



DISTRICT OF
Tofino

CORPORATION OF THE
DISTRICT OF TOFINO

**District of Tofino Coastal Flood Plain Bylaw
No. 1294, 2021**

Effective Date – August 24, 2021

DISTRICT OF TOFINO

BYLAW NO. 1294, 2021

A bylaw to designate coastal flood plain areas and prescribe flood construction levels in them.

WHEREAS section 524 of the *Local Government Act* authorizes a local government to designate land as a flood plain; specify the flood construction level for that flood plain; and specify setbacks for landfill or structural supports within the flood plain;

AND WHEREAS the District of Tofino has considered the Provincial Flood Hazard Area Land Use Guidelines, 2018, as amended from time to time, and the District of Tofino Coastal Flood Mapping Final Report, February 4th, 2019;

AND WHEREAS the Council of the District of Tofino has commissioned and considered a study of the potential for flood hazard areas resulting from the effects of projected sea level rise and therefore wishes to the designate such areas as flood plains, in accordance with section 524 of the *Local Government Act*, for the purpose of regulating construction in flood plains;

NOW THEREFORE the Council of the District of Tofino, in open meeting, enacts as follows:

1. **Name**

This name of this Bylaw for citation purposes is "District of Tofino Coastal Flood Plain Bylaw No. 1294, 2021".

2. **Definitions**

In this Bylaw:

Act means an Act of the British Columbia Legislature, whether referred to as a statute or by any other name, and includes the *Community Charter* and *Local Government Act*.

Council means the elected Council of the District of Tofino.

District means the Corporation of the District of Tofino.

Flood Construction Level (FCL) means the Flood Construction Level prescribed in section 8 of this Bylaw for each Zone delineated on the Map.

Flood plain means the lands designated as flood plain by section 7 of this Bylaw.

Goods includes, for the purposes of this bylaw and without limitation, furnaces, electrical switchgear, electrical panels, fire protection systems, mechanical equipment, HVAC systems, communications equipment or other fixed or movable building services susceptible to flood damage.

Habitable Area of a building or structure means any room or space used for the purposes set out in section 6 of this bylaw.

Landfill means the placement of soil, gravel or other material on the surface of land used for the purposes of supporting or elevating a building or structure.

Manager means every District employee who has responsibility for either the administration or enforcement or both of Building Regulations, as defined in the *Building Act*.

Manufactured Home means a structure manufactured as a unit, intended to be occupied in a place other than at its place of manufacture or on a sales lot, and designed as a dwelling unit, including modular homes and mobile homes but not including recreation vehicles.

Map means the Flood Construction Level Map attached to and forming part of this Bylaw as Schedule A.

Pad means a surface on which blocks, posts, runners or strip footings are placed for the purpose of supporting a Manufactured Home.

Professional Engineer means a person who is registered or licensed under the provisions of the *Engineers and Geoscientists Act*.

Zone means a Flood Construction Level Zone identified on the Map by its name and number and delineated by a colour that is distinct from the other Zones.

3. **Severability**

If any provision of this Bylaw is held to be invalid by any court of competent jurisdiction, that provision shall be severed, and its severance shall not affect the validity of the remainder of the Bylaw.

4. **Enforcement**

- (1) In accordance with section 16 of the *Community Charter*, the Manager is hereby authorized to enter on property, and to enter into property, without the consent of the owner or occupier, to inspect and determine whether this Bylaw has been contravened.
- (2) No person shall obstruct a District employee engaged in the administration or enforcement of this Bylaw.
- (3) Every person who contravenes a provision of this Bylaw commits an offence and each day that the offence occurs or continues or is caused or allowed to occur or continue, constitutes a separate offence.
- (4) Every person who commits an offence against this Bylaw:
 - (a) shall be liable for the fines and penalties established under the *District of Tofino Municipal Ticket Information System Bylaw No. 1088, 2009*; and
 - (b) shall be liable upon summary conviction to a fine of up to \$50,000 per offence.

5. **No Representations**

By the enactment, administration or enforcement of this Bylaw, or the granting of a site specific exemption, the District does not represent to any person that any building or structure, including a Manufactured Home, located, constructed, or used in accordance with the regulations of this Bylaw or in accordance with any advice, information, direction or guidance provided by the District in the course of its administration of this Bylaw will be safe from damage or destruction by flooding or that persons and animals within or in the vicinity of those buildings or structures will be protected from death or injury by flooding.

6. **General Prohibitions**

No person shall construct, build, erect, or place, or cause or allow to be built, erected, or placed in a Zone any building or structure where the underside of any floor system, or the top of any Pad supporting any space or room, including a manufactured home, that is used for

- (1) dwelling purposes,
- (2) business, or
- (3) the storage of Goods that are susceptible to damage by floodwater,

that is below the Flood Construction Level prescribed by section 8 of this bylaw for the Zone in which the building or structure is located.

7. **Flood Plain Designation**

The lands identified as Zone 1, Zone 2, Zone 3, Zone 4, Zone 5, and Zone 5a on the Map are designated as flood plain.

8. **Flood Construction Level**

District of Tofino Coastal Flood Plain Bylaw No. 1294, 2021

The Flood Construction Levels shown on the Map in metres (m) beneath the name and number of each Zone are prescribed for the purpose of section 6 of this Bylaw.

9. General Flood Level Exemptions

- (1) Section 524(6)(a) of the Local Government Act and Section 9 of this Bylaw do not apply to:
 - (a) a renovation of an existing building or structure that does not involve an addition thereto,
 - (b) minor additions to existing buildings or structures, at the original non-conforming floor elevation, to a maximum total of 10 percent of the existing ground floor area,
 - (c) a building or that portion of a building to be used for non-habitable uses, including a garage or carport,
 - (d) a non-residential accessory building or structure, such as a wooden shed, recreational shelter, or greenhouse,
 - (e) other outdoor recreational facilities not susceptible to flood damage, and
 - (f) on-loading and off-loading facilities associated with water-oriented industry and portable sawmills, provided the main electrical switch gear is placed above the FCL.

10. Site Specific Exemption Applications

- (1) Pursuant to Section 524(7) of the Local Government Act a person may make application to the District to exempt a specific parcel of land, or a use, building or other structure on that parcel of land, from Section 524(6) of the Local Government Act and this bylaw provided that a complete application is made to the Manager on the application form provided by the Manager.
- (2) The Council may exempt a person from the application of Section 524(6) of the Local Government Act or this Bylaw, in relation to a specific parcel of land or a use, building or other structure on the parcel of land where
 - (a) the applicant provides a report that the land may be used safely for the use intended and the report is certified by a professional engineer or geoscientist who provides a Flood Assurance Statement under section 524(7) of the Local Government Act as set out in the Professional Practice Guidelines - Legislated Flood Assessments in a Changing Climate in BC, Version 2.1, August 28, 2018 of the Engineers and Geoscientists British Columbia, as amended and published from time to time; and
 - (b) the owner grants a restrictive covenant and indemnity, including a release of all claims under Section 219 of the Land Title Act, in the form provided by the Manager respecting the use and development of the land and its potential for damage and other losses from flooding.

11. Schedules and Appendices

- (1) The schedules attached to this Bylaw form a part of and are enforceable in the same manner and effect as this Bylaw.
- (2) The appendices attached to this bylaw are for information purposes only.

READ A FIRST TIME on April 13, 2021.

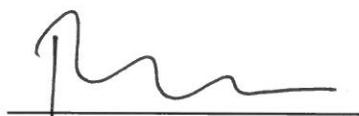
READ A SECOND TIME on August 10, 2021.

READ A THIRD TIME on August 10, 2021.

ADOPTED on August 24, 2021.



Dan Law, Mayor

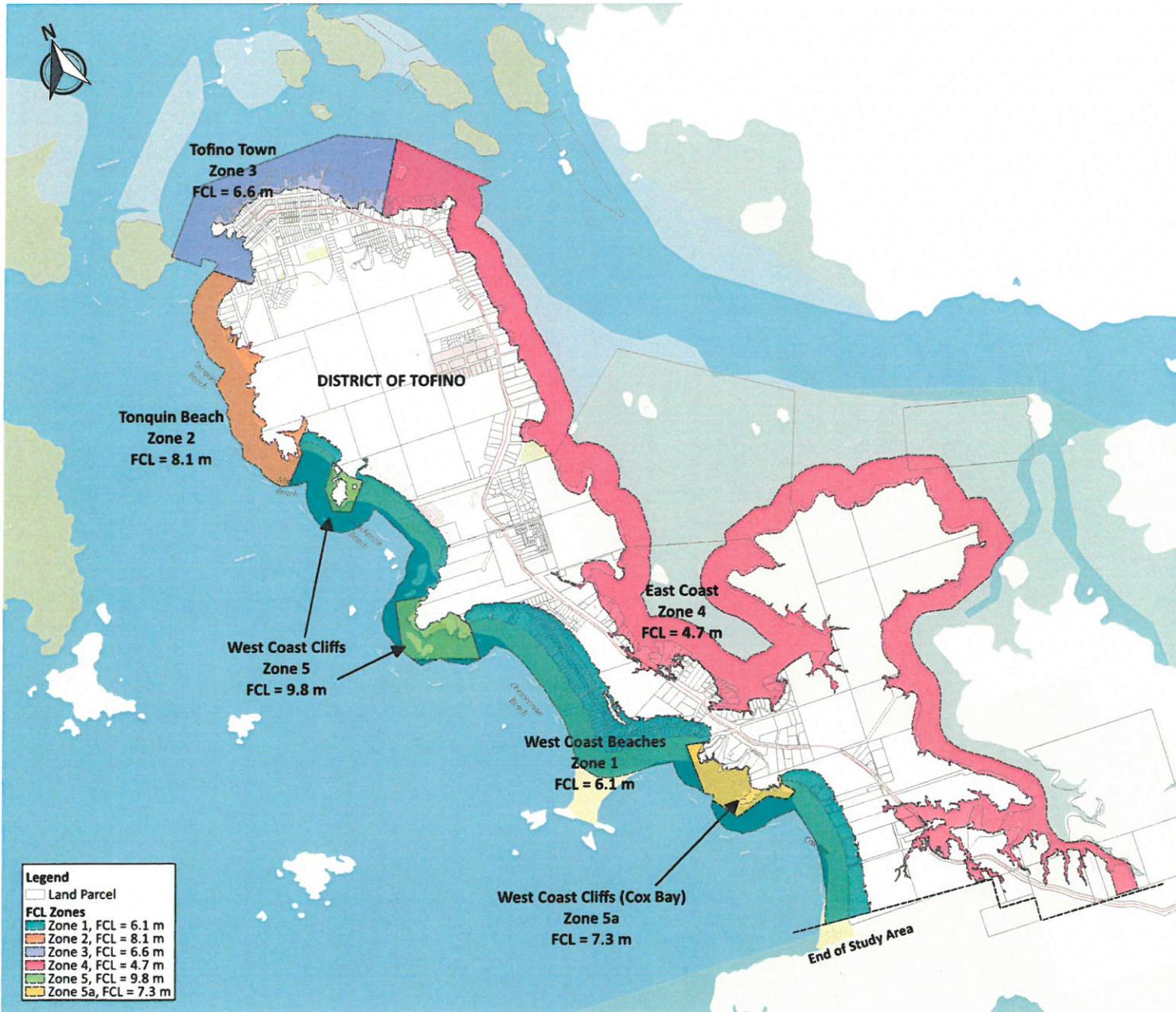


Robert MacPherson, Corporate Officer

Schedule 'A'

Coastal Flood Plain Bylaw No. 1294, 2021

[To be Inserted]



ebbwater CONSULTING
CASCADIA COAST RESEARCH LTD.

DISTRICT OF TOFINO

Map Extent

0 10 20 km

Notes to User:

- This map is Schedule A to the District of Tofino Bylaw No. 1294, 2021.
- The data presented on this map was originally developed as part of a Floodplain Mapping Report (Ebbwater, 2019). See the report for further details on the methodology, results and limitations.
- Flood levels were developed using a 0.5% Annual Exceedance Probability (AEP) flood, 1 m of Relative Sea Level Rise (RSLR) and a freeboard allowance.
- The adopted value for RSLR is based on guidelines from Ausenco Sandwell (2011). These are subject to change and RSLR values will need to be reassessed in future.
- A 0.6 m freeboard allowance has been included in water levels in accordance with the British Columbia Flood Hazard Land Use Management Guidelines (2018).
- Flood Construction Levels (FCLs) are presented for five zones, where each zone has similar flood levels.
- All FCLs are presented relative to CGVD2013.

Limitations:

- The accuracy of the FCLs is limited by available data and modelling approaches. The FCLs are based on 1-D cross-shore transects. These have been simplified by merging areas of similar transects into FCL zones. Please refer to report (Ebbwater, 2019) for a detailed discussion of limitations.
- The accuracy of the floodplain extent is limited by the accuracy of base mapping data and surveys. The floodplain limits were not established by legal ground surveys.
- This map was produced by Ebbwater Consulting Inc. using generally accepted best practice and guidelines for the Province of British Columbia. However, flooding may still occur outside the defined floodplain boundary, and Ebbwater Consulting Inc. and sub-consultant Cascadia Coast Ltd. do not assume any liability by reason of the failure to delineate flood areas on this map.

Data Sources:

- Flood Construction Reference Plane (FCRP) values provided by Cascadia Coast Research Ltd.
- Water depths were interpolated from limited number of transects and are relative to onshore topography.
- LIDAR data surveyed in 2015 was used to create the Digital Elevation Model (DEM).
- Base layer: OSM Humanitarian Data Model - openstreetmap.org (© OpenStreetMap contributors; cartography license CC BY-SA).

References:

- Ebbwater Consulting Inc (2019). District of Tofino Coastal Floodplain Mapping. Prepared for the District of Tofino.
- Ausenco Sandwell (2011) Climate Change Adaptation Guidelines for Sea Dikes and Coastal Flood Hazard Land Use - Guidelines for Management of Coastal Flood Hazard Land Use. Prepared for British Columbia Ministry of Environment.
- BC Ministry of Forests, Lands, and Natural Resource Operations (MFLNRO) (2018). Flood Hazard Area Land Use Management Guidelines.

Scale 1:20,000

0 0.5 1 1.5 km

Date Created:	11 Jan, 2021
Coordinate System:	NAD83, UTM 10N
Vertical Datum:	CGVD 2013
Prepared By:	NS
Checked By:	SH
Reviewed By:	TL

District of Tofino
Flood Construction Level Zone Map
Schedule A. Bylaw No. 1294, 2021
Schedule A

Appendix to the District of Tofino Coastal Floodplain Bylaw No. 1294, 2021

The notes in this appendix are for information purposes only and do not form a part of the Bylaw. For further information and a comprehensive review of flood mapping methodology see the District of Tofino Comprehensive Coastal Flood Risk Assessment – Final Report, 2019.

Definitions

Provincial guidelines- Local governments are required through the *Local Government Act* to use the Flood Hazard Area Land Use Management Guidelines, 2004 in determining land use policies.

Annual Exceedance Probability (AEP)- the probability of a flood event of a given magnitude to occur, or to be exceeded, in any given year. It is expressed as a percentage; higher percentages mean more frequent but smaller flood events and lower percentages mean less frequent but larger magnitude flood events.

For the purposes of the Tofino Coastal Floodplain Bylaw 1294, 2021 an AEP of 0.5% was used, which is in line with current Provincial guidelines. 0.5% AEP has a one in two hundred chance of being exceeded in any given year. It would be a rare event, but one which poses substantial risk to existing buildings and infrastructure.

Sea Level Rise (SLR)- Sea level is expected to rise over the next 100 years by an estimated 1 meter, but could exceed that depending on climate change. Higher sea levels translate to more severe flood events. 1 meter SLR is in line with Provincial guidelines.

Freeboard- This is a number which adds a margin of safety when estimating flood levels. 0.6 meters is in line with Provincial guidelines.

Floodplain- The floodplain in Tofino is shown on the Map attached as Schedule A to the District of Tofino Coastal Floodplain Bylaw No. 1294, 2021. It was determined by professional engineers with experience in coastal flooding and through extensive computer modelling. A 0.5% AEP and 1 meter sea level rise were considered in mapping the extent of a severe flood event. A much higher flood could occur at any time, but these parameters represent the best data available for the development of this first iteration of a floodplain bylaw. The floodplain will be reviewed every 5-10 years depending on sea level rise.

Canadian Geodetic Vertical Datum 2013 (CGVD2013)- The new standard for heights across Canada, which represents by convention the coastal mean sea level for North America.
[https://www.nrcan.gc.ca/sites/nrcan/files/files/pdf/Height_reference_system_modernization_\(EN\).pdf](https://www.nrcan.gc.ca/sites/nrcan/files/files/pdf/Height_reference_system_modernization_(EN).pdf)

Flood Construction Level (FCL)- An elevation for the construction of habitable floor systems above the CGVD2013. FCLs for buildings in Tofino's floodplain were recommended in the District of Tofino Coastal Flood Mapping report (Ebbwater Consulting Inc. and Cascadia Coast Research Ltd., 2019). Construction levels will differ between locations based on the topography surrounding a property and the seafloor adjacent to a property. Gently sloping sites on the inlet will have a lower level, while coastal bluffs where wave energy runs up against cliffs need a relatively higher level. FCL is determined using the flood event with 0.5% AEP, 1 meter SLR, and 0.6 meters freeboard.

Application to additions and existing homes

The Coastal Floodplain Bylaw No. 1294, 2021 only applies to new construction. Existing buildings are exempt and additions to existing buildings not exceeding 10 percent of the original building footprint are exempt. The intent of this exemption is to allow for minor additions contiguous with an existing dwelling, while preventing new dwellings from being constructed below the FCL.

Application to Manufactured buildings

FCL applies to the top of the gravel pad on which the foundation for a manufactured building is placed. If a Registered Professional Engineer designs the foundation system for a manufactured building, the FCL may apply to the top of the concrete foundation on which the building sits.

Guidance for the Site Specific Exemption Process

If a specific site has conditions which may safely allow for a lower FCL, the property owner may apply for an exemption to the Coastal Floodplain Bylaw. This application would go alongside a building permit application, and the building permit would not be issued until the exemption was granted.

An application for exemption must be accompanied by a report prepared by a registered professional with experience in coastal flood engineering who is qualified to determine a safe FCL, and include recommendations to ensure safe use of a site. These should be clearly stated with sufficient detail and clarity to be included in a Land Title Act, Section 219 Covenant. Upon a granted exemption, this report would be registered on title attached to a Section 219 covenant.

Application documents are available on the District website at www.tofino.ca under the “I want to apply for” dropdown menu. Once the application and sealed engineering report is submitted to the building inspector, staff will prepare a report to Council and a decision will be made to approve or deny the exemption.

Application of Section 56 of the Community Charter

Floodplains are based on a projected flood event based on a series of estimations. The Bylaw aims to achieve a safe elevation for construction, however a flood event could foreseeably have a greater magnitude or could impact certain properties more adversely due to site specific conditions. In light of this uncertainty the District has adopted a policy which directs staff on how to process applications for building on properties on or in contact with the floodplain.

Subject to the General Exemptions in section 9 of the Bylaw, the District of Tofino Floodplain Policy will direct the building inspector and planning staff to evoke Section 56 of the Community Charter upon a building permit for any property in the floodplain, or which has the floodplain on a portion of it.