CASCADE ENVIRONMENTAL
RESOURCE GROUP LTD

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 Wildsight Review 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 (Map 1). In this Memo Cascade addresses comments raised by Wildsight on their review of the development application.

Negative impact to a documented wildlife connectivity zone

Wildsight states that this area is important to carnivore connectivity in the Canadian Rockies and is a multi-species movement zone for animals such as grizzly bears and wolverines. 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. Grizzly bear telemetry data presented in Lamb (2022) shows that some grizzly bears use the Galloway Lands. However, based on the telemetry data grizzly bears cross through the Galloway Lands less often than surrounding areas (Figure 1).

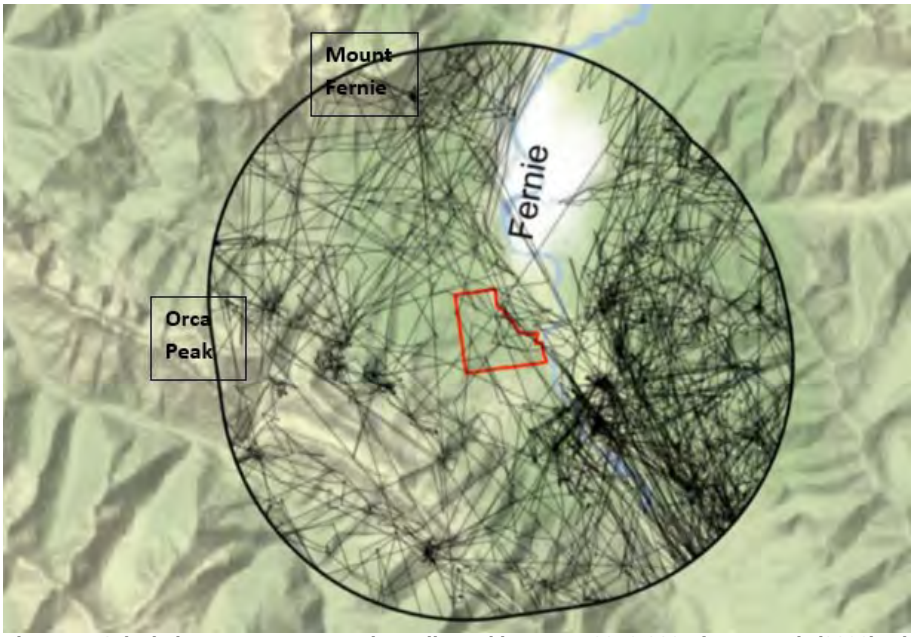


Figure 1: Grizzly bear movement paths collected between 2016-2021 from Lamb (2022). The Galloway Lands is shown in red.

Wolverine as a species do not have easily defined habitat features as they require a range of habitat variables across large home ranges. The provincial data layers were consulted in order to determine the potential occurrence of wolverine on the Galloway Lands. The closest records available were located at least 40 km from the Galloway Lands in Fort Steel and near Akamina Ridge (Map 2). Presence of wolverine on the Galloway Lands has not been confirmed.

Wildsight also states that severing movement option could lead to increase wildlife human conflict. As grizzly bears occasionally move across the Galloway Lands, it is possible that the development would result in human-wildlife conflict with the bear that do use the area. In order to minimize any potential increase in human-wildlife conflict, the residents of the Galloway Lands should follow a bear smart approach such as:

- Bear attractants should be removed. This includes bird feeders, fruit trees and berry bushes, gardens, compost, dirty barbecues, or pet food (Get Bear Smart Society, 2022).
- Wildlife access of attractants should be prevented. Garbage should be kept indoor or used bear-proof containers (Get Bear Smart Society, 2022).
- Given the impact of off-leash dogs on wildlife, it is recommended that dogs should be kept on leash at all times when outside the building envelopes.

In addition, a Wildlife Management Plan should be prepared prior to commencement of the construction phase. This plan should include a wildlife human interaction prevention plan that will address workers' behavior around wildlife. Workers should be taught adequate behavior around wildlife to prevent wildlife harassment or attraction, including management of pets.

Impact to Lizard Creek and westslope cutthroat trout spawning habitat.

The Galloway Lands application proposes septic systems for each lot. Wildsight expressed concern for the proximity of the septic systems to Lizard Creek and other tributaries on the property and the potential impact to Westslope cutthroat trout spawning habitat and water quality. In BC septic systems are regulated under the *Public Health Act Sewarage System Regulation* which describes health hazards and regulated activities.

The regulation states that:

2.1(1) The following are prescribed as health hazards:

(a) the discharge of domestic sewage or effluent into

(i) a source of drinking water, as defined by the Drinking Water Protection Act,

(ii) surface water, or

(iii) tidal waters;

(b) the discharge of domestic sewage or effluent onto land;

(2) The construction and maintenance of a holding tank or sewerage system described in section 2 are prescribed as regulated activities.

3 (1) The owner of every parcel on which a structure is constructed or located must ensure that all domestic sewage originating from the structure

(a) is discharged into

(i) a public sewer,

(ii) a holding tank that is constructed and maintained in accordance with Part 2 [Holding Tanks], or

(iii) a sewerage system that is constructed and maintained in accordance with Part 3 [Sewerage Systems], and

(b) does not cause a health hazard.

The installation of the septic systems for the Galloway Lands is regulated under the Sewerage System Regulation. The proponent will comply the regulation to ensure that the constructed systems do not cause a health hazard. There are no anticipated impacts from permitted and professionally installed septic systems.

Degradation of high value moose habitat

The provincial data layers were consulted in order to determine the potential occurrence of moose on the Galloway Lands. Moose occurrences were recorded around the Galloway Lands, but no occurrence was recorded on the site (Map 3). As no vegetation data is available for the Galloway Lands, it is not possible to determine the quality of the potential moose habitat.

Conservation Area and wildlife corridor

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 bear would be negatively impact by residential developments a corridor with a width of less then 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 movement through the Galloway is therefore already affected by the adjacent developments and the presence of trails. The conservation subdivision design will leave between 97 and 270 m of undisturbed forest along the northeast border of the property and additional undisturbed forest throughout the subject site. Therefore, the proposed development has the potential to increase the zone of influence for grizzly bears and other wildlife and may reduce the wildlife movement in the vicinity of the development.

Reference

Ford a., Sunter E., Fauvelle C., Bradshaw J., Ford B., Hutchen J., Philipow N., and Teichman K. 2020. Effective corridor width: Linking the spatial ecology of wildlife with land use policy. European Journal of Wildlife Research 66:69.

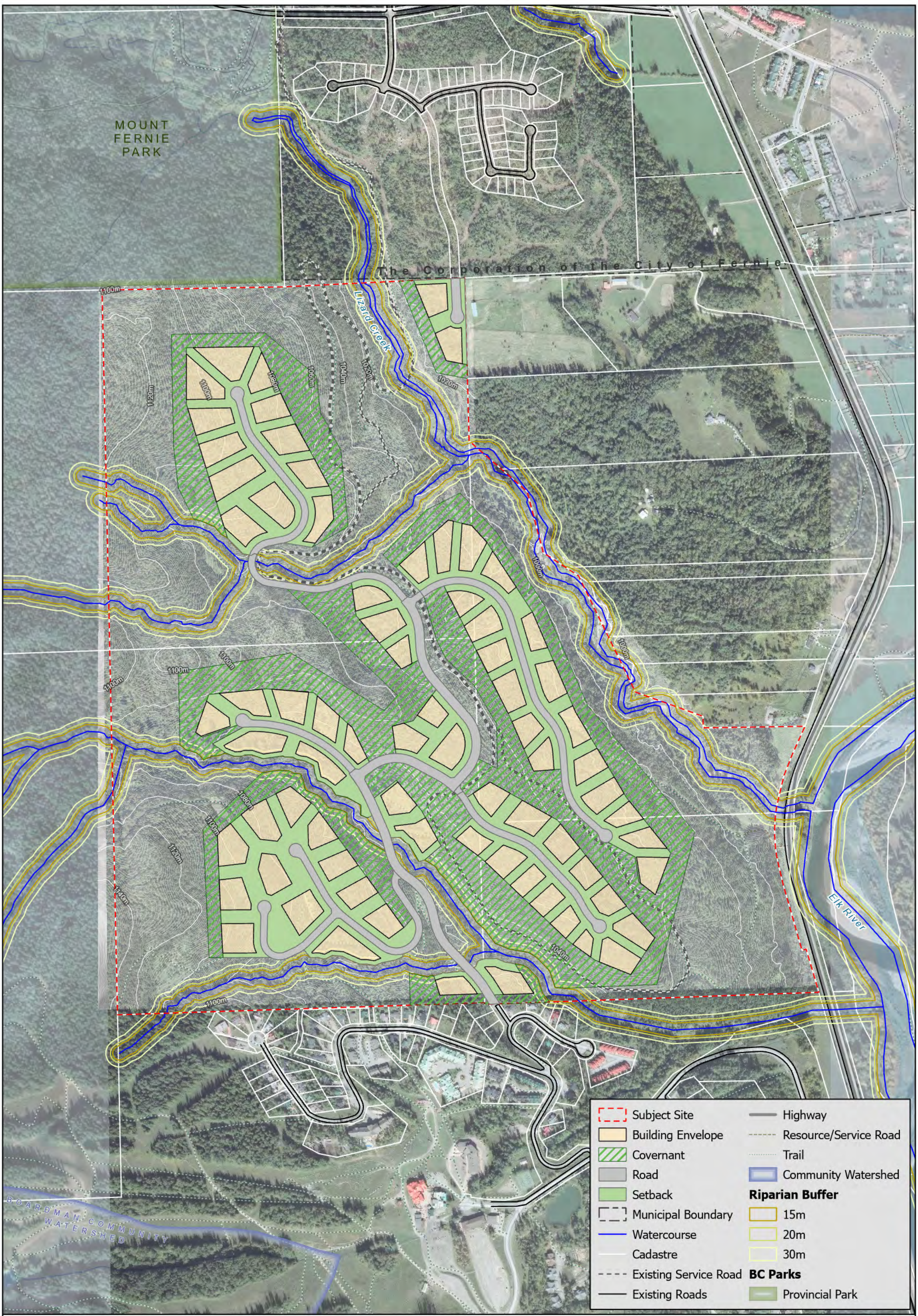
Get Bear Smart Society. 2022. Bear Smart at Home. https://www.bearsmart.com/live/overview/ Website accessed on March 23, 2022.

Government of BC, 2005. Public Health Act Sewerage Systems Regulation B.C. Reg. 326/2004.

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.

Polfus J. and Krausman P. 2012. Impacts of residential development on ungulates in the Rocky Mountain West. Wildife Society Bulletin 36(4):647-657

Proctor M, Nielsen S, Kasworm W, Servheen C, Radandt T, Machutchon G and Boyce M. 2015. Grizzly bear connectivity mapping in the Canada-United States Trans-Border Region. The journal of Wildlife Management 79(4):544-558.



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

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N

0 75 150 300 450 600
Meters

Map 1 - Proposed Development

Galloway Lands
Fernie
British Columbia

Subject Site
Proposed Development
Municipal Boundary
First Nation Reserve Land

Feature Type

Mountain
Community Watershed

BC Parks

Ecological Reserve
Provincial Park

Wolverine occurrence from:

Wildlife Species Inventory Incidental Observations - Non-secured

GIS Cartographer: Nicola Church
Date: *3/23/2022*
CERG File #: 1082-01-01
Projection: NAD 1983 CSRS UTM Zone 11N

CASCADE ENVIRONMENTAL RESOURCE GROUP LTD

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0 5,000 10,000 20,000 30,000 40,000
Meters

Map 2 - Wolverine Occurrence

Galloway Lands
Fernie
British Columbia

Subject Site
Proposed Development
Municipal Boundary

Feature Type
Mountain

Track Classification
Main
Connecting
Recreation Site
Highway
Resource/Service Road
Trail

Community Watershed

BC Parks
Provincial Park

Moose occurrence from:
Wildlife Species Inventory Telemetry Observations - Non-sensitive selection
Wildlife Species Inventory Incidental Observations - Non-secured selection
Wildlife Species Inventory Survey Observations - Non-sensitive selection

Mount Procter
Mount Fernie
FAIRY COMMUNITY WATERSHED
2280 m
2380 m
Hartley Creek Rd
Dicken Rd
Crowsnest Hwy
3
Elk River
Fernie
FERNIE
10th Ave
Burmis Rd
Island Lake
MOUNT FERNIE PARK
Mt Fernie Park Rd
Fernie Coal Rd
2266 m
2105 m
Cokato
COKATO
LIZARD RANGE
2088 m
Morrissey Ridge
2137 m
2121 m
Lizard Range
2171 m
1782 m
Cokato Rd
2116 m
Sand Creek
MORRISSEY
2087 m
2072 m
1073 m
2215 m
2244 m
Galloway Mill Rd

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Projection: NAD 1983 CSRS UTM Zone 11N

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N

0 500 1,000 2,000 3,000 4,000
Meters

Map 3 - Moose Occurrence

Galloway Lands
Fernie
British Columbia