

ADMINISTRATIVE REPORT



TO: Board of Directors

FROM: B. Newell, Chief Administrative Officer

DATE: October 7, 2021

RE: 2021 Greater West Bench Geotechnical Review – Electoral Area “F”

Administrative Recommendation:

THAT the 2021 *Greater West Bench Geotechnical Review* be received as a guiding document.

Background:

September 20, 2018 - the Regional District adopted the Electoral Area “F” Official Community Plan (OCP) Bylaw No. 2790, 2018. The OCP Bylaw included a policy to “support an updated technical assessment of geotechnical hazards in the West Bench / Sage Mesa area (GWB) using new technologies (e.g., LiDAR) that were not available when the area was last assessed.”

October 17, 2019 - The Regional District Board awarded a contract to Ecora Engineering & Resource Group Ltd. in association with Clarke Geoscience Ltd., to complete a geotechnical review of the Greater West Bench Area.

Amongst other things, the geotechnical review report was to provide the Regional District better comprehension to develop land use policies specific to GWB to better inform and guide residents of the geotechnical conditions and uses of the lands.

The report was also to identify mitigation methods in the management of existing land uses, such as provision of domestic water, storm water control or construction of community sanitary and storm sewer systems ... [and] identify potential locations for further development or change in density in existing land uses in the GWB study area.

July 28, 2021 - the Regional District received a final report of the *Greater West Bench Geotechnical Review* from Ecora and Clarke Geoscience Limited.

Analysis:

At a broad level, the *Greater West Bench Geotechnical Review* determined that the thick deposits of silt soils, derived from Glacial Lake Penticton, have unique Engineering Material Properties that control the geotechnical character of the area.

The research indicates that, in a dry state, the undisturbed silt soils are very stable and can maintain near-vertical slopes. When wetted or disturbed, however these silt soils are prone to rapid erosion, collapse/compression, and slumping. The combination of unique soils, combined with historical land use influences the nature and frequency of geotechnical hazards in the subject area, such as landslides and the development of sinkholes.”

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The Review further concludes that:

- *landslides persist within the vicinity of the steep silt bluff slopes that occur along the eastern boundary of the study area;*
- *landslide hazards are greatest within approximately 50 metres of the slope or gully crest and extend beyond the toe of the slope towards Highway 97 and Okanagan Lake;*
- *sinkhole hazard levels within the GWB Study Area are greatest within 30 metres of the silt bluff slope crest and/or within 30m of another sinkhole, and are observed exclusively within the Glaciolacustrine Silts;*
- *sinkhole hazard levels are greatest within the eastern portion of the study area and predominantly over the northern half of the GWB area; and*
- *collapsible / compressible soils hazard occurs in conjunction with the silt bluffs and associated gullies ...*

Based on these determinations a Geotechnical Constraints Zone map was created in order to indicate the “likelihood of a damaging geohazard event affecting a parcel”; being low, moderate or high.

The Report concludes with a number of recommendations intended to reduce geotechnical risk within the GWB study area, including:

- *Incorporate results of this study into current RDOS bylaws;*
- *Develop Geotechnical Reporting requirements;*
- *Introduce a Soil Removal and Deposition Bylaw;*
- *Develop specific land use activity Best Management Practices; and*
- *Implement a public education and outreach program specific to geohazards.*

The report further addresses a number of “Data Gaps” that *could* be addressed by the Regional District, as required in future. These are seen to encompass projects whose scope and costs could be significant, including:

- *Conduct incidence tracking and data management;*
- *Conduct additional subsurface soils investigation in conjunction with future geotechnical studies;*
- *Conduct additional groundwater investigation and monitoring if resources are made available;*
- *Update the 1994 Wastewater Management Plan when time is appropriate and when funding is available;*
- *Improve stormwater management practices; and*
- *Conduct periodic review of geohazard conditions.*

Administrative Response:

A draft OCP Amendment Bylaw (No. 2790.04 - see Attachment No. 2) is under construction that will incorporate the new Geotechnical Constraints Zone map at Schedule ‘D’ of the OCP. Further

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consultation is required on the significant issues identified and an impact analysis will be required on each issue to identify potential cost, enforcement or resources.

The OCP Amendment Bylaw is also proposing to update the “Hazard Lands” (Section 17.0) of the OCP Bylaw to reflect the information contained within the Report, as well as some of the more significant recommendations, such as a Soil Removal and Deposition Bylaw, that will require further discussion.

With regard to the Zoning Bylaw, consideration should be given to increasing minimum parcel size requirements for subdivision to 2.0 ha throughout the Greater West Bench Area. It is understood that there have been few, if any, subdivisions approved within the West Bench area since the 1992 Geotechnical Hazard Report was completed. The proposed 2.0 ha minimum parcel size will give formal effect to this.

It is also noted that the 1992 Geotechnical Hazard Report identified swimming pools as a trigger for subsurface erosion and sinkhole development and recommended that these be prohibited within the study area. The 2021 Review has confirmed that pools continue to represent a “high risk land use activity” and should be regulated.

In response, it is proposed to list “swimming pools” as a prohibited form of land use within the West Bench through the zoning bylaw. If implemented, existing pools within the West Bench will enjoy non-conforming status (i.e. “grandfathering”) under the *Local Government Act*.

The reference to “Data Gaps” is not seen to be urgent and no action needs to be taken at this time, but that future consideration could be given to these (particularly the incidence tracking and data management web portal).

Public Consultation:

The convening of a public information meeting at which the consultant team will present and discuss the project and technical information (including recommendations) is a required part of this project.

The draft amendment bylaws could be presented as part of the public information meeting and that public input could help to inform the discussion on the proposed changes. The draft amendment bylaws should also be considered by the Electoral Area “F” Advisory Planning Commission.

Other Amendments:

Other recommendations in the report will be reviewed over time, including revisions to the “Hazard Lands” section of the OCP Bylaw as part of incorporating the Greater West Bench Geotechnical Review.

This includes introducing a new sub-section and context statement for Radon Gas hazards and also updating the Flood Hazard sub-section based on the Okanagan Basin Water Board’s 2020 floodplain mapping project.

Alternatives:

- .1 THAT the 2021 *Greater West Bench Geotechnical Review* be referred back to Administration for further review.

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Respectfully submitted:



C. Garrish, Planning Manager

Attachments: No. 1 – Greater West Bench Geotechnical Review (2021)

No. 2 – Draft OCP Amendment Bylaw No. 2790.04 (version 2021-10-07)

No. 3 – Draft Zoning Amendment Bylaw No. 2461.21 (version 2021-1