Geohazard Development Permit Area

1. Geohazard (GH DPA)

1. PURPOSE

The Geohazard Development Permit Area is designated under section 488(1)(b) of the Local Government Act for the protection of development from hazardous conditions. The purpose is to minimize risk to life, property, and the environment by ensuring new development considers and mitigates geohazards such as:

- steep slopes;
- unstable terrain;
- landslides and rockfalls;
- slope instability;
- creek flooding and erosion;
- channel avulsions;
- debris floods, and
- coastal flood hazards, including the combined effects of sea level rise, tides, storm surges, and wave effects.

2. AREA

The Geohazard Development Area is shown on Map C-1 (*Geohazard DPA*).

Mapped Slope Hazard Area includes lands:

- Within 15 m of the crest of slopes;
- Within 15 m of the ocean shoreline;
- Within 15 m and 30 m of the crest of shoreline slopes;
- Watercourses, tributaries, ravines, and steep slopes;
- The lower Charman Creek channel, potential overflow areas, and all land within 15 m of these features; and
- A conservatively determined slope crest, considering ground fractures and other indicators of instability.

Mapped Creek Flood Hazard Areas include lands:

- Within 30 m of the Gibson Creek mainstem;
- Within 15 m of the Charman Creek mainstem, Chaster Creek Tributary (lower reach), Gibsons Way Tributary (Gibson Creek), and Inglis Road Tributary (Charman Creek); and

- Within 7.5 m of the Goosebird Creek mainstem, Chaster Creek mainstem, Chaster Creek Tributary (upper reach), Seaward Creek headwaters, all mapped Gibson Creek tributaries except Gibsons Way Tributary, all mapped Charman Creek tributaries except Inglis Road Tributary, all mapped stormwater ponds, and all mapped small watercourses.

Mapped Coastal Flood Areas include:

- The ocean, extending 1km offshore; and
- Lands at risk of flooding in a 1-in-200 year storm scenario with current (1.0 m) sea level rise projections for the year 2100.

The mapped areas are approximate; site-specific professional assessment may refine boundaries.

3. JUSTIFICATION

This Development Permit Area is established based on field assessments, site reconnaissance, LiDAR and desktop analysis, experience, and qualified professional advice. Research and analysis supporting the Geohazard Development Permit Area is through the following reports:

- Geotechnical Hazards Report DPA1 Update – Gibsons Official Community Plan, Town of Gibsons, prepared by RAM Engineering Ltd., and dated November 12, 2025
- Town of Gibsons Development Permit Area 1 (Geotechnical Hazards) Update (Flood Hazard Component), Gibsons, BC, prepared by Stirling Geoscience Ltd., and dated November 12, 2025
- Coastal Flood Mapping Project, Lower Sunshine Coast: Coastal Flood Adaptation Policy and Regulation Considerations, prepared by Northwest Hydraulic Consultants, Ltd. (NHC), and dated July 2025
- Sunshine Coast Coastal Flood Hazard Mapping, Technical Report to Support Land Use Planning and Climate Adaptation, prepared by Northwest Hydraulic Consultants, Ltd. (NHC), and dated August 18, 2025

The geohazard area designations should not be interpreted as prohibitions on all development activities, but as an identification of areas where professional geohazard assessment and specific development standards are required to ensure safe development.

4. EXEMPTIONS

A development permit is not required for

1. Interior renovations with no change of use or increase to floor area;
2. Minor additions outside hazard influence zones;
3. Routine maintenance of existing landscapes;

4. Emergency works to protect public safety, although a retroactive permit is required;
5. Installation of fences that allow for the passage of water and do not require the removal of trees;
6. Small accessory structures (shed, fence) that is not habitable space and does not require a building permit;
7. Activities already covered by a certified professional report and permit less than 5 years old;
8. Above-grade removal of invasive plant species such as English Ivy, Holly, Himalayan Blackberry, Scotch Broom and Knotweed;
9. Ecological restoration and enhancement projects undertaken by the Town of Gibsons, the Province, or the Federal government;
10. Municipal works and services approved by the Town of Gibsons;
11. Emergency responses or works required by the Province or the Town of Gibsons to prevent or control forest fire, flooding, or erosion emergencies;
12. The placement of impermanent structures such as benches, tables, and ornaments;
13. Paths (which are less than 1 m in width) and fencing which do not result in the removal of native vegetation or disruption of wildlife and are not within 10 metres of a stream; and
14. Development in locations for which a Qualified Professional (QP) has determined in writing that the proposed development is located outside the area of geotechnical hazards.

5. GEOHAZARD REPORT REQUIREMENTS

Development or alteration of land within the hazard areas shown on Map C-1 (Geohazard Areas) must be supported by a signed and sealed report prepared by a qualified professional, typically a Professional Engineer and/or Professional Geoscientist with experience in geohazard engineering, and creek and coastal engineering and flooding where relevant.

The geohazard report shall:

- Describe the topography and geomorphology of the site;
- Identify potential natural hazards;
- Assess the nature, extent, frequency, and potential effects of identified hazards;
- Include a review of relevant previous geohazard studies or engineering work in the vicinity;
- Identify safe building sites;
- Recommend hazard mitigation measures and development protection measures;
- Recommend the conditions and requirements of the development permit;

- Consider Provincial requirements for flood and landslide assessment;
- Consider the 2010 APEGBC Guidelines for Legislated Landslide Assessments for Proposed Residential Developments in BC, or any subsequent version updating it; and
- Certify that the land may be used safely for the intended use.

Information must be detailed enough to support registration of a Section 219 Covenant as required by the Land Title Act.

6. GENERAL GUIDELINES

1. Slope Hazard Guidelines

Map C-1 (Geohazard DPA) identifies slope hazard areas, including hazards from the development at the crest of a slope and hazards from the development at the toe of the slope.

Toe of Slope

1. Qualified professionals must verify the adequate minimum setback from the toe of slopes, based on slope stability and/or runout modelling.

Crest of Slope

2. Professional engineers and/or professional geoscientists must verify whether the minimum 15 m setback from the crest of slopes is adequate. Site-specific analysis may identify areas, such as the northeast portion of the Town, where a greater setback is required.
3. Where a reduced setback of less than 15 m (<15 m) from the crest of the slope is proposed, the qualified professional must provide a defensible justification based on:
    a. Subsurface investigations;
    b. Groundwater monitoring (including piezometers);
    c. Slope stability modelling; and
    d. Site-specific geometry and soil/groundwater conditions.
4. The following professional guidelines must be adhered to:
    a. EGBC Professional Practice Guideline: Geotechnical Engineering Services for Building Projects, including application of the Canadian Foundation Engineering Manual (CFEM) or provision of rationale where deviation occurs.
    b. EGBC Professional Practice Guideline: Landslide Assessments in British Columbia.
5. Standard practice is expected to include:
    a. Site reconnaissance;
    b. Subsurface investigation and reconciliation with literature review findings;

c. Groundwater monitoring;

d. Slope stability and/or runout modelling.

2. Creek Flood Hazard Guidelines

Map C-1 (Geohazard DPA) identifies areas prone to creek flooding.

1. Qualified professionals must verify a safe development site within the creek flooding areas. Analysis to support development in a flood area may include:

    a. Hydraulic modelling to identify flood extents and the capacity of the culverts in the vicinity. The modelling may need to account for debris flows.

        i. Gibson Creek – KWL (2013) identified that Gibson Creek may experience debris flows based on the Melton Ratio.

    b. Slope stability and/or runout modelling.

3. Coastal Flood Hazard Guidelines

Map C-1 (Geohazard DPA) identifies coastal flooding areas, established to minimize risk to people and property from coastal hazards including sea level rise, storms, wave effects, and flooding; support coastal management efforts to reduce flooding risks; and preserve and enhance the integrity of the intertidal habitat of the foreshore and minimize shoreline erosion.

1. Development within the Coastal Flood Hazard areas must include a coastal engineering report prepared by a qualified Professional Engineer with coastal flood experience (i.e. Coastal Engineer) to verify a safe development site.

2. A property-specific Flood Construction Level (FCL) is required if any proposed livable floor areas will be lower than the FCLs provided in *Table 1*. All habitable space must be constructed above the FCL. Non-habitable areas (garages, crawl spaces, etc.) may be below the FCL if designed to withstand flooding without causing structural damage.

Table 1. Coastal Flood Construction Levels (FCL) for Properties in Specific Locations.

Property locations	**Minimum FCL required without site-specific FCL determination:** (Elevations are referenced to CGVD2013)
West of Cochrane Rd on Franklin, Gower Point and Cochrane Roads	8.8 m
On Franklin Rd, east of Cochrane Road	7.3 m
On 'Bluff' properties including Arbutus Reach, Skyline Drive, Shoal Lookout, and Avalon Drive	7.9 m

Southwest of the Gibsons Marina Breakwater and Gibsons Pier (Bay, Dougall, Prowse, Gower Point, and School Road, and Molly's Lane)	5.7 m
Marine Drive & Marine Crescent	7.1 m

3. Analysis to support development in the coastal flooding areas must include:
    a. Estimation of coastal flood levels
    b. Consideration of future sea level rise and wave run-up
    c. Compliance with Provincial Flood Hazard Guidelines
    d. Mitigation measures from potential transfer of flood risk to adjacent properties, consistent with the EGBC Flood Hazard Assessment (FHA) Guidelines (2018), and
    e. Consideration of nature-based solutions or Greenshores approaches that manage coastal flood and erosion
4. Development in Coastal Flood Hazard Areas must identify a Flood Construction Level (FCL) sufficient for the intended lifespan of the development (or adhere to minimum FCLs in *Table 1*) and specify measures to achieve it, such as:
    a. Engineered fill;
    b. Raised foundations; and
    c. Coastal bank protection or armouring.