

## GEOTECHNICAL MEMORANDUM

**Client:** Phil Eastman

**Contact:** Same as above

**Email:** [REDACTED]

**Project Title:** Retaining Wall Assessment

**Project Address:** 62 Gordon Road, Lake Cowichan, BC

**Date:** June 11, 2025

**Project No.:** [REDACTED]

### Proposed Change from Verti-Block to Lock-Block Wall

As requested, we have reviewed the feasibility of substituting concrete lock-blocks for the Verti-Block system specified in our drawing package, "Proposed Verti-Block Retaining Wall Design," dated February 8, 2023. Our work has been conducted in accordance with, and is subject to, the accepted Terms of Engagement.

We understand the client proposes to use 1500 mm x 750 mm x 750 mm (LxWxH) concrete lock-blocks in lieu of standard 1220 mm x 914 mm x 610 mm (LxWxH) Verti-Blocks. The current typical section on Sheet 2 of our design drawings, shows a three-block-high wall with a minimum one block (610 mm) embedment below the finished grade at the base. This embedment depth must be maintained regardless of block type to protect the subgrade from scour. Please note that if the minimum 610 mm embedment depth is used, a three-block-high lock-block wall would extend about 500 mm above the finished upslope grade. Therefore, greater embedment may be used to reduce the height of wall exposed above the upslope grade if desired.

Standard lock-blocks weigh approximately 18 kN each, resulting in a static bearing pressure of about 50 kPa for a three-block-high wall. From a previous test hole investigation at the referenced site, we understand that native stiff brown clay underlies topsoil of varying depth. The native clay subgrade is expected to provide adequate bearing resistance for long-term support of the heavier lock-block wall.

Our design considers the standard 1H:10V wall batter of the Verti-Block product. Therefore, to maintain this design batter, the prepared levelling pad supporting the wall must be graded to a 10H:1V unless otherwise approved by the undersigned.

In summary, replacing the Verti-Block system with lock-blocks is geotechnically acceptable provided that:

- A minimum embedment depth of 610 mm is provided,
- The leveling pad is constructed with a 10H:1V slope, and
- Construction is consistent with all other specifications in our drawing package.

A further allowable change from our design drawings is to use 75 mm minus crushed rock instead of 19 mm minus material for the retaining wall backfill. This substitution will improve drainage behind the retaining wall and will potentially reduce costs for the backfill. Note that 19 mm minus crushed rock fill must be used for the leveling pad supporting the retaining wall. Consistent with our drawings, the backfill and leveling pad must be compacted to 95% of the Standard Proctor Maximum Dry Density (SPMDD) value.

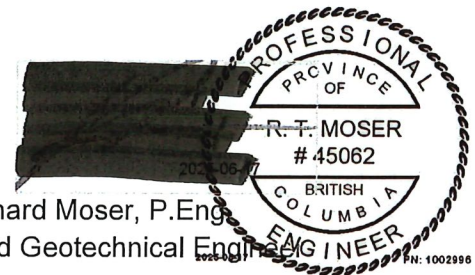
We trust the preceding is suitable for your purposes at present. If you have any questions or require anything further, please do not hesitate to contact us.

Sincerely,  
Ryzuk Geotechnical



Trevor Kinnee, EIT  
Junior Engineer

Permit to Practice Number: 1002996



Richard Moser, P.Eng.  
Lead Geotechnical Engineer