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INTEROFFICE MEMORANDUM

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**TO:** JANET BINNS  
**FROM:** ROB ZUBER *Robt D. ZL*  
**SUBJECT:** BOWIE NO. 1 MINE, HYDROLOGY REVIEW FOR TR-64 (THIRD REVIEW)  
**DATE:** APRIL 3, 2019

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These adequacy comments for TR-64 are based on the adequacy response from Stover and Associates, received by DRMS on 3/19/2019. As you requested in your e-mail, I am only responding to Item #1.

It appears that some of the materials provided in the response are applicable to riprap channels but not to the type of channel that is planned for East Roatcap Creek. These include the nomograph, Figure II-C-1, and the spreadsheet calculation for riprap size. Please explain how these are applicable, or do not include as part of any documentation for this creek.

Bowie Resources needs to provide a quantitative analysis (such as a SEDCAD model) or a qualitative discussion to show that the profile of the reconstructed channel will remain stable. Potential elements of the discussion could include:

- A description of the channel bottom. For example, if the channel is bedrock, there is no potential issue with bed erosion.
- Examples of where this approach has worked in other drainages. This could include details such as the slope of the other drainage, documentation showing that flows are similar to East Roatcap Creek, and documentation that the other drainage incurred large events without failure.

The plan for the reconstructed East Roatcap Creek must be in line with Rule 4.05.4(4), which address restoration of stream channels after diversion (in this case the diversion was a culvert). As this rule states, the channel and floodplain dimensions need to approximate the premining configuration and blend with the undisturbed drainage above and below the reclaimed reach. If little or no documentation is available regarding premining conditions, the adjacent reaches should provide an acceptable proxy.