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## ILLECILLEWAET CURVE RETAINING WALL DESIGN REVIEW

Golder Associates Ltd. (Golder) has prepared this technical memorandum to provide geotechnical comments on the draft retaining wall design drawings prepared by Horizon Engineering Inc. (Horizon) for Retaining Walls at km 27.1 and km 28.0 as part of the Illecillewaet Curve Safety Improvement Project. Golder reviewed the Drawing Numbers 1 to 4 in the drawing package titled "Illecillewaet Curve Safety Improvements, Proposed Retaining Walls, Rogers Pass, Glacier National Park, BC" dated April 2017, against the geotechnical design recommendations provided by Golder in the report titled "TransCanada Highway – Illecillewaet Curve/Summit Ponding at Roger's Pass Glacier National Park British Columbia" dated July 27, 2016. Based on our review, we provide the following comments.

- The two MSE wall designs generally meet the design recommendations provided by Golder on the global stability of the walls.
- The compaction specification provided under notes for Materials and Installation procedures recommends greater than 100% Standard Proctor Maximum Dry Density (SPMDD). The greater than indication is unclear and it may be prudent to revise to read just 100% SPMDD.
- Compaction testing frequency is not provided in the notes. It is considered general practice to have a minimum frequency of testing. This information may be available in the project specification, however if not, it should be included in the design drawings to ensure a minimum testing frequency is achieved for quality control.
- Notes should be added to clarify how the perforated pipes shown on typical section on Drawing Number 2 are being discharged.

The grading details of the slope below the toe of the wall was not provided for review and this review was conducted assuming that this slope is not steepened from conditions assumed in Golder's geotechnical report.

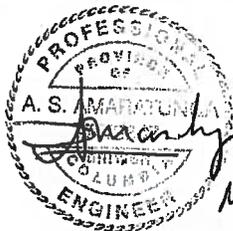


## CLOSURE

We trust that the preliminary information presented meets your present requirements. If you have any questions, please contact the undersigned.

Yours truly,

**GOLDER ASSOCIATES LTD.**



May 11, 2017

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