

Squamish United Church
c/o
Cascadia Consulting
Box 1572 ~ #200-37700 2nd Avenue
Squamish, BC V8B 0B2

October 21, 2011
File: 7806

Attention: Mr. Peter Gordon

**Re: Flood Hazard Review - Proposed Mixed-Use Development,
38014 Fourth Avenue, Squamish, BC**

1.0 Introduction

It is proposed to construct a new mixed-use development at 38014 Fourth Avenue. The proposed development site is comprised of five lots; Lots 16 to 20, Block 4, DL 486, Gp 1 NWD, Plan 3960. The site is located within the Squamish River flood plain and thus a flood hazard exists. This report presents our review of the flood hazard at this site and recommendations for construction.

The development includes a new facility for the Squamish United Church, office space, and residential living space. It is proposed to maintain the existing Church as a multi-purpose room. The structure is to be founded with slab levels at elevations ranging from 2.0 to 2.9 m geodetic elevation.

We have referenced the District of Squamish Flood Hazard Management Plan, dated May 1994, prepared by Klohn Leonoff Ltd. and Graham Farstad in preparation of this report.

2.0 Flood Hazard

2.1 General

The site is located within the Squamish River flood plain and while there is some protection in the form of dikes, it is anticipated that the dikes could be over topped in the event of a flood that meets or exceeds the 200 year event. The District of Squamish Flood Hazard Management Plan identifies the site to be within a zone where, in the event of the 200 year flood, overland flows are in the southerly direction with a velocity of less than 1 m/sec.

2.2 Flood Construction Level

Based on interpolation of the flood levels provided on the Flood Hazard Map, the inferred flood construction level (FCL) is 3.65 metres for the 200 year flood event.

This is the minimum elevation that would need to be achieved to protect the property from flooding in consideration of this 200 year flood event. Any portions of the structure, and contents thereof, below this level could be damaged.

We understand that the District of Squamish allows non-residential development below the FCL in the downtown area. However, any residential living space should be constructed such that the top of the

concrete floor slab, or the underside of a wooden floor system, is located above the FCL. Non-residential spaced constructed below the FCL will be subject to flooding and therefore the owner and any future tenants of the property must be made aware of this risk.

Achieving a higher elevation could improve the protection against larger flood events and/or changes in the 200 year event.

2.3 Impacts Due to Flooding

The Flood Hazard Management Plan identifies the subject site to be within a zone where, in the event of flooding, overland flows are in the southerly direction with a velocity of less than 1 m/sec. For these comparatively low flow velocities, armouring of the fill slopes are not considered necessary provided that erosion protection in the form of sod and planting is established on the property.

Flood waters could be up to 2 metres deep on the roads adjacent to the proposed development site.

3.0 Closure

Our recommendations are based on the 1994 Flood Hazard Management Plan prepared for the District of Squamish. The report recommends a number of improvements to the protection system as well as maintenance of channels and other structures intended to mitigate the risk of flooding. Future development, climate change and physical changes to the capacity of the Squamish River channel could all contribute to variations in the design flood level. While it is possible that flood control levels could change in the future, it is our judgement that the lands can be developed safely for the intended purpose, provided that our recommendations, provided in this report as well as our October 6, 2008 report are adhered to.

We are pleased to be of continued assistance to you with this project and we trust this information is helpful and sufficient for your purposes at this time. However, please do not hesitate to call the undersigned if you should require any clarification or additional details.

For:

GeoPacific Consultants Ltd.



Steven Fofonoff, P.Eng.
Project Engineer