COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources
1313 Sherman Street, Room 215
Denver, CO 80203

March 10, 2022

Brad Fancher
Loveland Ready-Mix Concrete, Inc.
644 N. Namaqua Road
P.O. Box 299
Loveland, CO 80539

Re: Loveland Ready-Mix Concrete, Inc., Dunn Pit, File No. M-2021-059, 112c Permit Application Second Adequacy Review - Inlet Protection

Mr. Fancher,

The Division of Reclamation, Mining and Safety (Division/DRMS/Office) reviewed the contents of the Loveland Ready-Mix Concrete, Inc. (LRM) 112c permit application inlet protection adequacy response dated February 21, 2022 for the Dunn Pit, File No. M-2021-059. A copy of the inlet protection second review memo from Rob Zuber dated March 10, 2022 is attached for review.

The Division is required to issue an approval or denial decision no later than March 31, 2022, therefore a response to the following adequacy review concerns should be submitted to the Division as soon as possible.

If you have any questions, please contact me at peter.hays@state.co.us or (303) 866-3567 Ext. 8124.

Sincerely,

Peter S. Hays
Environmental Protection Specialist

Enclosure – Second Inlet Protection Review Memo

Ec: Jared Ebert; Division of Reclamation, Mining & Safety
Stephanie Fancher-English; Loveland Ready-Mix Concrete, Inc.
Walt Niccoli; Telesto Solutions, Inc.

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Interoffice Memorandum

Date: March 10, 2022
From: Rob Zuber *RDZ*
To: Peter Hays

Subject: Dunn Pit (Permit No. M-2021-059), Second adequacy review addressing responses from Telesto Solutions, Inc., 21 February 2022

After reviewing the responses from Telesto, I am requesting additional information for the inlet protection design and associated 2D HEC-RAS model. This includes the following adequacy items (numbers correspond to the numbers in my memorandum for our PAR, and I included the text for my original adequacy items):

1. Please explain why the 9,000 cfs event is used for determining maximum velocities for weir designs. Were flows and velocities for larger storms not considered? In particular, the 100-year storm is listed as 20,309 cfs.
    - *No additional response or revision required.*

2. Please provide design drawings for the pit inlet weirs, or reference other reports associated with this submittal that contain the drawings.
    - *No additional response or revision required.*

3. Please explain why bridge decks and piers are not included in the model. It appears that these structures could impact the velocities of flows into Cell 3, which is relatively close to the railroad bridge (approximately 200 feet upstream).
    - ***The Telesto report states that, "The flood stage during the 100-year event is below the elevation of the bridge girders for both the railroad and highway bridges." Does the 1D model confirm this statement? If so, please provide an image from the model results (the cross section at the upper end of the railroad bridge) illustrating this point. If the 1D model does not confirm this statement, please explain the possible discrepancy between the model and the statement.***

4. Please explain why there is no outlet protection for flood flows at the lower end of Cell 1. Include a discussion of velocities estimated with the 2D HEC-RAS model.
    - *No additional response or revision required.*

5. Please explain why no inlet protection is needed in areas other than the control points for each cell (shown on page 6 of the Inlet Protection Calculations). For example, for Cell 1 there is an area 250 - 300 feet east of the southwest corner where velocities in RAS Mapper (9,000 cfs) are greater than 13 feet per second.
    - *No additional response or revision required.*

6. Please explain the apparent discrepancies between pages 6 and 7 in terms of the sequence of flooding of the three cells. The table on page 6 suggests that flooding of Cell 2 occurs during smaller storm events than flooding of Cell 3; flooding of Cell 2 starts at 2000 cfs and flooding of Cell 3 starts at 4000 cfs. The discussion on page 7 states that flooding of Cell 2 and flooding of Cell 3 begin with approximately the same storm, approximately the 8-year event.
    - ***The Telesto response states that flow into Cell 3 starts at 8,000 cfs (70-yr event). In the November submittal this value was 4,000 cfs. Please explain why this changed considerably.***

7. The last page of the Inlet Protection Calculations (page 7) states that "riprapped inlet weirs were sized and included in Exhibit C of the mine plan." Can you be more specific where this is in the application?
    - *No additional response or revision required.*

8. Please elaborate on item 6 on page 7. Do the modeling results indicate the flows from backwater conditions will be low enough that additional bank protection (e.g., riprap) will not be needed, and vegetation will be sufficient?
    - *No additional response or revision required.*