

Geohazard Assurance Statement

For Development Approvals and Building Permits

Please complete this form in its entirety. If fields are left blank or responses are inconsistent, the form will be returned.

A. Project Information

Date _____ CVRD File No. _____

Property Information

Project Name & Description _____

Legal Description _____

Site Address _____ PID _____

Client Information

Name _____

Role (check on or more) Property Owner Developer Other _____

Client Address _____

Qualified Professional

Name _____

EGBC Designation(s) P.Eng. P. Geo. Eng.L Geo.L

Firm Name¹ _____

Email Address _____

Phone Number(s) _____

Mailing Address _____

Geophysical Hazard Risk Assessment Report Reference (the Report)

Title _____ Date _____

1. The Qualified Professional is a representative of the firm, and submits this Assurance Statement on behalf of the firm.

Geohazard Assurance Statement

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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 [Section 920] subsection (7.1) it will impose in the permit”, as required by the Local Government Act (Sections 488 and 489).
Building Permit: Community Charter Seismic Slope	“The land may be used safely for the use intended” , as required by the Community Charter (Section 56), 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 Local Government Act (Section 524).
Subdivision	The land may be used safely for the use intended”, as required by the Land Title Act (Section 86).
Other: (e.g. Zoning Bylaw Amendment Official Community Plan Amendment Temporary Use Permit, etc.)	Insert statement as appropriate:

C. EGBC Professional Practice Guidelines

The Report and this Assurance Statement were completed in accordance with the current version of one or both of the following Professional Practice Guidelines issued by the Engineers and Geoscientists of BC (EGBC):

- *2018 Legislated Flood Assessments in a Changing Climate in BC, and*
- *2010 Legislated Landslide Assessments for Proposed Residential Development in British Columbia* (“EGBC Landslide Guidelines”).

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

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

EGBC Flood Guidelines

EGBC Landslide Guidelines

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, *Show the spatial extent of hazard assessment zones.*
2. Development proposal site plan — 8.5 x 11 size. *Show the spatial extent of the study area, the hazard area and locations of mitigative features, where applicable. 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. *Specify ALL that apply.*

residential

industrial

commercial

institutional

other _____

If the Report deviates materially from the appropriate EGBC Guidelines, please explain.

E. Technical Requirements

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

Report Content

The Report contains the following items:

4. Relevant information pertaining to the Property and pertinent potential hazards from appropriate background sources, including the CVRD online library.
5. Complete listing of previous reports and other relevant information that has been reviewed in preparing the Report, including that from the CVRD online library.
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 Cowichan Valley Regional District. Provide name and title of contact:

9. Review of relevant CVRD bylaws and other statutory requirements.
10. Restrictive covenants registered against the Property title that pertain to geohazards (if registered, the Report provides relevant information about the covenants).
11. Notation of any visibly apparent geohazards identified in background reports, which are not identified and addressed in the Report.

Yes No

Comment: _____

12. Does the Report rely on one or more Supporting Reports, each of which is independently reviewed, signed and sealed.

Yes No

If yes, have the supporting reports been reviewed by:
staff of the Report author's company; or
a third party?

13. For subdivision approval, the Report addresses geohazards for:

the parent parcel prior to subdivision; and

any lots to be created (including any remainder)

adjacent properties representing a source of hazard, or are relevant to include in assessment of risk transfer with the proposed lot

Geohazard 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 Report(s) 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 geohazards that are assessed in the Report and any Supporting Reports, and accurately reflects the contents of those documents.
16. The CVRD has adopted ‘Natural Hazard Life Loss Policy’, which provides a specific level of geohazard risk tolerance. I have included a geohazard risk tolerance table in the form presented in Section H, and which:
- lists all of the potential hazards addressed by the Report and any Supporting Reports;
 - provides an annualized loss of life frequency and acceptability threshold classification (ALARP/Unacceptable) for the unmitigated condition;
 - proposes mitigative measures to appropriately reduce the geohazard risk if the quantified geohazard risk exceeds thresholds considered intolerable by the CVRD; and
 - provides an annualized loss of life frequency and acceptability threshold classification (ALARP/Unacceptable) for the mitigated condition (the residual risk).
17. Following consultation with the CVRD, the Report proposes an alternative approach to risk reduction.
18. The Report describes the potential transfer of geohazard risk to other properties or infrastructure as a result of the proposed project (*including any proposed structural mitigation works*) and:
- considered the potential for transfer of geohazard risk;
 - concludes that there is no transfer of geohazard risk;
 - identifies the potential transfer of geohazard risk and proposes measures to offset such risk transfer.

Mitigation and Design Recommendations

The Report contains the following items:

19. Clearly identified building locations which are acceptable according to risk tolerance standards, ancillary structures, and onsite utility services (as applicable, such as a septic field) out of the geohazard area as a preferred development alternative.
20. Implementation steps for the identified mitigation works (in terms of design, construction and approval).

Not Applicable

21. Commentary on the effectiveness of proposed mitigation works in terms of risk reduction and identify residual risks, and identification of any residual risk.
22. Proposed Flood Construction Level (FCL) for future development, including specification of an appropriate technique of achieving the FCL.
23. Proposed watercourse or marine shoreline setback, which is clearly referenced from the natural boundary, top of bank or high tide line.

Not Applicable

24. A reference to proposed operation and maintenance actions that will be necessary in order for the level of safety to be maintained in the future, with indication of who should be responsible for those actions and when.

Riparian Area Regulation (if applicable)

25. If a Riparian Area Regulation assessment has been completed for the property, and it has been reviewed to identify and avoid conflict with Report recommendations for hazard mitigation.

Yes No Uncertain

Reviewer

26. The Report has received appropriate technical review which is consistent with the EGBC Professional Practice Guidelines, and the name of the reviewer is noted in the Report and below (insert name and professional designation):

Name _____

EGBC Designation(s)

P.Eng.

P. Geo.

Eng.L

Geo.L

F. CVRD Supplemental Requirements

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

27. Permission is granted to the CVRD 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.
28. Methodology used in the Report is described in sufficient detail to facilitate a review of the study by CVRD staff or qualified third party professionals when necessary.
29. This Assurance Statement may be relied upon for permitting purposes for a period of one year after submittal or until major earthworks or drainage diversions take place in the study area, whichever comes first. Beyond that time, CVRD should contact the QP for an updated Assurance Statement if needed.
30. Professional liability insurance coverage of at least \$1 million per claim is carried by the QP.
31. Third party review or supplemental information may be required at the discretion of the CVRD.
32. Permission is granted to the CVRD to include the Report in the online CVRD geohazard report library (as background information, not for other parties to rely on).

H. Geohazard Summary Table

This geohazard risk assessment covers: (check one or both)

Individual Risk Assessment

Group Risk Assessment



The geohazard report and/or any supporting reports addresses the following hazard types:

TYPE	YES	NO	NOT RE-VIEWED	SUPPORTING REPORT (have other reports pertaining to this property been referenced in the development of this assessment?)			RISK TOLERANCE THRESHOLDS							
				NO	YES	If YES Report: Name, Date & Author	Annual Risk of Fatality - Unmitigated	Acceptability Threshold Classification – Unmitigated		Proposed Mitigation Measures		Annual Risk of Fatality – Mitigated	Acceptability Threshold Classification – Mitigated	
								Unacceptable	ALARP	YES	NO		Unacceptable	ALARP
LANDSLIDE PROCESSES														
Rock Fall														
Rock Slide														
Rock Avalanche														
Debris Flow														
SNOW AVALANCHES														
Dry														
Wet														
FLUVIAL PROCESSES														
Inundation by Floodwaters														
Bank Erosion and Scour														
Sediment Deposition														
Surface Erosion														
MARINE PROCESSES														
Coastal Flooding														
Coastal Shoreline Erosion														
Tsunami – Earthquake Induced														
Tsunami – Submarine Landslide-Induced														
Tsunami – Subaerial Landslide-Induced														
EARTHQUAKE														
Ground Shaking														
Ground Rupture														
Liquefaction														
Ridgetop Spreading														
Co-seismic Landslides														

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.

Professional Seal, Signature and Date:

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

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