181 University Avenue
Suite 300, PO Box 33
Toronto, Ontario
M5H 3M7
416-628-0216

February 28, 2020

Derek Donald
Technical Advisor
Nunavut Water Board
P.O. Box 119
Goja Haven, NU, X0B 1J0
E-mail: derek.donald@nwb-oen.ca

Richard Dwyer
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0B 1J0
E-mail: licensing@nwb-oen.ca

Sent via Email: licensing@nwb-oen.ca; derek.donald@nwb-oen.ca

Re: TMAC Response to CIRNAC Comments regarding Hope Bay Project - Madrid North and South All-Weather Road Detail Design Drawings (1 to 4.7 km)

Dear Mr. Dwyer and Mr. Donald,

TMAC Resources Inc. (TMAC) is providing this letter in response to comments received from Crown Indigenous-Relations and Northern Affairs Canada (CIRNAC) on February 25, 2020. TMAC's response is detailed below:

CIRNAC Comment #1
"Considering that the proposed access road is generally higher than the existing grade, CIRNAC recommends the licensee should confirm that the pre-construction drainage pattern of the area will be maintained upon completion of the access road, and to implement drainage mitigation measures if the new access road would impact the existing grading scheme."

TMAC Response
The proposed roads are designed using coarse rockfill. This has been done so natural surface flows are not impeded and to allow for flows to pass through the road structure. This is the practice with other all-weather-roads (AWRs) that have been constructed on site and is consistent with site observations. The Madrid North and South AWR road design has carefully considered the natural surface water flow paths and ground conditions (including areas of ice rich ground – as indicated by melt water or frost polygons). The design avoids crossing areas with

large upstream catchments in order to prevent the road from impacting the pre-construction drainage pathways. The designed road alignment follows the high ground at the top of natural drainages as much as possible. Multiple road alignments were considered, and field reconnaissance was completed before the alignment presented in the design package was selected. Where the road does cross identified flow paths, appropriately sized culverts are specified. Each year an annual geotechnical inspection is completed by SRK and as part of this inspection, the AWR roads are inspected. If notable ponding water is observed against any roads, then recommendations would be made as part of the annual inspection reporting and additional measures such as rock drains or culverts would be implemented on site.

CIRNAC Comment #2
"CIRNAC also recommends a minimum setback between the jersey barrier/boulder and the edge of the road (start of the 1.5 to 1 transition), which would prevent any displacement of the protection measure due to erosion or loss of material at the edge of the road."

TMAC Response
The figure presented in the design package is intended to be illustrative of the size and type of barrier required for the design vehicle. The road designs presented have varying side slopes (in the range of 1.5H:1V to 2H:1V). These side slopes take stability requirements into consideration. The road embankments are planned to be constructed from coarse rockfill material (1m minus diameter rock). Only a thin layer of surfacing material (3/4" crush) will be used. Due to the specified design side slopes and the coarse nature of the road fill material, minimal material loss from erosion or sloughing is expected. In practice, there would typically be a 0.3m setback distance between the jersey barrier/boulder and the edge of the road.

Should you have any further questions please feel free to contact me at oliver.curran@tmacresources.com.

Regards,

Oliver Curran
Vice-President, Environmental Affairs, TMAC Resources Inc.

Cc:
David Zhong, CIRNAC
Adam Grzegorczyk, TMAC
Kyle Conway, TMAC
Sarah Warnock, TMAC
Shelley Potter, TMAC