FRASER VALLEY REGIONAL DISTRICT

BYLAW No. 1599, 2020

A bylaw to amend the Official Community Plan for Electoral Area E and H

WHEREAS *Fraser Valley Regional District Official Community Plan For Electoral Area E and H Bylaw No. 1115, 2011* was adopted by the Fraser Valley Regional District Board of Directors ("the Board") on August 13, 2013;

AND WHEREAS the Board has deemed it advisable to amend *Fraser Valley Regional District Official Community Plan for Electoral Area E and H Bylaw No. 1115, 2011*;

THEREFORE the Board enacts as follows:

1) CITATION

This bylaw may be cited as *Fraser Valley Regional District Official Community Plan for Electoral Area E and H Amendment Bylaw No. 1599, 2020.*

2) TEXT AMENDMENT

That *Fraser Valley Regional District Official Community Plan for Electoral Area E and H Bylaw No. 1115, 2011* be amended by:

a) Replacing Section 10.2 in its entirety and replacing it with:

10.2 Floodplains

Locations within identified floodplains are subject to flood construction elevations and setbacks set out in FVRD's floodplain management bylaw. Two are discussed below as illustrative examples, but a number of other locations within the Plan area are subject to floodplain hazards.

Chilliwack River

In addition to many alluvial fan and mountain stream floodplains, a portion of the Plan area is within the Chilliwack River floodplain.

As noted above, the 1992 Chilliwack River Management Study included a detailed analysis of the hazards associated with the Chilliwack River. The findings of the river hazard assessment were not fully anticipated, particularly with respect to erosion. A series of maps were created which depicted the 1:200 year floodplain, the 100 Year Erosion Limit Line and an Erosion Setback Line. These maps are an integral part of this Plan, forming *Map 2 – Geologic & Stream Hazards*. The Flood Construction Level (FCL)

identified by HAYCO to be used for flood-proofing standards is approximately 0.2 m above the FCL previously established by the Ministry of Environment. The 100 Year Erosion Limit Line represents an estimate of the potential for bank migration over the next 100 years unimpeded by hazard mitigation works such as bank protection or other channel controls. While a large number of existing lots are within this cumulative erosion limit, not all the lots face an immediate threat. The Erosion Setback Line defines areas subject to possible erosion in the next major event (approximately 1:50 to 1:100 in frequency).

The hazard mapping produced by HAYCO reflects judgments or calculations based on information, techniques and knowledge available at the time mapping was undertaken. As such, it is subject to review, correction or adjustment from time to time as additional information and experience is made available. In 2003, the Chilliwack River erosion and flood hazard lines in the area of Baker Trails and Auchenway Road were reviewed by Golder Associates. Golder concluded that the Erosion Setback Line in both areas is at about the right place but that, "flood hazards may now be more severe that described earlier" due to significant changes that have taken place in the river channel.

The reports and resultant hazard mapping originally produced by HAYCO reflects judgements or calculations based on information, techniques and knowledge available at the time mapping was undertaken and they continue to provide a sound basis for understanding and management in the Chilliwack River Valley. However, given the report was completed in 1992 it is subject to review, correction or adjustment from time to time as additional information and experience is made available. Since this work was completed in 1993, the following changes have occurred:

- changes in river geomorphology which may affect the design flood profile;
- new flood protection infrastructure;
- new information, technologies and techniques for understanding river dynamics are available; and,
- values and requirements regarding fish habitat and fisheries impacts have changed.

As such, the FVRD has commissioned three separate updates to the Erosion Setback Line in various specific locations of the Chilliwack River since the original report was issued. These updates are as follows:

- Northwest Hydraulic Consultants Ltd. Chilliwack River Sub-Area Six Review. Erosion and Flooding Hazards. February 20, 2003 and Northwest Hydraulic Consultants Ltd. Chilliwack River Sub-Area Nine Review. Erosion and Flooding Hazards. February 20, 2003;
- Northwest Hydraulic Consultants Ltd. Chilliwack River Erosion Setback Line Update – Wilson Road to Baker Trails Area. January 22, 2016; and,

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- Kerr Wood Leidal Consulting Engineers. Chilliwack River Slesse Park – Erosion Setback Line Update. March 2, 2020.

On existing lots, the Erosion Setback Line guides where new construction can be permitted. Construction should be permitted outside of this Line (away from the river) where the property owner is willing to offer a covenant acknowledging that although the property may be outside the Erosion Setback Line, it lies within the 100 Year Erosion Limit Line and may be affected in the long term by river erosion if bank protection is not completed. Residential construction closer to the River than the Erosion Setback Line should not be permitted without the implementation of mitigation measures designed and certified by a Professional Engineer with hydraulic geotechnical experience to reduce the probability of the site being affected by erosion.

Additionally, the Chilliwack River Hazard Management Outline Plan should be comprehensively updated. This work began in 2009 with the *Chilliwack River Fish-Hazard Management Strategy – Phase 1* report and should be continued.

Flood hazard management strategies should be coordinated with the Vedder River Management Plan Committee which oversees the management of flood protection infrastructure and stream channel maintenance on the Chilliwack River within the City of Chilliwack.

<u>Blue Creek</u>

Flooding problems associated with Blue Creek in Columbia Valley have been present since at least the 1980's. They were documented by the Ministry of Environment in 1985 and investigated by Thurber Engineering LTD on behalf of FVRD in 1998 and 2002. The following is a summary from the 2002 report by Thurber Engineering titled *Blue Creek, Columbia Valley Design of Water and Debris Retention Basins, Geotechnical Investigation*.

Blue Creek transports water, mud and gravelly debris in a confined channel to the lower reaches of its alluvial fan until it reaches Maple Falls Road. Sometime in the past, creek flows were directed beneath a low bridge and, eventually into a culvert on Maple Falls Road, into a deep natural depression north of the road. This action promoted seasonal drainage of agricultural land on the lower fan but it also allowed creek water and sediment to escape from the fan and to reach Maple Falls Road.

The depression is a glacial kettle that formed after a stranded mass of glacial ice was buried by glacial gravel. The buried ice melted away causing the surface materials to subside and form a closed depression with no natural drainage outlet.

Although Blue Creek water and sediment discharges may have been held in the depression for some time, it is likely that it immediately began to fill with mud, sand, gravel and organic debris. Rates of water and sediment delivery on Blue Creek probably increased drastically with the advent of logging in its upper basin located in Washington State.

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Over the last several decades, the depression has filed with sediment and there is now no storage capacity to handle summer and winter flood flows. As a result, flood water covers Maple Falls Road where it forms a considerable hazard and threatens two homes with inundation. Excess water spills southwestward along the road and poses considerable nuisance or possible flood risk to three more homes.

Sediments have been periodically excavated from the kettle, but the benefit of such works appears to be very temporary. Blue Creek's flood hazards are conditioned by several technical problems, all of which make a long-term flood protection solution difficult and expensive to achieve. At the time of writing this Plan, the Province of British Columbia has funding to undertake a clean out of the kettle feature in co-operation with the property owner as early as June 2012. Nevertheless, the policies of this plan support continued efforts to work with local property owners to identify solutions to the Blue Creek flooding problem.

Flood Protection Infrastructure

A variety of flood protection infrastructure exists in the Plan area. Fraser Valley Regional District maintains the following infrastructure that provides a defined level of protection, meets provincial standards, and is routinely inspected and maintained:

- the Wilson Road Dyke is a standard dyke that protects the area surrounding Wilson Road and Chilliwack Lake Road from flooding and erosion from the Chilliwack River;

- the Frosst Creek dyke and debris dam provide flood protection to the community located on the Frosst Creek alluvial fan near the south end of Cultus Lake; the works consist of two debris basins and a dyke located along the south side of the creek;

- the Rexford Creek debris basin is designed to protect the Williamsburg development from debris flow and / or debris flood events; and,

- the Tank, Guy and Wash Creek training berms and debris basins provide protection from debris flows and floods to the Baker Trails Village.

In addition, there are a number of informal flood protection works that provide some level of protection but do not meet provincial standards and are not routinely inspected or maintained, including:

- berms and stream bank protection (riprap) along the north side of Chilliwack River near Bell Acres and Slesse Park which reduce flooding and erosion but are discontinuous, subject to outflanking and overtopping and are damaged during high river flows;

- a debris basin within the road right-of-way on the south side of Chilliwack Lake Road on Bell Brook that is maintained by the Ministry of Transportation & Infrastructure as required; and,

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- a range of flood protection works on private land constructed and maintained by property owners.

The policies of this plan guide the Regional Board when considering taking on new flood protection works. As well, they encourage senior governments to fund upgrades to "orphan" flood protection structures, which are not owned and maintained by a responsible authority, to meet provincial standards. In this event, the Board and the local community may wish to consider the formation of a local service area to provide for ongoing operation and maintenance of these flood protection structures.

b) Replacing Section 14.2 Category of Designation with:

"Chilliwack River Development Permit Area No. 2-E" is designated pursuant to Section 488(1)(b) of the Local Government Act for the protection of the natural environment and protection of development from hazardous conditions.

c) Replacing Section 14.2 Justification with:

Erosion and flooding hazards in the Chilliwack River Valley between Baker Trail Village and Slesse Park are documented by Hay & Company Consultants (HAYCO)1, Northwest Hydraulic Consultants Ltd. (NHC)2 and Kerr Wood Leidal Consulting Engineers (KWL)3. The maps produced by HAYCO as part of this study indicate the 1:200 year floodplain of the Chilliwack River and the estimated limit of erosion over 100 years. The original map produced by HAYCO (1992) and updates by NHC (2016) and KWL (2020), show the possible extent of erosion during a single major erosion event (the Erosion Setback Line). In addition portions of this area were reviewed and updated in 2003 by Golder Associates. These studies and the hazards they assess are described in more detail in Section 10 of this Plan.

The hazards documented in the HAYCO, NHC and KWL reports present significant risks to the safety of people and property in the Chilliwack River Valley. Development Permit Area 2-E is established to reduce these risks when new development is proposed in potentially hazardous areas. It also provides guidelines to minimize the impact of development within the floodplain on water resources and riparian areas (which support river and stream bank stability).

Footnotes:

1 Hay & Company Consultants Inc. Erosion Setback Line – Chilliwack River Valley. January 29, 1993.

2 Northwest Hydraulic Consultants Ltd. Chilliwack River Sub-Area Six Review. Erosion and Flooding Hazards. February 20, 2003.

Northwest Hydraulic Consultants Ltd. Chilliwack River Sub-Area Nine Review. Erosion and Flooding Hazards. February 20, 2003.

Northwest Hydraulic Consultants Ltd. Chilliwack River Erosion Setback Line Update –

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Wilson Road to Baker Trails Area. January 22, 2016.

3 Kerr Wood Leidal Consulting Engineers. Chilliwack River Slesse Park – Erosion Setback Line Update. March 2, 2020.

d) Replacing Section 14.2.4 with:

A site-specific geotechnical report by a qualified professional engineer with training and experience in high energy river engineering may be required pursuant to section 491 (4) of the Local Government Act.

e) Adding new Section 14.2.9 as follows and renumbering subsequent sections:

The Erosion Setback Line is a general line for planning purposes and not intended as a layout line for construction of new development that may be situated close to the setback. Proposed developments sited within 15m of the established Erosion Setback Line may be required to determine through a topographic survey sealed by a British Columbia Land Surveyor the precise location of the Erosion Setback Line.

f) Replacing Section 14.2.12 with:

A development permit may include conditions or restrictions respecting the uses and densities permitted in the zoning bylaw, the sequence and timing of construction, areas to remain free of development, vegetation or trees to be planted or retained, natural drainage to be maintained or enhanced, or other matters as specified in Sections 491(1)(a), (b), (c), (d) and (e) of the Local Government Act.

3) MAP AMENDMENT

That *Fraser Valley Regional District Official Community Plan for Electoral Area E and H Bylaw No. 1115, 2011* be amended by:

a) Replacing Map 2 – Geologic and Stream Hazards with the map attached hereto as Map Map 2 – Geologic Stream Hazards.

4) SEVERABILITY

If a portion of this bylaw is found invalid by a court, it will be severed and the remainder of the bylaw will remain in effect.

5) READINGS AND ADOPTION

READ A FIRST TIME THIS

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A PUBLIC HEARING WAS HELD THIS

READ A SECOND TIME THIS

READ A THIRD TIME THIS

ADOPTED THIS

Chair/Vice-Chair Corporate Officer/Deputy

6) CERTIFICATION

I hereby certify the foregoing to be a true and correct copy of *Fraser Valley Regional District Official Community Plan for Electoral Area E and H Amendment Bylaw No. 1599, 2020* as adopted by the Fraser Valley Regional District Board on

Dated at Chilliwack, BC on

Corporate Officer/Deputy

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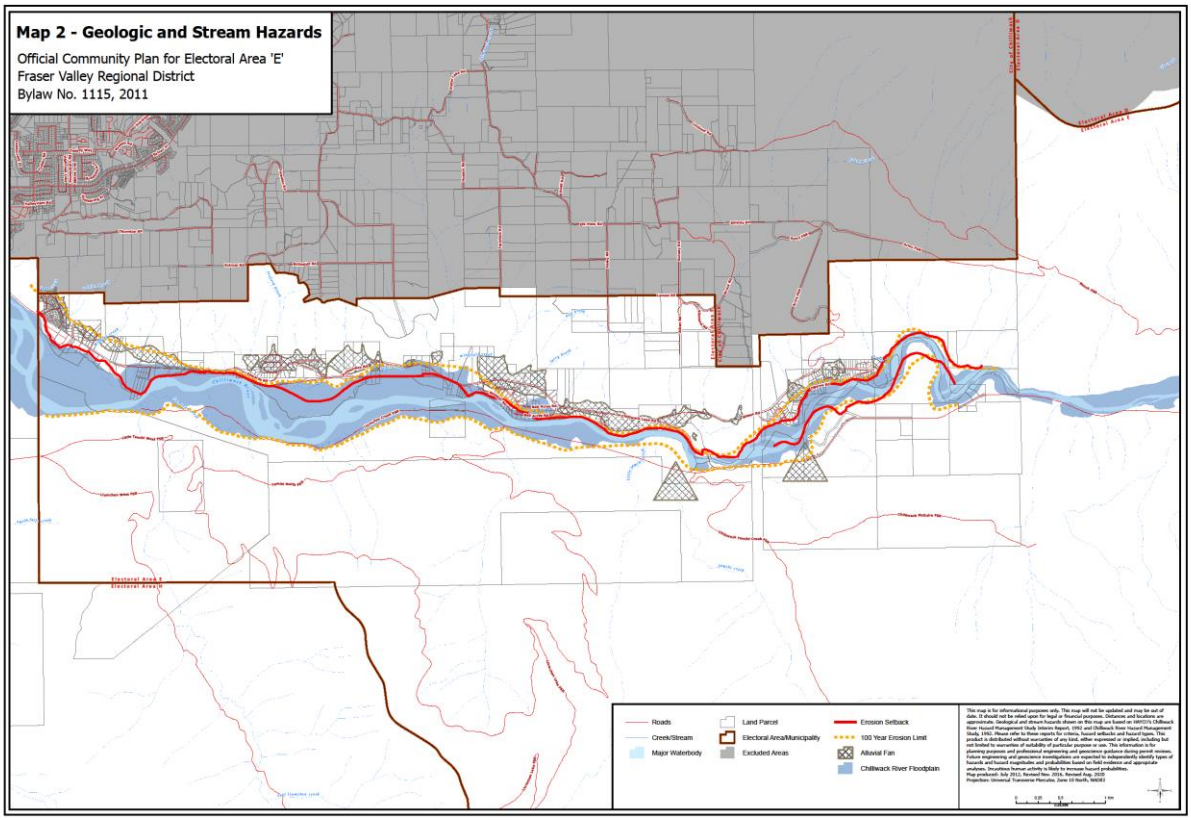
FRASER VALLEY REGIONAL DISTRICT BYLAW NO. 1599, 2020
Schedule 1599-A



This is map 1 of 1 constituting Schedule 1599-A, attached to and forming part of *Fraser Valley Regional District Official Community Plan for Electoral Area E and H Amendment Bylaw No. 1599, 2020*