flattened and a grader will be used to create a 3H:1V slope using stockpiled overburden. The slopes will be compacted to prevent erosion and for stabilization purposes. No more than 1000 feet of active mining highwall will exist at any time without being regraded to reclamation slopes. All berms will be flattened during reclamation. The stockpiled topsoil will be used to replace a single six-inch lift across the entire disturbed area. All disturbed areas will then be revegetated with a native seed mix recommended by the Natural

Resource Conservation Service. Revegetation will convert the land to groundwater lakes surrounded by wildlife habitat which matches neighboring land uses along the river.

While the pit slopes are being backfilled, graded, and topsoiled, the pit will be dewatered in the same manner as during mining. A discharge permit is in placed with CDPHE for this activity.

Phase 1 of reclamation involves the backfilling, topsoiling, and revegetating of the pit to create a groundwater lake. The areas surrounding the lakes in the south of the site will be vegetated to be converted to wildlife habitat. The area in the north of the site being used as a processing area will be reclaimed to be used for industrial purposes following the closure of the mine. Phase 2 reclamation will be similar with the only difference being the size of the lake and industrial area. Table E-3 breaks down the reclamation areas by type for both phases.

Table E-2 – Reclamation Areas by Phase

Reclamation Type	Phase 1	Phase 2
Groundwater Lake	8.9 acres	15.4 acres
Wildlife Habitat	10 .1 acres	11.7 acres
Industrial Area	9.9 acres	1.7 acres

The wildlife habitat area is the total area that will need topsoiling, seeding, and mulching in reclamation.

2. Topsoil Replacement

Topsoil will be replaced in a single six-inch lift across all disturbed areas at the Bennett Pit. It will be replaced on the mining slopes to 10 feet below the lake water level. It will be directly placed via loaders and haul trucks. This will follow the regrading and backfilling of slopes and will be part of the phased reclamation plan. All areas will be disced following topsoil replacement to aid in root penetration.

3. Site Access

All internal haul roads outside the pit will be graded and seeded to fit the post-mine land use as wildlife habitat or industrial area. The site access haul road from US-50 will remain as is to retain access to the site.

4. Industrial Area

The industrial area will be covered with 4-6 inches of gravel from the active product stockpiles at the end of either Phase 1 or Phase 2.

5. Reclamation Timetable

The sequence and timing of reclamation can be seen in Table E-3 below. This schedule is dependent on the rate of mining, which will fluctuate with market demands. The operator will reclaim areas of the site as mining continues to ensure limited disturbance.

Table E-3 – Reclamation Timetable

Description	Time Required
Develop and mine phase 1	5 years
Develop and mine phase 2	15 years
Backfill, topsoil, and revegetate remainder of the site that is unreclaimed	1 year
Vegetation monitoring	2 years
Total	***23 years***

6. Revegetation Plan

The final revegetation plan at the Bennett Pit is unchanged from the currently approved one. It will leave a post mine land use of wildlife habitat surrounding the lakes. The recommended seed mixes to be used are as follows:

6.1. Upper Slope Seed Mix – Outside Top of Pit Slope

Species	Pounds of pure live seed per acre (drilled)
Jose Tall Wheatgrass	10.2
Alkalai Sacton	0.6
Yellow Sweet Clover	2.8
Sand Dropseed	0.2
Crested Wheatgrass	4.0
Total	**17.8**

Broadcast seeding will be done at double the drill rate

6.2. Lower Slope Seed Mix – Top of Pit Slope to Water Level

Species	Pounds of pure live seed per acre (drilled)
Reed Canarygrass	5.3
Red top	0.3
Total	**5.6**

Broadcast seeding will be done at double the drill rate

7. Post-Reclamation Site Drainage

The site will drain internally following reclamation in all areas except for the area southwest of the currently reclaimed groundwater lake which will drain to the west.

8. Revegetation Success Criteria

Revegetation will be deemed adequate when erosion is controlled, the vegetation cover matches neighboring wildlife habitat areas, and when it is considered satisfactory according to Division standards. This will be monitored in the two years following the completion of reclamation.

9. Weed Control

The weed control plan is unchanged from the weed management plan described in Technical Revision 4 employed in August 2017.

10. Monitoring Reclamation Success

Monitoring reclamation on an ongoing basis will allow minor revisions to assure efficient and successful reclamation. The operator plans to use the local NRCS office to assist in determining the ability of the reclaimed land to control erosion. If minor changes or modifications are needed to the seeding and reclamation plan, revision plans will be submitted to the Division as required. It is hoped that the Division will provide assistance in evaluating the success of the ongoing reclamation process. All areas disturbed and reclaimed and any other important items regarding reclamation will be submitted in the annual reports to the Division. Delta County and the Division of Parks and Wildlife will also be consulted on the progress of the reclamation.

Reclamation Costs Exhibit L

Reclamation of the Bennett Gravel Pit will be completed in two phases, which will require a phased bond. Phase 1 will involve reclaiming the site to the conditions shown on Map F-1; Phase 2 will reclaim to the conditions shown on Map F-2. Each phase's bond is calculated and described below. Prior to opening Phase 2 for mining a new gravel well permit and any needed additional bond will be posted with the Division as part of a technical revision.

1. Phase 1 Bond Scenario

The worst-case reclamation scenario for Phase 1 includes reclaiming the pit as a groundwater lake, reclaiming the processing area in the north for industrial use, and reclaiming the remaining disturbed areas near the river as wildlife habitat. The active pit and the existing pond will both require dewatering to full depth.

A maximum of 2,000 ft of highwall will have to be backfilled, graded, topsoiled, and vegetated above the anticipated water line. This highwall distance includes the entirety of the current mining pit slope on the east side of the site and the remaining north shore of the existing south pond.

Wildlife habitat areas will require topsoiling, seeding, and mulching. These areas consist of upland ground outside of the industrial area and portions of the backfilled slopes leading into the groundwater lakes. The backfilled slopes would need to be topsoiled and vegetated to 10 feet below the water level. The area requiring topsoiling, seeding, and mulching is 6.9 acres. This is calculated as follows: Total disturbed area – Groundwater Lake Area – Industrial Area + Highwall Backfill Slope Area.

$$25.1 \text{ acres} - 9.9 \text{ acres} - 4.8 \text{ acres} + (2000 \text{ ft} \times 10 \text{ ft} / 43560 \text{ ft}^2 \text{ per acre}) = 6.9 \text{ acres}$$

All structures will have to be removed from the processing area prior to regrading and flattening berms.

Reclamation will be completed with monitoring of vegetation growth and weed control following seeding and mulching activities.

Table L-1 – Reclamation Cost Estimate Phase 1

Activity Description	Time (Months)	Quantity		Unit Cost ($)	Cost ($)
Backfill and grade 2,000' of highwall (30 ft. tall)	0.5	25,036	cy	$1.50	$37,557
Pit dewatering of a 9.5-acre lake (25 ft deep)	1	237.5	acre-ft	$105.00	$24,938
Remove scale and office trailer	0.1	1		$1,000.00	$1,000
Gravel industrial area (5 inches over 9.9 acres)	0.2	6,660	CY	$0.75	$4,995
Topsoil all disturbed areas to be revegetated (6.9 acres @ 6-inches thick)	0.5	5,566	CY	$1.50	$8,349
Drill seed all topsoiled areas (rangeland mix)	0.5	6.9	acres	$476.00	$3,284
Mulch all seeded areas	0.5	6.9	acres	$858.00	$5,920
Weed control management	24	1		$750.00	$750

Totals	25.5				$86,793
DRMS Costs (28% x direct costs)					$24,302
Phase 1 Bond Amount					***$111,095***

2. Phase 2 Bond Scenario

Many reclamation activities of Phase 2 are already accounted for in the Phase 1 bond shown in Table L-2. This section covers the additional costs created by Phase 2 mining and reclamation.

Phase 2 dewatering will be for the volume of the final pond shown on Map F-2. Backfilling and grading of pit slopes will still be controlled by the 2,000 foot highwall length limit and topsoil. Vegetation, weed control, and gravel placement in the Phase 1 bond is sufficient to cover the Phase 2 versions of those activities as well.

Table L-2 - Additional Reclamation Cost Estimate Phase 2

Activity Description	Time (Months)	Quantity		Unit Cost ($)	Cost ($)
Pit dewatering of 15.3 acre lake (25 ft deep)	1	382.5	acre-ft	$105.00	$40,163
Totals	1.5				$40,163
DRMS Costs (28% x direct costs)					$11,246
Phase 2 Bond Amount					***$51,409***

3. Backfill Haul Distances

In both phases topsoil and overburden will be directly placed via trucks and loaders. Haul distances from the stockpile area to the centroid of each Phase's mining area are listed below in Table L-3.

Table L-3 – Approximate Haul Distances

Material	Phase 1	Phase 2
Topsoil	600 ft.	600 ft
Overburden	600 ft.	600 ft