



TECHNICAL MEMORANDUM

DATE: March 25, 2022
TO: Richard Haworth, Haworth Development Consulting
Handshake Holdings Inc.
FROM: Cascade Environmental Resource Group Ltd.
RE: Galloway Land – Review of Frank and Swanson Questions and Comments

Handshake Holdings Inc. wishes to develop a parcel for residential use in Fernie BC, referred to as the Galloway Lands. Their representative, Richard Haworth, Haworth Development Consulting, retained Cascade Environmental Resource Group Ltd. (Cascade) to review questions regarding environmental concerns of the proposed project. In this Memo Cascade addresses comments from Leslie Frank and Stella Swanson.

What is the contribution of the Galloway lands to the Wildlife Cumulative Effects?

Cascade reviewed the Grizzly Bear Cumulative Effects Assessment Report by Mowat *et al.* 2018 and the Elk Valley Cumulative Effects Assessment and Management Report by the Elk Valley Cumulative Effects Management Framework Working Group (EVCMEFWG), 2018 to address the contribution of the Galloway Lands to the Elk Valley wildlife and wildlife habitat.

Bighorn sheep and grizzly bear were identified as valued components in both reports. However, the Galloway Lands are outside the distribution range of the bighorn sheep therefore no contribution the cumulative effects are expected.

Mowat *et al.* (2018) determined that development rate may have a relatively small effect on grizzly bear habitat availability and suitability through increased road density and loss of high-quality habitat such as young (<20 years), open-canopy forest. However, analysis of air photos presented in the Galloway Lands Application for Land Use Amendment application showed that the majority of the subject property was logged in 1988 and no further logging was observed since then. Therefore, the subject property is unlikely to contain young forest.

Concerns with leaving Lizard Creek as the primary wildlife corridor to Upland Fernie Provincial Park

Grizzly bear telemetry data presented in Lamb (2022) shows that some grizzly bears use the Galloway Lands to gain access to the Provincial Park. Movement to the Provincial Park occurs mostly from the Orca Peak southwest of the Galloway Lands and the Mount Fernie area north of the Galloway Lands (Figure 1). However, based on the telemetry data grizzly bears cross through the Galloway Lands less often than surrounding areas. Figure 2 shows that grizzly bears spent less time in the Provincial Park habitat than other habitat surrounding Fernie.

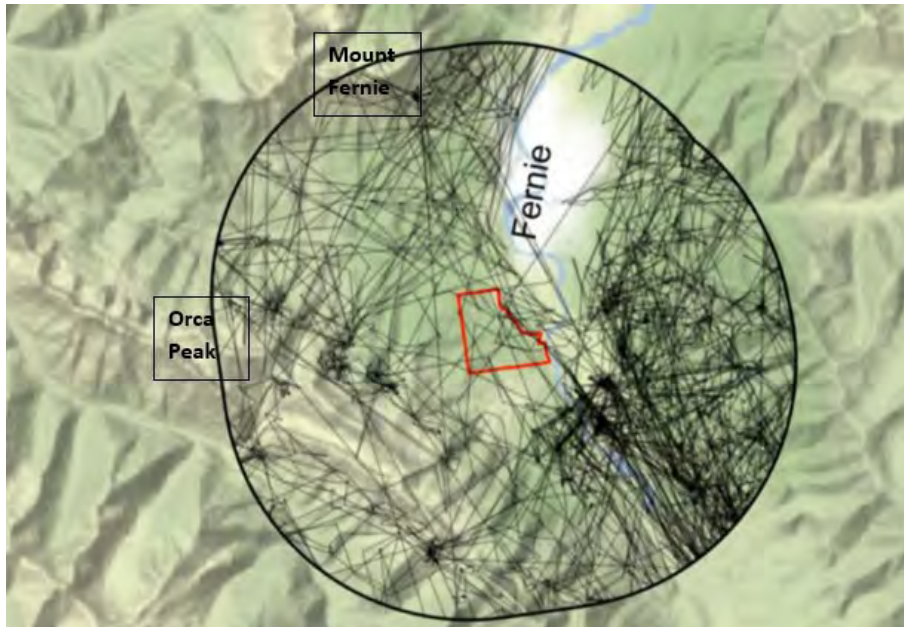


Figure 1: Grizzly bear movement paths collected between 2016-2021 from Lamb (2022). The Galloway Lands is shown in red.

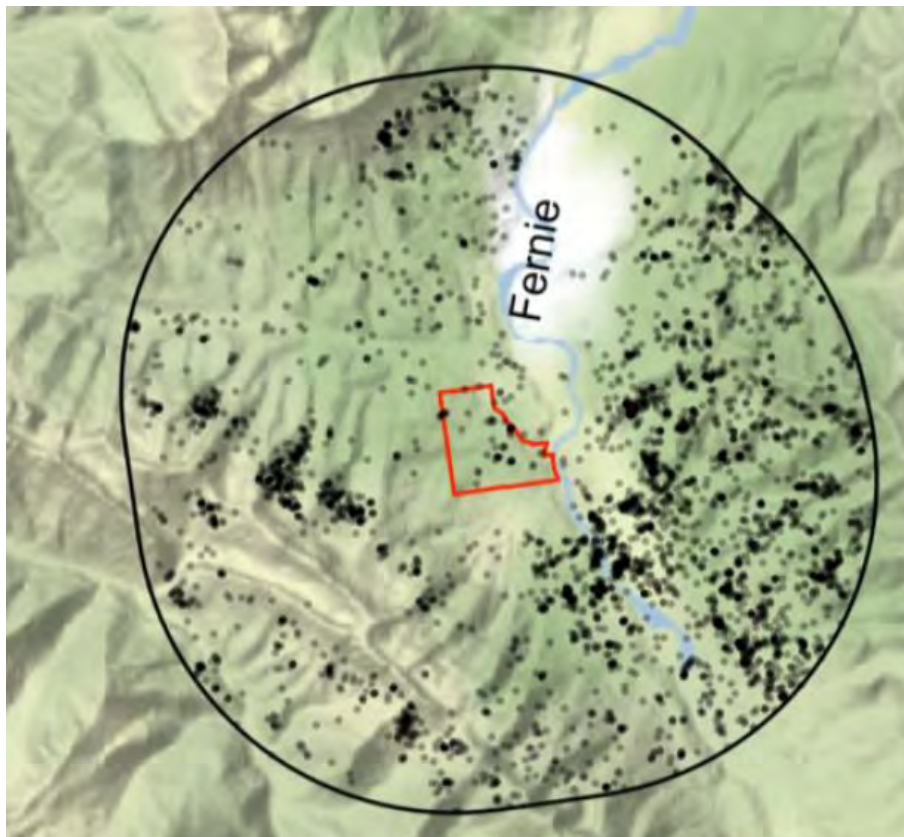


Figure 2: Grizzly bear telemetry relocations collected between 2016-2021 from Lamb (2022). The Galloway Lands is shown in red.



What are the effects of decreased wildlife corridors on wildlife movements?

A minimum width is required for a wildlife corridor to be effective. The minimum corridor width will vary based on the wildlife species of interest. If the width of the corridor decreases below the minimum requirement for a certain wildlife species, a reduction in that species' ability to move across the corridor can be expected. Ford *et al.* (2020) showed that the zone of influence from residential areas on grizzly bear can range from 4000 to 8000 m with 6000 m being the median size. The report suggests that grizzly bears would be negatively impacted by residential developments in a corridor with a width of less than 6000 m. However, this does not signify that the animals would be absent from the corridor. Currently the forest between the Fernie Alpine Resort and the closest development on the northeast side of Lizard Creek is approximately 720m wide. This would indicate that grizzly bears currently using the Galloway Lands to move across the landscape are already influenced by residential development in the area. This is supported by the telemetry data which shows low levels of use by grizzly bears. In addition, Ford *et al.* (2020) also showed that trails can have a zone of influence on grizzly bears ranging from 21 to 8000 m with a median of 628 m. Therefore, the existing trails in the Galloway Lands further reduce the effective corridor width. The proposed development has the potential to increase the zone of influence for grizzly bear and other wildlife and may reduce the wildlife movement in the vicinity of the development.

Personal observations of wildlife movements in adjacent property and concerns of pressures from other subdivisions in the area.

Proctor *et al.* (2015) used grizzly bear telemetry and an RSF model to identify movement corridors. The study only identified the southeast corner of the Galloway Lands as moderate movement potential while the majority of the site has low movement corridor potential. The main movement corridor was identified south of Cokato. See first question for additional comments regarding the use of the Galloway Lands as movement corridor.

Concerns of increased recreational pressures on environmental values

Cross country skiing and mountain biking are the main recreation activities that take place within the Galloway Lands. Both activities are intended to be incorporated into the development design. The existing Nordic skiing north loop (The Grunt and The Runt trails) will be retained and a small section partially relocated to accommodate the proposed development and environmentally sensitive areas.

The Galloway Lands development will result in the closure of some mountain biking trails. The mountain bike trails are unsanctioned trail network on private land. As the mountain bike trails were not planned or sanctioned, they are relatively high-density network throughout most of the property area. Existing trails will be rerouted wherever possible, and the development is committed to retaining a meaningful mountain bike network. Therefore, recreation pressure on these trails is not expected to significantly increase due to this trail retention design and the presence of an existing trail network and trail connectivity through the property.

Trails will not be rerouted within the Lizard Creek riparian area preserving wildlife habitat in this sensitive riparian area. The development also offers the opportunity to construct the rerouted mountain bike trails with the Fernie Trail alliance to provincial trail standards to help mitigate recreation use impacts on surrounding habitat. As existing trails were constructed without approval, they likely do not meet provincial trail standards and the development offers an opportunity to upgrade the trail quality to mitigate against wildlife impacts through sustainable trail planning. Trails can be rerouted with environmentally sensitive trail routing design by creating suitable crossing over watercourses minimizing trails in riparian areas and creating effective sightlines on the trail to prevent trail users startling wildlife.

What does “top of bank to top of bank” protection of Lizard Creek mean?

Top of Bank is defined in the Riparian Areas Protection Regulation (RAPR) as:



- a) *the point closest to the boundary of the active floodplain of a stream where a break in the slope of the land occurs such that the grade beyond the break is flatter than 3:1 at any point for a minimum distance of 15 metres measured perpendicularly from the break, and*
- b) *for a floodplain area not contained in a ravine, the edge of the active floodplain of a stream where the slope of the land beyond the edge is flatter than 3:1 at any point for a minimum distance of 15 metres measured perpendicularly from the edge.*

Although the Regional District of East Kootenay (RDEK) has not adopted the RAPR the proponent has pledged to protect Lizard Creek from development disturbance within the property boundary. This includes from top of bank on river left to top bank on river right and all areas in between as described in the RAPR.

Concerns on designation of riparian buffer from Lizard Creek

Under the Riparian Areas Protection Regulation (RAPR), the Riparian Assessment Area (RAA) is 30m on either side of a stream if the bank slopes are less than 3:1.

The Elk Valley Official Community Plan (OCP) encourages developers to avoid streams, wetlands and riparian areas and to provide appropriate development setbacks and buffer areas. The OCP also encourages the integration of Conservation Subdivision Design principles to minimize disturbances to environmentally sensitive areas (ESAs) for residential land use. This includes the identification of riparian areas and steep slopes. The RDEK Elk Valley Zoning bylaw requires a floodplain setback area designation of 15m of the ordinary highwater mark for most watercourses in the Elk Valley including Lizard Creek and the smaller creeks within the Galloway Lands. The proposed development is outside of the 15m floodplain setback for Lizard Creek as defined by the RDEK and the RAA as defined by the RAPR (Map 1).

Under the RAPR a QEP assessment report is not required for development outside of the RAA as defined by the RAPR.

References

- Lamb C. 2022. Assessing wildlife use of the Galloway Lands and the effectiveness of a conservation subdivision design for large mammals. Prepared for Fernie Snow Valley Community Association, Wildsight and the Elk River Alliance.
- Ministry of Forest, Land, Natural Resource Operations and Rural Development, Fish and Aquatic Habitat Branch, 2019. Riparian Areas Protection Regulation Technical Assessment Manual, V1.1.
- Proctor M, Nielsen S, Kasworm W., Servheen C., Radandt T., Machutchon A. and Boyce M. .2015. Grizzly bear connectivity mapping in the Canada-United States trans-border region. Journal of Wildlife Management 79(4):544-588.
- Regional District of East Kootenay, 1990. Elk Valley Zoning Bylaw No. 829, 1990 Consolidation.
- Regional District of east Kootenay, 2014. Elk Valley Official Community Plan Bylaw No. 2532.

MOUNT
FERNIE
PARK

The Corporation of the City of Fernie

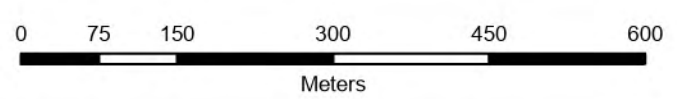
Lizard Creek

Elk River

BOARDMAN COMMUNITY
WATERSHED

- | | |
|-----------------------|------------------------|
| Subject Site | Highway |
| Building Envelope | Resource/Service Road |
| Covenant | Trail |
| Road | Community Watershed |
| Setback | Riparian Buffer |
| Municipal Boundary | 15m |
| Watercourse | 20m |
| Cadastre | 30m |
| Existing Service Road | BC Parks |
| Existing Roads | Provincial Park |

GIS Cartographer: Nicola Church
Date: 3/22/2022
CERG File #: 1082-01-01
Projection: NAD 1983 CSRS UTM Zone 11N



Map 1 - Proposed Development

Galloway Lands
Fernie
British Columbia



