



Canadian Environmental
Assessment Agency

Agence canadienne
d'évaluation environnementale

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December 19, 2016

Mr. Derek Holmes
Regional Manager, B.C. Aggregate Division
BURNCO Rock Products Ltd.
20395 102B Avenue
Langley BC V1M 3H1

Dear Mr. Holmes:

The Canadian Environmental Assessment Agency (the Agency) has received additional advice from Natural Resources Canada regarding the BURNCO Aggregate Mine Project and risk of avulsion of McNab Creek into the project site (see Annex 1).

In the Environmental Impact Statement (EIS) received from BURNCO Rock Products Ltd. (BURNCO) on August 4, 2016 sub-reach 3.3 of McNab Creek is identified as having a moderate to high avulsion risk prior to the implementation of mitigation measures (EIS Appendix 5.4-A). The mitigation measures identified to reduce this risk to a rating of "very low" include imposing a minimum setback for construction of no less than 75 meters from McNab Creek, and building a training berm.

There is a gap between the Containment Berm (south and southeast of the Pit Lake) and the Flood Protection Dyke (north and northeast of the Pit Lake) along a segment parallel to sub-reach 3.3. It is not clear why the containment berm or the flood protection dyke do not extend to this segment (see Figure 5.1-4 of the EIS). The minimum setback between the creek and construction activity in this location is also not clear.

Since a training berm is listed as a mitigation measure to reduce the risk of avulsion from "moderate to high" to "very low", provide a rationale for why there is a gap between the flood protection dyke and the containment berm, in the area parallel to sub-reach 3.3, and why a training berm is not required. Also, describe

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what the setback of construction will be from McNab Creek in sub-reach 3.3 when water levels are highest. Provide information on any local topography along sub-reach 3.3 that would inhibit flow from an extreme flood event that would cause avulsion in this location.

Please note that this information request is separate from the one sent to you on November 3, 2016. In accordance with the transition provisions of the *Canadian Environmental Assessment Act, 2012*, time taken by BURNCO to provide the requested information is not included in the legal timeframe within which the Comprehensive Study Report must be submitted to the Minister of the Environment and Climate Change Canada. The Agency and federal authorities will continue to work on the EA, with a focus on Indigenous consultation and technical working group meetings.

I will be in contact with your consultants to schedule a meeting to discuss and answer questions regarding the items and questions contained in this Information Request, and to understand and resolve issues as required.

Please contact me at 604-666-2601 or at Rob.Hajdu@ceaa-acee.gc.ca should you have any questions or concerns.

Sincerely,

<Original signed by>

Rob Hajdú
Project Manager

Enclosure: Annex 1 – NRCan Response to CEAA Avulsion Risk

c.c.: Alan Calder – Golder Associates Ltd.
Monica Perry – B.C. Environmental Assessment Office
Chief Ian Campbell – Squamish Nation
Emma Hume – Ratcliff and Company

David Leung – Environment and Climate Change Canada

Susanne L'Heureux – Transport Canada

Veronica Mossop – Natural Resources Canada

Allison Denning – Health Canada

Marina Wright – Fisheries and Oceans Canada

Regent Dickey – Major Projects Management Office



Natural Resources
Canada

Ressources naturelles
Canada

November 30, 2016

Rob Hajdú
Project Manager
Canadian Environmental Assessment Agency

Sent via email: rob.hajdu@canada.ca

Subject: NRCan's Response to the CEA Agency's Request on Avulsion Risk in Relation to the BURNCO Aggregate Mine Project, proposed by BURNCO Rock Products Ltd.

On November 21, 2016, Natural Resources Canada (NRCan) received a request from the Canadian Environmental Assessment Agency (CEA Agency) with regards to a technical question on avulsion risk related to the **BURNCO Aggregate Mine Project**.

NRCan is a Federal Authority under the former *Canadian Environmental Assessment Act*, and as such, NRCan is participating in the Transitional Comprehensive Study Environmental Assessment for this project.

In the attached submission, NRCan has responded to the CEA Agency's question on avulsion risk as it relates to expertise in geohazards.

If you have any questions or require clarification on our comments please feel free to contact me at (343) 292-6712.

Sincerely,

<Original signed by>

Veronica Mossop
Environmental Assessment Officer
Office of the Chief Scientist

NRCan's Response to the CEA Agency's Request on Avulsion Risk in Relation to the BURNCO Aggregate Mine Project

November 30, 2016

CEA Agency's Question:

Avulsion risk is greatest during an extreme precipitation event, and the risk is considered "high" for segment 3.3. (See Appendix 5.4 A, Section 6.0 and Figure 4), why does the containment berm not cover all of segment 3.3 (see Section 5.1, figure 5.1-4)? Does the containment berm need to cover this area since it is listed as a mitigation measure?

Reviewed Documents:

Golder and Associates, 2013. Assessment of avulsion risk on McNab Creek, BC. Technical Memorandum 1114220046-516-TM-Rev0, 14 p.

BURNCO Rock Products Ltd [EIS]. July 2016. Proposed BURNCO Aggregate Project. Environmental Impact Statement. Environmental Impact Statement to satisfy the requirements of the former Canadian Environmental Assessment Act.

NRCan's Response:

Golder Associates (section. 5.1.2, 2013) mentions that an adequately engineered training berm would serve "to reduce the risk of avulsion [along reaches 3.3 and 3.4] by preventing the development of new side channels as a result of overland flow". They also mention that the setback between the berm and the present active channel should be no less than 75 m.

EIS (section 5.1, figure 5.1-4) shows a "flood protection dyke" along the right side of the creek across the outside of the gradual bend at the lowest end of reach 2 and adjacent to most of reach 3.1. This dyke clearly is intended to keep an extreme flow within the creek valley and preventing the flow from entering the project area. The berm is located along the portion of the creek where the channel direction shifts approximately towards the southeast direction before turning approximately towards the south. It is NRCan's opinion, that the dyke is correctly positioned to serve this purpose. This flood protection dyke is not mentioned in the Golder Associates report nor shown on any of their figures.

EIS (section 5.1, figure 5.1-4) also shows a roughly east-west-oriented containment berm across the southern portion of the pit area that hooks to the northwest near the creek. There is a gap between the containment berm and the end of the flood protection dyke located to the north. It would seem that the engineered training berm mentioned by Golder Associates along reaches 3.3 would span the gap between the flood protection dyke and the containment berm, although their report does not mention these features. Unless there is a specific characteristic to the local topography that would inhibit an extreme flood flow from spilling through this gap into the pit area, it is not clear to NRCan as to why there is no dyke/berm spanning this gap. Unless there are local topographic characteristics that alleviate the need for one, NRCan

suggests that the proponent considers that a dyke/berm should be put in place within the identified gap.