APPENDIX F TO FIELD SERVICES SUBMISSION

June 18, 2020

Wood File: BX30653

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Arie & Willemiek Muilwijk
P.O. Box 1628
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Attention: Arie Muilwijk

Re: Substantial Completion Report
Calf Shelter, Calf/Feeder Pens, Catch Basin
NE-10-009-27-W4M, near Fort Macleod, Alberta

As requested, Wood Environment & Infrastructure Solutions has carried out a field review following the recent Roller Compacted Concrete (RCC) placement at the above captioned location, and the excavation of a new catch basin. The RCC areas assessed included a new calf shelter building, and series of three new feedlot pens.

The calf shelter RCC mat encompasses an area of about 15 m wide by 80 m long, located directly east of the residence, and north of the barns (see Figure 1). The new feedlot pens encompass an area of about 37 m wide by 97 m long, located just southeast of the calf shelter building (see Figure 1). At the time of Wood's field review, the catch basin had been formed, but the liner was not installed. The catch basin measured roughly 20 m wide by 30 m long by 1.8 m deep, with side slopes of approximately 3H:1V.

To assess the RCC mat, Wood has reviewed records of construction, the concrete mix, and carried out testing and field review of the completed RCC mat. The site review by Wood was carried out on June 9, 2020, and included coring, non-destructive compressive strength testing, and a visual review of both mats to the extent possible. The following comments, observations, and test results by Wood relative to the recently placed RCC mat are provided as follows:

1. The sizes and locations of the calf shelter, pens, and catch basin are generally consistent with the details provided in the NRCB Permit Application (LA19036).
2. Photographs provided depicted the subgrade prior to placement of the RCC and showed that the subgrade had been levelled and compacted prior to RCC placement.
3. The RCC was placed using GPS based survey-controlled equipment to provide a uniform placement thickness of RCC. Based on coring of several locations in the RCC, the thickness of RCC ranged between 155 mm and 205 mm, with an average thickness of 173 mm for eight cores.
4. Photographs provided depicted the RCC being compacted around existing fence posts, waterers, and bunk aprons, using a walk-behind plate compactor, while a vibrating ride-on compactor was used to compact the majority of the RCC.
5. Further photographs provided depicted a layer of straw over the RCC following placement to promote curing of the RCC.
6. Laboratory density testing was carried out on core samples recovered from the RCC mat, and indicated in-place density ranging between 2,395 kg/m^3 and 2,420 kg/m^3, generally representing

compaction ranging to between 99 percent and 101 percent of the target mix density of 2,400 kg/m^3.

7. During Wood's June 9, 2020 site visit, a Schmidt hammer was utilized to assess the general compressive strength of the RCC. The results of the rebound testing indicated compressive strengths of the RCC ranging between about 25 MPa and 40 MPa.
8. At the time of Wood's site review, the catch basin had been roughly formed, and dimensions were found to be in general accordance with those provided in the application for permit. No accumulation of water or evidence of groundwater was observed in the catch basin excavation. Some accumulation of sand and silt was observed, which would require removal prior to placement of a liner. It is understood that an HDPE liner has been proposed for this catch basin.

In general, the review of the RCC associated with the subject calf shelter and pens indicated that construction of the RCC mat was consistent with good construction practice. Further, the results of density and compressive strength testing of the finished mat indicate that the RCC is competent and suitable for its intended purpose.

We trust this satisfies your present requirements. If you have questions or require further information or clarification, please do not hesitate to contact the undersigned.

Respectfully submitted,

Wood Environment and Infrastructure Solutions,
A Division of Wood Canada Limited

PROFESSIONAL ENGINEER ALBERTA JOHN LOBBEZOO

18 June 2020.

John Lobbezoo, P.Eng.
Associate Engineer, Geotechnical
Lethbridge Geotechnical & Materials Testing Lead

Permit to Practice No. P-4546

Attachment: Figure 1 – Site Plan