

Geo-Hazard Assurance Statement

for Development Approvals

B. Assurance

Based on the contents of this Assurance Statement and the Report, I hereby give assurance that:
(check as applicable)

Development Permit	The Report will “assist the local government in determining what conditions or requirements under it will impose in the permit”, as required by the <i>Local Government Act</i> (Division 7)
Building Permit Community Charter	“The land may be used safely for the use intended”, as required by the <i>Community Charter</i> (Section 56)
Seismic Slope	The Report addresses the requirements of the BC Building Code 2006, 4.1.8.1.6 (8) and 9.4.4.4 (2), as detailed in the BC Building & Safety Policy Branch Information Bulletin B10-01, Jan 18, 2010
Floodplain Management Bylaw Exemption	“The land may be used safely for the use intended”, as required by the <i>Local Government Act</i> . (Section 524)
Subdivision	“The land may be used safely for the use intended”, as required by the <i>Land Title Act</i> (Section 86).
Other (e.g. Zoning Bylaw Amendment, Official Community Plan Amendment, Temporary Use Permit, etc.)	<Insert statement as appropriate>

C. APEGBC Professional Practice Guidelines

The Report and this Assurance Statement should be completed in accordance with the current version of one or both of the following Professional Engineers and Geoscientists of BC (APEGBC).

- *Legislated Flood Assessments in a Changing Climate in BC*
- *Legislated Landslide Assessments for Proposed Residential Development in British Columbia, (“APEGBC Landslide Guidelines”).*

These two documents are collectively referred to as the “APEGBC Guidelines”. The italicized words in this Assurance Statement are defined in the APEGBC Guidelines.

The Report has been prepared pursuant to the following APEGBC Guidelines (check one or both as applicable).

APEGBC Flood Guidelines

APEGBC Landslide Guidelines



If the Report is **not** prepared pursuant to either of the APEGBC Guidelines, please explain.

D. Background Information

Qualified Professionals **must** confirm and check that each item is included in the Report.

1. Property location map — 8.5 x 11 size
2. Development proposal site plan — 8.5 x 11 size. *If a subdivision, show the parent parcel and all lots to be created, including any remainder.*
3. Description of the proposed development project (including building use) to the extent this is known at the time of Report preparation.

residential

industrial

commercial

institutional

other _____

E. Technical Requirements

Qualified Professionals **must** review, confirm and check completed items (as applicable).

Report Content

4. Relevant information pertaining to the Property and pertinent potential hazards from appropriate background sources, including the FVRD online library.
 5. Time limitation or condition statement to describe extent the FVRD may rely on the Assurance Statement and Report for development approvals, and when resubmittal is recommended.
 6. Maps, illustrations and diagrams to illustrate areas referred to in the Report.
 7. Description of field work conducted on and, if required, beyond the Property.
 8. Contact and consultation with the Fraser Valley Regional District. Provide name and title of contact.
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9. Review of relevant FVRD bylaws and other statutory requirements.
 10. Restrictive covenants registered against the Property title that pertain to geo-hazards (if registered, the Report provides relevant information about the covenants).
 11. Notation of any visibly apparent natural hazards or other hazards identified in background reports, which are not identified and addressed in this Report. If yes, provide details in Section H: Geo-Hazard Summary Table.

Yes

No
 12. Does the report rely on one or more supporting reports, each of which is independently reviewed, signed and sealed. If yes, provide details in Section H: Geo-Hazard Summary Table.

Yes

No
 13. For subdivision approval, the Report addresses natural hazards for:

the parent parcel prior to subdivision

any lots to be created (including any remainder)

Geo-hazard Assessment, Risk Acceptability and Risk Transfer

14. In considering the above-noted potential hazards that may affect the property, I have:
- reviewed and characterized the potential hazard(s)
 - estimated the potential frequency and magnitude of the potential hazard(s)
 - relied on supporting reports as noted above
 - relied on a pre-existing assessment of hazard frequency and magnitude
 - considered the potential effects of climate change in the context identified in the Report
 - considered the potential effects of changed future conditions (upstream watershed changes, forestry activity, land use changes, sea level rise, etc.) in the context identified in the Report
15. This Assurance Statement pertains to all geo-hazards that are assessed in the Report and any supporting reports, and accurately reflects the contents of those documents.
16. The FVRD has adopted “Hazard Acceptability Thresholds for Development Approvals by Local Government”, which provides a specific level of hazard or risk tolerance. I have included a Hazard Summary Table which:
- lists all the potential hazards addressed by the Report and any supporting reports
 - provides an annual return frequency and acceptability threshold classification for the unmitigated condition
 - proposes mitigative measures to appropriately reduce the geo-hazard risk
 - provides an annual return frequency and acceptability threshold classification for the mitigated condition
17. The Report describes the potential transfer of natural hazard risk to other properties or infrastructure as a result of the proposed project (including any proposed *mitigation works*) and
- considered the potential for transfer of natural hazard risk
 - concludes that there is no significant transfer of natural hazard risk
 - identifies the potential transfer of natural hazard risk and proposes measures to offset such transfer of risk

Mitigation and Design Recommendations (if recommended)

The Report contains the following items:

18. Implementation steps for the identified structural mitigation works (in terms of design, construction and approval).
19. Clearly identified safe locations for building(s), ancillary structures, and onsite utility services (as applicable, such as a septic field) out of the natural hazard area as a preferred development alternative.
20. Commentary on the effectiveness of proposed structural mitigation works in terms of ability to reduce the potential hazard impact, and identification of any residual risk that would remain.
21. Proposed Flood Construction Level (FCL) for future development and including specification of an appropriate method of achieving the FCL.
22. Proposed watercourse setback, which is clearly referenced from the natural boundary, top of bank or another suitable basis.
23. Proposed operation and maintenance actions that will be necessary in order for the level of safety to be maintained in the future, with indications of who should be responsible for those actions and when.

Riparian Area Regulation (if applicable)

24. QP must review RAR assessment report to avoid conflict with Geo-Hazard Report recommendations.

F FVRD Supplemental Requirements

The following points are understood by the Qualified Professional when submitting a Report:

25. Permission is granted to the FVRD to use the Report in considering approval of the proposed development on the property, provided that such permission is limited only to the proposed development project for which the Report was prepared.
26. Methodology used in the Report is described in sufficient detail to facilitate a professional review of the study by the FVRD when necessary.
27. Professional liability insurance coverage of at least \$1 million per claim is carried by the QP.
28. Third party review or supplemental information may be required by the FVRD where complex development proposals warrant.
29. Permission is granted to the FVRD to include the Report in the online FVRD geo-hazard report library (as background information, not for other parties to rely).

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G. Qualified Professional (QP)

Prepared by: (QP of Record)

Name _____

Designation P.Eng. P. Geo. Eng.L Geo.L

Reviewed by:

Name _____

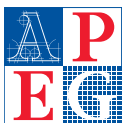
Designation P.Eng. P. Geo.

The Report has received appropriate technical review which is consistent with both the APEGBC Professional Practice Guidelines, and APGBC Quality Management Guidelines. The name of the reviewer is noted in the Report and below.

Professional Seal, Signature and Date:

I am a Qualified Professional as defined in the APEGBC Guidelines, and I fulfill the education, training and experience requirements as outlined in the APEGBC Guidelines

I have signed, sealed, dated and thereby certify, this Assurance Statement and the attached report.



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H. Geo-Hazard Summary Table

The geo-hazard report and/or any supporting reports addresses the following hazard types.

Geo-Hazard Type #1		Geo-Hazard Type #2	
Annual Return Frequency (Unmitigated)		Annual Return Frequency (Unmitigated)	
Acceptability Threshold Classification		Acceptability Threshold Classification	
MITIGATION (if necessary)			
Proposed Mitigation Measures		Proposed Mitigation Measures	
Yes		Yes	
No		No	
Annual Return Frequency (Mitigated)		Annual Return Frequency (Mitigated)	
Acceptability Threshold Classification		Acceptability Threshold Classification	
Comments		Comments	
SUPPORTING REPORT			
Was this report prepared by others?		Was this report prepared by others?	
Yes		Yes	
No		No	
If yes, list report name, date and author.		If yes, list report name, date and author.	

Geo-Hazard Type #3		Geo-Hazard Type #4	
Annual Return Frequency (Unmitigated)		Annual Return Frequency (Unmitigated)	
Acceptability Threshold Classification		Acceptability Threshold Classification	
MITIGATION (if necessary)			
Proposed Mitigation Measures		Proposed Mitigation Measures	
Yes		Yes	
No		No	
Annual Return Frequency (Mitigated)		Annual Return Frequency (Mitigated)	
Acceptability Threshold Classification		Acceptability Threshold Classification	
Comments		Comments	
SUPPORTING REPORT			
Was this report prepared by others?		Was this report prepared by others?	
Yes		Yes	
No		No	
If yes, list report name, date and author.		If yes, list report name, date and author.	

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Indicate which hazards were **NOT** reviewed:

Chilliwack River Valley Erosion or Avulsion
Debris Flow and Debris Torrent
Debris Flood
Fraser River & tributaries flooding
Mountain Stream Erosion or Avulsion
Major Catastrophic Landslide

Seismic Effects/Liquefaction
Rockfall - Small Scale Detachment
Slope Stability
Small Scale Localized Landslide
Snow Avalanche
Tsunami

Hazard Acceptability Thresholds Classification, as per Hazard Acceptability Thresholds for Development Approvals by Local Government dated November 1993 by Dr. Peter Cave.

- 1 Approval with conditions relating to hazards.
- 2 Approval, without siting conditions or protective works conditions, but with a covenant including "save harmless" conditions.
- 3 Approval, but with siting requirements to avoid the hazard, or with requirements for protective works to mitigate the hazard.
- 4 Approval as (3) above, but with a covenant including "save harmless" conditions as well as siting conditions, protective works or both.
- 5 Not approvable.

Additional Comments