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MINE ENGINEERING
MINE RECLAMATION

CIVIL ENGINEERING
CONST. MANAGEMENT

November 29, 2018

Janet Binns
Division of Reclamation, Mining & Safety
1313 Sherman St., Room 215
Denver, CO 80203

Re: Bowie Resources, LLC, Bowie No. 1 Mine
TR-64, East Roatcap Creek Culvert Removal – Reclamation Plan
Adequacy Response #1
Permit C-1981-038

Dear Ms. Binns:

DRMS' letter dated November 1, 2018 transmitted its adequacy review for the referenced technical revision. On behalf of Bowie Resources LLC, following are its responses to the DRMS' comment and concerns.

1. **DRMS:** Per the Department of the Army letter in your submittal, 1000 cubic yards of riprap will be placed in the reconstructed East Roatcap Creek channel. This indicates the channel will be an armored structure rather than a simulation of the pre-mining conditions (as indicated in Sheet 9 of 10 on the Reclamation map in the PAP, with plantings and some rocks). Please provide a design of the riprap channel (with modeling results and design drawings) or provide the following:
 - a. A discussion of why a design is not needed, citing the applicable DRMS rule, and
 - b. A quantitative analysis or qualitative discussion to show that the reconstructed channel will likely remain stable during large runoff events.

BRL: After further consideration of the rip rap channel, BRL will revert back to what is currently approved in the permit document; which is after culvert removal, restoring the channel to its approximate original location, and intermittently placing boulder to simulate pre-mining conditions. This reclaimed configuration will be similar to how the 4 ponds were reclaimed in 2017 at the East Mine.

2. **DRMS:** It is unclear why map 8A-19, which indicates post-mining conditions, includes structures that will be removed, per the proposed revisions. These structures include W-1 & W-2 on the plan view as well as Pond W-1 and the culvert on Section A-A'. Please revise the map or explain why these structures are left on the map.

BRL: Please see revised **Map 8A-19**.

3. **DRMS:** Please provide a longitudinal profile of the reconstructed East Roatcap Creek.

BRL: Please see the channel profile on **Map 8A-19**.

Please feel free to contact me if you have any questions.

Sincerely,

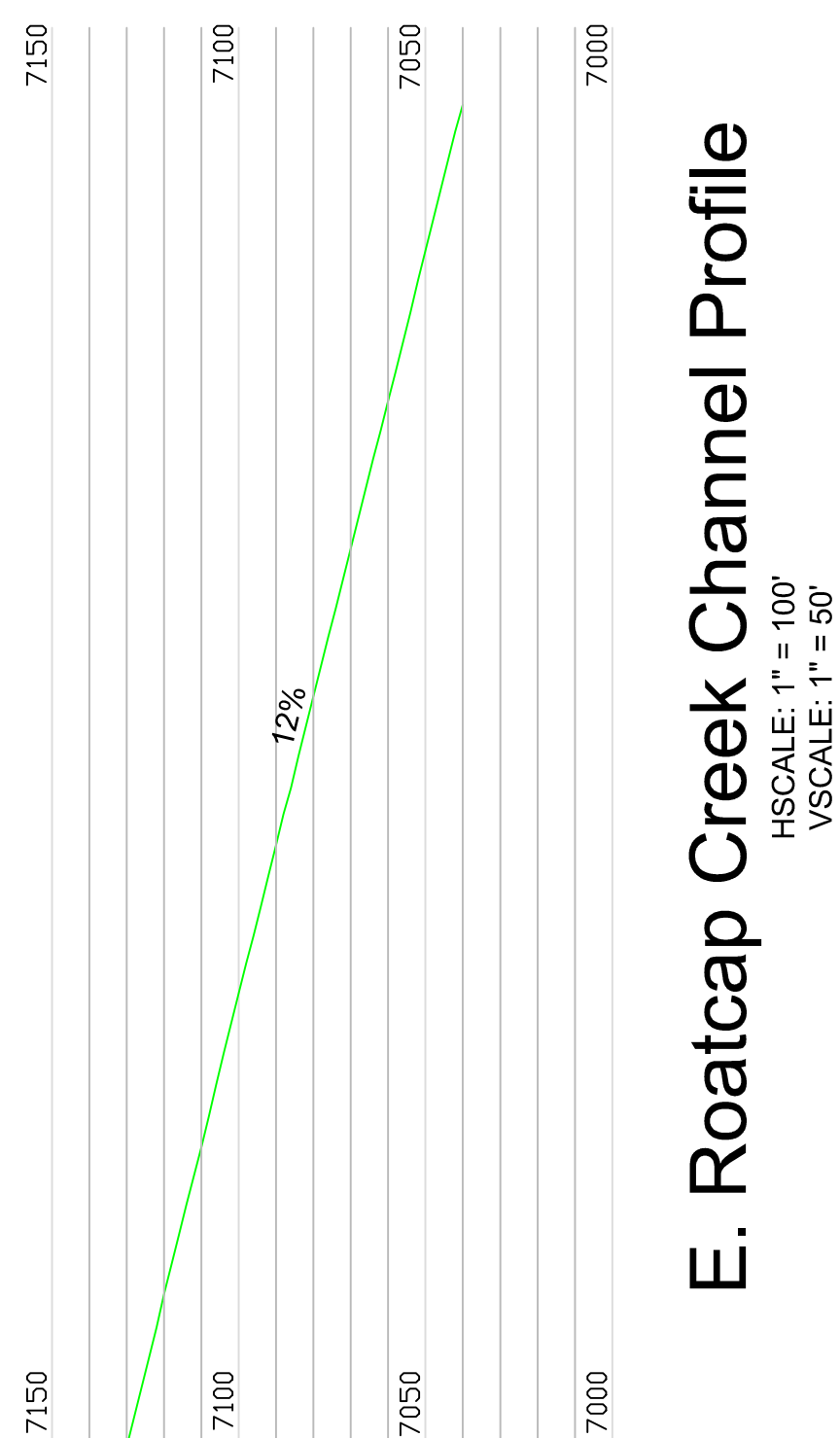
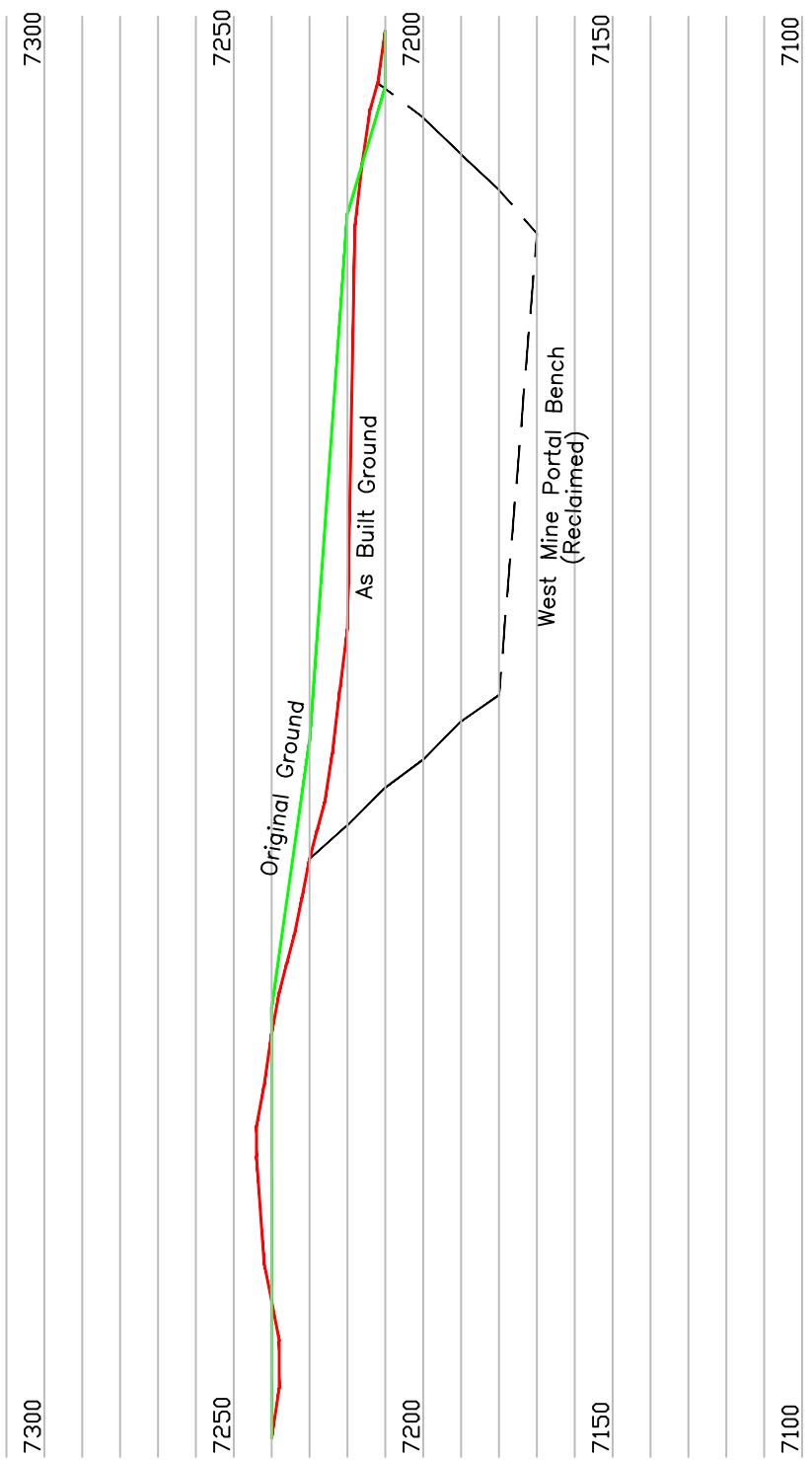
Tamme Bishop

Tamme Bishop, P.E.
Project Engineer

Attachments: Map 8A-19

Cc: Basil Bear




Figure 1 is a line graph showing the change in elevation (in feet) for three different ground conditions over a distance of 0 to 100 feet. The Y-axis represents Elevation in feet, ranging from 7100 to 7350. The X-axis represents Distance in feet, ranging from 0 to 100. The three conditions are: Original Ground (solid line), Filled Roadway (dashed line), and Filled Roadway with 3:1 Slope (dotted line). The graph shows that the Filled Roadway with 3:1 Slope has the highest elevation throughout the distance, while the Original Ground and Filled Roadway have the lowest elevations. The Filled Roadway with 3:1 Slope starts at approximately 7250 feet at 0 feet distance and decreases to about 7100 feet at 100 feet distance. The Original Ground and Filled Roadway start at approximately 7250 feet at 0 feet distance and decrease to about 7100 feet at 100 feet distance.



HSCALE: 1" = 100'
VSCALE: 1" = 50'



SCALE: 1" = 100'

PROJECT: BOWIE NO. 1 MINE		PREPARED FOR: BOWIE RESOURCES, LTD.		ENGINEER'S CERTIFICATION		REVIEWS	
TITLE: POST-MINING CONTOUR MAP WEST MINE Reclamation Progress thru 2002		 BOWIE NO. 1 MINE P.O. BOX 483 PAFIA, COLORADO 81428		 ONE INCH		I hereby certify that this drawing was done by me or under my direct supervision and that all of the information presented on this drawing is true and correct to the best of my knowledge and belief.	
DWS. NAME: Map 8A-19		PREPARED BY: J. E. STOVER & ASSOCIATES 2701 Campus Dr., Suite 100 Grand Jct., CO 81501		DESIGNED: D.A.J. 06/12/01 DRAWN:		1. TR-64 Adequacy Response #1 T.K.B. 11/28/19 2. TR-64 Revised area to be re-disturbed for final reclamation J.E.S. 09/10/18 3. Revised Per Adequacy #3 Concerns J.E.S. 01/20/04 4. Revised Per Adequacy #2 Concerns J.E.S. 12/18/03 5. Revised Per Adequacy Concerns D.A.J. 1/15/03	
SCALE: As Noted				CHECKED:		No. DESCRIPTION: BY DATE	
						REFERENCES	
						1	