

CHEROKEE LANE MIXED USE DEVELOPMENT
TOWN OF GRAVENHURST

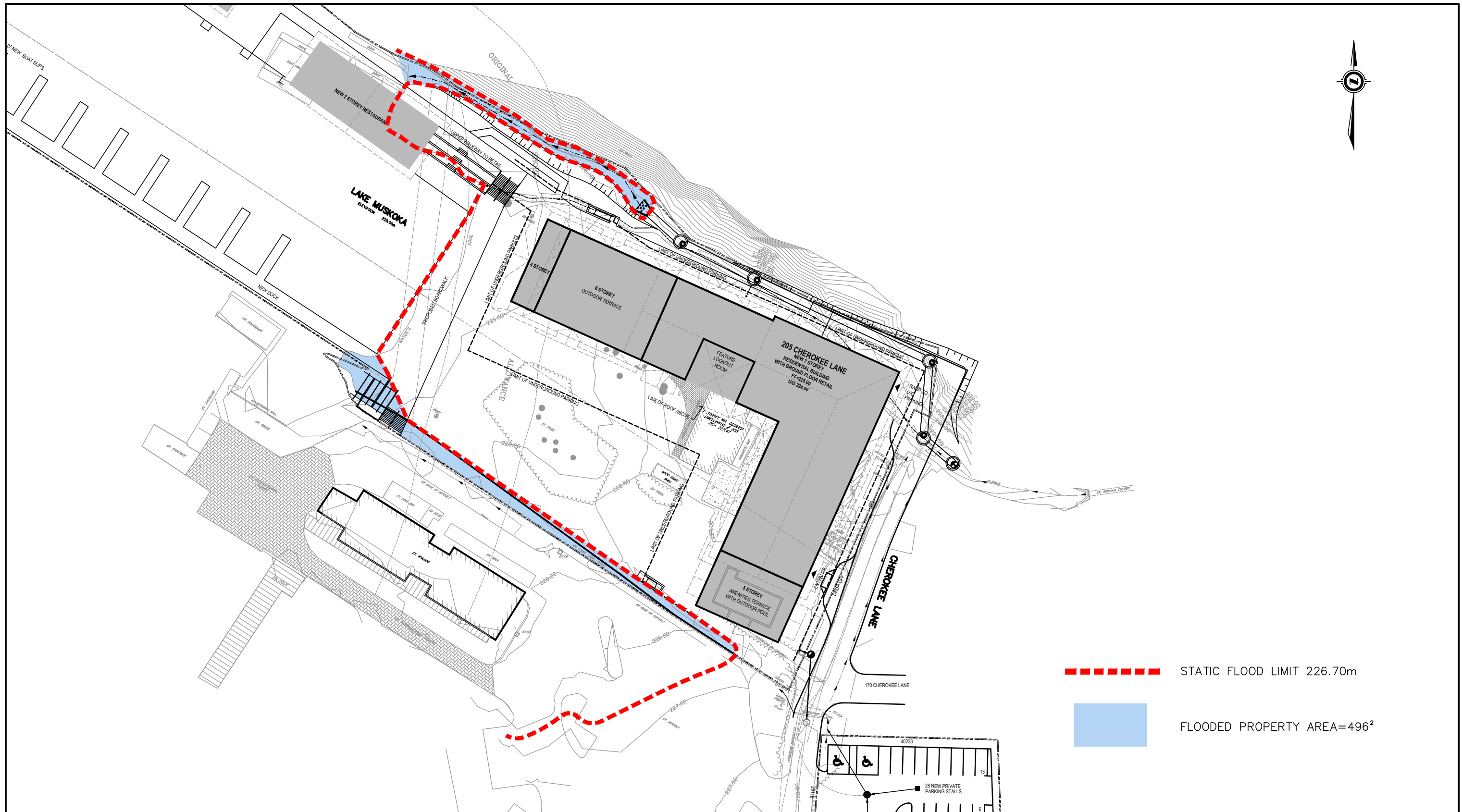
PRE DEVELOPMENT FLOOD PLAIN LIMIT

PROJECT NO. 20.11491M

SCALE: 1:750

DATE: SEPT 2021

FIGURE 1-F





Due to the relatively large surface area of Lake Muskoka at 12,100 hectares, the loss in flood storage volume from the development equates to an approximate increase in flood depth of 0.036mm over the lake surface area. In other words, the loss of volume would theoretically raise the static flood elevation to 226.7036m. The estimated loss in flood volume and increase in flood depth are negligible due to the large Lake Muskoka surface area.

As a suggestion, the loss in flood storage volume could potentially be offset by dredging some of the waterfront to facilitate safe boat passage and deeper waters for fish habitat. This will be further examined at the detailed design stage and in conjunction with the Department of Fisheries, Ministry of Natural Resources and Riverstone Environmental.

To protect the property from flooding, the shoreline will be built up to the proposed boardwalk elevation of 227.20m ASL using stone material. The use of rip-rip revetment incorporates natural materials and provides very effective protection at a low cost. The rip-rap revetment can also be sloped beneath the boardwalk to provide wave diffusion and attenuation.

3.0 WAVE UPRUSH CONSIDERATIONS

The Hydrology Study for Major Lakes in the Muskoka River Watershed completed by MMM, 1988 was reviewed to determine if the properties shoreline is subject to any significant wave uprush. The report prepared by MMM excludes Muskoka Bay from the Lake Muskoka wave uprush analysis. Muskoka Bay is not subject to the same wave uprush action that may occur within the larger open area of Lake Muskoka. Muskoka Bay has a relatively small surface area and effective fetch length when compared to main body of Lake Muskoka.

All habitable floor space and openings will be placed at an elevation of 228.00m ASL providing 1.3m of separation or freeboard distance above the static flood plain elevation and a factor of safety for any potential wave uprush that may occur.

We trust this is satisfactory and should you have any questions, please call.

Sincerely,
PINESTONE ENGINEERING LTD.

Joe Voisin, P.Eng.
Senior Engineer, Partner