Fraser Valley Regional District

CORPORATE REPORT

To: Electoral Area Services Committee
Date: 2021-02-11

From: Tarina Colledge, Emergency Management Specialist
File No: 7130-20

Subject: Minor Surficial Landslides at Mt. Breakenridge, Harrison Lake, Electoral Area C

INTENT

This report is intended to advise the committee of information pertaining to recent minor landslides at the base of Mt. Breakenridge, Harrison Lake in Electoral Area C and associated emergency management considerations. Staff are not looking for a recommendation and have forwarded this information should members want to discuss the item further.

STRATEGIC AREA(S) OF FOCUS

Provide Responsive & Effective Public Services

Support Healthy & Sustainable Community

BACKGROUND

On Thursday, January 14, 2021, social media users shared videos of landslide activity happening in an area of geoscientist interest that may have the potential to trigger a seiche. Staff brought these videos to the Emergency Program Coordinators for the District of Kent and Harrison Hot Springs as well as the Ministry of Forests, Lands, Natural Resource Operations & Rural Development (FLNRORD) and Emergency Management BC (EMBC).

The Province deployed geoscientists for a helicopter flight of the area and presented their findings during a coordination call with FVRD staff and stakeholders on Saturday, January 16, 2021. The assessors reported no perceived immediate threat to life or safety, although, assessing the peak was challenging due to snow. The landslides were occurring in surficial soils in the lower third of the slope and running out to the lake.

DISCUSSION

The stability of mountain slopes around Harrison Lake has been a point of interest and research to geoscientists for the last 30 years. There is concern that a large landslide at Mt. Breakenridge has the potential to cause a "seiche," more commonly known as an inland tsunami. Studies of the area, which include seiche modelling, were commissioned by EMBC in 1990. They demonstrate the potential for a large bedrock landslide that could create tsunami-like waves that could inundate low lying lands around the lake, including the Village of Harrison Hot Springs. Dikes at the south end of the lake could possibly be overtopped by up to 2 metres. Estimates vary regarding velocity of water, but studies predict that it would take 12 to 20 minutes for the tsunami-like waves to travel to the south end of the lake and Harrison Hot Springs. The likelihood of this kind of event occurring are very low but if it does happen the consequences would be catastrophic.

Given this risk, there was some initial concern about the recent slope movement at Mt. Breakenridge but the Province's geoscientists have indicated that the minor sliding of surface soils does not represent an increase in risk for a large landslide and seiche event.

Staff have requested that the Province share the seiche modelling and updated LIDAR mapping data for the area. Staff have also requested that the EMBC South West Regional office consider this scenario for future region-wide exercise potential. Running an exercise involving multiple jurisdictions, and a short notice mass evacuation from a community with limited egress would benefit all involved, including residents and tourism operators.

An event of this potential magnitude in best practice should have some mechanism of monitoring and early warning systems. At this time, the Province does not monitor slope stability at Mr. Breakenridge. This issue was raised during the coordination call on January 16, 2021. From a scientific view, slope monitoring is recommended, however, it is unknown who should take the responsibility for this in rural Crown land areas. Funding was discussed and there seems to be a lack of options to address funding the type of monitoring and early warning systems.

COST

There are no costs associated with this report.

CONCLUSION

While the primary responsibility to evacuate the Village of Harrison Hot Springs is not within the scope the FVRD Emergency Management program, FVRD staff would have responsibility to ensure evacuations occur in other areas around the lake. An event of this potential magnitude would require region-wide collaboration to maximize responder impacts and save lives. A summary regarding slope

research in the area can be found in the SFU Centre for Centre for Natural Hazard Research online: https://www.sfu.ca/cnhr/news_events/newsletter/RiskyGround_News_2020-09-21.pdf.

COMMENTS BY:

Graham Daneluz, Director of Planning & Development: Reviewed and supported. This minor event is an opportunity to raise awareness of hazards in the region and also to consider some of the challenges of delivering emergency management services. Emergency management requires staff to work evenings and weekends as needs arise. The EM service essentially consists of one full-time staff person. There are obvious issues and challenges with maintaining after-hours availability given this staffing level. This issue will need consideration as our assessment of EM services advances.

Kelly Lownsbrough, Chief Financial Officer/ Director of Finance: Reviewed and supported.

Jennifer Kinneman, Chief Administrative Officer: Reviewed and supported.