TELKWA MINING LIMITED

January 26, 2026

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**SUBJECT:** **Response to EAO Caribou Sub-Committee Working Group Meeting Information Requests Provided by ECCC and WLRS on June 26, 2025, December 19, 2025, and January 6, 2026**

Dear Stasia,

Telkwa Mining Limited (Telkwa Mining) participated in an EAO Caribou Sub-Committee Working Group meeting on June 10, 2025. The goal of holding an in-person/ virtual meeting with Caribou Sub-Committee Working Group representatives was to reduce the number of follow-up questions via email by providing responses to regulatory agencies during the meeting. Based on a review of the regulatory comments, this objective appears to have been met with ECCC; however, BC WLRS has returned to some of the same questions that were addressed during the session and in the revised effects assessment submission.

Several comments focused on Telkwa Mining's use of telemetry data and Telkwa Mining not recognizing low-elevation caribou use. However, Telkwa Mining clearly stated in the revised effects assessment (including the submission cover letter) and the virtual meeting on June 10, 2025 (as reflected in the meeting minutes) that:

> ***"[this] does not affect what Telkwa Mining is presenting in the IR response because low-elevation habitat in the effects assessment is now treated as if it were occupied and used by caribou. This represents a shift from the previous EA Application responses and methodology."***

Telkwa Mining understands and recognizes the importance of the Telkwa Caribou Herd to Indigenous Nations, government agencies, and the public at large. This is why the company, following professional guidance from its consultants and feedback from Indigenous Nations and regulatory agencies, have taken the precautionary approach of considering the area where the Project is located as being fully restored and viable caribou habitat (i.e., "**optimal/fully restored habitat** conditions" to the extent possible for the herd's recovery) except for permanent human disturbance features such as roads, rail lines, powerlines, towns, farms, active recreation trails, and urban settlement. This approach goes well beyond the accepted methodology for effects

assessments based on precedents set out and accepted in other EAC applications submitted to either the provincial and/or federal governments during the past ten years.

Standard provincial and federal EAC application practice is to evaluate a project's effects in relation to current measured baseline conditions, rather than to a potential future disturbance state that may or may not occur under existing government policy. It is also noted that the Telkwa Wildlife Habitat Area #6-333 (WHA) permits logging within certain areas, subject to stated requirements.

Where an area is already in a disturbed state, further disturbance primarily extends the recovery period, recognizing that recovery is not to an undisturbed or fully protected condition but within a landscape subject to ongoing land use. This extension of recovery timelines has been considered in the proposed offsetting commitments. Consistent with this, it should be a shared goal of regulatory agencies and proponents to focus project developments within previously disturbed areas wherever possible, rather than in undisturbed areas. While groups may not agree with this effects assessment result due to the considerable existing disturbance in the Telkwa Caribou Herd's range, this is the approved EAC methodology based on precedent.

Table 1 (below) summarizes the areas of direct and indirect effects estimated for the Project.

**Table 1: Summary of Estimated Effects from the Tenas Project**

| Habitat Component | Effects Component | EAC Application Effects Assessment (ha) | Appendix 1 Revised Effects Assessment Based on Indigenous Nations and Regulatory Agency Requests (ha)<br>Assumes optimal/fully restored habitat conditions, not current baseline |
|---|---|---|---|
| High Elevation, Core Range | Direct | 0.0 | 3.4 |
| | Indirect | 0.0 | 1,268.4 |
| Low Elevation, Capable Winter Range and Type 1 Matrix Range | Direct | 0.0 | 869.5 |
| | Indirect | 15.1 | 1,071.0 |
| **Total** | | 15.1 | 3,212.3 |
| **Comments** | | **Disturbance buffers:** 500 m around all disturbance features (including the Project) except burns.<br>**Baseline conditions** include current disturbance conditions at start of Project. | **Project buffers:** 3.6 km around mine at high elevation, 2.1 km around mine at low elevation, 800 m around roads/trails at high elevation, and 500 m around access road at low elevation (Section 4, Appendix 1).<br>**Permanent disturbance buffers:** 500 m around roads/trails at low elevation, 800 m around roads/trails at high elevation, 500 m around "other" linear features at low elevation, 2.5 km |

| Habitat Component | Effects Component | EAC Application Effects Assessment (ha) | Appendix 1 Revised Effects Assessment Based on Indigenous Nations and Regulatory Agency Requests (ha)<br>Assumes optimal/fully restored habitat conditions, not current baseline |
|---|---|---|---|
| | | | around "other" polygonal disturbances at low elevation, and 4.0 km around "other" polygonal disturbances at high elevation (Section 4, Appendix 1).<br>**Optimal/fully restored, future baseline conditions** assuming only the following permanent disturbances remain:<br>• primary and secondary roads,<br>• agricultural areas,<br>• residential areas,<br>• urban areas,<br>• railways,<br>• powerlines/pipelines, and<br>• certain recreational trails that are unlikely to be reclaimed.<br>Burns, cutblocks, and tertiary and quaternary roads are fully regenerated or restored (Section 5.3.1, Appendix 1). |

Table 2 provides a summary of the offset In-Lieu Payments determination based on the effects presented in Table 1. Please see Section 6.6 of Appendix 1 (Attachment OW-026-1) for additional discussion on offsetting.

### Table 2: Summary of Estimated Offset In-Lieu Payment for the Potential Effects from the Project

| Habitat Component | Effects Component | Net Effect (ha)<br>Assumes optimal/fully restored habitat conditions, not current baseline | Offset Location | Offset Multiplier | Offset × 1.25 (ha) | Cost per 100-ha | Total Cost |
|---|---|---|---|---|---|---|---|
| High Elevation, Core Range | Direct (Footprints) | 3.4 | Type 1 Matrix | 14.93 | 63.1 | $15,000 | $9,469 |
| | Indirect (Sensory Disturbance) | 1,268.4 | Type 1 Matrix | 14.93 | 23,671.5 | $15,000 | $3,550,727 |

| Habitat Component | Effects Component | Net Effect (ha) Assumes optimal/fully restored habitat conditions, not current baseline | Offset Location | Offset Multiplier | Offset × 1.25 (ha) | Cost per 100-ha | Total Cost |
|---|---|---|---|---|---|---|---|
| Low Elevation, Capable Winter Range | Direct (Footprints) | 57.0 | Type 1 Matrix | 12.12 | 863.9 | $20,000 | $172,786 |
| | Indirect (Sensory Disturbance) | -56.6 | – | – | – | – | – |
| Low Elevation, Caribou Movement Habitat (Type 1 Matrix Range) | Direct (Footprints) | 812.4 | Type 1 Matrix | 10.69 | 10,856.2 | $15,000 | $1,628,431 |
| | Indirect (Sensory Disturbance) | 1,127.6 | Type 1 Matrix | 10.69 | 15,067.8 | $15,000 | $2,260,168 |
| | | | | | | **Total** | **$7,621,581** |

Telkwa Mining believes that the 2022 EAC Application presented the most likely effect of the Project given current disturbance conditions and the accepted use of ECCC 500 m buffers for indirect effects from all features. However, the most precautionary effects assessment was completed based on Indigenous Nations and regulatory agency requests. Given the status of the Telkwa Caribou Herd, the precautionary assessment was also used to determine offset payments to provide sufficient funding to have a meaningful effect on the caribou recovery strategy objectives for the Telkwa Caribou Herd. These payments, in combination with Indigenous Nations, third party Qualified Professionals, and regulatory experts' knowledge, collaboration, and input, would provide funding directly to the Telkwa Caribou Herd for more than 25 years and will contribute to the long-term sustainability of the Telkwa Caribou Herd during the Tenas Project's life.

Telkwa Mining has provided responses to the (June 10, 2025) information requests by ECCC and WLRS, below. Responses are also provided for the additional comments provided by ECCC and WLRS (December 19, 2025, and January 6, 2026) on the original information requests. Responses are incorporated into Appendix 1 (Attachment OW-026-1), which includes a list of technical meetings and engagement (Section 2) that led to the current effects assessment and offsetting approach.

Appendix 1 provides a fulsome response to BC EAO's letter (dated October 6, 2022) regarding the four main themes (i.e., Acoustic Modelling, Buffers, Effects Assessment and Critical Habitat, and Offsetting for Direct and Indirect Effects) that captured initial information requests by ECCC

and WLRS. Appendix 1 also addresses any outstanding issues identified by the Technical Advisory Committee reviewers or Indigenous Nations.

Appendix 2 (Attachment OW-033-1) provides details related to recreational access effects on the Telkwa Caribou herd.

Supplemental responses to OW's questions from a January 28, 2025, meeting (Appendix 3) and February 28, March 12, and May 15, 2025, letters (Appendix 4) are incorporated into Appendix 1. Also included in Appendix 1 are results from field reconnaissance (September 2024 and August 2025) of linear features identified in *the Telkwa Caribou Tactical Restoration Plan* (ERM 2019), and site assessments of caribou habitat suitability, capability, and evidence of use within the Project Footprint (August 2025). A detailed report of field programs and their outcomes is provided in Appendix C of Appendix 1; a key conclusion being that, even under optimum/fully restored habitat conditions (i.e., habitat capability), caribou habitat and biophysical attributes in the Project Area are limited at low elevations (<1,100 m).

Appendix 5 provides results from BC's *Caribou Habitat Offset Decision Support Tool* (version 1.4), which was used to develop offsetting ratios for Project effects on high-elevation core range, low-elevation capable winter range, and low-elevation caribou movement habitat (Type 1 matrix).

## MEETING INFORMATION REQUEST RESPONSES

## ECCC COMMENT #1

### June 10, 2025

> Regarding the Federal Recovery Strategy for the Woodland Caribou, Southern Mountain population (*Rangifer tarandus caribou*) in Canada (2014; the Recovery Strategy), Appendix 1 states: "the status of habitat outside critical habitat, but inside the LPU [Local Population Unit] boundary, is not defined."
>
> ECCC notes that Section 7.1.1 of the Recovery Strategy indicates that "the delineated LPU shows the area within which most critical habitat is located at a coarse scale". Therefore, the entirety of the LPU, other than permanent disturbances (circa 2014), is considered critical habitat. The critical habitat mapped in Appendix B of the Recovery Strategy is based on the best available information and does not currently include all critical habitat that exists for each LPU. It is the individual categories of critical habitat that were not fully mapped in the 2014 Recovery Strategy.
>
> For accuracy and clarity, ECCC recommends amending the text in this section as follows (additions in bold):

**The area mapped as Critical Habitat (high/low elevation range)** in Environment Canada's (2014) Critical Habitat area defines the Regional Study Area 1 (RSA-1) of the Project (Map 1). [...] Additionally, the category of status of habitat outside critical habitat outside the high/low elevation range but inside the LPU boundary, is not defined."

### December 19, 2025

Updates on page 12 (not page 10) of Appendix 1 (5.1.1 Federal Recovery Strategy) address ECCC's June 10, 2025, comment.

### TELKWA MINING RESPONSE

Page 12 of Appendix 1 has been revised to clarify the status of Critical Habitat outside of the high-low elevation range but inside the LPU boundary. Note that this has no effect on estimated effects from the Project because the Project does not extend into areas of Critical Habitat that have yet to be categorized.

## ECCC COMMENT #2

### June 10, 2025

Map 1 outlines Critical Habitat boundaries citing the Recovery Strategy. ECCC recommends that the Proponent update Map 1 using the linework available from https://open.canada.ca/data/en/dataset/47caa405-be2b-4e9e-8f53-c478ade2ca74, which matches Figure 3 in Appendix B of the 2014 Recovery Strategy.

These maps differentiate between the high/low elevation and unmapped range components of critical habitat, which together represent the federally identified critical habitat within the Telkwa LPU and is a more accurate representation of the LPU boundaries than the version currently presented in Map 1.

### December 19, 2025

The updated map on page 13 (not page 10) of Appendix 1 (Attachment OW-026-1) does not address the comment ECCC provided on June 10, 2025.

The labelling of "Critical Habitat (ECCC 2014)" in Map 2 is inaccurate as only the "high/low elevation" component of critical habitat is included, and not the "unmapped range" component of critical habitat using linework available from the open data portal (https://open.canada.ca/data/en/dataset/47caa405-be2b-4e9e-8f53-c478ade2ca74) and provided in ECCC's June 10, 2025, comment.

ECCC recommends that either the “unmapped range” component of critical habitat be added to Map 2 as part of “Critical Habitat (ECCC 2014)” or the legend of Map 2 (and others throughout the document) be updated to read “Critical Habitat (high/low elevation range; ECCC 2014)”; and that all relevant maps make it clear that only the “high/low elevation range” component of critical habitat is defined by the proponent as the RSA-1.

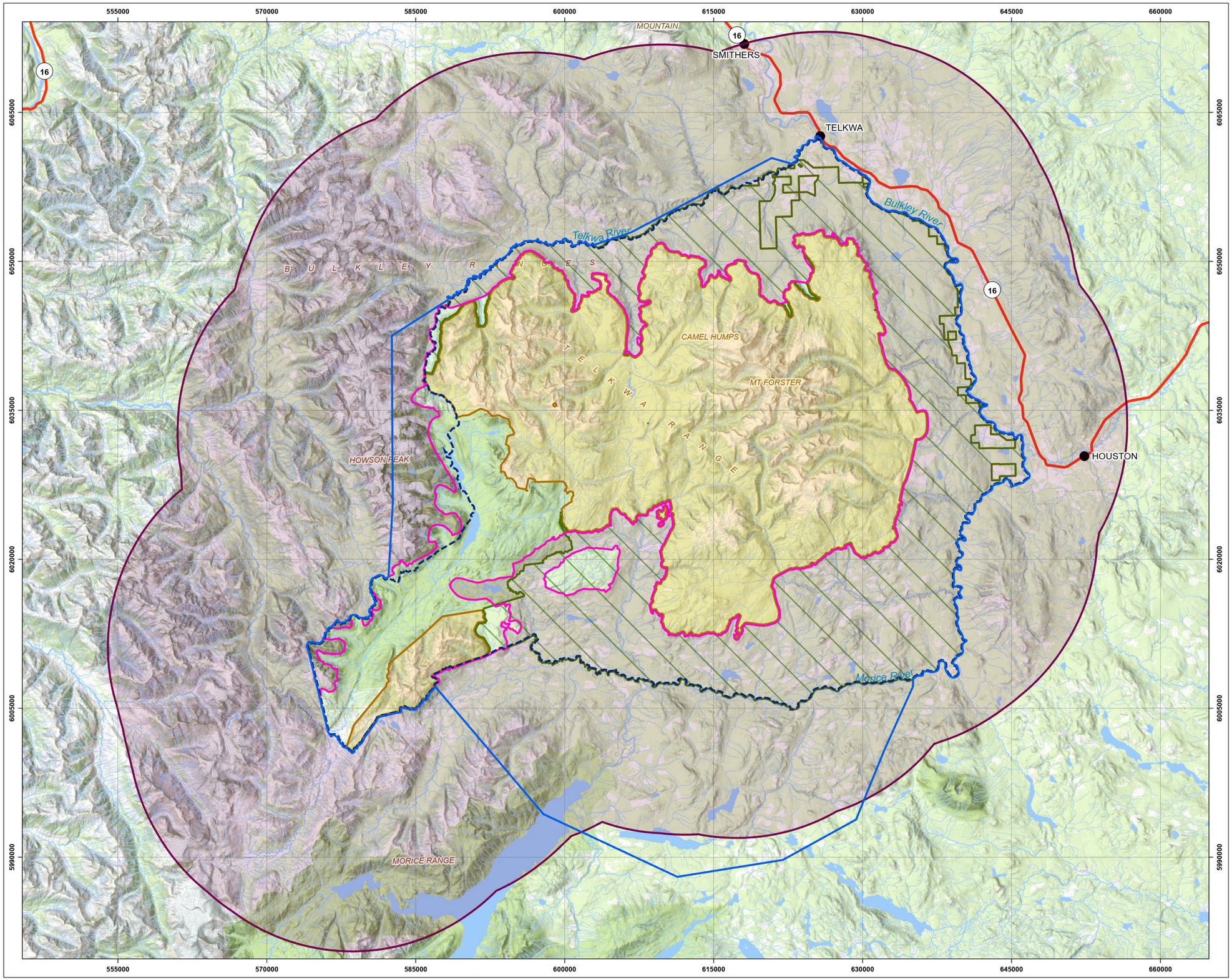
## TELKWA MINING RESPONSE

The corresponding map (now Map 2 on page 13 of Appendix 1) has been updated as requested. The map is also provided below for ease of reference. In all maps provided in this submission, Telkwa Mining refers to the RSA-1 as “Critical Habitat (high/low elevation range; ECCC 2014)”.

TML has also revised the characterization of Critical Habitat on page 12 of Appendix 1 to explicitly acknowledge unmapped range within the LPU and that it is not explicitly addressed in the assessment.

# Tenas Project

## Map 2. Federal and provincial habitat boundaries for the Telkwa Caribou Herd




Legend

- City/Town
- Highway
- Watercourse
- Waterbody

**Telkwa Caribou Herd**

- Telkwa Local Population Unit (2014)
- Critical Habitat (high/low elevation range; ECCC 2014)
- Draft BC Core Habitat (2019)
- Draft BC Matrix Habitat (2019)

Wildlife Habitat Area #6-333 (2015)

- No Harvest Zone
- Conditional Harvest Zone

### Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

### Sources

- Telkwa Caribou Herd boundaries. Government of British Columbia and Government of Canada.
- Wildlife Habitat Area. Government of British Columbia.
- Basedata: Government of British Columbia
- Basemap: World Topo Base: Sources: Esri, HERE, DeLorme, increment P Corp., NPS, NRCan, Ordnance Survey, © OpenStreetMap contributors, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

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## ECCC COMMENT #3

### June 10, 2025

Section 1.4 describes monitoring results of radio-collaring programs in the Telkwa range but does not include details on the limitation of these studies. These limitations reduce the certainty in the conclusions of the study and result in gaps in the understanding of caribou habitat use. Therefore, the absence of evidence of caribou habitat use based on collar data cannot be interpreted as evidence that caribou have not, or will not, use an area in the past, present, or future.

ECCC recommends that the Proponent provide additional information on the limitations of the collaring data in Appendix 1, such as timeframe limitations, biases toward male or female subsets of collared caribou, or conflicting Indigenous knowledge.

Similar caveats may also apply to other areas of Appendix 1, such as Section 2, where use of caribou habitat is described. ECCC noted during the June 10, 2025, Tenas Coal Caribou Subcommittee Meeting, that the BC Ministry of Water, Land and Resource Stewardship (BC WLRS) is in possession of more recent evidence of caribou use of low elevation habitat and recommends that these new data be included in the assessment of caribou habitat use.

### December 19, 2025

ECCC has no further comment at this time, and given their higher level of familiarity with these specific data, defers to WLRS as to whether the updated discussion on page 14-16 (not page 10/11) of Appendix 1 is acceptable.

### TELKWA MINING RESPONSE

Telkwa Mining maintains that the available GPS telemetry data for the Telkwa Caribou Herd is the best available information to infer and interpret caribou habitat/range use. The inferences from telemetry data are consistent with how telemetry data has been used in caribou recovery planning and in wildlife habitat use studies in general.

Telkwa Mining based the inferences about low-elevation habitat use by caribou on broader evidence than just telemetry data. Within the Tenas Project Area, verified TEM data shows a limited distribution of suitable low-elevation winter range caribou habitat. Within the Tenas Project Regional Study Area 1 (RSA-1), abundant early seral habitat conditions will persist for decades in low-elevation range. This is creating a hostile predator-prey environment that is likely limiting caribou recovery. This habitat-mediated apparent competition is hypothesized to be the

main driver of woodland caribou population decline and is widely acknowledged by both ECCC and BC WLRS.

Telkwa Mining knows of no reason that collared caribou would be less likely to use low-elevation habitat in and near the Tenas Project Area than uncollared caribou (i.e., collar bias). However, recent fieldwork did find very limited evidence of caribou use in low-elevation range, and a summary of this information has been incorporated into the revised Appendix 1 (page 16). Importantly, the effects assessment completed is not sensitive to conclusions about current caribou habitat use because Telkwa Mining's revised baseline assumes "**optimal/fully restored habitat**" baseline conditions for caribou presence and use within the Project RSA-1.

**Additional information on the limitations of the collaring data**

a) Potential bias of dense forest cover can reduce the success rate of caribou collar GPS location fixes (i.e., fix bias), which can bias estimates of relative habitat use.

In the Tenas Project RSA-1, however, higher elevation Englemann Spruce – Subalpine Fir (ESSF) forest outside the Project Area can generate a bias like lower elevation Sub-boreal Spruce (SBS) forests inside the Project Area.

b) Direct evidence of caribou use in low elevation areas inside the Project Area is limited.

Baseline Data collected for the Tenas Project found limited evidence of use by caribou in areas of unsuitable habitat at low elevations. Telemetry data also identifies only limited forays by collared caribou into low-elevation range.

c) Potential biases toward male or female subsets of collared caribou.

Telkwa Mining acknowledges that Telkwa Caribou Herd telemetry data on habitat use by bull caribou are lacking. However, it would be speculative for Telkwa Mining to suggest that bulls use high-low elevation habitat significantly differently than do cows.

d) Bias of potentially conflicting Indigenous Knowledge of caribou use.

Telkwa Mining reported on page 14 of Appendix 1 that accounts from Indigenous Nation sources confirm that historically, there were more caribou near Telkwa. And the same sources indicated that caribou have largely been absent from low-elevation areas in the region since the arrival of moose in the early 20th century. Telkwa Mining is currently collating additional Indigenous perspectives on caribou use of the Tenas Project Area and will continue to find ways to incorporate Traditional Ecological Knowledge into Project datasets.

Telkwa Mining has expanded the discussion on the use of telemetry data on pages 14 to 16 in Appendix 1. Importantly, the effect assessment analysis that was completed is not sensitive to

conclusions about current habitat use because Telkwa Mining's revised baseline assumes "**optimal/fully restored habitat**" baseline conditions for caribou presence and use.

Since ECCC has deferred to BC WLRS (as per December 19, 2025, comment), and BC WLRS has not identified specific or necessary changes to pages 14 to 16 (Appendix 1), Telkwa Mining now considers this comment closed.

## ECCC COMMENT #4

### June 10, 2025

> Appendix 1 states, "The federal recovery strategy requires 65% undisturbed habitat within low-elevation winter range and, although this threshold remains untested in mountain caribou systems."
>
> ECCC notes that the above statement is a mischaracterization. The Recovery Strategy states:
>
> "Minimal disturbance for high-elevation winter and/or summer ranges in all Groups, and at least a 65% undisturbed habitat level for low elevation winter ranges and Type 1 matrix range in the Northern and Central Groups, are currently considered as necessary to achieve recovery of LPUs."
>
> Given similarities to the disturbance regime in boreal ecosystems, ECCC considers this disturbance level applicable to Southern Mountain caribou as well. ECCC commissioned a contract (Lamb et al. 2022; attached to this submission) to estimate Southern Mountain caribou range-specific disturbance thresholds. The lack of demographic data for self-sustaining Southern Mountain caribou populations limits the ability to fully estimate these thresholds because few subpopulations were collared before they started to decline, and recent growth due to predator control cannot help define a habitat threshold. However, the report concludes that the disturbance thresholds are likely higher than the 2014 Recovery Strategy recommended.
>
> ECCC recommends continuing with the 2014 Recovery Strategy recommendations and revising Section 2.2 accordingly to remove reference to the "untested" threshold.

### December 19, 2025

> ECCC recommends further revision (see addition in **bold**) to updated wording on page 17 of Appendix 1; "The federal recovery strategy targets **a minimum of** 65% undisturbed habitat within the low-elevation winter range."

Unlike boreal caribou, the demographic data for southern mountain caribou does not include sufficient data on self-sustaining populations – the years of data collected before predator control was initiated represent declining caribou herds existing in a highly disturbed landscape.

While recognizing there may be multiple causal pathways leading to caribou population declines (e.g. predator-prey dynamics driven by human intervention such as in the mountain national parks), there is a strong weight of evidence showing that woodland caribou are negatively affected by the cumulative effects of anthropogenic and natural disturbances, both physical and sensory. While there are examples of caribou populations that are declining when habitat disturbance levels are low, there are no examples of stable to increasing caribou populations when disturbance levels are high, except when predators are directly controlled. ECCC maintains that for physical habitat disturbance, the minimum 65% undisturbed threshold for low-elevation winter range in the federal recovery strategy is the best available information to infer and interpret caribou habitat requirements, including in the Telkwa caribou range. When moving away from a herd-level analysis approach (akin to the Boreal disturbance threshold analyses), towards an individual caribou-based approach (using data from Southern Mountain Caribou (SMC) central group caribou), Lamb et al. 2022's work points to a similar minimum 65% threshold for SMC.

ECCC continues to recommend that all Proponents of mining projects in SMC ranges use the minimum 65% undisturbed threshold for low elevation and matrix ranges in effects assessments and offset proposals for impacts to caribou. As such, ECCC recommends removing the following text on page 17: "although this threshold remains unsubstantiated in mountain caribou systems".

## TELKWA MINING RESPONSE

Telkwa Mining acknowledges that the federal recovery strategy targets **a minimum of** 65% undisturbed habitat within low-elevation winter range; this text change has been made on page 17 of Appendix 1. Telkwa Mining has also removed the following text on page 17 of Appendix 1: "although this threshold remains unsubstantiated in mountain caribou systems". However, TML maintains that scientific support for this threshold among southern mountain caribou is lacking. There seems to be no level of habitat disturbance at which southern mountain caribou subpopulations have been shown to be stable or increasing.

## ECCC COMMENT #5

### June 10, 2025

In Section 2.2 and other sections throughout Appendix 1, as appropriate, ECCC recommends amending references to “federal critical habitat boundary” to read “areas mapped as federal critical habitat (high/low elevation range)”, for precision.

As noted in Comment 1, the 2014 Recovery Strategy defines the entirety of the LPU as critical habitat (except for permanent disturbances as of 2014), but the specific categories were not precisely mapped. ECCC anticipates updating the mapping of critical habitat and the LPU boundaries in an amendment to the 2014 Recovery Strategy in 2026 and expects that the revised boundaries to more closely follow BC WLRS’s core/matrix mapping.

### December 19, 2025

Revisions in section 5.2.3 of Appendix 1 address ECCC's comment; ECCC recommends that the same revision be made in the first sentence of section 5.1.3 (page 14) of Appendix 1.

I.e. (additions in **bold**, deletions in ~~strikethrough~~) “A Wildlife Habitat Area (WHA) (Map 2), legally designated under the provincial Forest and Range Practices Act, largely follows the **area mapped as** federal Critical Habitat **(high/low elevation range)** ~~polygon~~ for the Telkwa Caribou Herd and comprises all Crown land within its boundary.”

### TELKWA MINING RESPONSE

References to the boundary have been revised throughout the document in Appendix 1. Telkwa Mining has updated the text on page 14 of Appendix 1 to align with ECCC’s suggested revision.

## ECCC COMMENT #6

### June 10, 2025

Section 2.2 describes a desired future condition as: “manage sensory disturbance within high elevations and expand management to low elevations only if/when caribou occupy/re-occupy low-elevation winter ranges.”

ECCC recommends the Proponent consider management of sensory disturbance and indirect effects everywhere within the Project zone of influence regardless of elevation, as existing and new sensory disturbance may discourage caribou from occupying adjacent low elevation areas.

### December 19, 2025

Revision on page 17 (not page 14) of Appendix 1 addresses ECCC's June 10, 2025, comment.

### TELKWA MINING RESPONSE

This has been revised on page 17 of Appendix 1.

## ECCC COMMENT #7

### June 10, 2025

Appendices 1 and 2 reference the Environmental Code of Practice for Metal Mines (ECCC 2009) regarding target noise levels for mining operations. This reference is intended to be used as a general guideline, which states: "although the recommendations are intended to be clear and specific to the intended results, they are not intended to discourage the use of alternative technologies and practices that can achieve an equivalent or better level of environmental protection."

Studies also indicate that caribou sense noise very differently than humans and therefore target noise levels should be specific to caribou (Perra et al. 2022). For assessing effects of noise on caribou, ECCC recommends the Proponent consider noise impact modelling using 30 dB peSPL as a representation of the level at which mine-related activities would no longer be discernable to caribou.

References:

Perra, M., Brinkman, T., Scheifele, P. & Barcalow, S. (2022). Exploring auditory thresholds for reindeer, Rangifer tarandus. J. Vet. Behav. 52–53, 37–44. Available at:

https://www.sciencedirect.com/science/article/pii/S1558787822000478

### December 19, 2025

ECCC appreciates the revisions to Appendix 1 to reflect zone of influence distances consistent with Palm's 2022 work completed for ECCC, but recommends that a minimum buffer of 500 m be used to account for the cumulative effects of physical habitat disturbance, noting that Palm 2022 found roads affected caribou behaviour between 300 m-800 m. Therefore, ECCC recommends changing the 300 m buffer around the Project access road at low elevation and all permanent roads and trails at low elevation to at least 500 m.

In a meeting between ECCC, EAO, and WLRS on December 15, 2025, TML agreed to use a 500 m buffer around roads. ECCC considers this agreement sufficient to address the 2022 IR related to buffers.

Please see additional recommendations regarding buffer distances provided in response to comment 8 below.

### TELKWA MINING RESPONSE

Telkwa Mining contracted Ausenco to add 30 dBa line to their response and is included as an attachment to Appendix 1 (Appendix A in that document). The maps in Appendix A within Appendix 1 illustrate that the noise propagation for the 30 dBA level is like the 55 dBA distance of 2 km, which is less than the 3.6 km high-elevation buffer or 2.1 km low-elevation buffer recommended by regulatory agencies for mining activity. The buffers used in Appendix 1 to characterize sensory disturbance by the Project now follows the zone-of-influence distances identified by ECCC (2022) (see Section 4 in Appendix 1).

Based on Appendix A provided in Appendix 1, the acoustic model developed by Ausenco was conducted using the DataKustik CadnaA model and ISO 9613-2 algorithms, developed based on both theoretical equations and empirical data. This approach represents the industrial standard practice for assessing industrial noise and considers, within model limitations, real-world propagation under downwind conditions and moderate temperature inversions. Telkwa Mining is also committed to conducting noise monitoring to monitor actual noise levels from Project activities including blasting. The Project noise assessment (EAC Application Section 4.0, Chapter 1) provides the Project noise contribution as well as cumulative noise levels (i.e., Project plus background).

In the revised assessment, Telkwa Mining has expanded the ZOI buffers for low-elevation roads and trails from 300 m to 500 m, as agreed upon during the December 15, 2025, meeting with BC EAO, BC WLRS, and ECCC.

## ECCC COMMENT #8

### June 10, 2025

ECCC recommends that the indirect effects assessment in Appendix 1, Section 3.1.2 include ecological and behavioral considerations in addition to sensory disturbance.

Sensory disturbance for caribou refers to any stimuli perceived through their senses, such as sight, sound, or smell, that prompt a behavioral response (Johnson and St-Laurent, 2011). These disturbances are a key driver of indirect effects and indirect habitat loss,

where caribou avoid areas even when the habitat remains physically intact and otherwise suitable. For instance, caribou may respond to visual cues like the presence of human infrastructure or direct human activity. This includes roads, seismic lines, oil, and gas well sites, settlements (towns, tourist resorts, cabins, hunting camps), power lines, hydroelectric developments, mine sites, and logging clearcuts. Sensory disturbance can also take the form of auditory cues, such as noise from vehicles (e.g. automobiles, snowmobiles, ATVs), low-altitude aircraft (e.g., jets, helicopters), or industrial activities like blasting (Weclaw and Hudson, 2004; Weir et al., 2007; Vistnes and Nellemann, 2008). Caribou may also react to olfactory stimuli, such as dust or exhaust fumes.

Caribou behavioral responses to sensory disturbance include increased vigilance, flight responses (ranging from short-distance startle reflexes to prolonged running), interrupted foraging and resting activities (which can raise energetic costs and reduce body condition), and, most notably, spatial avoidance (Johnson and St-Laurent, 2011). This displacement from disturbed areas contributes to functional habitat loss.

However, caribou may avoid areas near human development for reasons that go beyond immediate sensory disturbance. These include broader ecological and behavioral considerations, such as an elevated perception of predation risk, decreased habitat suitability associated with human infrastructure, or cultural transmission of optimal habitat (Torney et al., 2018; Gurarie et al., 2024). For example, roads may be avoided not only because they are visible or noisy, but because they serve as movement corridors for predators or are linked to prior negative experiences. Such avoidance can reflect learned behavior and memory, further amplifying the long-term effects of disturbance on caribou habitat use and connectivity.

Caribou behavioural avoidance of human features, often referred to as zones of influence, should not be characterized as “inconsistent”, but instead reflect well-documented ecological variability. Avoidance distances are known to vary in response to multiple factors, including location, season, landscape context, and individual or population-level characteristics such as age, reproductive status, or previous exposure to disturbance. This variation is not a methodological flaw but an expected and well-understood aspect of ecological research. While the specific distances reported across multiple caribou /reindeer studies worldwide may differ due to variations in study design, spatial scale, and environmental conditions, the overarching pattern is clear and consistent: caribou reliably avoid areas near human disturbance, resulting in indirect habitat loss. The strength of this conclusion is supported by a large and diverse body of peer-reviewed research, making it a robust finding in caribou behavioral ecology.

ECCC further notes that Polfus et al. (2011) was not confounded by seasonal migration, as stated in Appendix 1, since the Atlin caribou herd occupies a relatively small and stable home range of approximately 50 km, and these Northern Mountain caribou are not known to undertake large-scale migrations. To further account for seasonal differences in habitat use, season-specific resource selection functions (RSFs) were developed using clearly defined periods: Winter (November 15–May 15) and Summer (May 16–November 14). The RSFs were constructed separately for each season, allowing the authors to model caribou habitat selection with seasonal nuance. These models compared environmental covariates at GPS-collared (used) locations to random available locations and were applied at two spatial scales: second-order selection (landscape scale) and third-order selection (within home range). This multi-scale, seasonally explicit approach enabled a robust assessment of caribou habitat preferences and avoidance behaviors, without being confounded by migratory movements.

Lastly, as identified during the June 10, 2025, meeting, ECCC recommends reviewing additional information (ECCC 2022; attached to this submission) that supports the conclusions from Johnson et al. 2015, in terms of 3-5 km avoidance distances for caribou from coal mines.

References:

ECCC (2022). CWS summary of materials provided to CWS under contract #3000731012 (fiscal year 2021-22) by contractor Dr. Eric Palm.

Gurarie, E. et al. (2024) 'Evidence for an Adaptive, Large-Scale Range Shift in a Long-Distance Terrestrial Migrant', Global Change Biology, 30(11), p. e17589. Available at: https://doi.org/10.1111/gcb.17589.

Johnson, C.J. and St-Laurent, M.H. (2011) 'Unifying framework for understanding impacts of human developments on wildlife', in E. Naugle (ed.) Energy development and wildlife conservation in western North America. Washington, D.C., USA: Island Press.

Johnson, C.J., Ehlers, L.P.W. and Seip, D.R. (2015) 'Witnessing extinction – Cumulative impacts across landscapes and the future loss of an evolutionarily significant unit of woodland caribou in Canada', Biological Conservation, 186, pp. 176-186. https://doi.org/10.1016/j.biocon.2015.03.012

Polfus, J.L., Hebblewhite, M. and Heinemeyer, K. (2011) 'Identifying indirect habitat loss and avoidance of human infrastructure by northern mountain woodland caribou', Biological Conservation, 144(11), pp. 2637–2646.

Torney, C.J. et al. (2018) 'Inferring the rules of social interaction in migrating caribou', Philosophical Transactions of the Royal Society B: Biological Sciences, 373(1746), p. 20170385. Available at: https://doi.org/10.1098/rstb.2017.0385.

Vistnes, I. and Nellemann, C. (2008) 'The matter of spatial and temporal scales: a review of reindeer and caribou response to human activity', Polar Biology, 31(4), pp. 399–407.

Weclaw, P. and Hudson, R.J. (2004) 'Modeling for cumulative effects assessment: woodland caribou in northern Alberta'. Available at: ://000222727000005

Weir, J.N. et al. (2007) 'Effects of mine development on woodland caribou Rangifer tarandus distribution', Wildlife Biology, 13(1), pp. 66–74.

## December 19, 2025

As reflected in the literature, ECCC recommends that revisions to Section 4 (Buffers) on page 9 of Appendix 1 be further revised to more comprehensively consider the following:

Avoidance behavior in caribou is a quantifiable, adaptive, and demographically meaningful response to human and natural disturbance (Palm 2021). While the magnitude of these avoidance zones (or Zones of Influence, ZOI) can differ depending on local habitat conditions and herd behaviour, the direction of the response (i.e., reduced use near human disturbance) is generally well supported. In cases where caribou appear to be selecting for disturbed areas, such behaviour results in reduced recruitment and higher mortality, and is therefore maladaptive. Conversely, avoidance of human features is directly linked to higher calf recruitment and adult survival (Palm 2021). The use of buffers to account for these ZOIs is well supported by the evidence, which is why it has become a widely accepted approach for assessing indirect habitat loss due to anthropogenic landscape disturbances that result in behavioral avoidance by caribou.

In addition, ECCC maintains that the ZOI results reported by Polfus et al. (2011) are not artefacts of seasonal range shifts. In resource selection functions (RSF) analysis, coefficients for predictors such as distance to human features represent the relative probability of use given the available habitat within a defined spatial and temporal extent. Polfus et al. (2011) constructed seasonal RSFs for the Atlin herd, ensuring that both used (GPS) and available (random) locations were drawn from season-specific ranges (both of which overlapped the townsite of Atlin). Environmental covariates (elevation, slope, landcover, snow cover) disentangle natural habitat preferences from anthropogenic effects, so the coefficients capture avoidance behavior independent of spatial differences

in seasonal range centers. In winter, the caribou in the study typically use low-elevation lodgepole pine–lichen complexes and spruce–fir forests. RSF results show they used these habitats near Atlin less than expected. In contrast, summer use occurs mainly in higher-elevation alpine and krummholz habitats (areas that are not similar to the townsite of Atlin). As RSFs compare use to availability within each season, the minor spatial separation of seasonal habitat use does not bias distance-based avoidance estimates. These results indicate that differing seasonal ZOIs reflect empirically derived behavioral responses to human presence, not migration or range shifts. The 9 km ZOI in winter therefore represents a statistically robust avoidance response.

Furthermore, revisions in section 5.3.1 (page 24) of Appendix 1 are insufficient to address ECCC's recommendation that the indirect effects assessment in Appendix 1 include other ecological and behavioral considerations in addition to sensory disturbance. That section continues to characterize indirect habitat loss as being solely an area of sensory disturbance around development footprints. However, caribou have been shown to avoid some development footprints for extended periods of time after the acute sensory disturbance related to construction, operations, or decommissioning has ended. ECCC recommends further revising section 5.3.1 to characterize indirect habitat loss as representing an area around development footprints that caribou may avoid or reduce their use of due to broader ecological and behavioural factors, including perceived or real increases in predation risk and decreased habitat suitability, in addition to acute sensory disturbance. ECCC recommends the following revisions (**additions** and ~~deletions~~): "Indirect habitat loss entails the area of sensory disturbance **zones of influence** around development footprints that potentially reduces the frequency of caribou occurrence or altered behaviour (e.g., flight, vigilance) due to human-related noise, **real or perceived increases in predation risk** and **other reductions** ~~activity~~ in ~~otherwise suitable~~ habitat suitability. Sensory disturbance for caribou refers to any stimuli perceived through their senses, such as sight, sound, or smell, that prompt a behavioral response (Johnson and St-Laurent 2011)."

## TELKWA MINING RESPONSE

Section 4 of Appendix 1 has been revised to include some of the above information. Most of the foregoing discussion refers to the ecological and behavioural consequences of sensory disturbances, rather than additional effects independent of sensory disturbance that require additional consideration or assessment.

Telkwa Mining agrees that zones of influence vary in response to multiple factors; so many, in fact, that consistent marginal effects can be difficult to detect. Fewer than half of the contrasts reported in Johnson et al. (2015) demonstrated avoidance of human-related infrastructure, and they did not demonstrate consistent dose-response relationships either within or among seasons

or caribou herds. The paper also reports some maximum zones-of-influence that defy explanation (e.g., caribou avoiding burns by up to 8 km, which was more than 4-times the distance of their avoidance of roads?). Variable results in studies such as this can result from either weak main effects and/or of methodological problems.

In Polfus et al. (2011), stratifying the resource selection functions (RSFs) spatially and temporally by season does not solve the spatial correlation problem with Atlin. "Distance to" metrics do not just measure a local habitat attribute like snow depth does, but they encode the geometry of the seasonal ranges relative to linear or point features such as the village of Atlin. So, if winter ranges are, on average, farther from Atlin than summer ranges, then both used and available points will be farther away on winter ranges than on summer ranges. Even if caribou are avoiding Atlin to the same degree in winter as summer, the absolute "avoidance distance" will be bigger in winter. This is because the RSFs are estimating the relative selection for distances from town, given the spatial geometry of the ranges relative to the town. Conditioning on availability does not control for the spatial geometry. The RSFs are not measuring the absolute behavioural responses to the town, even when habitat availability is correctly specified. The problem of "distance to" metrics being spatially correlated with the spatial configuration of habitat availability is a known problem (e.g., https://doi.org/10.1098/rstb.2010.0079), and a 3-times higher avoidance of Atlin in one season compared to other seasons is a red flag for the analysis.

The discussion on page 9 and 10 of Appendix 1 has been revised to present the ZOIs calculated by different authors and avoids the broader discussion of the challenges of such studies in general. But we maintain that the variation among reported ZOIs indicates a significant weakness in these methods and additional studies needs to be undertaken to better understand this behaviour.

Regardless, the revised effects analysis adopts very conservative distances for the indirect effects analysis. To be consistent with research supported by CWS for southern mountain caribou, disturbance buffers were updated to characterize Project-related indirect effects using zone-of-influence distances identified in ECCC (2022), which are different than the buffers recommended by the IR request from EAO:

**EAO IR request**

- 3.0 km buffer around the Project mine at high and low elevation.
- 1.8 km buffer around the Project access road at high and low elevation.

**Project**

- 3.6 km buffer around the Project mine at high elevation.
- 2.1 km buffer around the Project mine at low elevation.
- 500 m buffer around the Project access road at low elevation.

- 800 m buffer around all Project roads and trails at high elevation.

**Permanent Disturbances**

- 500 m buffer around all permanent roads and trails low elevation.
- 800 m buffer around all permanent roads and trails high elevation.
- 500 m buffer around all permanent (other) linear features at low elevation.
- 2.5 km buffer around all permanent (other) polygonal disturbances at low elevation.
- 4.0 km buffer around all permanent (other) polygonal disturbances at high elevation.

Lastly, the above studies demonstrated only a **reduction** in caribou use, not a complete abandonment of the habitat by caribou within the indirect buffer zones of influence. However, offsetting calculations **conservatively assume complete abandonment**.

Telkwa Mining has updated the text on page 25 in Appendix 1 to align with ECCC's suggested revision.

## ECCC COMMENT #9

### June 10, 2025

> Table 2 summarizes the direct and indirect effects of the Project by high and low elevation areas, and states that:
>
> "Low elevation potential winter range caribou habitat is currently unoccupied by caribou and is not expected to be during the life of the Project, so sensory disturbance was not considered for this habitat."
>
> ECCC considers it possible that low elevation winter range could be occupied by caribou during the life of the Project. This is supported by BC WLRS's information that recent collar data indicate caribou are using lower elevations in other portions of the range. The wildlife habitat area and restrictions on recreational use are relatively recent and aim to support growth of the caribou population. ECCC recommends that the assessment be revised to reflect potential population changes arising from recreational use restrictions and predator control.
>
> ECCC further recommends that the narrative and tables of effects in Appendix 1 be updated to reflect the revised information contained in Appendix 7 (e.g., effects to low elevation Type 1 Matrix habitat), as well as including a general explanation of how overlapping buffers affect the effects assessment (e.g. including non-intuitive results

where smaller buffers sometimes result in larger incremental effects, as indicated by Steve Wilson during the June 10, 2025, meeting).

### December 19, 2025

ECCC defers to WLRS's views on whether the revisions adequately reflect consideration of indirect effects in low elevation, and in particular the accuracy of statements around the evidence of caribou occupancy, or use, of low elevation areas in the Telkwa range.

• ECCC recommends the Proponent explain how a net indirect effect of -17.9 ha could result from the addition of the Project as described in section 5.3.3 – Summary of Revised Effects Assessment – page 27 of Appendix 1. ECCC understands that this results from the addition of direct effects from the project within an existing indirect effect buffer, but the document does not make that clear.

• In section 5.2.3 (page 17 of Appendix 1), ECCC recommends the following change for clarity:

• "Desired future conditions could therefore be described as follows: • limit early seral forage to mitigate predation pressure within the RSA-2-matrix, applying the federal **minimum** 65% undisturbed habitat target **to low elevation areas** within the RSA-1 boundary"

• Map 7 is labelled Current Disturbance within the Telkwa Caribou Herd's Critical Habitat and is presented immediately after Table 3, which does not represent Current Disturbance. To clarify the results of the revised effects assessment, ECCC recommends including two additional maps showing the buffers associated with permanent disturbance that form the basis of the calculations in Table 3 (i.e. one map for the indirect effects showing the variable buffers, and one map for ECCC-defined disturbed habitat showing the 500 m buffer), and to refer to those maps in the discussion of indirect effects and ECCC-defined disturbance effects.

• ECCC recommends the title of Map 7 be changed to "Current Disturbance within RSA-1" (see response to comment 1).

### TELKWA MINING RESPONSE

Note that the revised effects assessment now considers indirect effects in low elevation, despite the limited evidence of occupancy or use by caribou both in and near the Tenas Project Area. As requested, the information from Appendix 7 previously submitted has been incorporated into

Appendix 1, and a discussion of the effect of overlapping buffers has been added to Section 5.3 of Appendix 1.

Telkwa Mining still considers the conclusion that caribou are unlikely to (or will infrequently) occupy low-elevation habitat during the life of the Project to be consistent with current evidence regarding habitat conditions that are assumed to be necessary for successful caribou recovery and use. Updated telemetry provided by WLRS up to March 2025, did not provide evidence of recent low-elevation range use by caribou. While Telkwa caribou use a slightly lower-elevation habitat profiles during summer (down to 1,000 masl) than winter, they still primarily remain in the high-elevation core area, as defined by WLRS mapping, and as adopted by TML for this assessment.

The Wildlife Habitat Area permits ongoing forest harvesting, and road-building and recreational access remains unrestricted in low-elevation areas. This all but guarantees that low-elevation habitat will remain largely unsuitable for, and generally unused by, caribou throughout the life of the Project, even if the Project does not proceed.

If BC WLRS were to implement predator control in the Telkwa Caribou Range for the duration of the Project, this could potentially alter the probability of caribou occupying low-elevation range; however, predator control does not alter the revised effects assessment conducted because both direct and indirect effects were estimated as if caribou were occupying **optimal/fully restored habitat** within the Project Area.

Telkwa Mining has expanded its explanation of negative indirect effects on page 29 of Appendix 1: “The negative indirect effect results from the Project Footprint (direct effect) overriding the ZOI buffers (indirect effects) from existing roads that overlap with the Project. Thus, Project direct effects increase while baseline indirect effects decrease in low-elevation capable winter range”.

Telkwa Mining has updated the text on page 17 on Appendix 1 to align with ECCC’s suggested revision.

Telkwa Mining has updated the title of Map 7 (now Map 9) and added two additional maps (now Maps 7 and 8) to demonstrate the footprints and buffers (ZOI buffers and ECCC’s 500 m buffers) of permanent disturbances and the Project under **optimal/fully restored habitat** conditions.

## ECCC COMMENT #10

### June 10, 2025

> The proposed offset strategy described in Appendix 1 references BC’s 2013 South Peace Northern Caribou Mitigation and Monitoring Plan in relation to principles for low-elevation habitat offsetting. This reference is no longer current and ECCC recommends that the Proponent engage with the Province of BC, ECCC, and Indigenous

groups, to discuss offsetting requirements for caribou habitat. The Proponent may wish to refer to the BC Caribou Habitat Offset Decision Support Tool (DST), which considers ecological quality and risks at the impact site and given the vulnerable state of caribou in BC (Environment Canada 2014), specifies a baseline offsetting ratio of 10:1, which is more likely to achieve no net loss. ECCC also recommends continued consultation with Indigenous groups, ECCC, and provincial caribou experts to inform decisions regarding the location and habitat type(s) for the proposed offset sites.

An understanding of the offsetting plan and its ratio would help to inform a better understanding of any likely effects to caribou as a result of the project and will subsequently inform conclusions of the assessment.

### December 19, 2025

ECCC has reviewed the excel workbooks used to calculate offset ratios, and recommends that additional discussion between TML, WLRS, Indigenous Nations and ECCC is needed before finalizing the ratios.

ECCC recommends the use of the following when assigning ecological quality to SMC habitat:

**Highest -** HE, in a range with minimal disturbance in HE (does not apply to Telkwa)
**High -** HE, in a range with more than minimal disturbance in HE (e.g. Telkwa), or Type 1 Matrix / LEWR in a range with less than 35% disturbance in Type 1 Matrix and LEWR (does not apply to Telkwa)
**Medium -** Type 1 matrix / LEWR, in a range with more than 35% disturbance in Type 1 Matrix and LEWR (e.g. Telkwa)
**Moderate -** Type 2 matrix
**Low -** LEWR or Type 1 or 2 Matrix within a range where the disturbance is >35% and more than 50% of the disturbance is permanent

TML's assignment of a zero-discount rate and 5 years of time lag raises two issues:

1. Applying a zero-discount rate negates the time lag factor in the calculation of the offset ratio, resulting in an underestimation of what would be required to address project effects. A zero-discount rate does not capture the risk of failure, such as seedling mortality, risk that restoration efforts will be reversed in the future. At minimum, a "low" discount rate should be applied to the calculations with appropriate justification. ECCC recommends a "medium" discount rate when there is uncertainty as to the timing of when restoration activities will actually be

implemented, as in this instance, since TML will not be controlling the timing if a financial offset is used.

2. A 5- year time lag for the offset action appears only to consider the amount of time to complete initial offsetting activities, and may not consider the amount of time needed for the restoration to be on a path toward ecological restoration (e.g. free to grow stage). The time lag value should consider setbacks associated with time required for ecological restoration with justification.

In addition, ECCC recommends that TML confirm that if sufficient opportunities for restoration in high elevation habitat are not available, TML intends to replace the high elevation offsets with an appropriate ratio for offsets in lower elevation habitats. Please see Comparisons tab for ratio comparisons for all scenarios.

Finally, ECCC notes that the values provided in Appendix 1, section 6.6 Offset Calculations do not appear to be correct (neither the offset x 1.25 column, nor total cost column). For ECCC / EAO info - see Offset Calculation tab for details, and also a test calculation of revised numbers using updated ratios. ECCC recommends that the calculations in Section 6.6 be reviewed and updated accordingly, including updated offset ratios, based on the above recommendations, and indirect effects when road buffers are updated.

## TELKWA MINING RESPONSE

Telkwa Mining used an **optimal/fully restored ecological baseline** for Caribou habitat where all tertiary and quaternary roads are assumed reclaimed, and all forests are absent of disturbance such as cutblocks or burns. This baseline is not consistent with current government policy and is extremely unlikely. Thus, using the conservative offset ratios suggested in the BC Offsetting Tool, in addition to the most precautionary estimate of Project effects, is likely to produce extremely conservative offsetting requirements.

Nevertheless, Telkwa Mining was willing to participate in future meetings with the members of the Caribou Sub-Committee Working Group and BC EAO with the goal of coming to a consensus on the effects from the Project, cost of reclamation, buffers, and offset ratios. All these aspects need to be considered collectively because estimates of effects influence the selection and calculation of offset ratios.

On August 28, 2025, Telkwa Mining met with BC EAO, BC WLRS, and ECCC to discuss use of the BC *Habitat Offset Decision Support Tool* (Caribou-Specific Version, version 1.4) to guide the development of offset ratios (see Section 2 of Appendix 1). The tool was applied to all three habitat types considered in the effects assessment (i.e., high-elevation core range, low-elevation capable winter range, and low-elevation caribou movement habitat [Type 1 matrix range]). The

assumptions and parameters used to calculate offset ratios are documented in Excel workbooks attached to this IR response submission as Appendix 5 (BC *Caribou Habitat Offset Decision Support Tool*).

Based on the December 15, 2025, meeting with BC EAO, BC WLRS, and ECCC, and considering the ECCC comments received on December 19, 2025, Telkwa Mining has revised the effects assessment and offset calculations (including ratios) as follows:

1. Low elevation road buffers of permanent disturbances (under **optimal/fully restored habitat** conditions) and the Project were increased from 300 m to 500 m.

2. Ecological quality for the different Telkwa Caribou habitat types was updated to reflect ECCC's recommendations: low-elevation capable winter range and Type 1 matrix range = medium quality; high-elevation core range = high quality.

3. Revised offset calculations assume a medium discount rate and a 5-year time lag on functional restoration treatments **"on a path to ecological restoration"**, as per the guidance provided by ECCC. Additionally, all effects in high-elevation core range are now offset in Type 1 matrix and use the relevant (higher) offset ratio due to the uncertainty associated with the amount of high elevation core habitat available for offsetting. Effects on low-elevation capable winter range and Type 1 matrix range are still both offset in Type 1 matrix range, again to reflect the uncertainty with the amount of low-elevation capable winter range available for offsetting. The resulting offset ratios used were as follows: 14.93:1 for high-elevation habitat to Type 1 matrix, 12.12:1 for low-elevation capable winter range habitat to Type 1 matrix, and 10.69:1 for low-elevation caribou movement habitat (Type 1 matrix range) to Type 1 matrix.

A revised offset calculation table is provided in Section 6.6 of Appendix 1 to match ECCC's expected format.

## WLRS COMMENT #1

### June 10, 2025

The primary object of GPS collaring is not to investigate habitat/ range use. The proponent continues to ignore:

- <= 10% of caribou in any range are collared, and collaring may not span all groups within that range.
- Collars are almost exclusively deployed on female caribou. This means that movement patterns do not fully reflect the entire population.

- Telemetry data is not all encompassing – the distribution of non-collared caribou may be very different – seasonally and spatially.
- Thicker canopy forests, steep slopes, or thick cloud cover can result in poor fix rates – the data may be biased towards more open alpine/subalpine habitats and/or seasonally biased.
- There could be gaps in distribution, collars may not be deployed in certain areas for several reasons – bad weather etc.
- Caribou respond to habitat disturbance and displace to other areas; accordingly, therefore collar data should not be relied on for a consistent temporal determination of habitat in terms of stand scale plans.
- For the southern group of Southern Mountain Caribou, efforts to collect and amass caribou telemetry data began after several years of documented population declines and following contraction in caribou distribution within and among subpopulations. As a result, the telemetry data represents a sample of caribou habitat use and distribution following notable declines.

Due to the points above, collar data should not be used to inform "real time" distribution of the herd relative to project footprint or activities. The presence/absence of telemetry data does not necessarily reflect the quality of the habitat nor the absence of caribou.

### January 6, 2026

Based on updated telemetry (2020-2025), we are seeing consistent use of lower elevations, most notably during the summer months, including areas below 1100 meters currently defined as core. Draft line work continues to evolve with best available science which is noted when it is sent out by our Provincial Information team. In addition, as Matrix habitat continue to recover through ongoing road restoration and habitat rehabilitation work being completed in partnership with local First Nations, we would reasonably expect additional use of lower elevation areas over time. For this reason, we feel it is important that recent seasonal telemetry and elevation use patterns are explicitly considered alongside the Core/Matrix framework when assessing habitat use and project effects.

## TELKWA MINING RESPONSE

The primary objective of GPS collaring is, and has always been, to investigate wildlife habitat/range use. Otherwise, there would be no point in collecting two locations per day from the GPS collars.

Telkwa Mining notes that the proportion of the Telkwa subpopulation monitored with radio-collars has been consistently above 10% in recent years, and often >20%, and there is no reason to believe that use of low-elevation areas should occur more frequently among uncollared caribou.

Dense forest cover can reduce the success rate of GPS location fixes (i.e., fix bias), which can bias estimates of relative habitat use; however, higher elevation Englemann Spruce – Subalpine Fir (ESSF) forest could then also generate a bias like lower elevation Sub-boreal Spruce (SBS) forests. Also, much of the low-elevation SBS forest in the Tenas Project Area is not particularly dense, given the extensive history of forest harvesting in this area. Therefore, these biases are insufficient to explain the almost complete absence of collared caribou locations in low-elevation habitat of the Tenas Project Area.

While data on habitat use by bull caribou are lacking, it would be entirely speculative to suggest that bulls use high-low elevation habitat significantly differently than cows.

Telkwa Mining agrees that collar data reflects current habitat use after notable population declines and range contraction. The revised assessment does not state that caribou never used low-elevation range, only that there is limited evidence that they are using it currently. Telkwa Mining considers this conclusion to be consistent with our current knowledge of caribou with respect to highly disturbed and risky low-elevation habitat.

Telkwa Mining reported on page 10/11 of Appendix 1 that accounts from Indigenous Nation sources confirm that caribou have largely been absent from low-elevation areas in the region since the arrival of moose in the early 20th century. Telkwa Mining is currently collating additional Indigenous perspectives on caribou use of the Tenas Project Area and will continue to find ways to incorporate Traditional Ecological Knowledge into Project datasets.

Telkwa Mining has expanded the discussion regarding assumptions on the use of telemetry data (now page 10/11 in Appendix 1). Telkwa Mining knows of no reason that collared caribou would be less likely to use low-elevation habitat in and near the Tenas Project Area than uncollared caribou (i.e., collar bias). However, recent fieldwork did find very limited evidence of caribou use in low-elevation range and this information is summarized in the revised Appendix 1 (page 12). Importantly, the effects assessment completed is not sensitive to conclusions about current caribou habitat use because Telkwa Mining's revised baseline assumes "**optimal/fully restored habitat"** baseline conditions for caribou presence and use within the Project RSA-1.

Telkwa Mining acknowledges that updated telemetry data provided by BC WLRS (up to March 2025) showed that collared caribou range use was constrained to habitat that is currently mapped as high elevation core (i.e., elevations above the ESSF-SBS boundary), although it is noted that a low percentage (<5%) of recent telemetry points indicate some minor caribou use of lower elevations (< 1,100 masl) within the core habitat but not below an elevation of 1,000

masl. However, based on review of the collar data, this low elevation use does not occur within the Project Area but in other portions of the Type 1 matrix range. Lower-elevation habitat use has been limited to the following events: (1) two, one-day forays by a collared caribou into matrix habitat in June 2014 and October 2021; (2) nine additional locations near the core-matrix boundary; and (3) two obvious GPS errors. Text has been revised on page 16 of Appendix 1.

Please see additional response to ECCC comment #3.

## WLRS COMMENT #2

### June 10, 2025

Line work is still in draft form.

### TELKWA MINING RESPONSE

The status of the linework is described in Appendix 1 and the legend of Map 1 has been revised.

## WLRS COMMENT #3

### June 10, 2025

The proponent asserts that GPS collar data since 2013 demonstrate that Telkwa caribou habitat use is almost exclusively restricted to the high-elevation core area, with little to no use of low-elevation or matrix habitat outside of the transplant period. This conclusion is misleading and misrepresents the limitations and purpose of radio-collar data.

While radio-collaring of Telkwa caribou has provided valuable insight into movement patterns, it is inappropriate and scientifically unsound to use collar data as the sole basis for determining caribou habitat use and range, particularly in the context of environmental impact assessment. The proponent's argument fails to acknowledge the following critical limitations:

Sampling Bias: Less than 10% of individuals in any caribou population are typically collared, and collars are predominantly deployed on adult females. This results in a partial and non-representative sample of the population, which does not account for males, calves, or uncollared subgroups that may use different areas or habitats.

Habitat Bias: GPS fix success rates are often lower in dense forest cover, steep terrain, or during inclement weather. Consequently, telemetry data may be biased toward open alpine or subalpine habitats and underrepresent use of low-elevation and matrix habitats

precisely the areas where habitat use is more difficult to detect but ecologically important.

Temporal Limitations: Caribou movements are dynamic and influenced by disturbance. Animals may shift away from disturbed areas (e.g., roads, infrastructure), which can result in collar data underrepresenting habitat that was formerly used and could still be critical for recovery if restored.

Historical Context: Much of the telemetry data for Southern Mountain Caribou, including the Telkwa herd, was collected after populations had already undergone substantial declines and range contraction. Therefore, the current distribution derived from collar data reflects a reduced ecological niche and should not be conflated with the full range of suitable or critical habitat necessary for recovery.

Methodological Purpose: The primary goal of collaring programs is often demographic monitoring, not fine-scale habitat delineation. Using telemetry alone to define range boundaries or assess impacts without incorporating ecological knowledge, traditional use, or habitat modelling introduces significant error.

Given these limitations, it is scientifically inappropriate to equate the absence of collar data with an absence of caribou or habitat value. Telemetry data should be treated as one line of evidence and must be supplemented with habitat suitability models, Indigenous knowledge, field validation, and consideration of historical range and recovery potential.

The proponent's narrow interpretation of habitat use based on telemetry is a serious shortcoming and underestimates the true spatial extent and ecological requirements of the Telkwa caribou. It is inconsistent with the precautionary principles of species recovery planning and may result in inadequate assessment and protection of critical habitat particularly matrix and low-elevation winter ranges which are already severely impacted.

## TELKWA MINING RESPONSE

Please see the response to WLRS comment 2. Telkwa Mining studies treated telemetry data as only one line of evidence, along with habitat suitability models, Indigenous Nation knowledge, field validation, and consideration of historical range and recovery potential. The stratification of low-elevation habitat into potential winter range and caribou movement habitat was based on habitat capability, which inherently considers recovery potential. Habitat capability was based on TEM within the Project Footprint, which was extensively field validated, and Telkwa Mining recently completed additional validation of the habitat model assumptions, the results of which are incorporated into Appendix 1 (Section 5.2.3.3). Indigenous Nation knowledge has been

incorporated, where available. Therefore, the assessment was not based on a "*narrow interpretation of habitat use based on telemetry data*", and Telkwa Mining will continue to avoid speculation about the "*true spatial extent*" of caribou use until additional evidence is made available that provides a rationale for an expanded spatial extent.

Telkwa Mining does not consider the analysis for the Tenas Project to be "*inconsistent with the precautionary principle*" given that the ecological baseline used for the revised assessment was extremely precautionary (i.e., the "**optimal/fully restored habitat**" baseline conditions), compared to actual current conditions.

Please see additional response to ECCC comment 3.

## WLRS COMMENT #4

### June 10, 2025

See comment 5 and 2.

### TELKWA MINING RESPONSE

See responses to comments 2 and 5.

## WLRS COMMENT #5

### June 10, 2025

The proponent claims that low-elevation areas not currently rated as moderate or high suitability are not, and will not, be used by caribou. This position is flawed for the following reasons:

Contradicts recovery goals: Recovery strategies aim to restore and reoccupy historically used or suitable habitats — current use is not the sole criterion.

Ignores dynamic habitat use: Caribou adjust habitat use over time based on disturbance, predation, and recovery efforts.

Dismisses movement corridors: Transitional areas are critical for seasonal migration and connectivity.

Fails to apply precautionary principle: Areas with uncertain or marginal value should be protected in the context of recovery.

Misuses habitat suitability models: Suitability ratings are not fixed and cannot replace field validation or long-term planning.

Inconsistent with policy guidance: The statement is not aligned with federal/provincial recovery strategies and mitigation frameworks.

Overlooks predator-prey dynamics: Matrix and low-elevation areas play a key role in managing predation risk and cannot be dismissed as "moose-only" zones.

This framing underestimates the importance of low-elevation and matrix habitat to recovery and undermines the effectiveness of impact assessment and mitigation planning.

### January 6, 2026

**WLRS comment #1:** Recovery planning under both federal and provincial frameworks (e.g., SARA Recovery Strategy 2020, BC Caribou Recovery Program) explicitly seeks to restore and reoccupy degraded portions of range, including low-elevation habitats critical for connectivity and seasonal movement. Therefore, dismissing these areas as "unlikely to be reoccupied" during the Project's lifespan contradicts the goal of range recovery and landscape connectivity.

**WLRS comment #2:** WLRS agrees that habitat use is dynamic. However, the implication of this dynamism is that recovery-oriented management must protect and restore potential habitats to allow for natural reoccupation as conditions improve.
Recognizing habitat use as dynamic should therefore reinforce, not weaken, the case for protecting unoccupied but suitable low-elevation and matrix areas.

### TELKWA MINING RESPONSE

This comment misrepresents the revised effects assessment completed.

a) Significant evidence of current low-elevation habitat use by the Telkwa Caribou herd is lacking. Given current habitat conditions, as well as government policy allowing ongoing disturbance, Telkwa Mining maintains that significant re-occupation is unlikely during the duration of the proposed Project, even if the Tenas Project does not proceed.

b) Telkwa Mining did not use current caribou habitat use as the sole criterion for estimating effects from the Project in low-elevation habitat. To be conservative, Telkwa Mining assumed **optimal/fully restored habitat** conditions for caribou and assessed effects from the Project as if all habitats were occupied and in use by the Telkwa Caribou Herd. In other

words, Telkwa Mining assumed that the Critical Habitat goal had been achieved to the extent possible, given the distribution of permanent disturbance in the herd's range.

c) Habitat use by caribou is indeed dynamic and will change over time. Telkwa Mining respectfully disagrees that this fact represents a flaw in scientific reasoning as pointed out by the reviewer.

d) Telkwa Mining did not dismiss movement corridors; in fact, the study refers to low elevation "caribou movement habitat" and its role in facilitating the travel of caribou between areas of suitable winter range, should conditions improve to the extent that caribou re-occupy the Project Area. Again, Telkwa Mining assumed **optimal/fully restored habitat** conditions for caribou and assessed effects from the Project as if the habitat were occupied by the Telkwa Caribou Herd. In other words, Telkwa Mining assumed that the Critical Habitat goal had been achieved to the extent possible, given the distribution of permanent disturbance in the herd's range.

e) Telkwa Mining applied the precautionary principle by using a very precautionary ecological baseline.

f) Telkwa Mining respectfully disagrees with WLRS that the study misused habitat models. Habitat was assessed based on its capability (which is fixed), not its current suitability, as implied. Telkwa Mining used available, and conducted additional, field validation to further verify both habitat capability and current suitability.

g) The stratification of low-elevation range into winter range and movement habitat in the study is consistent with federal and provincial definitions and management of low-elevation winter and matrix range, respectively.

h) Predator-prey dynamics is a consistent theme in the effects assessment, and Telkwa Mining did not dismiss low-elevation habitat as "moose only". Instead, Telkwa Mining identified capable caribou winter range habitat and assessed impacts separately on this habitat component.

Therefore, Telkwa Mining respectfully disagrees that the framing in this study underestimates the importance of low-elevation and matrix habitat and undermines the effects assessment or mitigation planning.

Telkwa Mining acknowledges the federal and provincial objectives to restore habitat and enable the re-occupancy of low-elevation habitats by Telkwa caribou. Telkwa Mining stands by the comment that "*significant re-occupation is unlikely during the duration of the proposed Project, even if the Tenas Project does not proceed*". This is consistent with 40–60-year time lags for ecological restoration and the potential "complete" re-occupation of low elevations (<1,100 m) by caribou. This will not be achieved via application of the WHA General Wildlife Guidelines and

there is currently no plan to achieve such restoration over a significant portion of the Telkwa Caribou Herd range (low-elevation capable winter range and Type 1 matrix) during the next 50 years, i.e., the life of the Project. Furthermore, caribou field studies demonstrated that, even under optimum/fully restored habitat conditions (i.e., habitat capability), caribou habitat and biophysical attributes in the Project Area are limited at low elevations (<1,100 m) (see Appendix C in Appendix 1). This does not mean that caribou could not transit through the Project area just that sustained and continued caribou use is unlikely to occur as the habitat is simply not conducive to caribou use, independent of the Project being developed or not.

Telkwa Mining is not challenging the recovery objectives, only assessing the potential impact of the Project on the objective. The Project is proposing to offset 10–15-times the amount of habitat for the herd than it is affecting. This amount of restoration is significantly greater than anything proposed in the absence of the Project. It constitutes a net benefit to the herd.

## WLRS COMMENT #6

### June 10, 2025

> The proponent arbitrarily applies disturbance thresholds (35% in RSA-1, "minimize" in RSA-2-Core) despite no boundary guidance in the federal recovery strategy. They incorrectly claim 500 m buffers do not reflect indirect or sensory effects, downplay relevance of thresholds for Southern Mountain Caribou, and assume habitat becomes functionally undisturbed after 40 years contrary to scientific evidence. Impacts are compartmentalized rather than assessed cumulatively, resulting in an incomplete picture of long-term effects on critical caribou habitat and recovery potential.

### TELKWA MINING RESPONSE

The application of the disturbance thresholds was not arbitrary. Telkwa Mining applied the Federal Critical Habitat requirements to draft WLRS core and matrix mapping and used WHA General Wildlife Measures as guidance. Please refer to Section 5.3.2 in Appendix 1 for the application of disturbance thresholds, i.e., maximum of 35% disturbed in in low-elevation winter range and Type 1 matrix habitat, and to ‘minimize’ disturbance in high-elevation habitat.

Telkwa Mining did not incorrectly characterize the 500-m buffer. The 500-m buffer was based on a statistical relationship between boreal caribou habitat recruitment and buffered disturbance at a range scale (Environment Canada 2011), not an analyses of sensory disturbance effects. As stated in the *Scientific Assessment to Inform the Identification of Critical Habitat for Woodland Caribou* (Environment Canada 2011), “*… analyses indicated that the negative, population-wide effects of anthropogenic disturbance on caribou recruitment were precisely predicted by a 500 m buffer beyond disturbed areas*” (pg. 242). Telkwa Mining downplayed the relevance of the thresholds for Southern Mountain Caribou because research has not demonstrated that the

application of the boreal relationship is relevant to Southern Mountain Caribou, despite significant effort (e.g., Lamb et al. 2022).

Forty years is the federal threshold for burns to become undisturbed. It is true that there is no corresponding federal threshold for cutblocks, but WLRS adopted 40 years for cutblocks in their boreal caribou protection and recovery plan. Regardless, Telkwa Mining used an ecological baseline that assumed that forests were in an **optimal/fully restored habitat** condition for caribou (not just 40-years of regeneration), where all cutblocks and burns were regenerated. Telkwa Mining also state that full recovery of habitat will take several additional decades after the Decommissioning and Reclamation phase of the Project (now Table 4 in Appendix 1).

Telkwa Mining respectfully disagrees and does not understand how the impacts are "*compartmentalized*" rather than assessed cumulatively. Standard practices for environmental effects assessments were followed. Telkwa Mining responded to OW concerns by using a precautionary baseline. How this results in an "*incomplete picture of long-term effects on critical caribou habitat and recovery potential*" is unclear.

## WLRS COMMENT #7

### June 10, 2025

> The proponent's claim of a "minor" net effect is misleading. It relies on small footprint size, existing disturbance, and current caribou absence to minimize impacts. This ignores the ecological significance of high-elevation areas, the recovery value of low-elevation habitat, and the importance of sensory and cumulative disturbance. Overlapping buffers are wrongly used to negate new effects, and long-term impacts are downplayed as temporary. The assessment fragments impacts, failing to capture their full cumulative effect on caribou recovery.

### January 6, 2026

> The proponent's response does not address the underlying issues raised by WLRS. The conclusion of a "minor net effect" is unsupported because it relies on current caribou absence, a small physical footprint, and overlapping buffers to minimize the perceived magnitude of effects. This approach contradicts recovery objectives, which aim to restore and re-occupy historically suitable habitats. Overlapping buffers should not be used to discount additive disturbance within an already highly fragmented and functionally degraded landscape. The assumption of "optimal baseline conditions" is inconsistent with the precautionary principle and leads to an underestimation of both direct and cumulative impacts. WLRS maintains that, even if the project footprint is small, its location, context, and interaction with existing disturbance are likely to result in meaningful cumulative impacts to critical habitat and herd recovery potential.

## TELKWA MINING RESPONSE

The Project does have a small footprint and is in a highly disturbed area that is generally unoccupied by caribou (i.e., limited evidence of use). These are precisely the reasons for the conclusion that the Project is likely to have a minor net effect on the Telkwa Caribou Herd. Telkwa Mining's study accounts for the ecological significance of high elevation habitat by assessing effects against a minimal disturbance threshold. The study assumes the complete recovery of low-elevation habitat in the "**optimal/fully restored habitat"** baseline, and the Project's sensory disturbance effects are fully accounted for by using appropriate indirect effects buffers.

Overlapping buffers are not "wrongly" used to negate new effects. Where indirect disturbance buffers of the Project overlap the indirect disturbance buffers of permanent disturbance, the indirect effect of the Project is discounted. This is the standard application of buffers for the assessment of indirect effects in environmental effect assessments and is analogous to what ECCC does to calculate habitat disturbance.

Telkwa Mining respectfully disagrees with this comment by WLRS and does not understand what is meant by "*fragments impacts*".

Telkwa Mining disagrees with BC WLRS's comment and interpretation provided on January 6, 2026, for the following reasons:

- The revised effects assessment calculates Project effects for low elevation habitat (i.e., low-elevation capable winter range and Type 1 matrix) irrespective of caribou occurrence, use, or occupancy. This change to the effects assessment has been stated, acknowledged, and agreed to numerous times, as per the meeting minutes provided by BC EAO to BC WLRS.
- The Project Footprint is relatively small; it is unclear why this is framed in a negative context. In fact, this aligns with the first step in the mitigation hierarchy (avoidance). Where possible, projects should be designed to prevent effects on habitat.
- Overlapping buffers demonstrate that sensory disturbances added to a landscape are not novel. These buffers are already used in a conservative manner to calculate indirect habitat loss, i.e., by assuming a complete loss of habitat and abandonment by caribou. In reality, ZOIs are graded, and indirect effects are greatest near a footprint and negligible near the ZOI distance boundary.
- **Optimal/fully restored habitat** baseline conditions increase the effects of the Project by reducing/eliminating the direct and indirect effects of permanent disturbances near the Project.
- The Project is proposing to offset 10–15-times the amount of habitat for the herd than it is affecting. This amount of restoration is significantly greater than anything proposed in the absence of the Project. It constitutes a net benefit to the herd.

## WLRS COMMENT #8

### June 10, 2025

See comment 8, disturbance calculating will need to be recalculated.

### TELKWA MINING RESPONSE

The effects from the Project were recalculated assuming **optimal/fully restored habitat** conditions for caribou and assessed effects from the Project as if the habitat were occupied and in use by the Telkwa Caribou Herd in Appendix 7 previously submitted, which has now been moved into a revised Appendix 1 for clarity and ease of review.

## WLRS COMMENT #9

### June 10, 2025

The statement wrongly implies that the herd's decline is inevitable and that the project's impacts are negligible. It disregards current recovery efforts (e.g., WHA, closures), which take decades to show results, and ignores the additive effect of new disturbance. This framing is inconsistent with recovery goals and shifts responsibility away from the proponent despite the fragile status of the Telkwa herd.

### January 6, 2026

**WLRS comment:** The proponent's response does not adequately address WLRS concerns. The statement that re-occupation of low-elevation habitat is unlikely contradicts the intent of both federal and provincial recovery objectives, which aim to restore habitat conditions necessary for future re-occupation. Current management tools, including the Wildlife Habitat Area and motor vehicle closures, are designed to facilitate long-term recovery, recognizing that measurable improvements may take decades. Exceedance of disturbance thresholds does not justify additional losses; rather, it underscores the need to avoid further disturbance in already over-threshold landscapes. The suggestion that recovery is unlikely regardless of the Project is inconsistent with the precautionary principle and shifts responsibility away from the proponent to mitigate and offset incremental effects.

### TELKWA MINING RESPONSE

The revised assessment claims that significant re-occupation of the low-elevation habitat during the life of the proposed Project (even if the Project is not developed) is unlikely, given the current and likely future state of low-elevation habitat and the correspondingly hostile predator-prey

situation. Telkwa Mining does not claim that the herd's decline is inevitable. Telkwa Mining's concerns include the provisions under the WHA General Wildlife Measures that allow for forest harvesting and roadbuilding to continue in low-elevation caribou habitat. Along with anticipated natural disturbance and existing permanent disturbance, this policy will continue to result in a level of habitat disturbance that will limit caribou use. Even under **optimal/fully restored habitat** baseline conditions, the federal disturbance threshold is exceeded, suggesting that the Telkwa Caribou subpopulation is potentially not self-sustaining whether the Project proceeds or not, unless additional actions are implemented. This does not contradict recovery objectives but is Telkwa Mining's assessment of the likelihood that those objectives will be achieved, given current policy.

Telkwa Mining would like to clarify that its assessment using "**optimal/fully restored habitat** baseline conditions" increases the Project direct and indirect effects. Furthermore, Telkwa Mining is committed to mitigating and offsetting these incremental effects. As noted in the response to WLRS Comment #5, the Project is proposing to offset 10–15-times the amount of habitat for the herd than it is affecting. This amount of restoration is significantly greater than anything proposed in the absence of the Project. It constitutes a net benefit to the herd.

## WLRS COMMENT #10

### June 10, 2025

> While the proponent references BC's environmental mitigation policy, which clearly outlines a four-step hierarchy of avoid, minimize, restore, and offset, the application of this framework in the Project's design appears inconsistent with its intent.
>
> The first step, avoidance, is meant to prevent impacts before they occur by considering alternative locations, designs, or activities that would eliminate interactions with sensitive values — in this case, critical caribou habitat. However, the current project location remains situated within known high-elevation caribou range and adjacent to matrix and low-elevation winter habitat. This suggests that avoidance was not meaningfully achieved at the site-selection or early planning stage.
>
> Reducing impacts within a chosen footprint (e.g., clustering infrastructure, modifying blasting practices) may fall under minimization, but these are not examples of true avoidance. Similarly, referencing existing buffers or overlapping disturbances does not constitute avoidance, particularly when the project remains in a range that is already above federal disturbance thresholds.
>
> To align with the policy's intent, the proponent should demonstrate how alternate project configurations or locations that fully avoided critical habitat were considered, and why

those were ruled out. Without that, the mitigation hierarchy is effectively being applied starting at step two (minimize), which does not meet BC's policy guidance.

### TELKWA MINING RESPONSE

There is only 3.4 ha of the Project within the known high-elevation caribou habitat range. To achieve this minimal direct effect, avoidance of Critical Habitat (and Wildlife Habitat Area 6-333) was a priority, as discussed with BC FLNRORD and ECCC during a meeting on March 21, 2019 (Section 2, Appendix 1). However, there is no Project configuration that fully avoids caribou habitat because the location of the coal resource is fixed and is within identified low- and high-elevation caribou habitat. Therefore, complete avoidance of Critical Habitat is not possible. Telkwa Mining did investigate underground mining to limit surface disturbance as part of the alternative means for undertaking the Project, however, it was found that there are insufficient recoverable coal resources by underground means for a viable Project due to:

1. Presence of numerous faulting in the deposit's coal seams preventing effective underground mining,
2. Majority of the coal seams dipping at greater than 15 degrees preventing underground room and pillar mining in these locations, and
3. Shallow deposit, with a significant portion of the deposit shallower than 50 meters, where underground mining would not be feasible due to geotechnical constraints.

Telkwa Mining did identify a transportation route that utilized the existing road network that would avoid additional effects on low elevation caribou habitat. However, due to stakeholder feedback during Project planning, this route was deemed not acceptable, and Telkwa Mining adopted the new dedicated private access road for processed coal haulage (Tenas Access Corridor). Telkwa Mining would be amenable to reverting to using the existing road network if the government can convince stakeholders that this is preferred access route for the Project due to potentially less impacts to the Telkwa Caribou Herd.

## WLRS COMMENT #11

### June 10, 2025

The proponent emphasizes external constraints (e.g., land use, climate, public access) as barriers to effective offsetting, rather than presenting a proactive, collaborative strategy. This undermines BC's mitigation hierarchy, which requires avoidance and offsetting if impacts persist. Difficulty implementing offsets does not relieve the proponent of responsibility to fully mitigate impacts, especially in a highly disturbed caribou range. The absence of feasible alternative offsets further weakens the credibility of the proposed strategy.

### January 6, 2026

TML provides that Telkwa Mining is prepared to continue to work with Indigenous Nations and regulatory agencies to identify other offsetting targets and/or management activities in a collaborative and proactive process with the goal of having these identified in place prior to the start of construction if the Project is successful in obtaining a provincial EA certificate.

WLRS very much supports this goal! WLRS appreciates that in-situ offsetting opportunities can be limited - existing disturbance features may not be available for restoration because of active tenures and value to Indigenous and recreational groups. **We just request that the kilometres to be restored and/or dollars to be put towards restoration are calculated under the assumption that opportunities can be found.** We can look at planting burns or restoring disturbance features in neighbouring ranges, enabling greater connectivity across the landscape to get closer to the vision of caribou being "like bugs on a landscape" in the future.

### TELKWA MINING RESPONSE

Telkwa Mining's approach to offsetting is a collaborative strategy with the creation of a group consisting of Indigenous Nations, Telkwa Mining, and regulatory agencies dedicated to ensuring the best use of the offsetting funds provided by the proponent to assist the viability of the Telkwa Caribou Herd. The provision of funds during the Construction phase, and the requirement for the group to determine a plan prior to construction during permitting, is considered a proactive approach. Telkwa Mining identified the barriers because it needs government assistance to undertake these offsetting activities as the company does not have the necessary legislative tools that the government has access to for the adoption of some aspects of any proposed offsetting and/or active management plans. Telkwa Mining stated these barriers as facts preventing the company carrying these out by itself, but these barriers do not prevent the government from providing the necessary means for the company/group to complete the necessary offsetting plans.

Telkwa Mining respected the *Telkwa Caribou Tactical Restoration Plan* (ERM Consultants Canada Ltd. 2019) document in its review of potential restoration targets. However, recognizing that it was a desktop study, Telkwa Mining conducted reconnaissance of high- and low-elevation sites for restoration (September 2024 and August 2025). Telkwa Mining has identified areas for restoration in high and low elevations, and these restoration opportunities are discussed in Section 6.5 of Appendix 1.

Telkwa Mining is prepared to continue to work with Indigenous Nations and regulatory agencies to identify other offsetting targets and/or management activities in a collaborative and proactive

process with the goal of having these identified in place prior to the start of construction if the Project is successful in obtaining a provincial EA certificate.

Telkwa Mining is committed to meeting offsetting requirements. Based on field studies and the limited number of restoration candidates in high elevation, Telkwa Mining is proposing to offset direct and indirect effects in high-elevation core range with restoration activities in low-elevation Type 1 matrix. Based on this decision, Telkwa Mining has calculated offsetting requirements using a higher ratio (14.93:1). In other words, Telkwa Mining is committed to offsetting 14.93-ha in Type 1 matrix for each 1-ha direct and indirect effect in high-elevation core range.

## WLRS COMMENT #12

### June 10, 2025

> The offset strategy relies on restoration already planned and funded by others, failing to deliver additionality. It does not fully offset low-elevation habitat loss and proposes reductions based on mapping reinterpretation. High-elevation restoration may increase disturbance, and no predator-prey mitigation is included. The strategy fails to meet the "avoid" step of BC's mitigation hierarchy and lacks assurance of real conservation outcomes.

### TELKWA MINING RESPONSE

The offset strategy provided by Telkwa Mining does not rely on restoration already planned or funded by others. The strategy outlines that Telkwa Mining will provide offsetting funding for additional restoration and/or management activities, to be deployed to best effect for the viability of the Telkwa Caribou Herd in collaboration with Indigenous Nations and governments. Low-elevation effects are fully accounted for, and Telkwa Mining is unaware of "*mapping reinterpretation*" that would bias the effects assessment. Telkwa Mining expressed concern about several high-elevation restoration priorities identified in the *Telkwa Caribou Tactical Recovery Plan* (ERM 2019) and generally recommended against treating them; however, approximately 9-km of high-elevation linear features appear suitable for restoration (see Section 6.5 in Appendix 1). These features are considered in Telkwa Mining's offsetting plan and the calculation of offsetting ratios.

Predator-prey mitigation was not included because that is the exclusive legal jurisdiction of the Crown. If the consensus is that funds should be used for mitigating predator-prey interactions as the best option for assisting the Telkwa Caribou Herd, Telkwa Mining is not opposed. Of course, funds could be used for other management activities like supplemental feeding or maternity penning, if deemed appropriate. However, as indicated by BC WLRS during a meeting on August 28, 2025 (see Section 2 in Appendix 1), offsetting funds should only be allocated towards WLRS approved offsetting activities.

Telkwa Mining, during the planning process, followed the mitigation hierarchy starting with "avoid" including the following actions:

- Avoiding the placement of material piles, stockpiles, and water management features in high elevation core habitat.
- Avoiding the placement of infrastructure including powerlines, communication features or radio towers in high elevation core habitat.
- Avoiding mining the deeper sections of the Tenas Deposit that would require a greater disturbance footprint for material storage piles.
- Clustering Project components to avoid additional disturbance than would otherwise occur if they were not clustered.
- Backfilling approximately 50% of the material excavated from the open pit thereby avoiding additional disturbance required for material storage piles.
- Using the BC hydro distribution system versus the transmission system thereby avoiding the construction of 15 km powerline.
- Using a novel design for the rail loadout thereby avoiding the construction of additional 3 km of rail infrastructure and associated disturbance.
- Using existing infrastructure to avoid the construction of larger infrastructure footprints and disturbance on site.

These actions have now been added to Appendix 1.

## WLRS COMMENT #13

### June 10, 2025

> WLRS does not support the use of a strict ""like-for-like"" approach as the underlying principle for the proposed offset strategy. Instead, we recommend that decisions regarding the location — or at minimum the habitat types — of proposed offset sites be informed through further discussion with WLRS, ECCC, and First Nations. Offsets may involve similar habitat types, but flexibility is needed to ensure the greatest ecological benefit.
>
> WLRS also does not endorse the continued use of the 2013 South Peace Northern Caribou Mitigation and Monitoring Plan or its associated 4:1 offset ratio, as this guidance is outdated and no longer reflects current best practices.
>
> We do not support the proponent's proposed 2:1 ratio for matrix habitat. While this habitat may be used less frequently by caribou, high levels of disturbance in matrix areas

contribute significantly to predator-prey imbalances — a primary driver of caribou population declines.

WLRS recommends using the draft provincial caribou habitat offset tool as a starting point for further discussion on appropriate offset ratios. In most cases, we expect ratios to be higher than 4:1 or 2:1 to ensure that offsetting meaningfully contributes to caribou recovery objectives.

**January 6, 2026**

WLRS acknowledges that TML has addressed many of WLRS and ECCC's concerns regarding offset ratios. WLRS agrees with ECCC's assessment that a few further tweaks are needed, around the discount rate and possibly time lag (please see ECCC comment #10). In this case "like-for-like" does not refer to an offset ratio (which indeed needs to be higher than like-for-like), but that if high elevation core habitat is impacted, efforts should be made to offset those impacts in high elevation core. Sometimes it's not possible, which is fine, and that's where the offset tool can be handy. Comment 14 is largely addressed, with a few outstanding concerns outlined in ECCC's response to IR 10.

**TELKWA MINING RESPONSE**

In preparation of this study, Telkwa Mining followed the guidance document *Procedures for Mitigating Impacts on Environmental Values* (May 27, 2014), found here:

https://www2.gov.bc.ca/assets/gov/environment/natural-resource-policy-legislation/environmental-mitigation-policy/em_procedures_may27_2014.pdf

Section 11.3 of the guidance document (*Which Offset Measures [Conservation Mechanisms] Will Deliver the Best Conservation Outcomes?*) indicates that like-for-like should be considered first to achieve the best conservation outcomes. As indicated in page 31:

*Considerations (Best Conservation Outcomes)*

- *Selection of offsetting measures should first consider like-for-like and on-site or in-proximity offsetting.*

  *Like-for-like:*

  - *A like-for-like offset is a measure that improves outcomes within the same environmental component as the one that is impacted as measured by the same metric. Metrics that may be considered include area of habitat, area of ecological community, numbers of significant features, demographic rates, and number of animals.*

- *For habitat or ecosystems, the offset will result in structure and function as close to the impacted habitat or ecosystem as possible.*
- *Any deviations from like-for-like should outline the associated assumptions and uncertainties and describe why the conservation outcomes will be a better environmental outcome (i.e., like-for-better). (ECCC, 2014)*

In general, the like-for-like benchmark was used as a basis for calculating an offsetting fund for recovery activities that would be most effective in promoting caribou recovery, including those beyond the Telkwa Mining's ability to implement (e.g., population management-related actions).

Based on the December 15, 2025, meeting with BC EAO, BC WLRS, and ECCC, and considering ECCC Comment #10, Telkwa Mining has revised the effects assessment and offset calculations (including ratios) as follows:

1. Low elevation road buffers of permanent disturbances (under **optimal/full restored habitat** conditions) and the Project were increased from 300 m to 500 m.

2. Ecological quality for the different Telkwa Caribou habitat types was updated to reflect ECCC's recommendations: low-elevation capable winter range and Type 1 matrix range = medium quality; high-elevation core range = high quality.

3. Revised offset calculations assume a medium discount rate and a 5-year time lag on functional restoration treatments **"on a path to ecological restoration"**, as per the guidance provided by ECCC. Additionally, all effects in high-elevation core range are now offset in Type 1 matrix and use the relevant (higher) offset ratio due to the uncertainty associated with the amount of high elevation core habitat available for offsetting. Effects on low-elevation capable winter range and Type 1 matrix range are still both offset in Type 1 matrix range, again to reflect the uncertainty with the amount of low-elevation capable winter range available for offsetting. The resulting offset ratios used were as follows: 14.93:1 for high-elevation habitat to Type 1 matrix, 12.12:1 for low-elevation capable winter range habitat to Type 1 matrix, and 10.69:1 for low-elevation caribou movement habitat (Type 1 matrix range) to Type 1 matrix.

A revised offset calculation table is provided in Section 6.6 of Appendix 1 to match ECCC's expected format.

Notably, all these offset ratios are applied against an extremely precautionary ecological baseline (i.e., "**optimal/fully restored habitat**" baseline conditions), greatly inflating offset requirements in comparison to the original baseline of current conditions as written in the approved Tenas Project Application Information Requirements.

## WLRS COMMENT #14

### June 10, 2025

> The proponent has repeatedly downplayed the importance of low-elevation habitat by claiming that caribou are not currently using it, "or will likely use it in the future". However, both historic and recent collar data, despite known limitations, demonstrate that caribou do use low-elevation areas throughout the year. Additionally, the suggestion that low-elevation use was only associated with translocated caribou in the late 1990s and early 2000s is misleading, as those individuals were the only caribou collared at the time, limiting the broader applicability of that conclusion. Importantly, the goal for this herd is recovery, which includes the reoccupation and functional use of low-elevation habitats that were historically part of their range. Dismissing the importance of these areas based on current use undermines long-term recovery objectives and ignores the ecological conditions necessary for the herd to expand and persist.

### January 6, 2026

> **WLRS comment:** This statement overlooks that the Tenas Project itself would directly impede and delay the very recovery conditions it claims may not be achieved. Ongoing provincial recovery actions — including the Wildlife Habitat Area, motor vehicle closure, and restoration initiatives — are designed to support long-term habitat recovery and reoccupation. Additional disturbance from the Project would counteract these measures, fragment existing progress, and slow recovery timelines for the Telkwa herd.

### TELKWA MINING RESPONSE

Telkwa Mining challenges the contention that "*both historic and recent collar data […] demonstrate that caribou do use low-elevation areas throughout the year*". This is not evident in telemetry data as of March 2025.

Transplanted caribou were not the only caribou collared in the late 1990's, and telemetry data collected as early as 1985 indicate rare use of areas outside of the high-elevation habitat.

Telkwa Mining does not dismiss the importance of low-elevation areas for long-term recovery, nor does it ignore the ecological conditions necessary for the Telkwa Caribou herd to expand and persist. However, Telkwa Mining stresses to the reviewers that current provincial policy for the Project Area does not guarantee those conditions will be achieved during the life of the Project, whether the Project proceeds or not.

Importantly, the effects assessment completed assumes "**optimal/fully restored habitat**" baseline conditions for caribou presence and use within the Project RSA-1.

The Project is proposing to offset 10–15-times the amount of habitat for the herd than it is affecting. This amount of restoration is significantly greater than anything proposed in the absence of the Project. It constitutes a net benefit to the herd.

## WLRS COMMENT #15

### June 10, 2025

> WLRS does not support the proponent's conclusion in the revised effects assessment that the Project does not result in significant adverse residual effects on Telkwa caribou habitat. This determination is ultimately the responsibility of the Environmental Assessment Office (EAO) to recommend, and for the provincial Minister to decide, not the proponent. In our view, it is premature for the proponent to draw such conclusions prior to the full consideration of all outstanding information, including cumulative effects, offset adequacy, and input from WLRS, ECCC, and First Nations.

### TELKWA MINING RESPONSE

Telkwa Mining's assessment of adverse residual effects is based on standard EA benchmarks and is presented for information purposes for the EAO to consider during its effects assessment phase.

## WLRS COMMENT #16

### June 10, 2025

> The proponent cites a single study showing winter attraction to mines and uses it to question the need for 1.8–5 km buffers around disturbance. This ignores that attraction can indicate an ecological trap, not habitat benefit. Broader literature supports larger buffers due to increased predation, sensory disturbance, and mortality near mines and roads. The precautionary principle supports maintaining ECCC and WLRS-recommended buffer distances.

### TELKWA MINING RESPONSE

As is followed in professional practice, Telkwa Mining identified assumptions in the references provided by regulatory agencies and Telkwa Mining pointed out that the literature is far from clear on the size of appropriate buffers to address sensory disturbance. Johnson et al. (2015) and Polfus et al. (2011) were the two papers specifically cited in BC WLRS comments on the EAC application to support the larger buffers. Telkwa Mining identified the assumptions made in the papers, pointing out that these papers provide far from definitive support for the recommended distances. Please refer to Section 4 in Appendix 1 or ECCC 8 response for the final buffers used in

the effects assessment (derived from ECCC [2022]; work completed by Dr. Eric Palm), which were recommended by ECCC to adopt for this Project. Suitable buffer distances for the analysis of indirect effects are unrelated to the assessment of mortality risks such as road collisions and predation.

## WLRS COMMENT #17

### June 10, 2025

> What is considered other infrastructure? Anything mining related should have a buffer of at least 3 kms.

### TELKWA MINING RESPONSE

Other infrastructure refers to water management structures, discharge channels, and temporary infrastructure like explosive magazines and silos for storage of blasting products. These features are required by the *Canada Explosives Act* (R.S.C., 1985, c. E-17), to be located at specific distances from other mine facilities and create disturbances more like roads than an open pit.

In the updated assessment, mine-related buffers were applied to the Project's open pit and management and control ponds. Other features such as the Project's explosive facilities and magazines and discharge paths were associated with sensory disturbance from the access road.

Please refer to Section 4 in Appendix 1, or the response to ECCC comment 8, for the final buffers used in the effects assessment (derived from ECCC [2022]; work completed by Dr. Eric Palm), which were recommended by ECCC to adopt for this Project.

## WLRS COMMENT #18

### June 10, 2025

> Bradshaw et al. (1997) and Weber (2022) show that caribou are sensitive to sounds as low as 30–35 dBA, particularly low-frequency noise, which is common in mining and road activity. The proponent's assertion that 55 dBA is a threshold below which caribou cannot detect blasting noise is not scientifically supported. Caribou respond to sounds well below this level, particularly low-frequency industrial noise. Audibility is not the only concern — noise can cause displacement and stress even if subtle. Modelling assumptions do not account for real-world propagation, nor do they include cumulative sensory impacts. Buffer recommendations from ECCC and WLRS (3–5 km) remain valid and precautionary.

### TELKWA MINING RESPONSE

See response to ECCC comment 7.

## WLRS COMMENT #19

### June 10, 2025

"WLRS recommends broadening the discussion of indirect effects on caribou, emphasizing that these effects extend beyond sensory disturbance. Sensory disturbance includes stimuli perceived through sight, sound, or smell, prompting behavioral responses such as increased vigilance, flight, interrupted foraging, and spatial avoidance. These disturbances contribute to indirect habitat loss, causing caribou to avoid areas even if the habitat remains physically intact.

Caribou may also avoid areas near human development due to broader ecological and behavioral factors, such as heightened predation risk and decreased habitat suitability. This avoidance reflects learned behavior and memory, amplifying the long-term effects of disturbance.

Avoidance distances vary due to multiple factors, including location, season, and individual characteristics. This variation is an expected aspect of ecological research, not a methodological flaw. Despite differences in specific distances reported in studies, the overall pattern is clear: caribou consistently avoid areas near human disturbance, resulting in indirect habitat loss.

Polfus et al. (2011) found that the Atlin caribou herd, which occupies a stable home range, was not confounded by seasonal migration. Season-specific resource selection functions (RSFs) were developed to model caribou habitat selection with seasonal nuance, enabling a robust assessment of habitat preferences and avoidance behaviors."

### TELKWA MINING RESPONSE

See response to ECCC comment 8.

## WLRS COMMENT #20

### June 10, 2025

The statement after table 4 wrongly implies that the herd's decline is inevitable and that the project's impacts are negligible. It disregards current recovery efforts (e.g., WHA, closures), which take decades to show results, and ignores the additive effect of new disturbance. This framing is inconsistent with recovery goals and shifts responsibility away from the proponent despite the fragile status of the Telkwa herd.

### TELKWA MINING RESPONSE

See response to WLRS comment 10 above.

## WLRS COMMENT #21

### June 10, 2025

> "Issue Summary – Weak and Biased Field Verification of Habitat Suitability
>
> The proponent selected only a small, non-representative sample of low-elevation and linear feature sites for field verification, mostly based on PEM/TEM and ease of access. No use of telemetry data, Indigenous knowledge, or systematic sampling was evident. Habitat suitability ratings are subjective and unvalidated, and there is no clear method showing how field findings informed habitat reclassification or offset revisions. This undermines confidence in the proponent's habitat impact and offset calculations."

### TELKWA MINING RESPONSE

Telkwa Mining heard the concerns from the EA Technical Advisory Committee and to address those concerns, has conducted field work in 2025. Qualified Professionals recently completed an additional field study (described in Appendix 1, Sections 5.2.3.3), with the participation of Indigenous Nations, to validate caribou habitat suitability and capability ratings. These results are compiled and presented in Appendix 1 (Section 5.2.3.3). The habitat model was used to classify areas as low-elevation capable winter range; effects in those areas were quantified, and will be offset, separately from Type 1 matrix range.

Validation of low elevation use by the Telkwa Caribou Herd using telemetry data is not possible because there are no caribou telemetry points in low-elevation habitats affected by the Project.

## WLRS COMMENT #22

### June 10, 2025

> The proponent seems focused on restoring roads only within high-value caribou habitat, while disregarding roads in lower-value habitat (e.g., east side of Telkwa Mountains, Starr Basin entry). They suggest that keeping these roads open for moose hunting could benefit Telkwa caribou, which is poor reasoning and highly speculative. Nearly all of our road restoration efforts will be within the conditional harvest area of the WHA (outside of core habitat) because there is minimal road presence within core habitat. Restoring roads in this area will reduce access to and within core habitat (by people, alternate prey, predators), decrease the likelihood of predator-prey interactions on roads, reduce

fragmentation, and decrease the amount of early seral habitat that supports alternate prey. It is important to note that our goal is to REDUCE OHV access, rather than keep roads open for OHVs and hunting, as the proponent suggests.

### January 6, 2026

**WLRS comment #1:** The rationale provided by the proponent is scientifically unsound and inconsistent with current caribou recovery best practices. Restoring and deactivating roads in low-elevation and matrix habitats provides measurable benefits to caribou recovery by reducing predator and human access, limiting alternate prey expansion, and decreasing fragmentation — all of which contribute to improved habitat security over time.

The suggestion that maintaining access for moose hunters will offset predation risk is speculative, untested, and counter to the established mitigation hierarchy, which prioritizes avoidance and habitat restoration over indirect management measures. Caribou recovery planning, including within the Telkwa WHA, explicitly emphasizes access reduction (e.g., OHV closures, road deactivation) as a key recovery action.

Targeting restoration only in “high-value” core areas ignores the ecological importance of matrix and transitional habitats, which function as movement corridors and buffers that support herd recovery and long-term persistence. The proponent’s framing minimizes the role of these areas and undermines cumulative recovery efforts currently underway.

**WLRS comment #2:** Not sure I agree with this. Wolves have very large home ranges, and the more efficiently they can move around them, the more efficiently they can get into higher elevation habitats and kill caribou. Further, no more than 35% of matrix and low elevation habitat should be in a disturbed state - yet another reason that restoration will benefit caribou.

### TELKWA MINING RESPONSE

Telkwa Mining’s subject-matter experts in Caribou maintain that restoring roads in low-elevation moose habitat (particularly forested mixed wood stands), would generate little benefit to caribou because these habitat types are strongly avoided by caribou. Treatments to affect predator mobility in Type 1 matrix range would not significantly reduce predation risk on caribou, although they might reduce predation risk on moose, which would be counterproductive to caribou recovery. As noted in comments above, predator-prey imbalance in this zone is a critical issue to caribou recovery. Telkwa Mining suggests that hunter success is strongly associated with access, suggesting that maintaining access to hunters to increase mortality pressure on moose could

benefit caribou recovery. Telkwa Mining understands that this suggestion might be controversial to some.

Telkwa Mining would like to clarify that managing moose numbers to offset caribou predation risk is, in fact, grounded in science and not speculative. It is a logical recommendation based on the understanding of Disturbance Mediated Apparent Competition (DMAC). The BC government identifies primary prey stabilization as a key recovery action to reduce predators and predation pressure on caribou, as outlined in the publicly available document *Finding Shared Solutions for Moose and Caribou Management in B.C.*:

https://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/wildlife-wildlife-habitat/moose/moosecaribou_two-pager.pdf.

Telkwa Mining acknowledges that this recovery action is not linked to the mitigation hierarchy but argues that moose (and predator) control is beneficial in the short term while caribou numbers are low. Regardless, Telkwa Mining is committed to restoring features at low elevation (Type 1 matrix) to achieve long-term recovery objectives, which is aligned with federal recovery objectives for Type 1 matrix habitat.

Refer to ECCC Comment #10 and WLRS Comment #13 for more details on the revised offsetting calculations.

## WLRS COMMENT #23

### June 10, 2025

> Is putting 2 million dollars into a committee to oversee restoration a good use of money when WLRS is already leading a road restoration project in the entire WHA? WLRS vision for this project is to have a full inventory of restoration potential within the year and then restore as much as possible over the next 5-10 years. How does a separate committee fit into this?

### TELKWA MINING RESPONSE

Telkwa Mining envisions WLRS to be an integral part of this committee. Telkwa Mining looks forward to working with the BC Caribou Recovery Team and is hopeful that Telkwa Mining restoration funds will assist current Telkwa Caribou Herd restoration projects. The committee would have the authority to sign funding contracts for offsetting funds with contractors, as directed by Telkwa Mining, Indigenous Nations, BC WLRS, and ECCC.

Furthermore, the offsetting funds could be used for restoration activities outside of the WHA for low elevation habitat restoration that is within Type 1 matrix and/or capable winter range.

# RECREATIONAL ACCESS

## WLRS FOLLOW-UP COMMENT 492 IT IRR

> *LWRS acknowledges TCL response and requires more information. The Public Access Management Plan does not include any mention of an educational component about caribou use or mitigation strategies. Rather, the plan highlights new access routes for "a broad range of transport, including horse, walking, biking, snowmobiles, quads, side by sides, motorbikes, and motorized vehicles". The plan should clearly state how new access roads will impact the Telkwa caribou herd and propose mitigation strategies.*

### TELKWA MINING RESPONSE

Telkwa Mining acknowledges the comment. The Public Access Management Plan (PAMP) will be updated regularly to include actions to encourage users to follow the current voluntary recreation restrictions and regulatory motorized restrictions via the bi-annual access committee program, signage, pamphlets, and the educational program that will be provided to every user of the area beyond the Project.

Telkwa Mining will track recreational use, destination, vehicle type, and duration to understand any trends that are emerging. Telkwa Mining will encourage the provincial government and First Nations to be involved in the educational program content and delivery that will be given to users of recreational areas in caribou habitat. Telkwa Mining will encourage users to participate in the Telkwa Caribou Herd Stewardship Committee either through donations and/or volunteer efforts. Telkwa Mining will conduct annual reviews of use of the trails/roads and recreational areas. If it becomes evident from monitoring that recreation use is having an impact on caribou beyond what was predicted, Telkwa Mining will work with government and First Nations to limit use to a prescribed number of users during predetermined times, as is in place for snowmobiling in Core caribou habitat.

Please see Appendix 2, which states that the upgraded access for the Project will not result in significant residual adverse effects to caribou.

## OW COMMENTS AND RECOMMENDATIONS 492 IT IRR (OW-033)

Table 3 provides OW's questions related to 492 IT IRR (OW-033).

### Table 3: OW Comments and Questions on 492 IT IRR (OW-033) Provided to Telkwa Mining

| OW Comment ID | Master ITT Comment ID | OW Comments (Feb 28 and Mar 12) | OW Recommendations (Feb 28 and Mar 12) |
|---|---|---|---|
| OW-033 | 492 ITT IR | A) The Proponent states that the newly constructed Goathorn Creek bridge will be gated, and public use will require an escort by TML personnel. There is no information on when this 'service' will be available, and how recreational users will contact TML personnel to request an escort.<br><br>B) TML has not provided sufficient information about its plan to engage with OW on impacts to caribou as well as the question of public access data recorded by TML. This information must also be shared with OW to provide an opportunity to meaningfully engage on impacts to caribou and potentially further restrict recreational access.<br><br>C) The Proponent does not specify what the mandatory educational component will entail. For education to be effective, public users cannot be expected to read a pamphlet. OW must have the opportunity to review and/or co-develop the educational material.<br><br>D) Wet'suwet'en members are concerned with current and future access to the land. Members are confined by fencing, railroads, project footprints, etc., when moving across the land for recreational, cultural, and spiritual activities. The gated bridge enforces an additional barrier for community members to access the land. | A) Please provide the following information regarding the Goathorn Creek Bridge:<br>1. Hours that the bridge's gates will be locked. If gates are not locked 24/7, how does the Proponent propose to restrict access?<br>2. How recreational users will contact TML personnel to receive an escort and educational engagement.<br>3. What hours these services will be available, and if recreational users will be able to cross the bridge if no TML staff are available to provide an escort/education.<br><br>B1) Please meaningfully consider existing and forthcoming information from Wet'suwet'en to accurately identify impacts to caribou and develop effective, culturally appropriate mitigation measures to address those impacts.<br><br>B2) Please meaningfully consider existing and forthcoming information from Wet'suwet'en to determine how to collect and/or share data on public use with OW and determine whether (and what) further mitigations may be required as data is collected over time.<br><br>B2) A commitment to engage with OW prior the Effects Assessment phase to determine how to collect and/or share data on public use with OW and determine whether (and what) further measures regarding access may be required as data is collected over time.<br><br>C) Please commit to providing Wet'suwet'en the opportunity to co-develop educational |

| OW Comment ID | Master ITT Comment ID | OW Comments (Feb 28 and Mar 12) | OW Recommendations (Feb 28 and Mar 12) |
|---|---|---|---|
| | | | material that will be given to users of recreational areas in caribou habitat. Engagement must ensure Wet'suwet'en perspectives and objectives are adequately integrated into the material.<br><br>D) The Proponent must develop an access plan with Wet'suwet'en members to ensure members' right to enjoy and exist peacefully on the land is upheld. |

## TELKWA MINING RESPONSE

Please refer to Appendix 2 (Attachment OW-033-1) for additional information beyond the following responses.

**A)**

1. The bridge gates will be electronically locked 24/7 hence the requirement for escorts. Furthermore, cameras will be positioned at gate locations to observe interactions at these locations and detect if people are accessing the property without following appropriate access protocols.
2. As provided in section 6.5.3 of the PAMP: Users are to contact Telkwa Mining for an escort through one or all the following ways: a. telephone; b. Web portal as part of the mine website; c. In person at the Telkwa Mining Office; d. email info@telkwa-mining.ca
3. As provided in section 6.5.3 of the PAMP: Recreational users will not be able to cross the bridge if no Telkwa Mining staff are present to provide an escort unless they were to ignore signage and disable the gate. A draft schedule is provided below which can be amended as required.

*Summer Schedule - High Season: between Canada Day and Labor Day long weekends:*

- seven (7) days a week;
- inbound to Parking Area 1 every four (4) hours starting at 8:30 a.m. and ending at 20:30 p.m.;
- outbound from the Parking Area 2 every four (4) hours starting at 13:00 p.m. and ending at 21:00 pm.; and
- by request by using the company website, email, sign-in sheet in Telkwa, and/or telephone at least 72 hours prior to access being required.

*Summer Schedule - Low Season: between Victoria Day and Canada Day long weekends and between Labour Day and Thanksgiving Day long weekends:*

- weekends including Friday only;
- inbound to Parking Area 1 every four (4) hours starting at 8:30 a.m. and ending at 20:30 p.m.;
- outbound from the Parking Area 1 every four (4) hours starting at 13:00 p.m. and ending at 21:00 pm.; and
- by request only using the company website, email, office, sign-in sheet in Telkwa, and/or telephone at least 72 hours prior to access being required.

*Winter Schedule: between Thanksgiving Day long weekend in October and Victoria Day long weekend in May of the following year:*

- no service between December 20 and January 5 without prior arrangement;
- weekends not including Friday;
- inbound to Parking Area 1 at 9:30 a.m. and at 13:30 p.m. and 17:30 p.m.;
- outbound from Parking Area 1 at 13:00 p.m. and at 17:00 p.m.; and
- by request only using the company website, email, sign-in sheet in Telkwa, and/or telephone at least 72 hours prior to access being required reflecting the times below.

Furthermore, for any unique events and/or other access requirements, arrangements can be made with Telkwa Mining for facilitating access.

**B1)**

When this information is provided by the OW this will be incorporated into the Caribou Monitoring and Management Plan for the permit submission and if changes are required for the PAMP these will also be made. This could be made a condition of permit documents.

**B2)**

Telkwa Mining is committed to engage with the OW prior to the Effects Assessment to determine how to collect a share data on public use with the OW and determine when and what further measures regarding access may be required as data is collected overtime. While Telkwa Mining will endeavour to have this process completed prior to the effects assessment stage, an alternative is to add this as a condition to permit documents to have this requirement completed 6 months prior to the start of construction to provide adequate time if required. Current plan will have a sign in sheet or system that non Telkwa Mining employees and contractors entering and exiting will be required fill out, which will also verify information on the number of people, vehicles, duration, expected activities and location of these activities. This information will be

requested when reserving a spot for escort and the system will not allow a successful booking unless the information is provided. This information will be available in real time to the OW and other groups so they can see when people are coming and going from site.

**C)**

Telkwa Mining is committed to providing Wet'suwet'en the opportunity to co-develop educational material that will be given to users of recreational areas in caribou habitat and that the engagement will ensure Wet'suwet'en perspectives and objectives are integrated into the material. This could be a condition of permit documents. Telkwa Mining envisions this to be a video presentation with an exam which can be completed as part of the reservation system with people needed to complete this review and score a minimum of 80% on the exam prior to a booking being allowed by the system.

**D)**

As stated in section 6.3 of the PAMP, Telkwa Mining is committed to developing an access plan with Wet'suwet'en members to ensure members' right to enjoy and exist peacefully on the land is upheld. This engagement will occur once OW provides input on which members, how many and a suggested engagement strategy to accomplish this adequately. This could be a condition of permit documents. Currently there is no access bridge to areas west of Goathorn Creek and by Telkwa Mining installing a controlled bridge access does not stop people from accessing the property outside of the control routes by fording Goathorn Creek.

Telkwa Mining will work with the Office of the Wet'suwet'en (OW), Witset First Nation and Wet'suwet'en First Nation to develop a unique set of procedures that fits their individual needs and requirements. Modification of the public access control procedures maybe required to ensure Indigenous rights are respected and accommodated. Land uses identified by Indigenous groups include (but are not restricted to) access for:

- subsistence food gathering (including hunting);
- plant gathering in areas both within and outside of the Project Area; and
- performing ceremonial and feasting activities within and outside the Project Area.

It is anticipated that during the engagement process, additional Indigenous land access requirements will be identified. TML will work with Indigenous groups to develop a workable set of access procedures that accommodate their requirements, while ensuring a controlled and safe access for all parties involved. If a single set of procedures can be developed for Indigenous groups and public access to the Project Area these will be provided for review and agreement. If necessary, there can be unique access procedures for each Indigenous group and the public.

## INDIGENOUS NATIONS

Telkwa Mining has continued discussions with the Wet'suwet'en in relation to the Caribou Information Request. A list of the Office the Wet'suwet'en (OW) supplementary questions and answers from the presentation on January 28, 2025, to the Office of the Wet'suwet'en, have been provided in Appendix 3.

Telkwa Mining also received letters on February 28, March 12, and May 15, 2025, which requested further information related to caribou. OW's questions and feedback have resulted in revisions to the Project's effects assessment, which has been incorporated into Appendix 1. A list of OW's supplementary questions and answers from these three letters have been provided in Table 4 (below) and Appendix 4.

## Table 4: OW Information Requests from Feb 28, Mar 12, and May 15, 2025, Letters to Telkwa Mining

| OW Comment ID | OW Requests | Telkwa Mining Response to OW Comments |
|---|---|---|
| OW-010 | To resolve these issues, OW requests that TML:<br>• Provide all related documentation, including the updated information requested by OW in our responses to TML's filings related to caribou. (forthcoming).<br>• Consider forthcoming information from OW to determine whether TML has adequately ensured that adverse impacts to caribou are adequately monitored and avoided where possible or, if avoidance is not possible, mitigated and/or managed in a way that is acceptable and appropriate for OW and the Houses. | Telkwa Mining acknowledges the comment. Please see responses to OW-026, OW-029, OW-030, and OW-031. As requested by OW, Telkwa Mining will discuss appropriate incorporation of the results of forthcoming information into Project design, monitoring, mitigation, and adaptive management plans. |
| OW-020.1 | OW requires TML to accurately identify and address impacts to the following values:<br>• Moose: Concerns about moose mortality along rail lines and outdated population data. Future survey updates needed, determined by BC Wildlife Biologists.<br>• Other furbearing animals, including Fisher, Marten, Lynx, Coyote, Ermine, Amphibians, Water birds, Bats: Concerns about measures to address habitat connectivity. | Telkwa Mining acknowledges this multi-part request regarding moose, furbearers, and associated wildlife values. The following response is provided in three parts: (1) Moose mortality along rail lines, (2) Moose population data, and (3) Furbearers and other identified species.<br>1) Moose mortality along rail lines<br>The Office of the Wet'suwet'en (OW) previously raised concerns about moose mortality, which were addressed in the Application. During AIR development (May 20, 2020), OW requested CN mortality data and studies from the Moose Mortality Working Group. Telkwa Mining committed to include a moose mortality analysis, reflected in the final AIR. The effects assessment estimates increased collision risk from added railcars and incorporates three Moose Mortality Working Group studies provided by FLNRORD (Heidi Schindler) to the Working Group. Key sections include the following in Attachment OW-020_1-1:<br>• Wildlife chapter: 5.2.5.2, 5.4.5.2, 5.4.5.2.1, 5.4.5.2.3 |

| OW Comment ID | OW Requests | Telkwa Mining Response to OW Comments |
|---|---|---|
| | | • Wildlife chapter, Cumulative Effects: 6.3.4.2<br>2) Moose population data<br>Telkwa Mining used the best available data (1983–2018 survey records) for the effects assessment in the EAC Application (see Attachment OW-020_1-1; Sections 4.2.4.1 and 5.4.5.2.1). Since submission, the province completed a new moose survey in 2023 with results estimating 5,722 moose (±1,053; 90% CI) in a 13,256 km² study area that included the Tenas Project. This follows the current trend in decreased moose population as reported in the wildlife chapter and this population estimate is consistent with the conclusions provided on moose in the EAC. Telkwa Mining will continue to revisit this aspect as additional population estimates are provided by the province in the future. Should monitoring from the Project demonstrate potential for adverse interaction between moose and the trains for the Project, Telkwa Mining will recommend additional mitigations to CN such as decreasing the speed of the train near the Project.<br>3) Furbearing animals, amphibian, water birds and bats, habitat connectivity<br>Species identified by OW were considered during the Valued Component (VC) selection process and development of the Application Information Requirements (AIR). Feedback received during the AIR review led to the inclusion of fisher alongside marten and wolverine in the Furbearers Subcomponent of the Wildlife VC, with species movement assessed to address habitat connectivity.<br>Lynx and coyote were considered but not carried forward due to low potential for adverse interaction, as outlined in the Telkwa VC Scoping Document (Sept 18, 2019). Water birds are included under the Avian VC (Section 4.2.2.2), amphibians are |

| OW Comment ID | OW Requests | Telkwa Mining Response to OW Comments |
|---|---|---|
| | | represented by western toad (Sections 5.2.7 and 5.4.7), and bats are included as a subcomponent (Sections 5.2.6 and 5.4.6). |
| OW-020.2 | OW requires TML to accurately identify and address impacts to the following values:<br>• Culturally important plant species, including those used for food (e.g., huckleberries, blueberries) and medicinal purposes (e.g., Devil's club, stinging nettle). Concerns about missing information on uncommon ecosystems, medicinal/food plants, and rare plant communities essential for Wet'suwet'en foraging, shelter, and sustenance.<br>• Wet'suwet'en culture and rights, including plant use and wellness: Wet'suwet'en to determine if cultural concerns are addressed adequately. | Telkwa Mining acknowledges the comment. Please refer to Attachment OW-020_1-1, which provides a response related to moose mortality along train lines, habitat connectivity, potential missing information related to plants and wildlife identified by the OW.<br>Telkwa Mining acknowledges the comment. The assessment of culturally important plant species provided in the Tenas Project BC EAC Section 4.2.4 in Attachment OW-020_2-1 focused on twelve species used for food and medicine that were identified from previous baseline documents and assessments. The assessment was not intended to include a comprehensive list of culturally important plant species used by the Wet'suwet'en, but looked at a subset of species that could collectively represent effects on culturally important plant species as a group. Telkwa Mining acknowledges that there are many more plant species that are currently, or have previously been, used by the Wet'suwet'en.<br>The Proponent remains committed to continued engagement during Project planning and development to ensure values important to OW and House members are considered through project design, mitigation, and monitoring. As requested by OW, Telkwa Mining will discuss appropriate incorporation of the results of the Rights Impact Assessment, CUS, and Wellbeing Study (including culturally important plant species, as relevant) into Project design, monitoring, mitigation, and adaptive management plans.<br>OW is responsible for ensuring that Wet'suwet'en cultural concerns are addressed adequately, if any issues are identified |

| OW Comment ID | OW Requests | Telkwa Mining Response to OW Comments |
|---|---|---|
| | | by the Wet'suwet'en peoples on this matter then this needs to be resolved by the OW. |
| OW-023 | A) Please provide an updated Map 4 from Appendix A once the blasting re-assessment (see comments on 491 ITT IR (ECCC, WLRS)) is complete. | Telkwa Mining acknowledges the comment, and notes that the blasting noise assessment is not dependent on the location of the receptor but rather, the location of blasting. Please refer to Attachment OW-023-1 and Attachment OW-023-2. These attachments provide updated isopleth maps of maximum predicted noise levels in relation to the RSA-2 Core Habitat boundary based on Scenario 1, which considers a blasting location closest to the RSA-2 Core Habitat boundary at the beginning of mining activity. As illustrated by the figures, the predicted noise level propagation from blasting remains unchanged at a maximum distance of 2km for the target daytime noise level (55 dBa) and the caribou auditory threshold (30 dBa).<br><br>Please refer to Attachment OW-023-3 and Attachment OW-023-4. These attachments provide updated isopleth maps of maximum predicted noise levels in relation to the RSA-2 Core Habitat boundary based on Scenario 2, which considers blasting at pit floor as mining progresses. As illustrated by the figures, the predicted noise level propagation from blasting remains unchanged at a maximum distance of 2km for the target daytime noise level (55 dBa) and the caribou auditory threshold (30 dBa).<br><br>The Project indirect buffer was based on where blasting would occur for the Project, which does not change based on the receptor.<br><br>As requested by the OW, Telkwa Mining will discuss appropriate incorporation of the results of forthcoming information related to the noise assessment into Project design, monitoring, mitigation, and adaptive management plans. |

| OW Comment ID | OW Requests | Telkwa Mining Response to OW Comments |
|---|---|---|
| OW-024 | A) Please provide an updated Map 4 from Appendix A once the blasting re-assessment (see comments on 491 ITT IR (ECCC, WLRS)) is complete. | Telkwa Mining acknowledges the comment. Please see response to comment ID OW-023 above. |
| OW-025 | A) Please provide an updated Map 4 from Appendix A once the blasting re-assessment (see comments on 491 ITT IR (ECCC, WLRS)) is complete. | Telkwa Mining acknowledges the comment. Please see response to comment ID OW-023 above. |
| OW-026 | A) Please provide documentation of the additional communications that occurred between TML and ECCC / WLRS that lead to the current definitions that were used by TML in their response to the Information Request, as this is unclear to other parties.<br><br>B1) Please provide an updated direct and indirect effects assessment that includes impacts to all of the Critical Habitat area (RSA-1), including impacts to moderate and high suitability low elevation winter habitat AND Type 1 matrix habitats.<br><br>B2) Please provide a clear rationale as to how the direct and indirect effects of the Project will not worsen existing conditions in disturbed areas for the Telkwa Caribou Herd and explain how the loss of potential natural regeneration of disturbed areas <40 years old by 2050 is being accounted for.<br><br>B3) Please provide an updated version of the direct and indirect effects assessment that includes scenarios where:<br>• The total disturbance is calculated from existing, permanent disturbances in the Critical Habitat area. All burns and cut blocks are assumed to eventually provide habitat and are not included in the total disturbance; and | Telkwa Mining acknowledges the comment.<br><br>A) As mentioned during Telkwa Mining's engagement with OW (January 28, 2025), and in the subsequent written responses to OW's questions (February 19, 2025), Telkwa Mining had not initiated discussions on this (or any) IR response with BC WLRS or ECCC. Telkwa Mining's objective was to first receive feedback from OW, adjust IR responses based on that feedback, and then to present a refined response for all IR topics to BC WLRS and ECCC. Since then, EAO and Telkwa Mining have invited OW and other participating Indigenous nations to all subsequent discussion with BC WLRS and ECCC. Please see Section 2 of Appendix 1 (Attachment OW-026-1) for an account of all meetings with BC WLRS and ECCC.<br><br>B1) Please see Section 5.2.3.3 and Section 5.3 of Appendix 1 (Attachment OW-026-1). Loss of caribou biophysical attributes due to the Project was assessed by estimating the distribution and abundance of currently suitable, or potentially suitable (i.e., capable), low-elevation winter range habitat within the Project Footprint. The previous assessment excluded Type 1 matrix because there is no evidence that those habitats are currently being used by caribou or providing movement habitat to access low-elevation winter range habitat. This could change in future if predator-prey conditions improve; however, this represents a speculative future scenario. While not a standard practice for estimating project effects in an Environmental Assessment |

| OW Comment ID | OW Requests | Telkwa Mining Response to OW Comments |
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| | • The Project's total disturbance is added to the existing above disturbance.<br><br>B4) As Map 3 clearly shows there is moderate and high suitability low elevation habitat in close proximity to the Project footprint and this area will be impacted by indirect effects, please provide a calculation of the area of these habitats that will be indirectly affected regardless of current caribou presence/absence. As well, please provide details of the communications between TML and WLRS that confirms that their concerns related to the use of available telemetry data from the Telkwa Caribou Herd to determine a lack of habitat use have been addressed.<br><br>C) Please provide an updated version of the effects assessment that includes the area of direct and indirect effects within RSA-1 and RSA-2-Core regardless of the current habitat disturbance status. | context, Telkwa Mining has nevertheless revised their effects assessment to address OW's concerns. The revised effects assessment quantifies the Project's direct and indirect effects on high elevation Core Range, low-elevation Capable Winter Range (i.e., biophysical attributes), and low-elevation Caribou Movement Habitat (Type 1 matrix) under "**optimal/fully restored habitat**" baseline conditions.<br><br>B2) Please see Section 5.3 of Appendix 1 (Attachment OW-026-1). Telkwa Mining's revised effects assessment considers Project effects on all high elevation and low elevation habitats in relation to a revised baseline that now assumes regeneration of all natural (e.g., fire) and forestry (i.e., cutblocks) disturbances, and reclamation of all tertiary and quaternary roads and trails. Certain recreational trails that are unlikely to be reclaimed were retained as permanent disturbances (e.g., Hunter's Basin, Hankin Plateau, Webster Lake, and Star Basin trails). This treatment of non-permanent habitat disturbances maximized the potential effects of the Project and generates an overly conservative effects assessment because it assumes no future habitat disturbance other than the Project.<br><br>Any indirect effects of the Project are considered to result in a complete loss of caribou habitat. This approach, while overly conservative (i.e., sensory disturbance reduces the probability of use but does not remove habitat), accounts for the worsening or additive effects of the Project under the "**optimal/fully restored habitat**" baseline conditions scenario.<br><br>Furthermore, the Project is proposing to offset 10–15-times the amount of habitat for the herd than it is affecting. This amount of restoration is significantly greater than anything proposed in the absence of the Project. It constitutes a net benefit to the herd. |

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| | | B3) Please refer to the revised effects assessment in Section 5.3 of Appendix 1 (Attachment OW-026-1).<br><br>B4) Please refer to Section 5.3 of Appendix 1 (Attachment OW-026-1). Indirect effects to moderate and high suitability caribou biophysical attributes (i.e., low-elevation Capable Winter Range as described above) were already calculated in the previous assessment. However, updated calculations of direct and indirect effects to this habitat are provided in the revised effects assessment.<br><br>As a point of clarification, telemetry data were not used to inform the Project's direct and indirect effects assessment calculations. Instead, caribou habitat capability was used to inform calculations of direct and indirect effects, even though there is limited evidence of caribou using these areas.<br><br>As mentioned during the engagement with OW (January 28, 2025), Telkwa Mining had not commenced discussions on this IR response with ECCC and BC WLRS. Telkwa Mining's objective was to first receive feedback from OW, adjust IR responses based on that feedback, and then to present a refined response for all IR topics to BC WLRS and ECCC. Since then, EAO and Telkwa Mining has invited OW and other participating Indigenous Nations to all subsequent discussion with BC WLRS and ECCC. Please see Section 2 of Appendix 1 (Attachment OW-026-1) for an account of all meetings with BC WLRS and ECCC.<br><br>C) Please refer to the revised effects assessment in Section 5.3 of Appendix 1 (Attachment OW-026-1).<br><br>As requested by OW, Telkwa Mining will discuss appropriate incorporation of the results of forthcoming information related to caribou into Project design, monitoring, mitigation, and adaptive management plans. |

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| OW-027 | Please provide details of where ECCC's content edits were actioned by TML. | Telkwa Mining acknowledges the comment. The referenced ITT IR 412 has been removed from the Caribou IR and assigned to the Effects Assessment stage by BC EAO, so further discussions on this will need to be directed to BC EAO. ITT IR 407 has also been allocated to the Effects Assessment stage. |
| OW-028 | Please provide documentation of the additional communications that occurred between Telkwa Mining and ECCC/WLRS that lead to the current characterization of the adverse effects of the Project that was used by Telkwa Mining in their response to the Information Request, as this is unclear to other parties. | Telkwa Mining acknowledges the comment.<br><br>As mentioned during Telkwa Mining's engagement with OW (January 28, 2025), and in the subsequent written responses to OW's questions (February 19, 2025), Telkwa Mining had not initiated discussions on this (or any) IR response with BC WLRS or ECCC. Telkwa Mining's objective was to first receive feedback from OW, adjust IR responses based on that feedback, and then to present a refined response for all IR topics to BC WLRS and ECCC. Since then, EAO and Telkwa Mining have invited OW and other participating Indigenous Nations to all subsequent discussion with BC WLRS and ECCC. Please see Section 2 of Appendix 1 (Attachment OW-026-1) for an account of all meetings with BC WLRS and ECCC.<br><br>As requested by OW, Telkwa Mining will discuss appropriate incorporation of the results of forthcoming information related to caribou into Project design, monitoring, mitigation, and adaptive management plans. |
| OW-029 | A) Please provide documentation of the additional communications that occurred between TML and ECCC / WLRS that led to the current offsetting activities proposed by TML in their response to the Information Request, as this is unclear to other parties.<br><br>B) Please provide an updated direct and indirect effects assessment based on the above comments and an updated | Telkwa Mining acknowledges the comment.<br><br>A) As mentioned during Telkwa Mining's engagement with OW (January 28, 2025), and in the subsequent written responses to OW's questions (February 19, 2025), Telkwa Mining had not initiated discussions on this (or any) IR response with BC WLRS or ECCC. Telkwa Mining's objective was to first receive feedback from OW, adjust IR responses based on that feedback, and then to present a refined response for all IR topics to BC WLRS and |

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| | estimate of required offset areas based on this revised effects assessment.<br><br>C) In addition to the above concern regarding the apparent underestimation of directly and indirectly affected habitat used by TML to determine offsetting requirements, EDI states that based on their reconnaissance:<br><br>"...TML is suggesting that the assessment of potential direct effects of the Project is over-estimating the impact on low-elevation winter range habitat for caribou by approximately 50%. Consequently, the required offsetting should be reduced by 50%. TML is also suggesting a 50% reduction in potential high-elevation restoration because accessing such sites (e.g., linear feature candidates) would create far greater disturbance than the positives from restoration treatments." (PDF p. 33).<br><br>However, in their reconnaissance survey (Appendix C) EDI only surveyed 4 high elevation areas and 4 low elevation areas that were potential candidates for offsetting, and an additional 6 low land areas. This limited reconnaissance survey does not appear to be suitable to be making sweeping statements about the overall habitat conditions for caribou or the predicted direct and indirect effects of the Project, especially as not all potential low-elevation winter habitat features with moderate/high suitability were assessed and no low-suitability, low-elevation winter habitat areas were assessed. As well, shortcomings in the current PEM / TEM mapping may point to the need for further ground truthing and baseline studies to ensure that all predicted Project effects that rely on accurate PEM / TEM mapping are accurate (i.e., caribou and all wildlife species that depend on terrestrial habitats). | ECCC. Since then, EAO and Telkwa Mining have invited OW and other participating Indigenous Nations to all subsequent discussion with BC WLRS and ECCC. Please see Section 2 of Appendix 1 (Attachment OW-026-1) for an account of all meetings with BC WLRS and ECCC.<br><br>B) Please refer to the revised effects assessment in Section 5.3 of Appendix 1 (Attachment OW-026-1).<br><br>C) Please see responses to C1 through C3, below.<br><br>Based on the work completed in September 2024, over 90% of the identified high elevation restoration offset targets were reviewed at a reconnaissance level and determined that undertaking restoration activities may cause more disturbance than allowing natural regeneration to occur on its own. Telkwa Mining reviewed the remaining 10% of high-elevation restoration candidates, with the participation of OW, during August 2025 fieldwork. The candidates surveyed in August 2025 were used to inform offsetting calculations.<br><br>Telkwa Mining is committed to meeting offsetting requirements. Based on the results of the field reconnaissance and the limited number of restoration candidates in high elevation, Telkwa Mining is proposing to offset direct and indirect effects in high-elevation core range and low elevation range with restoration activities in low-elevation Type 1 matrix range. Based on this decision, Telkwa Mining has calculated offsetting requirements using a higher ratio (14.93:1). In other words, Telkwa Mining is committed to offsetting 14.93-ha in Type 1 matrix for each 1-ha of direct and indirect effects in high-elevation core range. The resulting offset ratios used for other habitats were as follows: 12.12:1 for low-elevation capable winter range habitat to Type 1 matrix, and 10.69:1 for low elevation caribou movement habitat (Type 1 matrix range) to Type 1 matrix. |

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| | EDI makes no mention of further actions that will be taken to identify other suitable areas for high-elevation restoration offsetting.<br><br>C1) Please provide a clear commitment to offset Project related direct and indirect effects on Telkwa caribou herd habitat based on a revised Project effects assessment (see above comments).<br><br>C2) Please provide further details of the field-based assessments noted in Appendix C, including but not limited to:<br>• The spatial extent of on the ground survey activities at each location;<br>• The methods used to confirm / discount PEM / TEM mapping; and<br>• The spatial extent of each PEM / TEM mapping polygon in which surveying was conducted.<br><br>C3) Please commit to undertaking further assessments of PEM / TEM mapping, inclusive of areas not identified as moderate or high suitability habitat to confirm its absence of these features, to better understand where moderate/high suitability caribou habitat may actually be present or absent. TML should undertake further discussions with ECCC, WLRS, and Wet'suwet'en to 1) ensure that the proposed scale, extent, timing, and methods of this survey are appropriate and 2) discuss other opportunities for habitat offsetting in areas without advanced regeneration.<br><br>D) Please undertake further discussions with TML, ECCC, WLRS, and Wet'suwet'en to determine offsetting ratios that will be required for the Project. To inform these discussions, TML should provide further rationale and summary of possible offsetting ratios that could be used to offset Project | Further details are provided in Section 6.5 of Appendix 1 (Attachment OW-026-1).<br><br>C1) Please refer to the revised effects assessment and habitat offsetting strategy in Section 5.3 and Section 6 of Appendix 1 (Attachment OW-026-1).<br><br>Telkwa Mining is committed to offset Project-related direct and indirect effects on caribou habitat based on either item (B), above, or a table of effects that has been approved by regulatory bodies for the Tenas Project.<br><br>C2) Please refer to Section 5.2.3.3 and Section 6.5 of Appendix 1 (Attachment OW-026-1). In addition to reconnaissance-level assessment of moderate/high suitability low elevation caribou habitat (September 2024), 66 (5.65-m radius) plots were assessed for site series and caribou habitat suitability and capability in the Project Footprint (August 2025). Based on these field observations, no adjustments were made to the TEM/PEM-defined low-elevation capable winter range habitat.<br><br>Recall from the Vegetation and Ecosystems Baseline Report (Appendix 4.7-A in the Project Application; Ardea Biological Consulting 2022) that the TEM occurred within the Vegetation Local Study Area (LSA; Project Footprint + 250–500 m buffer) and PEM mapping occurred in the Vegetation Regional Study Area (RSA; Project Footprint + 5 km buffer) and beyond, including the broader RSA-1 (Telkwa Caribou Herd Critical Habitat boundary). As part of the development of the TEM, 780 ecosystem plots were investigated from 1997–2019 and were used to characterize vegetation and ecosystem types (Table 3.2-2 in Appendix 4.7-A). At the mine site, 445 plots were completed; 371 of these plots were completed from 2017–2019. A detailed mapping accuracy assessment was completed for TEM polygons using the methods outlined in (Meidinger 2003). |

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| | effects. Given the current low population levels and highly disturbed landscape that the Telkwa caribou herd occupy, any further disturbance could have increasingly dire consequences for the herd's continued existence and the proposed offsetting ratios must reflect this context.<br><br>E) Please commit to providing all offsetting funds at the start of the Project, to ensure that the maximum effectiveness and benefit of offsetting activities on the Telkwa caribou herd are realized. | For more details related to the PEM/TEM, please refer to Appendix 4.7-A in the Project Application.<br><br>C3) Telkwa Mining considers the TEM developed for the Project Footprint to be robust and adequately verified based on the extensive plot work and subsequent accuracy assessment. Telkwa Mining has no intention of conducting additional work to confirm the PEM outside the Project Footprint because this would have no impact on the Project effects assessment, and detailed ground reconnaissance would be a component of any habitat restoration projects considered in these areas.<br><br>Please refer to Section 5.2.3.3 of Appendix 1 (Attachment OW-026-1). Telkwa Mining completed field assessments, with the participation of an OW representative, of TEM/PEM-derived low-elevation capable winter range habitat and evidence of caribou use within the Project Footprint in August 2025. The fieldwork validated the use of the TEM/PEM approach and identified limited evidence of caribou use within the Project Footprint.<br><br>D) The offset ratios provided are Telkwa Mining's suggestions and are intended for discussion. Following discussions with BC WLRS and ECCC, revised offset calculations assume a medium discount rate and a 5-year time lag on functional restoration treatments "on a path to ecological restoration", as per the guidance provided by ECCC. Additionally, all effects in high-elevation core range are now offset in Type 1 matrix and use the relevant (higher) offset ratio due to the uncertainty associated with the amount of high elevation core habitat available for offsetting. Effects on low-elevation capable winter range and Type 1 matrix range are still both offset in Type 1 matrix range, again to reflect the uncertainty with the amount of low-elevation capable winter range available for offsetting. The resulting offset ratios used were as follows: 14.93:1 for high- |

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| | | elevation habitat to Type 1 matrix, 12.12:1 for low-elevation capable winter range habitat to Type 1 matrix, and 10.69:1 for low elevation caribou movement habitat (Type 1 matrix range) to Type 1 matrix. Please refer to the revised habitat offsetting strategy for more details; see Section 6 of Appendix 1 (Attachment OW-026-1).<br><br>E) Telkwa Mining will commit to a higher percentage of offsetting funds to be available at the start of the Project, however, some funds need to remain to conduct annual inspections, monitoring, and reporting activities by various groups.<br><br>As requested by OW, Telkwa Mining will discuss appropriate incorporation of the results of the Rights Impact Assessment, CUS, and Wellbeing Study into Project design, monitoring, mitigation, and adaptive management plans. |
| OW-030 | Please provide details of where ECCC's content edits were actioned by TML. | Telkwa Mining acknowledges the comment.<br><br>lease see responses related to habitat offsetting in previous sections. Please also refer to the revised habitat offsetting strategy in Section 6 of Appendix 1 (Attachment OW-026-1).<br><br>ITT IR 407 and red text in ITT IR 412 have been moved to the Effects Assessment stage by the BC EAO. Telkwa Mining suggests that OW discuss this item with the BC EAO and the technical working group.<br><br>Note: there are several duplicated IR numbers (including IR 412) in the tracking table provided by BC EAO, which may be causing confusion.<br><br>As requested by OW, Telkwa Mining will discuss appropriate incorporation of the results of forthcoming information related to caribou on Indigenous interests or Indigenous Nations into |

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| | | Project design, monitoring, mitigation, and adaptive management plans. |
| OW-031 | (See above comment regarding offsetting.) | Telkwa Mining acknowledges the comment.<br><br>Please see responses related to habitat offsetting in previous sections. Please also refer to the revised habitat offsetting strategy in Section 6 of Appendix 1 (Attachment OW-026-1). |
| OW-032 | A) Please provide an updated Blasting Noise Assessment using:<br><br>1. The closest areas of BC's 2019 RSA-2-Core habitat as the discrete receptors and;<br>2. Modelled blasting sites chosen based on the closest potential location to the RSA-2-Core habitat.<br><br>B) Please provide the following information regarding noise level exceedances:<br><br>1. Daytime noise levels: exceedance level at 2 km away, exceedance level at 1 km away, exceedance level at the edge of the Project footprint, and how often these levels will be exceeded (hourly, daily, weekly, etc.). Please provide all this information in table format.<br>2. Maximum noise levels: dB heard at closest edge of RSA-2-Core habitat, exceedance level at 2 km away, exceedance level at 1 km away, exceedance level at the edge of the project footprint, and how often these levels will be exceeded (hourly, daily, weekly, etc.). Please provide all this information in table format.<br>3. Nighttime noise levels: exceedance level at 2 km away, exceedance level at 1 km away, exceedance level at the edge of the project footprint, and how often these levels will be exceeded (hourly, daily, weekly, etc.). Please provide all this information in table format. | Telkwa Mining acknowledges the comment.<br><br>A) Please see Appendix A in Attachment OW-023-1. The attachments provide updated isopleth maps of maximum predicted noise levels in relation to the RSA-2 Core Habitat boundary based on Scenario 1, which considers a blasting location closest to the RSA-2 Core Habitat boundary at the beginning of mining activity. Attachment OW-023-1 also provides updated isopleth maps of maximum predicted noise levels in relation to the RSA-2 Core Habitat boundary based on Scenario 2, which considers blasting at pit floor as mining progresses. As illustrated by the figures, the maximum noise levels may exceed the target daytime noise level of 55 dBA and the caribou auditory threshold of 30 dBA up to 2 km from the blast initiation site.<br><br>Responses to B1, 2B2, 2B3 and 3C are provided in Appendix A in Attachment OW-023-1.<br><br>2.B) 1. Daytime noise levels (55 dBA) and caribou auditory thresholds (30 dBA) are only exceeded up to 2 km away from the Project Footprint. Daytime noise levels (55 dBA) and caribou auditory thresholds (30 dBA) are exceeded at the edge of the Project Footprint. This is related to equipment operation during the Operation Phase, which could occur continuously. |

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| | C) Please incorporate the lower auditory threshold for caribou of 30 Hz into the Blasting Noise Assessment. | 2. B) 2. Maximum A-weighted noise levels are not predicted to exceed the target level of 55 dBA at 2 km away. Maximum A-weighted noise levels are predicted to exceed the target level of 55 dBA at the edge of the Project Footprint and at 1 km away, encompassing a small area within the RSA-2 Core Habitat boundary. This is related to blasting, both at the upper benches of pit development, and as mining progresses, and could occur once a day throughout the Operation Phase, for a duration of approximately five minutes while the blast is detonated. Maximum linear-weighted noise levels are not predicted to exceed the target level of 120 dB within the RSA-2 Core Habitat boundary, 1 km away, or 2 km away. Maximum linear-weighted noise levels are predicted to exceed the target level of 120 dB at the edge of the Project Footprint, only when blasting at the upper benches of pit development, which could occur once a day at the beginning of the Operation Phase, for a duration of approximately five minutes while the blast is detonated. Blasting will be conducted in accordance with the Tenas YMD-Enhanced Explosives Management Plan (Provided in Attachment OW-008-1) in which Telkwa Mining has committed to waiting for large animals such as caribou to be clear of 700 m prior to blasting.<br><br>2. B) 3. Nighttime noise levels are not predicted to exceed the target level of 45 dBA at 2 km away. Nighttime noise levels are predicted to exceed the target level of 45 dBA at the edge of the Project Footprint and only minimally (45.3 versus 45) at 1 km away. This is related to equipment operation during the Operation Phase, which could occur continuously.<br><br>C) Blasting noise was modelled for the octave band with midband frequency of 31.5 Hz as this represents the lowest octave band considered by the CadnaA model and the ISO 9613-2 algorithms. This octave band includes frequencies from 22 Hz to 44 Hz, encompassing the 30 Hz threshold. Noise levels |

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| | | associated with 30 Hz would not be measurably different from modelled noise levels associated with the octave band with midband frequency of 31.5 Hz.<br><br>As requested by the OW, Telkwa Mining will discuss appropriate incorporation of the results of forthcoming information related to the noise assessment to Indigenous interests or Indigenous nations into Project design, monitoring, mitigation, and adaptive management plans. |
| OW-037 | The Local Study Areas (LSA) were delineated to capture all potential direct effects (e.g., erosion, off-site siltation, dilution zones from pipes or groundwater) and indirect effects of limited spatial extent (e.g., edge effects), and the Regional Study Area (RSA) was delineated to capture all direct and indirect Project affects that could affect a VC. While the Proponent argues that "the use of a LSA precludes consideration of all potential adverse effects, and would artificially and inappropriately inflate the magnitude considered in the characterization", these local effects are ALSO important to characterize as they represent impacts at local scale that contribute to cumulative effects at the RSA. The LSA also describes the immediate impacts of the Project area, which are not irrelevant as that area of impact is an ecosystem of value being affected by the Project, even if at the larger scale the local impacts are diluted. The fact that the Proponent refuses to also do an assessment at the LSA likely indicates that impacts to the VC at the LSA are larger than they would like to communicate, because they are reduced at the RSA. In addition, based on the updated modeling results for the EAC Project Case (Table 2-4 in TML Water Quality IR Response), there are still exceedances of BC WQG in Four Creek and Tenas Creek (Appendix I_Memo_MitigationMeasures), so the rationale | Telkwa Mining acknowledges the comment. Please refer to Attachment OW-037-1 that provides a rationale on why the RSA was used versus using the LSA as suggested, which is based on precedent from other completed EA studies.<br><br>The Environmental Assessment Certificate Application for the Tenas Project (May 2022) evaluated the effects on surface water quality at both the Local Study Area (LSA) and the Regional Study Area (RSA) levels, with the ultimate significance determination being made at the RSA level. This approach is consistent with guidance from the British Columbia Environmental Assessment Office (BC EAO) and is considered appropriate when cumulative effects are possible, downstream receptors could be affected, and to establish context for baseline variability. This approach results in a more complete understanding of potential effects.<br><br>Since 2022, new data has been added to the Water Model to the end of 2024. The updated models predict no Project-related exceedances of the chronic BC water quality guidelines for the protection of aquatic life except for those parameters in baseline monitoring that are naturally exceeding these same guidelines downstream from the Project outside of the initial dilution zone for either the RSA or LSA. Based on this |

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| | behind claims that there are no exceedances even with the new proposed mitigation measures is unclear. TML must assess the impacts of exceeded BC water quality guidelines (WQGs) in the LSA in addition to the RSA. | information it is not expected that Project will have significant adverse effect on the water VC.<br><br>It should be noted that significance of adverse effects on surface water quality would remain as “Not Significant” even if the magnitude of the effect on water quality were changed to "High” to align with the higher affected percentage in the LSA (14%) in comparison to the RSA (2%). The assessment methodology defines a significant effect as one that is of High Magnitude, has a Regional or greater extent, and is Long-term in duration. As the effects on water quality are confined to the Local Study Area (LSA), they do not meet the required "Regional" geographic extent criterion. Because all three specific conditions are not met, the effect would still be classified as "Not Significant".<br><br>In addition, Attachment OW-037-1 provides a rationale for why the RSA was used versus using the LSA and provides examples of this methodology from other completed EA studies.<br><br>As requested by OW, Telkwa Mining will discuss appropriate incorporation of the results of forthcoming information related to water quality to Indigenous interests or Indigenous Nations into Project design, monitoring, mitigation, and adaptive management plans. |
| OW-093 | Commit to integrating the findings of applicable Wet’suwet’en-led studies and other information sources, including but not limited to information on:<br><br>• Species of cultural importance to Wet’suwet’en that are currently missing from the Proponent’s assessment, including beaver, mountain goat, grouse, bog cranberry, Lowbush berry, red cedar, yellow cedar, common | Telkwa Mining acknowledges the comment and, as requested by OW, Telkwa Mining will discuss appropriate incorporation of the results of the Rights Impact Assessment (RIA), Cultural Use Study (CUS), and Cultural Wellbeing (CWB) Study (now called the Wet’suwet’en Wellbeing Study) into Project design, monitoring, mitigation, and adaptive management plans with EAO and OW.<br><br>The Proponent remains committed to continued engagement during permitting and implementation to ensure values |

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| | juniper, rocky mountain juniper, skunk cabbage, and nodding onion;<br>• Potential changes in use by House members of species of cultural importance to Wet'suwet'en that are currently missing from the Proponent's assessment, including beaver, mountain goat, bog cranberry, Lowbush berry, red cedar, yellow cedar, common juniper, rocky mountain juniper, skunk cabbage, nodding onion, and grouse. | important to OW and House members are considered through project design, mitigation, and monitoring. |
| OW-094 | Update the direct and indirect effects assessments related to caribou as outlined in greater detail in OW's responses to IRs 418 ITT IR (LWRS and ECCC). The updated effects assessment must include:<br>• Impacts to the entire Critical Habitat area (RSA-1), including impacts to moderate and high suitability low elevation winter habitat AND Type 1 matrix habitats.<br>• A clear rationale for the Proponent's statement that the direct and indirect effects of the Project will not worsen existing conditions in disturbed areas for the Telkwa Caribou Herd, and how the loss of potential natural regeneration of disturbed areas <40 years old by 2050 is being accounted for.<br>• Scenarios where:<br>• The total disturbance is calculated from existing, permanent disturbances in the Critical Habitat area. All burns and cut blocks are assumed to eventually provide habitat and are not included in the total disturbance; and<br>• The Project's total disturbance is added to the existing above disturbance. | Telkwa Mining acknowledges the comment. Please see responses to OW-026 and OW-029. |

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| | • A calculation of the area of these habitats that will be indirectly affected regardless of current caribou presence/absence.<br>• Updated version of the effects assessment that includes the area of direct and indirect effects within RSA-1 and RSA-2-Core regardless of the current habitat disturbance status. | |
| OW-095 | Undertake a complete cumulative effects assessment for listed birds' species. | Telkwa Mining acknowledges the comment. Please refer to Attachment OW-097-1.<br><br>As requested by OW, Telkwa Mining will consider any forthcoming information from the OW and the Houses and, as appropriate, will consider how this information informs Project design, monitoring, mitigation, and adaptive management plans. |
| OW-096 | Undertake a cumulative effects assessment with more fulsome consideration of climate change and its associated additive effects. | Telkwa Mining acknowledges the comment. Telkwa Mining recognizes the importance of climate change and acknowledges the concern raised regarding its potential influence on vegetation, wildlife, avian, and terrain/soils resources. A project-specific Greenhouse Gas (GHG) analysis was completed and is included in the Environmental Assessment, which evaluates emissions in the context of BC's climate change targets. This analysis quantifies emissions, including the Project's potential positive or negative effects on carbon sinks with discussion of effects of the Project on vegetation and terrestrial resources. It discusses future scenarios and proposes mitigation measures accordingly.<br><br>The vegetation, wildlife, avian, and terrain and soils Valued Components cumulative effects assessments are based on current ecosystem conditions, with consideration of habitat function and species use. While climate change is expected to affect ecosystems over time, these effects are predicted to be gradual, regionally variable, and subject to considerable |

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| | | uncertainty at the local scale of the Tenas Project in terms of their manifestation and the responses of these VCs to ecosystem change. The incremental contribution of the Project is not expected to materially alter regional climate-related trends, nor do the uncertain effects of future climate change alter the significance conclusions of the cumulative effects assessments, which are grounded in known effects and predictable changes in ecosystem conditions.<br><br>With respect to the Atmospheric Environment VC, which includes dust, noise, and other local air quality parameters, climate change is not expected to materially influence these project-related effects and the GHG analysis addresses quantification of emissions. The effects of the Project on Atmospheric Environment parameters are driven by project activities and mitigated through standard design measures, operational controls, and monitoring. As such, the cumulative effects assessment for this VC reflects the localized, short-term nature of the potential effects that are independent of the effects of climate change.<br><br>Telkwa Mining has proposed mitigation measures and adaptive management strategies that allow for response to observed environmental changes over time, including those that may be attributable to climate-driven shifts in ecosystem conditions. These approaches will be refined during permitting and implementation in collaboration with regulators and Indigenous Nations.<br><br>As requested by OW, Telkwa Mining will consider any forthcoming information from the OW and the Houses and, as appropriate, will consider how this information informs Project design, monitoring, mitigation, and adaptive management plans. |

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| OW-097 | Undertake a project residual effects assessment that accurately accounts for indirect impacts on wildlife (especially for caribou) and avian species. | Telkwa Mining acknowledges the comment. Please see responses to OW-026 and OW-029, which refer to an updated assessment for caribou, including both direct and indirect effects. A comprehensive residual effects assessment for avian species, including indirect effects, was conducted, and is documented in Chapter 9 (Avian Species Valued Component; Attachment OW-097-1) of the Tenas Project's Environmental Assessment Certificate (EAC) Application. This assessment explicitly considered indirect impacts—such as habitat fragmentation, edge effects, and sensory disturbance—on migratory breeding birds, listed bird species, and raptors. These were evaluated under the "change in habitat" indicator, which includes both direct and indirect disturbance. Given that these indirect effects were fully integrated into the methods, results, and significance determination for each subcomponent, no further assessment is required at this time.<br><br>As requested by OW, Telkwa Mining will consider any forthcoming information from the OW and the Houses and, as appropriate, will consider how this information informs Project design, monitoring, mitigation, and adaptive management plans. |
| OW-100 | For caribou, the Proponent should, in relation to the IR from BC EAO from Oct 6, 2022:<br>• Provide all information requested in OW's attached response to the IR from BC EAO.<br>• Commit to offset Project related direct and indirect effects on Telkwa caribou herd habitat based on the revised Project effects assessment as requested in this and other comments. | Telkwa Mining acknowledges the comment. Please see responses to OW-026 and OW-029. |
| OW-101 | Provide further details of the field-based assessments noted in Appendix C including, but not limited to: | Telkwa Mining acknowledges the comment. Please see responses to OW-026 and OW-029. In the Vegetation and Ecosystems Baseline Report (Appendix 4.7-A in the Project |

| OW Comment ID | OW Requests | Telkwa Mining Response to OW Comments |
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| | • The spatial extent of on the ground survey activities at each location;<br>• The methods used to confirm / discount PEM / TEM mapping; and<br>• The spatial extent of each PEM / TEM mapping polygon in which surveying was conducted. | Application; Ardea Biological Consulting 2022, Attachment OW-029-2) the TEM occurred within the Vegetation Local Study Area (LSA; Project Footprint + 250–500 m buffer) and PEM mapping occurred in the Vegetation Regional Study Area (RSA; Project Footprint + 5 km buffer) and beyond, including the broader RSA-1 (Telkwa Caribou Herd Critical Habitat boundary). As part of the development of the TEM, 780 ecosystem plots were investigated from 1997–2019 and were used to characterize vegetation and ecosystem types (Table 3.2-2 in Appendix 4.7-A). At the mine site, 445 plots were completed; 371 of these plots were completed from 2017–2019. A detailed mapping accuracy assessment was completed for TEM polygons using the methods outlined in (Meidinger 2003). For more details related to the PEM/TEM, please refer to Appendix 4.7-A in the EAC Project Application, Attachment OW-029-2.<br><br>Further information on additional verification of low-elevation capable winter range habitat (August 2025 fieldwork), which was classified using PEM/TEM mapping, is provided in Section 5.2.3.3 in Appendix 1 (Attachment OW-026-1).<br><br>As requested by OW, Telkwa Mining will discuss appropriate incorporation of the results of the Rights Impact Assessment, CUS, and Wellbeing Study and further engagement into Project design, monitoring, mitigation, and adaptive management plans. |
| OW-102 | Commit to undertaking further assessments of PEM / TEM mapping, inclusive of areas not identified as moderate or high suitability habitat to confirm its absence of these features, to better understand where moderate/high suitability caribou habitat may actually be present or absent. TML should undertake further discussions with ECCC, WLRS, and Wet'suwet'en to 1) ensure that the proposed scale, extent, timing, and methods of this survey are appropriate | Telkwa Mining acknowledges the comment. Please see responses to OW-026 and OW-029. |

| OW Comment ID | OW Requests | Telkwa Mining Response to OW Comments |
|---|---|---|
| | and 2) discuss other opportunities for habitat offsetting in areas without advanced regeneration. | |
| OW-103 | Provide details of the further actions that will be undertaken to identify other possible high-elevation restoration offsets. OW expects this will include ground truthing additional areas, undertaking further discussions with TML, ECCC, WLRS, and Wet'suwet'en to determine the location of other possible suitable high-elevation restoration offset locations. | Based on the work completed in September 2024, over 90% of the identified high elevation restoration offset targets were reviewed at a reconnaissance level and determined that undertaking restoration activities may cause more disturbance than allowing natural regeneration to occur on its own. Telkwa Mining reviewed the remaining 10% of high-elevation restoration candidates, with the participation of OW, during August 2025 fieldwork. The candidates surveyed in August 2025 were used to inform offsetting calculations. However, based on the results of the field reconnaissance and the limited number of restoration candidates in high elevation, Telkwa Mining is proposing to offset direct and indirect effects in high-elevation core range with restoration activities in low-elevation Type 1 matrix range. Consequently, a higher offset ratio is used (14.93:1) for effects on high-elevation core range. The resulting offset ratios used for other habitat were as follows: 12.12:1 for low-elevation capable winter range habitat to Type 1 matrix, and 10.69:1 for low elevation caribou movement habitat (Type 1 matrix range) to Type 1 matrix. Further details are provided in Section 6 of Appendix 1 (Attachment OW-026-1).<br><br>As requested by OW, Telkwa Mining will discuss appropriate incorporation of the results of the Rights Impact Assessment (RIA), Cultural Use Study (CUS), and Cultural Wellbeing (CWB) Study (now called the Wet'suwet'en Wellbeing Study) into Project design, monitoring, mitigation, and adaptive management plans with EAO and OW. |
| OW-104 | Undertake further discussions with TML, ECCC, WLRS, and Wet'suwet'en to determine offsetting ratios that will be required for the Project that reflect the current dire context | Telkwa Mining acknowledges the comment. Please see responses to OW-026 and OW-029. |

| OW Comment ID | OW Requests | Telkwa Mining Response to OW Comments |
|---|---|---|
| | of low population levels of the Telkwa caribou herd and highly disturbed landscape that the herd occupies. | |
| OW-105 | Commit to providing all offsetting funds at the start of the Project, to ensure that the maximum effectiveness and benefit of offsetting activities on the Telkwa caribou herd are realized. | Telkwa Mining acknowledges the comment. Please see responses to OW-029. |
| OW-107 | Update baseline studies (opportunities should be explored for more recent baseline data collection or at a minimum, updating of habitat models based on recent disturbances). | Telkwa Mining acknowledges the comment. Based on a review of field activities that have occurred since terrestrial baseline activities were completed in 2018 it was determined by Independent Qualified Professionals that baseline data was still valid and did not require to be updated.<br><br>In response to OW concerns, Telkwa Mining assessed habitat capability for caribou in the area and searched for evidence of use during September 2024 and August 2025 field programs. Habitat capability of low-elevation winter range, which was classified using TEM/PEM mapping, was assessed in 66 (5.65-m radius) plots based on site series and caribou habitat suitability and capability across the Project Footprint. The fieldwork validated the use of the TEM/PEM approach and identified limited evidence of caribou use within the Project Footprint. Additional details are provided in Section 5.2.3.3 of Appendix 1 (Attachment OW-026-1).<br><br>As requested by OW, Telkwa Mining will discuss appropriate incorporation of the results of the Rights Impact Assessment, CUS, and Wellbeing Study and further engagement into Project design, monitoring, mitigation, and adaptive management plans. |

Further input may be provided from the Wet'suwet'en to Telkwa Mining during their Wet'suwet'en Assessment Process. Where modifications or clarifications of responses are required Telkwa Mining will provide supplemental information to both the EAO and OW.

## CLOSING

Telkwa Mining has uploaded the required information to the EAO website for use and has also included these with this letter as per the enclosures stated above.

We would be happy to discuss any of the above with you, at your convenience and trust this meets the expectations of this Information Requests.

Sincerely,



Daniel J. Farmer, P.Eng.
Project and Development Manager, Telkwa Mining Limited

Cc: File, Korina Houghton EDI, Jessy Chaplin

Enclosures:

**Appendix 1:** Tenas Project, Updated Caribou Information Request Responses Incorporating Feedback from OW Based on their Letter Submissions (February 28, March 12, and May 15, 2025) and Meeting Notes (January 28, 2025), and Regulatory Agency Information Requests and Meeting Notes (June 10, July 29, August 28, and December 15, 2025), EDI

**Appendix 2:** Tenas Project, Information Requirement 492 Response, EDI

**Appendix 3:** Tenas Project, Supplemental Responses to Questions from the Office of the Wet'suwet'en (OW) based on January 28, 2025, Telkwa Mining's presentation, EDI

**Appendix 4:** Tenas Project, Supplemental Responses to Questions from the Office of the Wet'suwet'en (OW) Based on Their Letters Provided on February 28, March 12, and May 15 (Caribou-Related), 2025, EDI

**Appendix 5:** BC Caribou Habitat Offset Decision Support Tool Results, 2026, EDI

# Enclosure 1

# APPENDIX 1 (OW-026-1): TENAS PROJECT, UPDATED CARIBOU INFORMATION REQUEST RESPONSES INCORPORATING FEEDBACK FROM OW BASED ON THEIR LETTER SUBMISSIONS (FEBRUARY 28, MARCH 12, AND MAY 15, 2025) AND MEETING NOTES (JANUARY 28, 2025), AND REGULATORY AGENCY INFORMATION REQUESTS AND MEETING NOTES (JUNE 10, JULY 29, AUGUST 28, AND DECEMBER 15, 2025), EDI

# Telkwa Mining's Response to the October 6, 2022, Information Request Letter from the British Columbia Environmental Assessment Office: Updates to the Tenas Project Effects Assessment and Offset Proposal




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January 2026


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# 1 INTRODUCTION

The British Columbia (BC) Environmental Assessment Office (EAO) issued a letter to Telkwa Mining Limited (Telkwa Mining) dated October 6, 2022, seeking additional information to support the assessment of potential effects of the Tenas Project (the Project) on the Telkwa Caribou Herd. The letter directed Telkwa Mining to work closely with the EAO, BC Ministry of Water, Land, and Resource Stewardship (WLRS), Environment and Climate Change Canada (ECCC), and Indigenous Nations to develop substantive responses to information requests (IRs) on caribou. The EAO emphasized the importance of Telkwa Mining reaching agreement with other parties on the topics covered for each IR. Furthermore, a Section 78(7) transition order dated December 16, 2022, under the *Environmental Assessment Act* (2018) stipulated that Telkwa Mining must provide responses to these IRs and any outstanding issues identified by Technical Advisory Committee reviewers or Indigenous Nations.

The BC EAO identified four main IR themes that aligned with specific Issue Tracking Table (ITT) IRs from WLRS and ECCC:

1. **Acoustic Modelling and Impacts –** Improved acoustic modelling to inform the assessment of indirect effects (see Section 3).

2. **Buffers –** Adequate disturbance buffers to characterize Project-related effects, including a minimum of 1.8 km around active resource roads and at least 3 km around active mine activities. Following discussions with BC WLRS and ECCC (including a December 15, 2025 meeting; see Section 2), there was a consensus on using a minimum 500 m buffers around roads and trails for Project and existing baseline conditions and a minimum 2.1 km buffer around the Project mine (see Section 4).

3. **Effects Assessment and Critical Habitat –** Appropriate characterization of direct and indirect Project effects to each critical habitat type identified in the mountain caribou Recovery Strategy (Environment Canada 2014), including high-elevation winter and/or summer ranges, low-elevation winter range, and Type 1 matrix habitat (see Section 5).

4. **Offsetting for Direct and Indirect Effects –** Appropriate mitigation and offsetting measures based on habitat-specific offset ratios (see Section 5.1).

This document provides responses to the October 6, 2022, IRs based on the ongoing discussions with the caribou subcommittee of the Technical Advisory Committee and engagement with Indigenous Nations, including the Office of the Wet'suwet'en (OW). Telkwa Mining's responses also address additional questions or concerns brought up by parties in several follow-up meetings since the EAO letter was first issued. **Section 2, below, provides an overview of the engagement process to date to provide context for the IR responses in Sections 3 through 6.**

# 2 OVERVIEW OF TECHNICAL MEETINGS AND ENGAGEMENT

The EA process for the Project has been underway since 2018 and has involved extensive technical engagement with regulatory agencies, especially during the development of the Application Information Requirements (AIR). The AIR was shaped through multiple rounds of Technical Advisory Committee review and a focused caribou subcommittee, which resulted in the scope and methodology for the environmental assessment of caribou-related effects. Indigenous Nations (e.g., OW, and Witset First Nation Band), EAO, ECCC including the Canadian Wildlife Service (CWS), and BC Government (including WLRS, formerly FLNRORD) were invited to join the caribou subcommittee of the Technical Advisory Committee.

Key steps during this engagement timeline included the following:

- **March 21, 2019:** Initial BC EAO caribou subcommittee meeting with BC EAO and FLNRORD, ECCC, CWS, and OW to discuss the potential interactions between the Project and the Telkwa Caribou Herd. Next steps included the development of study area boundaries and acquiring critical habitat mapping and caribou collar/mortality data to aid in the effects assessment. Participants: Terry Pratt, Matt Rodgers, and Anita Threlfall (EAO); Chris Schell (FLNRORD); Stephen Sheehan and Kathleen Belton (ECCC); Kimberly Dohms (CWS); Sean LeRoy (Energy, Mines and Petroleum Resources); Liz Freyman (Ministry of Environment); Angela Waterman, Kirsten Roberts, and Megan MacCallum (TML); Laurence Turney (Ardea Biological Consulting); Sean Sharpe (Sean Sharpe Environmental Consulting); and Todd Mahon (EDI).

- **September 10, 2019:** BC EAO caribou subcommittee meeting with EAO, ECCC, CWS, and FLNRORD to discuss the proposed Regional Study Area. Input was provided on low/high elevation habitat, limitations of telemetry data, predator-prey interactions, and critical habitat boundaries, including the 2014 ECCC-defined Local Population Unit. Action item from this meeting was for Telkwa Coal Ltd. to provide the proposed RSA and rationale to EAO by September 17, 2019. Participants: Terry Pratt, Matt Rodgers, and Anita Threlfall (BC EAO); Chris Schell (BC FLNRORD); Stephen Sheehan and Kathleen Belton (ECCC); Kimberly Dohms, Jayme Brooks, and Robin Steenweg (CWS); Angela Waterman, Kirsten Roberts, and Megan MacCallum (TML); Laurence Turney (Ardea Biological Consulting); and Cathy MacKay and Anne McLeod (EDI).

- **December 5, 2019:** Kathryn Marshall (ECCC) provided feedback on the Regional Study Area in a letter dated December 5, 2019. ECCC recommended the adoption of two assessment scales: (1) the full extent of BC's draft core and matrix boundaries (BC, October 2019) to align with the province, and (2) the recovery strategy critical habitat polygon (ECCC, 2014).

- **January 23, 2020:** Telkwa Coal Ltd. presented EA assessment scenarios and proposed methodology for caribou. The decision was made to use the draft 2019 BC Critical Habitat boundary and the 2014 ECCC Critical habitat /LPU boundary as two regional study areas, and the wildlife local study area, for the EA on caribou. Participants: Chris Schell, Laura Grant, and Heather Wiebe (BC FLNRORD);

Kathryn Marshall, Al Hodaly, Rachel Canham, and Tasha Gallagher (ECCC); Jayme Brooks and Robin Steenweg (CWS); Angela Waterman and Kirsten Roberts (TML); Laurence Turney (Ardea Biological Consulting; and Cathy MacKay, Anne McLeod, and Todd Mahon (EDI).

- **February 25, 2020:** Meeting focused on remaining assessment indicators beyond habitat: mortality risk, movement, sensory disturbance. Discussion included the following: categorizing age of cutblocks, including forest fire as disturbance, and confirming that 1% of telemetry locations in lower elevation SBS are likely translocated caribou. Participants: Laura Grant and Chris Schell (BC FLNRORD); Rachel Canham, Kathryn Marshall, and Lucy Reiss (ECCC); and Jayme Brooks (CWS).

- **March 13, 2020:** Meeting to discuss the following items: sensory disturbance and relevant assessment areas for each indicator; and specific measures and metrics to be used for each caribou assessment indicator. Decision made to include forest fire (burns) in disturbance model, unbuffered. Use same age criteria for fires (burns) and cutblocks when including in the disturbance model. Participants: Chris Schell (BC FLNRORD); Rachel Canham and Kathryn Marshall (ECCC); and Robin Steenweg (CWS).

The effects assessment was then completed, and the application submitted to the EAO. The application was accepted for review in April 2022, followed by a public comment period and working group review. On October 6, 2022, the EAO issued a third round of IRs, including key issues on caribou. When the statutory deadline under the 2002 *Environmental Assessment Act* approached, the Project transitioned to the 2018 *Environmental Assessment Act*. The transition order (December 16, 2022) required responses to the outstanding IRs and additional content consistent with the 2018 Act. Since that time, there has been discussion and input from Indigenous Nations (including OW and Witset First Nation Band), EAO, ECCC, and BC Government (including WLRS). Telkwa Mining used these meetings and engagement to build consensus with the caribou subcommittee members on the best way to approach the four IR themes stated previously.

Key steps that have occurred in response to the caribou IRs dated October 6, 2022, are as follows:

- **November 16, 2022:** Meeting to present proposed draft responses to Caribou IRs. Included addressing assessment of different habitat types, disturbance buffers, revised effects assessment, concept for offsetting. BC EAO facilitated meeting. Invitees: Rachel Pennell, Marla Bojarski, and Matt Rodgers (BC EAO); Jake Bradshaw, Darcy Peel, Anne-Marie Roberts, and Chris Schell (BC FLNRORD); Kathryn Marshall, Rachel Canham, Michael Rybanksy, Tasha Gallagher, Robin Steenweg, Lucy Reiss, and Al Hodaly (ECCC); Ashleigh Ballevona and Dan Farmer (TML).

- **December 15, 2022:** Meeting with BC LWRS to review the BC Offset decision support tool. Participants: Karen Stefanyk, Jake Bradshaw, and Kindra Maricle (BC LWRS); Ashleigh Ballevona and Dan Farmer (TML); and Cathy Mackay, Julia Krizan, and Vicki Smith (EDI).

- **March 8, 2023:** A general presentation to What Matters In Our Valley (WMIOV), which included caribou as a topic (noise effects and offsetting concept). Participants: Jay Gilden and Len Vanderstar

(WMIOV); Ashleigh Ballevona, Dan Farmer, and Rob Mauer (TML); and Cathy Mackay and Julia Krizen (EDI).

- **July 21, 2023:** Updated blasting noise assessment received from Ausenco and incorporated into the caribou effects assessment.

- **September 19–21, 2024:** Telkwa Mining directed QPs to conduct field reconnaissance work to assess the potential for linear feature restoration (supporting habitat offsetting strategy) based on the Telkwa Caribou Tactical Restoration Plan and assess caribou habitat quality (supporting updated effects assessment).

- **October 25, 2024:** Meeting with BC WLRS to provide an overview of caribou field reconnaissance work (based on the Telkwa Caribou Tactical Restoration Plan). WLRS provided updates on road restoration activities near Chisolm (south of Telkwa range). Participants: Joanna Lee (BC WLRS); Dan Farmer and Jessy Chaplin (TML); Steve Wilson (EcoLogic Research); and Kerman Bajina (EDI).

- **January 28, 2025:** Technical meeting to present IR Responses to OW and consultants. OW expressed concerns were discussed regarding the level of disturbance/regeneration currently in the Telkwa range and how it should be concerned for the assessment. Based on input from Indigenous Nations and regulatory agencies, TML changed their approach to the assessment of Project effects by assuming "**optimal/fully restored habitat**" baseline conditions for caribou, and full occupation and use of all habitats by the Telkwa Caribou Herd. In other words, it was assumed that the recovery goal had been achieved, to the extent possible. Participants: Julia Onderwater (OW); Chris Wagner, Jillian Mills, and Tania Salerno (Firelight Group); Allison Oliver and Kyla Warren (Skeena Fisheries); Dan Farmer and Jessy Chaplin (TML); Rick Palmer (SLR Consulting); Steve Wilson (EcoLogic Research); and Kerman Bajina (EDI) and Korina Houghton (EDI).

- **February 19, 2025:** Response to questions from technical meeting (Jan 28, 2025) submitted to OW. Addressed OW's primary concern of considering regenerated/reclaimed disturbances across the Telkwa range to assess Project effects under "**optimal/fully restored habitat** conditions" (i.e., regeneration of burns and cutblocks, and reclamation of roads and trails).

- **February 28, 2025:** First information response and request letter and table received from OW.

- **March 12, 2025:** Second information response and request letter and table received from OW.

- **May 1, 2025:** Letter sent from Telkwa Mining to OW in response to comments from OW on March 12, 2025.

- **May 15, 2025:** Letter from OW to Telkwa Mining, specific to Section 25 Transition matters received by Telkwa Mining.

- **May 21, 2025:** Wet'suwet'en Peoples Community Presentation that was open to all Wet'suwet'en and other stakeholders, held in the community of Witset at the Multiplex to discuss the Project and Valued Components, including caribou.

- **May 26, 2025:** Caribou draft "IRs response" provided to Todd Goodsell (BC EAO).

- **June 10, 2025:** BC EAO caribou sub-working group meeting where Telkwa Mining presented on the effects assessment and mitigation to spur discussion and input on addressing Caribou IRs. The presentation included the following topics: caribou and caribou habitat vision, EA, Mitigation hierarchy, acoustic modelling, and recreational access. Participants: Matt Scarr, Stasia Ferbey, and Elise Matzanke (BC EAO); Rick Krehbiel (YDLP); Brad Densmore (Witset First Nation Band); Mark Kelly (Firelight Group); Jorge Rios and Chelsea Brenton (Skin Tyee First Nation); Doug Wiggill and Kindra Maricle (BC WLRS); Kelsey Lee, Lucy Reiss, and Rachel Canham (ECCC); Robin Steenweg (CWS); Jessy Chaplin and Dan Farmer (TML); Steve Wilson (EcoLogic Research); and Korina Houghton and Cathy MacKay (EDI). The OW were invited to these meetings but chose not to attend.

- **June 26, 2025:** ECCC's comments on caribou IR response received.

- **June 27, 2025:** WLRS's comments on caribou IR response received.

- **July 3–4, 2025:** Wet'suwet'en information sharing workshop, which provided information on a variety of topics including Caribou. Participants: Telkwa Mining, Wet'suwet'en Hereditary Chiefs of the Gitdumden (Wolf/Bear) Clan members, and Witset First Nation Band.

- **July 29, 2025:** BC EAO caribou subcommittee meeting to present and discuss the Tenas Project caribou habitat offset strategy with ECCC, WLRS. The OW were invited but did not attend. Discussed offset ratios (offsetting tool) and linear restoration costs, and a broader discussion of the interplay of offset ratios, unit costs, and the precautionary baseline used in the effects assessment. A follow-up meeting was set for August 28, 2025 (coordinated by BC EAO), to discuss the application of the offsetting tool. Participants: Matt Scarr and Stasia Ferbey (BC EAO); Rick Krehbiel and Shannon Haizimsque (YDLP); Doug Wiggill, Megan Watters, and Ben Hewitt (BC WLRS); Kelsey Lee, Lucy Reiss, and Rachel Canham (ECCC); Jessy Chaplin and Dan Farmer (TML); and Steve Wilson (EcoLogic Research).

- **August 28, 2025:** BC EAO caribou subcommittee meeting to discuss offset site selection, use of the BC Offsetting Tool (including parameters and outputs), and offsetting priorities for the Tenas Project with BC EAO, BC WLRS, and ECCC. Participants: Matt Scarr and Stasia Ferbey (BC EAO); Doug Wiggil, Megan Watters, and Ben Hewitt (BC WLRS); Kelsey Lee, Lucy Reiss, and Rachel Canham (ECCC); Rick Krehbiel and Shannon Haizimsque (YDLP); Dallas Nikkal (Witset First Nation Band); Dan Farmer and Jessy Chaplin (TML); Steve Wilson (EcoLogic Research); and Kerman Bajina (EDI). The OW were invited but did not attend.

- **September 22, 2025:** IR response submission, which incorporated topics and discussions up until September 2025.

- **December 15, 2025:** BC EAO caribou subcommittee meeting to discuss updates to Telkwa Mining's IR responses. The main topics of discussion included road buffers and offset calculations and ratios. During the meeting, ECCC provided suggested offset ratios and calculations using the habitat offsetting tool. Participants: Matt Scarr, Stasia Ferbey, and Elise Matzanke (BC EAO); Kindra Maricle and Megan Watters (BC WLRS); Lucy Reiss, Rachel Canham, Robin Steenweg, Daniel Birch, and Kelsey Lee (ECCC); Dan Farmer and Jessy Chaplin (TML); Steve Wilson (EcoLogic Research); and Cathy Mackay (EDI).

- **December 19, 2025:** ECCC's comments on caribou IR response received.

- **January 6, 2026:** BC WLRS's comments on caribou IR response received.

- **January 12, 2026:** Email communication from Steve Wilson (EcoLogic Research, on behalf of TML) to BC WLRS providing an Excel worksheet with revised caribou effects, offsetting ratios, and offsetting costs. The updated ratios were as follows: 14.30:1 for high-elevation habitat to Type 1 matrix, 12.12:1 for low-elevation capable winter range habitat to Type 1 matrix, and 10.69:1 for low elevation caribou movement habitat (Type 1 matrix range) to Type 1 matrix.

- **January 19, 2026:** Email communication from BC WLRS (Megan Watters) to TML confirming that both BC WLRS and ECCC have reviewed and accepted the offset ratios identified in TML's email (dated January 12, 2026). On January 19, 2026, ECCC (Robin Steenweg) also provided their copy of the habitat offsetting tool with their suggested ratios, which aligned with TML's proposed offsets from January 12, 2026. However, TML identified an error in ECCC's worksheet. TML fixed this error, which increased the final offset ratio for high-elevation habitat to Type 1 matrix from 14.30:1 to 14.93:1.

- **January 26, 2026: This final IR response submission.**

# 3 ACOUSTIC MODELLING AND IMPACTS

Section 3 addresses the IR theme related to **Acoustic Modelling and Impacts**. This theme corresponds to the following EAO ITT IRs:

- ***ITT IR# 491 – ECCC and LWRS: The current model is overly simplistic given values in the receiving environments. TCL must conduct acoustic modeling that considers terrain and atmospheric conditions to accurately assess the effects of blasting associated with pit development on caribou. This includes residential areas as well as caribou core habitat.***

Acoustic modelling was updated to evaluate the distance at which noise propagation from blasting would maintain a 30 dBA level because caribou are unlikely to detect noises below this level (Perra et al. 2022). The modelling demonstrated that a 30 dBA mine blasting related noise propagated a maximum of 2 km from the source (**Map 1**). For a detailed account of the modelling assumptions, methods, and results, refer to the Ausenco (2025) memo provided in Appendix A attached.

# Tenas Project

**Map 1. Sensory disturbance buffers used in the effects assessment relative to a-weighted noise levels predicted from blasting**

## Legend

- City/Town
- Highway
- Watercourse
- Waterbody

**Telkwa Caribou Herd**

- Critical Habitat (high/low elevation range; ECCC 2014)
- Draft BC Core Habitat (2019)

**Equal to or Above Noise Level Objective (30 dBA)**

- Caribou Scenario - dh1
- Caribou Scenario - dh2

**Project**

- Project Footprint
- Project Buffer

**Traditional Knowledge**

- Caribou Migration Route
- Caribou Calving Area
- Caribou Feeding Area

## Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

## Sources

- Telkwa Caribou Herd. Government of British Columbia and Government of Canada
- Noise contours. Ausenco. July 2025.
- Traditional Knowledge. Digitized by EDI Environmental Dynamics Inc. from Fig 12 Traditional Ecological Knowledge of the Telkwa Caribou Herd, shared by Bill Holland of the Wet'suwet'en First Nation, British Columbia, 1999 (Stronen 2000).
- Basedata: Government of British Columbia
- Basemap: World Topo Base: Sources: Esri, HERE, DeLorme, increment P Corp., NPS, NRCan, Ordnance Survey, © OpenStreetMap contributors, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

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# 4 BUFFERS

Section 4 addresses the IR theme related to **Buffers**. This theme corresponds to the following EAO ITT IRs:

- ***ITT IR# 416 – LWRS: LWRS agrees with ECCC and notes a more thorough assessment using the project footprint with scientifically defensible buffers (e.g., of at least 3 km) and agreed upon by LWRS must be conducted.***
- ***ITT IR# 416 – ECCC: Consistent with other recent EA processes, ECCC maintains its recommendation that the effects assessment for sensory disturbance of specific mining projects, such as the Tenas Project, should consider an agreed-upon buffer (e.g., of at least 3km). The 500m buffer is appropriate in the context of assessing population-level dynamics at the scale of the herd range, not for assessing project-scale effects of this type. As such, the Proponent is encouraged to re-assess effects to caribou using an appropriate disturbance buffer and may need to re-evaluate the proposed mitigation measures so that they address the potential for effects, considering the larger buffer for sensory disturbance.***

There is no firm regulatory or policy guidance on appropriate buffering for a project, which instead needs to be interpreted from available literature on the topic. Studies examining the reduction of caribou use from human-related infrastructure have generated variable results.

For the assessment of indirect habitat effects on Telkwa Caribou Herd, ECCC, and WLRS recommended buffers around mines of 3–5 km and at least 3 km around mining activity, respectively, and WLRS further recommended a buffer of at least 1.8 km around active resource roads (and at least 500 m around inactive rounds). However, there is limited empirical evidence to support such buffers. Johnson et al. (2015) found that Quintette caribou avoided mines by 3 km in summer but were attracted to mines in winter. The same study found that caribou avoided roads up to 1.75 km, but that some caribou herds were also attracted to roads in some seasons. Polfus et al. (2011) estimated low avoidance of mines in winter and by 2 km in summer, and 2 km avoidance of high use roads (paved or ploughed in winter) and 1 km avoidance of low-use roads. Palm (2021), in a broader-scale analysis, found that avoidance of roads in general attenuated at 3 km in winter and 2.5 km in summer. He grouped mines with other polygonal features and found that disturbance attenuated for those features in general at 4 km in winter and 3 km in summer.

Focusing on southern mountain caribou, Palm (2022) estimated the following zone-of-influence distances for relevant disturbance types: 1.5–3.6 km for mines, 1.5–4.0 km for other polygonal disturbances (e.g., agriculture, urban areas), 300–800 m for roads, and 500 m–2.0 km for other linear disturbances (e.g., transmission lines). The variation in the zone-of-influence distances were associated with season (i.e., summer versus early/late winter) and elevation (i.e., high versus low).

Note, however, that these zones correspond to areas where caribou use is **only reduced** but not excluded. The reduced presence of caribou within the buffers is graded, with avoidance being greatest at the disturbance

source (or footprint) and avoidance nearly absent at the buffer perimeter (as described in Johnson et al. [2015]).

To be consistent with southern mountain caribou research provided by ECCC for use in this Project effects assessment, disturbance buffers were updated to characterize Project-related indirect effects using zone-of-influence distances identified by Dr. Eric Palm in Environment and Climate Change Canada (2022). These buffers differ from the BC EAO IR recommended buffers:

**BC EAO IR Request**

- 3.0 km buffer around the Project mine at *high and low elevations*.
- 1.8 km buffer around the Project access road at *high and low elevations*.

**Project**

- 3.6 km buffer around the Project mine at *high elevation*.
- 2.1 km buffer around the Project mine at *low elevation*.
- 500 m buffer around the Project access road at *low elevation*.
- 800 m buffer around all permanent roads and trails high elevation.

**Permanent Disturbances**

- 500 m buffer around all permanent roads and trails *low elevation*.
- 800 m buffer around all permanent roads and trails *high elevation*.
- 500 m buffer around all permanent (other) linear features at *low elevation*.
- 2.5 km buffer around all permanent (other) polygonal disturbances at *low elevation*.
- 4.0 km buffer around all permanent (other) polygonal disturbances at *high elevation*.

In the updated assessment, mine-related buffers were applied to the Project's open pit and management and control ponds. Other features such as the Project's explosive facilities and magazines and discharge paths were associated with sensory disturbance from the access road. Revised noise impact modelling (see Section 3) indicated that a 2 km buffer around the pit was adequate to capture sensory disturbances due to blasting (i.e., noise level objectives in **Map 1**; see Ausenco [2025] in Appendix A).

# 5 EFFECTS ASSESSMENT AND CRITICAL HABITAT

Section 5 addresses the IR theme related to **Effects Assessment and Critical Habitat**. This theme corresponds to the following EAO ITT IRs:

- ***ITT IR# 418 – ECCC and LWRS: Based on the location of the Project within the Telkwa Caribou range, the Application does not provide sufficient rationale to support the determination that the Project and its associated disturbances will result in no direct or indirect habitat loss. TCL must work with ECCC and LWRS to appropriately characterize the adverse effects of the Project, both direct and indirect, given revised disturbance buffering outlined above, and given the context that the total existing disturbance in the Telkwa herd range already exceeds both federal disturbance thresholds (i.e., minimal disturbance of high elevation winter and/or summer ranges, and at least 65% undisturbed habitat for low elevation winter range and Type 1 matrix categories of critical habitat). Working with ECCC and LWRS will enable mutual understanding of the varying definitions of direct and indirect effects. TCL must identify adverse effects (loss, alteration, disruption) to each critical habitat type as identified in the Recovery Strategy using the most current critical habitat mapping and using scientifically relevant buffers regardless of current habitat disturbance status.***

To evaluate the potential effect of the Project on the Telkwa Caribou Herd, it is necessary to understand the intended outcomes of recovery efforts on habitat within the herd's range. Only if the future desired conditions of caribou habitat are clearly articulated and understood can the potential residual effects of the Project be correctly determined and assessed. Development of a vision for caribou habitat then allows for the planning of proven mitigation measures that can be implemented to promote the development of habitat conditions consistent with a self-sustaining caribou subpopulation (or herd).

This section includes (a) a summary of the current legal and policy direction for the recovery of the Telkwa Caribou Herd, (b) Telkwa Mining's interpretation of the future desired conditions for caribou habitat within Telkwa Caribou Herd's range, and (c) a revised effects assessment of Project effects that considers future desired conditions for caribou habitat and incorporates the relevant IR themes for Sections 3 through 5. The revised effects assessment of Project effects presented here builds upon the assessment in the current EA Certificate Application with one key departure.

**It was assumed that baseline conditions consisted of optimal/fully restored habitat conditions for the Telkwa Caribou Herd. Project effects were assessed as if all habitats (except permanent disturbances) are suitable and currently occupied by the herd. In other words, it was assumed that the recovery goal had been achieved to the extent possible. Refer to Section 5.3.1 for a description about the "optimal/fully restored habitat" baseline conditions that were used for the Project effects assessment.**

## 5.1 LEGAL AND POLICY DIRECTION

### 5.1.1 FEDERAL RECOVERY STRATEGY

Environment Canada (2014) defined only undifferentiated high-low elevation range and no matrix habitat for the Telkwa Local Population Unit (LPU). The area mapped as Critical Habitat (high-low elevation range) in Environment Canada (2014) defines the Regional Study Area 1 (RSA-1) for the Project (**Map 2**). The management requirements for high-elevation winter and/or summer range and low-elevation winter range differ, with 'minimal' disturbance required in high-elevation range and 65% 'undisturbed' habitat required in low-elevation winter range (Environment Canada 2014). Because the recovery strategy does not differentiate between these habitat types for the Telkwa range, there is no clear demarcation of where the different requirements should apply. Note that Critical Habitat can occur anywhere within the LPU boundary. Consequently, the currently mapped high-low elevation range is considered a partial identification of Critical Habitat and will be subject to revision in a future amendment to the federal recovery strategy. The unmapped range located outside the high-low elevation range but within the LPU boundary is not considered further in this assessment.

### 5.1.2 PROVINCIAL DRAFT CORE AND MATRIX MAPPING

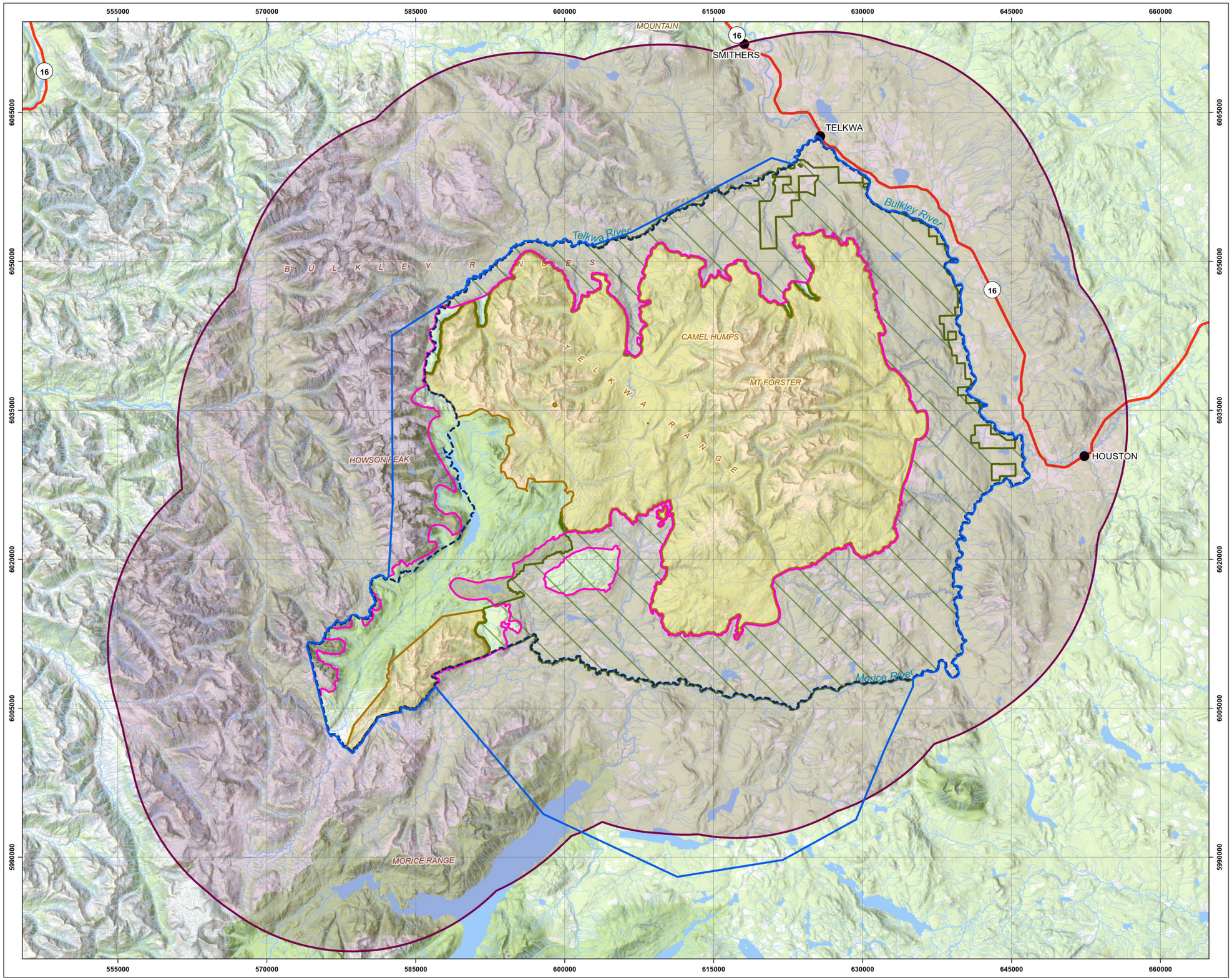
Provincial 'core' and 'matrix' habitats have been drafted for mountain caribou subpopulations (Dodd and Carswell 2019). They were briefly posted, then retracted, and currently have no legal or policy status. Habitat definitions were later revised but the mapping was not. Core habitat is currently defined as, "*the area that encompasses the annual range for a subpopulation, which has (or has future potential to have) the necessary biophysical attributes to allow for self-sustaining populations*", while matrix habitat is defined as, "*the area adjacent to core habitat that has periodic, low, or no known use by caribou but may be important for connectivity between suitable caribou core habitats, and most importantly, supports primary prey and associated predators that directly affect the caribou subpopulation*".[1]

For the Telkwa Caribou Herd, core habitat includes the Engelmann Spruce-Subalpine Fir (ESSF) Biogeoclimatic Ecosystem Classification (BEC) zone and alpine portions of the range, and matrix habitat is defined by a 30-km buffer around the core habitat, which is intended to correspond to the average width of a wolf pack's home range. BC's 2019 core and matrix habitats are also referred to as RSA-2-Core and RSA-2-Matrix areas of the Project (**Map 2**). There are no specific objectives identified for provincial core and matrix habitats (Dodd and Carswell 2019).

[1] https://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/wildlife-wildlife-habitat/caribou/crp_glossary.pdf

# Tenas Project

## Map 2. Federal and provincial habitat boundaries for the Telkwa Caribou Herd




Legend

- City/Town
- Highway
- Watercourse
- Waterbody

**Telkwa Caribou Herd**

- Telkwa Local Population Unit (2014)
- Critical Habitat (high/low elevation range; ECCC 2014)
- Draft BC Core Habitat (2019)
- Draft BC Matrix Habitat (2019)

Wildlife Habitat Area #6-333 (2015)

- No Harvest Zone
- Conditional Harvest Zone

### Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

### Sources

- Telkwa Caribou Herd boundaries. Government of British Columbia and Government of Canada.
- Wildlife Habitat Area. Government of British Columbia.
- Basedata: Government of British Columbia
- Basemap: World Topo Base: Sources: Esri, HERE, DeLorme, increment P Corp., NPS, NRCan, Ordnance Survey, © OpenStreetMap contributors, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

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### 5.1.3 WILDLIFE HABITAT AREA

A Wildlife Habitat Area (WHA) (**Map 2**), legally designated under the provincial *Forest and Range Practices Act*, largely follows the area mapped as federal Critical Habitat (high/low elevation range) for the Telkwa Caribou Herd and comprises all Crown land within its boundary. WHAs include General Wildlife Measures that apply to primary forestry activities arising from Crown land authorizations. The Telkwa legal order (WHA #6-333) includes a requirement for a caribou mitigation and monitoring plan for applications associated with mineral or coal exploration and other development activities. The WHA does not prohibit logging, but it does establish a No Timber Harvest Zone where timber extraction and road or trail construction or improvements are not permitted. The boundary of the No Timber Harvest zone largely aligns with the provincial core habitat area delineated for the Telkwa Caribou Herd, with the main exception being Parks and Protected Areas, which are excluded from the crown forest land base and, therefore, not normally subject to forest harvest activity.

The General Wildlife Measures applying to the remainder of the WHA impose various operating restrictions, focused on retention of key caribou habitat features (i.e., mature forest, wetlands and meadows, sites with abundant terrestrial and/or arboreal lichens), minimizing accessible roads to provide security for caribou from humans and predators, and setting desired seral stage distributions. There is no reference in the legal order to managing to the specific level of habitat disturbance required in the recovery strategy for low-elevation winter range and Type 1 matrix range (i.e., <35%).

## 5.2 INTERPRETATION OF DESIRED HABITAT CONDITIONS

### 5.2.1 EVIDENCE OF CARIBOU USE

Radio-collaring programs in the Telkwa Caribou range date to the mid-1980s, with a peak before and after a translocation project in 1998 (Stronen et al. 2007), and then continuous monitoring of a sample of caribou via GPS collars since 2013. Based on these monitoring results, the spatial extent of Telkwa Caribou habitat use is almost exclusively restricted to the high-elevation core area (**Map 3**). Evidence of low-elevation habitat use is generally restricted to the period of translocations. Translocated caribou are known to wander widely and do not follow habitat-use patterns typical of resident animals (e.g., Warren et al. 1996).

While many caribou of the northern and central groups of southern mountain caribou make use of low-elevation winter ranges (Environment Canada 2014), there is little evidence of Telkwa Caribou exhibiting this behaviour to any great extent since collaring and continuous monitoring began. According to a First Nations account, caribou have not made use of low-elevation habitats for approximately 100 years (Bill Holland of the Wet'suwet'en First Nation; Stronen 2000).Historically, moose were absent from the region and this timing generally aligns with other reports of when moose first became abundant in the area (Santomauro et al. 2012).

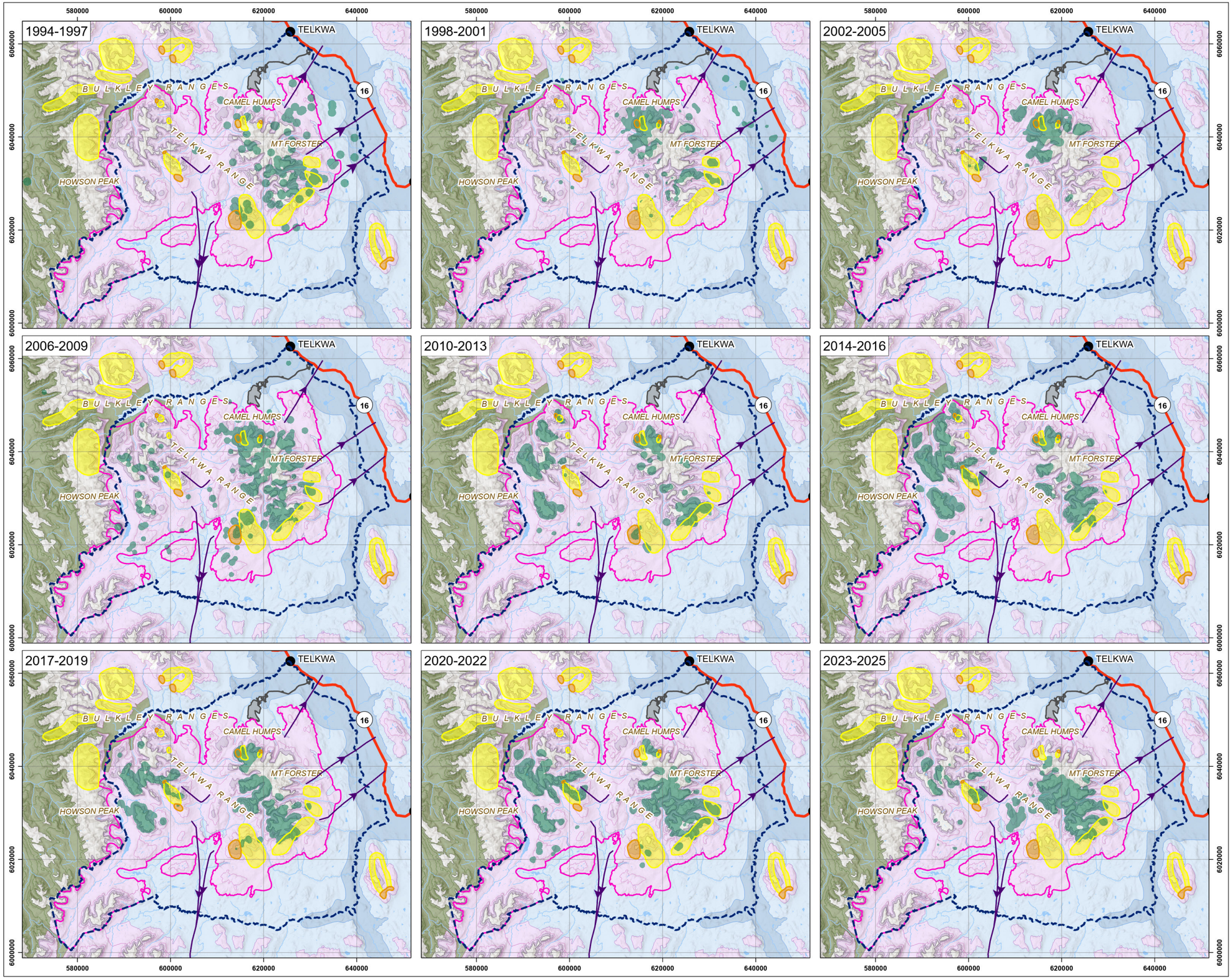
# Tenas Project

## Map 3. Telkwa Herd collar locations across all seasons, 1994–2025

1994-1997 | 1998-2001 | 2002-2005

2006-2009 | 2010-2013 | 2014-2016

2017-2019 | 2020-2022 | 2023-2025




Legend

- City/Town
- Highway
- Watercourse
- 95% Utilization Distribution

**Telkwa Caribou Herd**

- Critical Habitat (high/low elevation range; ECCC 2014)
- Draft BC Core Habitat (2019)

**Traditional Knowledge**

- Caribou Migration Route
- Caribou Calving Area
- Caribou Feeding Area

**BEC Group**

- Alpine
- Engelmann Spruce - Subalpine Fir Parkland
- Engelmann Spruce - Subalpine Fir Forest
- Sub-Boreal Spruce - Moist Cold - Babine
- Sub-Boreal Spruce - Dry
- Coastal

## Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

## Sources

- Caribou Telemetry Data: 1994 to 2025. Government of British Columbia (March 13, 2023 and July 10, 2025) and Environment and Climate Change Canada (July 21, 2019).
- Traditional Knowledge. Digitized by EDI Environmental Dynamics Inc. from Fig 12 Traditional Ecological Knowledge of the Telkwa Caribou Herd, shared by Bill Holland of the Wet'suwet'en First Nation, British Columbia, 1999 (Stronen 2000).
- Basedata: Government of British Columbia
- Basemap: World Hillshade: Esri, USGS
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Following the resumption of collaring and continuous monitoring in 2013 to March 2025 (the most recent telemetry data provided), collared caribou range use was constrained to habitat that is currently mapped as high elevation core (i.e., elevations above the ESSF-SBS boundary), although it is noted that a low percentage (<5%) of recent telemetry points indicate some minor caribou use of lower elevations (<1,100 masl) within the core habitat but not below an elevation of 1,000 masl. However, based on review of the collar data, this low elevation use does not occur within the Project Area but in other portions of the Type 1 matrix range. Lower-elevation habitat use has been limited to the following events: (1) two, one-day forays by a collared caribou into matrix habitat in June 2014 and October 2021; (2) nine additional locations near the core-matrix boundary; and (3) two obvious GPS errors.

Telemetry is the best available information to infer the current habitat use characteristics of the Telkwa Caribou Herd. While radio-collaring studies can be subject to bias, it is highly unlikely that such biases are obscuring *significant* use of low-elevation habitat. Because the herd is small, a significant proportion has been collared (often 20–30%, depending on the year) and there is no reason that collared caribou would be less likely to use low-elevation habitat than uncollared caribou (i.e., collar bias). Dense forest cover can reduce the success rate of GPS location fixes (i.e., fix bias), which can bias estimates of relative habitat use; however, higher elevation Englemann Spruce – Subalpine Fir (ESSF) forest could then also generate a bias like lower elevation Sub-boreal Spruce (SBS) forests.

Rather than at the herd level, it is likely that some individuals from the Telkwa Caribou Herd may infrequently travel to low elevations despite the current high levels of disturbance and predation risk. Limited evidence of caribou (e.g., tracks and feces) was observed at the ESSF-SBS boundary and at low elevations within the Project Footprint in 2025 field surveys (see Section 5.2.3.3).

### 5.2.2 HIGH-ELEVATION WINTER AND SUMMER HABITAT

Based on the preceding descriptions of legal and policy direction, there is general agreement on the management of high-elevation habitat, and the direction is consistent with caribou evidence of use.

- Provincial core habitat largely aligns with the WHA no-harvest boundary.
- The WHA General Wildlife Measures meet the federal recovery strategy Critical Habitat objective of 'minimal' disturbance.
- The core habitat zone boundary follows the lower bound of the ESSF BEC zone and is consistent with caribou use telemetry data, thus providing an inferred boundary for implementing federal critical high-elevation habitat requirements.
- The provincial core habitat area defines the boundary of the Project's RSA-2-Core study area, and avoidance of development in this area and mitigation via restoration of existing anthropogenic disturbance is consistent with both federal and provincial direction.

### 5.2.3 LOW-ELEVATION HABITAT

Management direction is partly aligned among agencies for low-elevation habitat but misaligned with evidence of use by caribou.

- Most of what could reasonably be inferred as federal critical low-elevation winter range overlaps with the WHA conditional harvest zone (**Map 2**).
- Biophysical attributes identified in the federal recovery strategy, and caribou habitat features identified in the WHA legal order, are largely the same and identified for retention.
- WHA General Wildlife Measures limit early seral habitat, presumably to limit the abundance of early seral ungulates (e.g., moose and deer) and wolves, and the consequent predation risk to caribou.
- The federal recovery strategy targets a minimum of 65% undisturbed habitat within the low-elevation winter range.
- Available telemetry evidence demonstrates that caribou use in low-elevation habitat is very rare, which favours the designation of low-elevation habitat as matrix.

Within areas mapped as federal Critical Habitat (high/low elevation range), there are scattered and mainly unconnected areas of potentially suitable, low-elevation winter range for Telkwa Caribou (e.g., dry pine-lichen stands, black spruce bogs, fens, other low-productivity refugia) embedded in less favourable habitat (e.g., upland spruce forests) that could be considered Type 1 matrix range (i.e., habitat used infrequently by caribou for movement between more suitable habitats). The low-elevation winter range areas might be used by caribou if habitat conditions become favourable, but they would remain extremely risky to caribou use due to the abundance of adjacent, suitable moose habitat and associated predators such as wolves that currently dominate the Type 1 matrix range. The WHA permits forest harvesting, and road-building and recreational access remains unrestricted in low-elevation areas; therefore, it is uncertain whether current policy direction is likely to improve caribou habitat suitability at low elevations.

Outside areas mapped as federal critical habitat (high/low elevation range), provincial direction calls for management of this caribou habitat as matrix, where primary prey and predator considerations are paramount. This is aligned with the federal intent for managing areas adjacent to caribou habitat.

Therefore, caribou habitat in low-elevation areas within the RSA-1 study boundary should be managed primarily as Type 1 matrix habitat, which should include minimizing the abundance of early seral forage sources for moose (Serrouya et al. 2011). A secondary objective should be the retention/enhancement of suitable areas that could serve as low-elevation winter range for caribou, with the understanding that this use might not be realized if current and future predator-prey conditions remain unfavourable.

Desired future conditions could therefore be described as follows:

- limit early seral forage to mitigate predation pressure within the RSA-2-matrix, applying the federal minimum 65% undisturbed habitat target to low elevation areas within the RSA-1 boundary;

- identify and retain/enhance potential low-elevation caribou winter range within the RSA-1 outside the RSA-2-core, applying the federal 65% undisturbed habitat target; and,
- manage sensory disturbance throughout the range.

#### 5.2.3.1 Low-Elevation Capable Winter Range

The interpretation of desired habitat conditions is sensitive to the distinction between low-elevation caribou winter range habitat and Type 1 matrix habitat, as defined by the federal recovery strategy. We mapped the potential distribution of low-elevation winter range habitat based on the estimated capability of PEM/TEM polygons within the RSA-1 study area outside the RSA-2-Core study area (hereafter 'low elevation area'). These estimates were based on the opinions of contracted caribou experts, interpreted broadly from available literature. Local evidence to validate the model was unavailable because evidence of use by caribou in potential low-elevation winter range is lacking.

Potential low-elevation winter range for caribou was considered to be associated with PEM/TEM units classified as either high and/or moderate capability habitat, based on whether they were likely to be associated with preferred winter forage and cover characteristics under **optimal/fully restored habitat** seral conditions for caribou (**Table 1**). Because each PEM/TEM polygon contains up to three site series, each polygon was assigned an expected value of 5–100 based on the decile assigned to each of the site series, weighting *high* capability habitat by 100 and *moderate* capability habitat by 50 (**Map 4**) (see Appendix B for details on the treatment of deciles).

**Table 1. Predictive ecosystem mapping (PEM) and terrestrial ecosystem mapping (TEM) ecosystem units.**

| Biogeoclimatic Subzone Variant | Habitat Type | Estimated Habitat Capability | Site Series & Map Code | Descriptions |
|---|---|---|---|---|
| SBSmc2 | Upland | High | 02PH | Pine – Kinnikinnick – Cladonia |
| | | Moderate | 03BM | Black Spruce, Pine – Feathermoss |
| | Lowland | High | 12SS | Black Spruce, Hybrid Spruce – Scrub Birch – Sedge |
| | | Moderate | 07BF, 32LS, Wb01, Wb05 | Hybrid spruce – Scrub Birch – Feathermoss, Non-forested Fen/Marsh, Black Spruce – Creeping-Snowberry – Peat-moss, Black spruce – Water Sedge – Peat-moss |
| SBSdk | Upland | High | 03LC | Pine – Feathermoss – Cladina |
| | | Moderate | 02LJ | Pine – Juniper – Ricegrass |
| | Lowland | High | 09BS | Black spruce – Creeping-snowberry – Sphagnum |
| | | Moderate | 10SS, 32LS | Black spruce – Soft-leaved sedge – Sphagnum, Non-forested Fen/Marsh |

#### 5.2.3.2 Low-Elevation Caribou Movement Habitat (Type 1 Matrix Range)

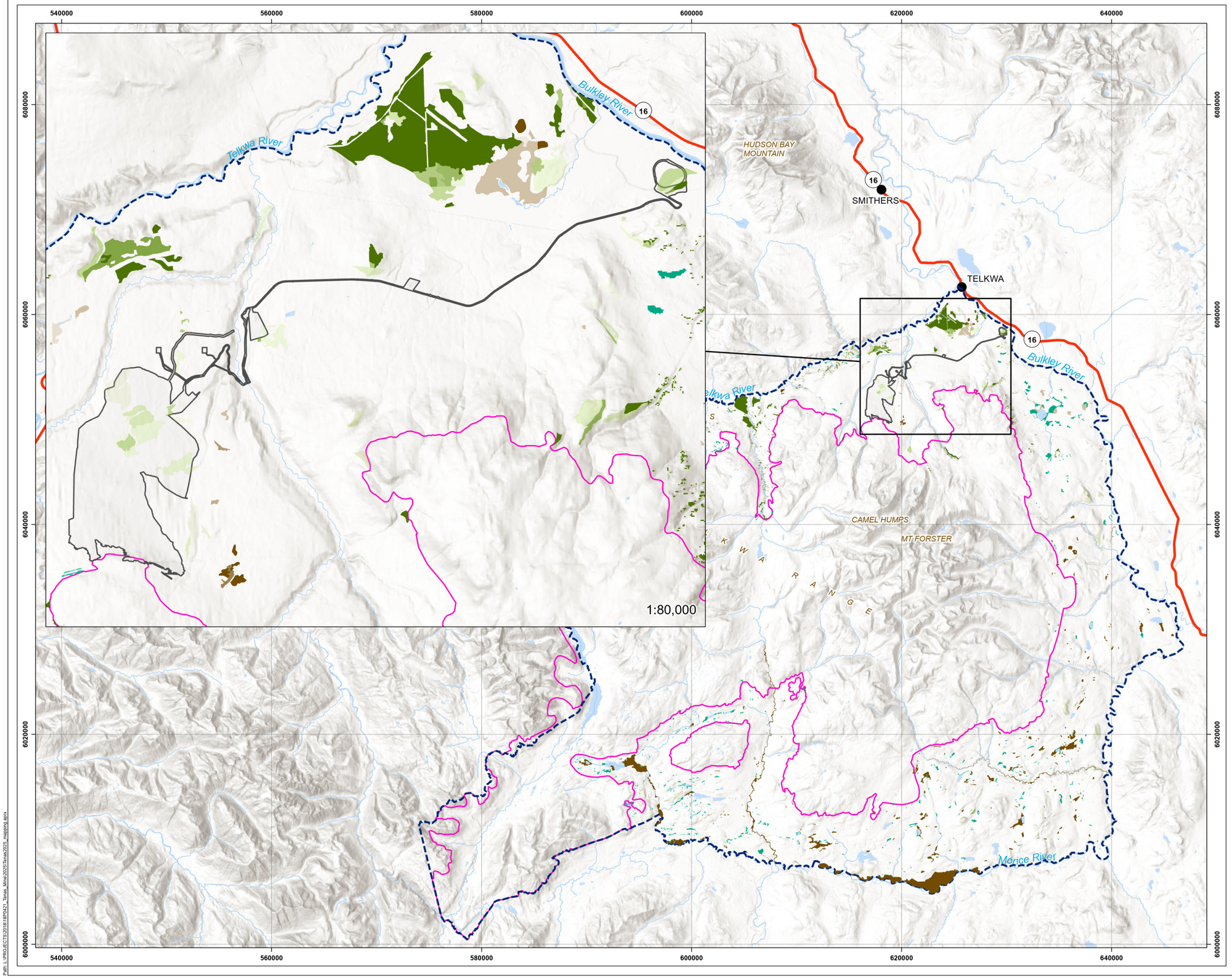
The remainder of the area in RSA-1 study area outside moderate-high capability low-elevation winter range was considered low-elevation caribou movement habitat. Aligning with the federal definition of Type 1 matrix

range and the provincial definition of matrix habitat, these areas are expected to be used, where suitable, for movement among areas of suitable low-elevation winter range and between low-elevation winter range and high-elevation winter-summer range.

This caribou movement habitat is composed of ecosystems that are considered to have low or very low capability as caribou winter range. They are generally productive conifer, mixed wood, or deciduous sites that provide habitat more suitable for moose and therefore contribute to the broader predator-prey system that is antagonistic to caribou recovery. Hence the management objective in these areas is to minimize early seral forage.

# Tenas Project

## Map 4. Predicted distribution of capable low-elevation caribou winter range habitat, 2022




## Legend

- City/Town
- Highway
- Watercourse
- Waterbody
- Project Footprint

**Telkwa Caribou Herd**

- Critical Habitat (high/low elevation range; ECCC 2014)
- Draft BC Core Habitat (2019)

**Lowland Caribou Habitat**

5.0 – 100

**Upland Caribou Habitat**

5.0 – 100

**Wetlands**

10 – 100

## Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

## Sources

- Caribou habitat created from PEM, TEM, VRI datasets current to 2018 and updated with disturbance (Roads, Cutblocks, and Fires) to 2022. Contributing datasets from the Government of British Columbia.
- Traditional Knowledge. Digitized by EDI Environmental Dynamics Inc. from Fig 12 Traditional Ecological Knowledge of the Telkwa Caribou Herd, shared by Bill Holland of the Wet'suwet'en First Nation, British Columbia, 1999 (Stronen 2000).
- Basedata: Government of British Columbia
- Basemap: World Hillshade: Esri, CGIAR, USGS
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#### 5.2.3.3 Low-Elevation Caribou Habitat Field Verification

Assumptions about caribou low-elevation capable winter range habitat based on site series (**Table 1**) were verified within the Project Footprint during fieldwork conducted by EDI, with participation by the Office of the Wet'suwet'en. The purpose of the field validation was to determine whether the capability ratings used to map caribou low-elevation capable winter range habitat aligned with observed conditions within the Project Footprint. A detailed account of habitat field verification studies is provided in Appendix C.

Sixty-six (66) 5.65-m radius random plot locations (with one duplicate for field calibration) were visited from August 11–14, 2025 (**Map 5**). At each plot, site series was assigned visually and the percent cover of dominant species in the tree, shrub, herb, and ground layers were recorded, following BC provincial standards (BC Ministry of Forests and Range and BC Ministry of Environment 2010). Arboreal lichen abundance was also characterized (Stevenson et al. 1998). Collectively, this information was used to rate the current habitat suitability and estimate future capability of winter and growing season caribou habitat (Resources Inventory Committee 1999).

Adjustments to the low-elevation capable winter range habitat assumptions (see Section 5.2.3.1) were considered where >50% of plots were assigned a rating higher or lower than those in **Table 1**, or where site series not identified in **Table 1** were assigned capability ratings in the field of ≤2 (*high* capability) or 3 (*moderate* capability). Recall that in this rating system, a rating of 1 is the highest while a rating of 5 is the lowest. Caribou low-elevation capable winter range habitat ratings by site series encountered at field plots are presented in **Table 2**.

Most of the Project Footprint is located within the SBSmc2 biogeoclimatic subzone variant; as a result, only two plots were in the ESSFmc, which is considered high-elevation core caribou habitat, and none were located within the SBSdk. Only three plots corresponded to low-elevation capable winter range site series as defined in **Table 1**: the plot at site series SBSmc2-02 met expectations of high capability, but the plots at site series SBSmc2-03 and -12 did not meet expectations of moderate capability. No adjustments to ratings were made based on these field observations due to low sample sizes. For all other site series, the number of plots with ratings >3 was greater than the number of plots with ratings ≤3; therefore, none of these site series were reclassified as low-elevation capable winter range habitat.

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Telkwa River
Tenas Creek
Goathorn Creek

S85 S41 S61 S29 S16 S89 S70 S58 S24 S23 S10 S78 S-W67 S31 S97 S55 S72 S6 S52 S66 S36 S26 S90 S18 S-W762 S38 S99 S65 S39 S12 S32 S86 S42 S59 S33 S47 S40 S60 S101 S22 S34 S-W763 S4 S25 S11 S30 S53 S27 S56 S77 S57 S63 S82 S68 S43 S80 S102 S91 S49 S45 S3 S100 S93 S71 S88

# Tenas Project

**Map 5. Location of habitat verification field plots within the proposed Project footprint, August 11–14, 2025**

## Legend

- Field Plots
- Watercourse
- Waterbody
- Project Footprint
- Draft BC Core Habitat (2019)

## Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

## Sources

- Telkwa Caribou Herd. Government of British Columbia and Government of Canada
- Basedata: Government of British Columbia
- Basemap: World Topo Base: Sources: Esri, HERE, DeLorme, increment P Corp., NPS, NRCan, Ordnance Survey, © OpenStreetMap contributors, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

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**Table 2. Caribou low-elevation capable winter range habitat ratings assigned to field plots within the Project Footprint, by observed site series.**

| Biogeoclimatic Subzone Variant | Site Series[1] | Caribou Low-Elevation Capable Winter Range Habitat Rating | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| ESSFmc | 01 | – | 1 | – | 1 | – |
| SBSmc2 | 01 | 1 | – | 3 | 6 | |
| SBSmc2 | **02** | – | 1 | – | – | – |
| SBSmc2 | **03** | – | – | – | 1 | – |
| SBSmc2 | 05 | – | – | 6 | 12 | 5 |
| SBSmc2 | 06 | – | – | 8 | 10 | 1 |
| SBSmc2 | 09 | – | – | – | 4 | 1 |
| SBSmc2 | 10 | – | – | 3 | – | – |
| SBSmc2 | 12 | – | – | – | – | 1 |
| SBSmc2 | 31 | – | – | – | – | 1 |

[1] Site series identified as low-elevation capable winter range based on TEM/PEM mapping (see **Table 1**) are bolded. Site series 01 in ESSFmc falls within the herd's Core range, not low-elevation capable winter range.

Habitats encountered in the Project Footprint were generally devoid of significant ground lichens, the expected abundance of which was the basis for capability ratings assigned in **Table 1**. While being unsuitable for caribou cratering through snow for terrestrial lichens, which is characteristic behaviour for mountain caribou ranging at low elevations in the winter, some sites surveyed were considered capable of generating arboreal lichen loads sufficient to provide at least moderately capable winter habitat (**Photo 1**).

A few signs indicated potential caribou use of low-elevation habitat. Caribou sign was identified on a wildlife trail running downslope near the top of the Project Footprint (**Photo 2**). Additional sign suspected of being caribou was identified at three sites at lower elevations. Moose sign was common throughout the Project Footprint and wolf sign was occasionally encountered.

These field verification results informed the assessment of Project effects on low-elevation capable winter range and caribou movement habitat. Specifically, TEM/PEM polygons used to identify low-elevation capable winter range (see Section 5.2.3.1) within the Project Footprint were reduced by 50% of the associated polygon sizes. In other words, half the total area of a given polygon with site series SBSmc2-02, -03, or -12 was considered low-elevation capable winter range habitat. This approach still produced conservative results in the effects assessment (i.e., overpredicted the affected low-elevation capable winter range habitat) because site series SBSmc2-02, -03, or -12 covered, at most, 50% (or 5 deciles) of any given TEM/PEM polygon within the Project Footprint.

(a)



(b)



Photo 1. (a) Relatively abundant arboreal lichens in a mature stand, and (b) low lichen capability in an old stand.

(a)



(b)



Photo 2. (a) Wildlife trail leading north and downslope into low-elevation habitat, and (b) caribou sign on the trail.

## 5.3 REVISED EFFECTS ASSESSMENT

### 5.3.1 DIRECT AND INDIRECT EFFECTS

Direct habitat loss entails the disturbance of vegetation, i.e., a development footprint. In the Telkwa Caribou Herd range, direct habitat loss occurs with any disturbance within the RSA-1, both high and low elevation.

Indirect habitat loss entails the area of sensory disturbance zone of influence (ZOI) around development footprints that potentially reduces the frequency of caribou occurrence or altered behaviour (e.g., flight, vigilance) due to human-related noise, real or perceived increases in predation risk, and other reductions in habitat suitability. Sensory disturbance for caribou refers to any stimuli perceived through their senses, such as sight, sound, or smell, that prompt a behavioral response (Johnson and St-Laurent 2011).

We used the desired habitat conditions for the Telkwa Caribou Herd to inform the assessment of Project effects. Rather than calculating disturbance under the *current setting*, an *ideal (speculative) future scenario* was used where: (1) all habitat (except permanent disturbance) is restored to **optimal/fully restored habitat** conditions for caribou, and (2) the Telkwa Caribou Herd reoccupies, uses, and moves freely among, the low-elevation winter range areas. These two conditions significantly reduce the level of disturbance before accounting for the Project, which increases the predicted direct and indirect effects on caribou habitat due to the Project. While not standard practice for estimating project-related effects in an EA context, this approach takes into consideration the concerns of OW and BC WLRS with respect to the herd's recovery.

We investigated two scenarios to determine the Project's combined effect of direct and indirect disturbances on caribou habitat. Scenario #1 represented baseline conditions (i.e., the ideal future scenario) excluding the Project, whereas Scenario #2 represented Project Condition by adding Project-related disturbances.

In the baseline conditions (Scenario #1), total disturbance was calculated from permanent disturbances in the RSA-1. We considered the following to be permanent disturbances: existing primary and secondary roads, agricultural areas, residential areas, urban areas, railways, powerlines/pipelines, and certain recreational trails that are unlikely to be reclaimed (e.g., Hunter's Basin, Hankin Plateau, Webster Lake, and Star Basin trails). We considered burns, cutblocks, and tertiary and quaternary roads to be fully regenerated or restored to the extent that they were no longer considered disturbed habitat and were in an **optimal/fully restored habitat** condition to support recovery of the Telkwa Caribou Herd. All permanent disturbances considered as part of baseline conditions are provided in **Map 6**.

# Tenas Project

**Map 6. Permanent human disturbances within RSA-1 as part of the 'optimal' baseline conditions.**

## Legend

- City/Town
- Highway
- Watercourse
- Waterbody
- Project Footprint
- Project Indirect Buffer
- Permanent Human Disturbances

**Telkwa Caribou Herd**

- Critical Habitat (high/low elevation range; ECCC 2014)
- Draft BC Core Habitat (2019)

## Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

## Sources

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- Basedata: Government of British Columbia
- Basemap: World Topo Base: Sources: Esri, HERE, DeLorme, increment P Corp., NPS, NRCan, Ordnance Survey, © OpenStreetMap contributors, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

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In the Project condition (Scenario #2), the Project's total disturbance was added to the permanent disturbances under baseline conditions. To account for indirect habitat loss in both scenarios, buffers listed in Section 4 were applied to permanent disturbances and the Project.

To calculate the total (direct and indirect) effect in Baseline and Project Conditions, a spatial database was developed that combined: (1) moderate and high suitability caribou habitat in high- and low-elevation areas; (2) low-elevation caribou movement habitat (Type 1 matrix range); (3) permanent disturbances on the landscape; and (4) the Project's footprint.

Please note, though the terms moderate and high suitability are used under item (1) above, it is assumed Telkwa Caribou can use and occupy habitat present regardless of its current suitability rating and is treated according to its capability in the revised effects assessment. We calculated the total effect attributable to the Project as the difference in disturbance between the scenarios:

$$\text{disturbance}_{\text{ProjectConditions}} - \text{disturbance}_{\text{BaselineConditions}} = \text{additional disturbance due to the Project.}$$

Detailed methods on the development of the spatial database are provided in the attached Appendix B *Telkwa Habitat Disturbance Spatial Database Information*.

### 5.3.2 EFFECTS ON ECCC DEFINED 'DISTURBED' HABITAT

The federal recovery strategy (Environment Canada 2014) requires jurisdictions to manage to a maximum of 35% disturbed habitat in low-elevation winter range and Type 1 matrix habitat, and to 'minimize' disturbance in high-elevation habitat. As noted, the recovery strategy does not provide a boundary to delineate the application of these thresholds, but this assessment adopts the RSA-2-Core as the area within which the 'minimal' threshold applies and the remainder of the RSA-1 as the area to which the 35% threshold applies (**Map 2**).

As defined by Environment Canada (2014), disturbed habitat includes anthropogenic features buffered by 500 m plus areas burned <40 years ago. The functional impact of disturbed habitat on caribou is ambiguous. It was adopted from a statistical relationship with juvenile recruitment among boreal caribou subpopulations. It is **not** intended to be a measure of sensory disturbance, nor is the 500-m buffer meant to imply reduced caribou use within 500 m (i.e., indirect effects). As stated in the *Scientific Assessment to Inform the Identification of Critical Habitat for Woodland Caribou* (Environment Canada 2011), *"… analyses indicated that the negative, population-wide effects of anthropogenic disturbance on caribou recruitment were precisely predicted by a 500 m buffer beyond disturbed areas*" (pg. 242). Additionally, the management threshold is unrelated to other critical habitat criteria related to biophysical attributes.

Here, ECCC-defined 'disturbed' habitat is treated as a separate Project impact measurement because the definition differs from the direct and indirect disturbances assessed in Section 5.3.1 (*Direct and Indirect Effects*). This disturbance metric is assessed against the Telkwa Caribou Herd recovery strategy definition and associated thresholds. The net disturbance of the Project was calculated after applying 500-m buffers around

permanent disturbances and the Project's infrastructure. Again, seral impacts such as buffered cutblocks, burns, and tertiary/quaternary trails were assumed to be fully regenerated and not contributing to 'disturbed' habitat.

### 5.3.3 SUMMARY OF REVISED EFFECTS ASSESSMENT

The magnitude of the net effect of the Project is **Low** (see Section 5.3.4) in high-elevation core range and low-elevation capable winter range (**Table 3**). The Project Footprint in high elevation is very small, resulting in minimal direct but larger indirect effects. The effects on capable winter range are also minimal in the Project Area. The net effect in low-elevation caribou movement habitat (Type 1 matrix range) is substantially greater for both direct and indirect effects (but still **Low** magnitude; see Section 5.3.4); these larger net effects are the result of TML assuming "**optimal/fully restored habitat**" baseline conditions where all tertiary/quaternary roads, fires, and cutblocks have been regenerated or restored.

**Table 3. Summary of effects (direct and indirect) within the RSA-1.**

| Habitat Component | Effects Component | Baseline Conditions (ha) | Project Conditions (ha) | Net Effect of the Project (ha) |
|---|---|---|---|---|
| High Elevation, Core Range | Direct (Footprints) | 9,377.3 | 9,380.7 | 3.4 |
| | Indirect (Sensory Disturbance) | 41,162.1 | 42,430.5 | 1,268.4 |
| | ECCC-defined 'Disturbed' Habitat | 19,036.0 | 19,107.2 | 3.4 |
| Low Elevation, Capable Winter Range | Direct (Footprints) | 93.6 | 207.6 | 57.03 |
| | Indirect (Sensory Disturbance) | 2,176.7 | 2,120.1 | -56.6 |
| | ECCC-defined 'Disturbed' Habitat | 1,646.1 | 1,693.5 | 23.7 |
| Low Elevation, Caribou Movement Habitat (Type 1 Matrix Range) | Direct (Footprints) | 2,910.7 | 3,666.1 | 755.4 |
| | Indirect (Sensory Disturbance) | 50,328.9 | 51,456.5 | 1,127.6 |
| | ECCC-defined 'Disturbed' Habitat | 36,436.3 | 37,230.7 | 818.1 |

## Direct Effects

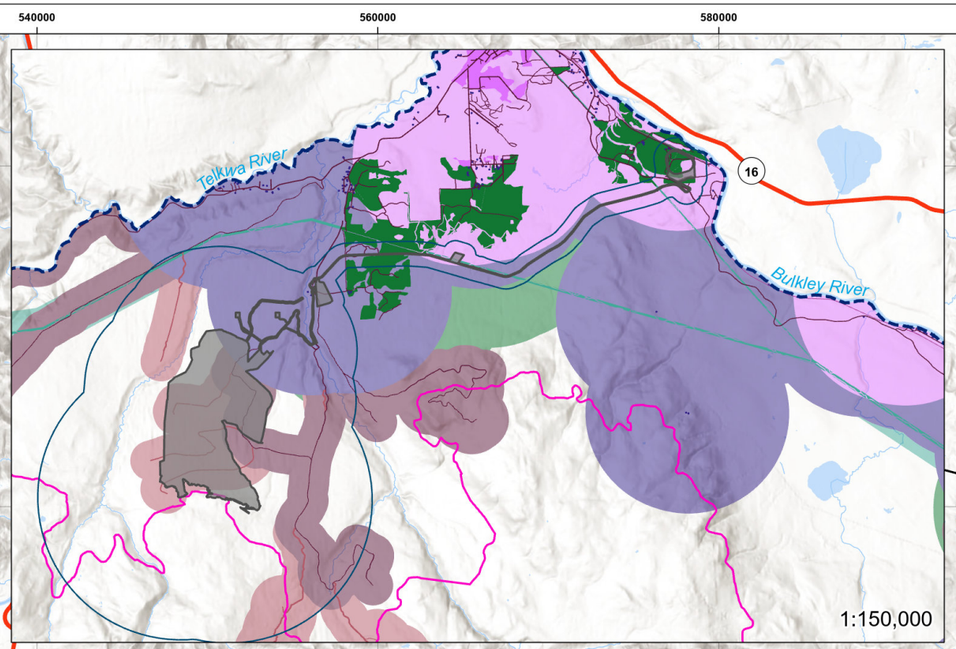
The net direct effect of the Project is expected to result in habitat loss primarily in low-elevation habitat, with 57.0 ha of capable winter range habitat and 755.4 ha of caribou movement habitat (Type 1 matrix) being lost due to the Project (**Map 7**), although ***only until reclamation is completed***. High-elevation caribou habitat in the RSA-2-Core is estimated to experience a 3.4 ha loss; again, ***only until reclamation is completed***. These figures are against an "**optimal/fully restored habitat**" Baseline Condition that considers only certain permanent disturbances.

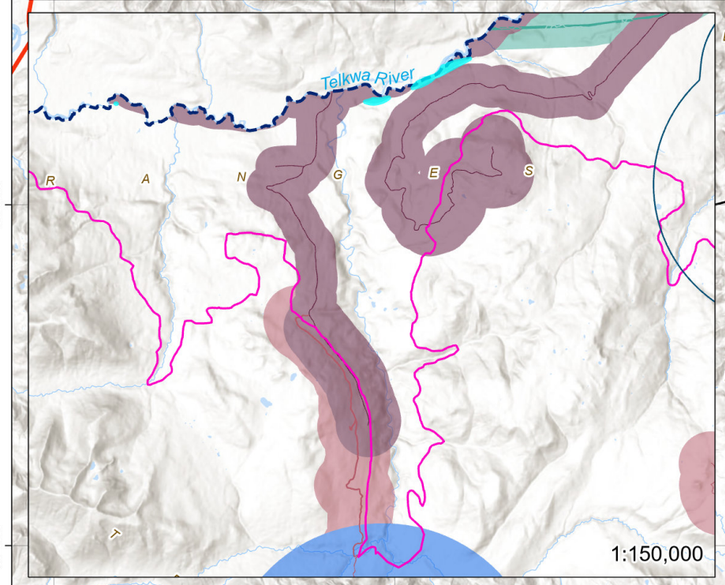
## Indirect Effects

The net indirect effect of the Project is expected to be greater than direct effects in both the high-elevation core range (1,268.4 ha) and low-elevation caribou movement habitat (Type 1 matrix) (1,127.6 ha) (**Map 7**). The net indirect effect in low-elevation capable winter range is negative (-56.6 ha), indicating less indirect effects with the Project than without it. The negative indirect effect results from the Project Footprint (direct effect) overriding the ZOI buffers (indirect effects) from existing roads that overlap with the Project. Thus, Project direct effects increase while baseline indirect effects decrease in low-elevation capable winter range. Furthermore, some habitat classified as capable low-elevation winter range is located close to human-related infrastructure (generally near the town of Telkwa). As a result, the direct effects assessment is overestimating direct Project effects in capable low-elevation winter range habitat because some of that habitat is unlikely to be used, even if in **optimal/fully restored habitat** condition, due to sensory disturbance in proximity to human settlement.

# Tenas Project

## Map 7. Disturbances (footprints plus ZOI buffers) under 'optimal' baseline conditions within RSA-1.







## Legend

- City/Town
- Highway
- Watercourse
- Waterbody

**Project Disturbance**

- Project Footprint
- Project Buffer

**Telkwa Caribou Herd**

- Critical Habitat (high/low elevation range; ECCC 2014)
- Draft BC Core Habitat (2019)

**Footprint Disturbance**

- Urban
- Building - Residential
- Recreation - Snowmobile
- Road - Primary/ Secondary
- Rail
- Building - Recreation
- Road - Tertiary/Trail
- Agriculture
- Powerline/Pipeline

**ZOI Disturbance Buffer**

- Urban
- Building - Residential
- Recreation - Snowmobile
- Road - Primary/ Secondary
- Rail
- Building - Recreation
- Road - Tertiary/Trail
- Agriculture
- Powerline/Pipeline
- Road - Haul

## Notes

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2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

## Sources

- Caribou habitat created from PEM, TEM, VRI datasets current to 2018 and updated with disturbance (Roads, Cutblocks, and Fires) to 2022. Contributing datasets from the Government of British Columbia.
- Project Data. 2022. Telkwa Coal Ltd.
- Basedata: Government of British Columbia
- Basemap: World Hillshade: Esri, NASA, NGA, USGS

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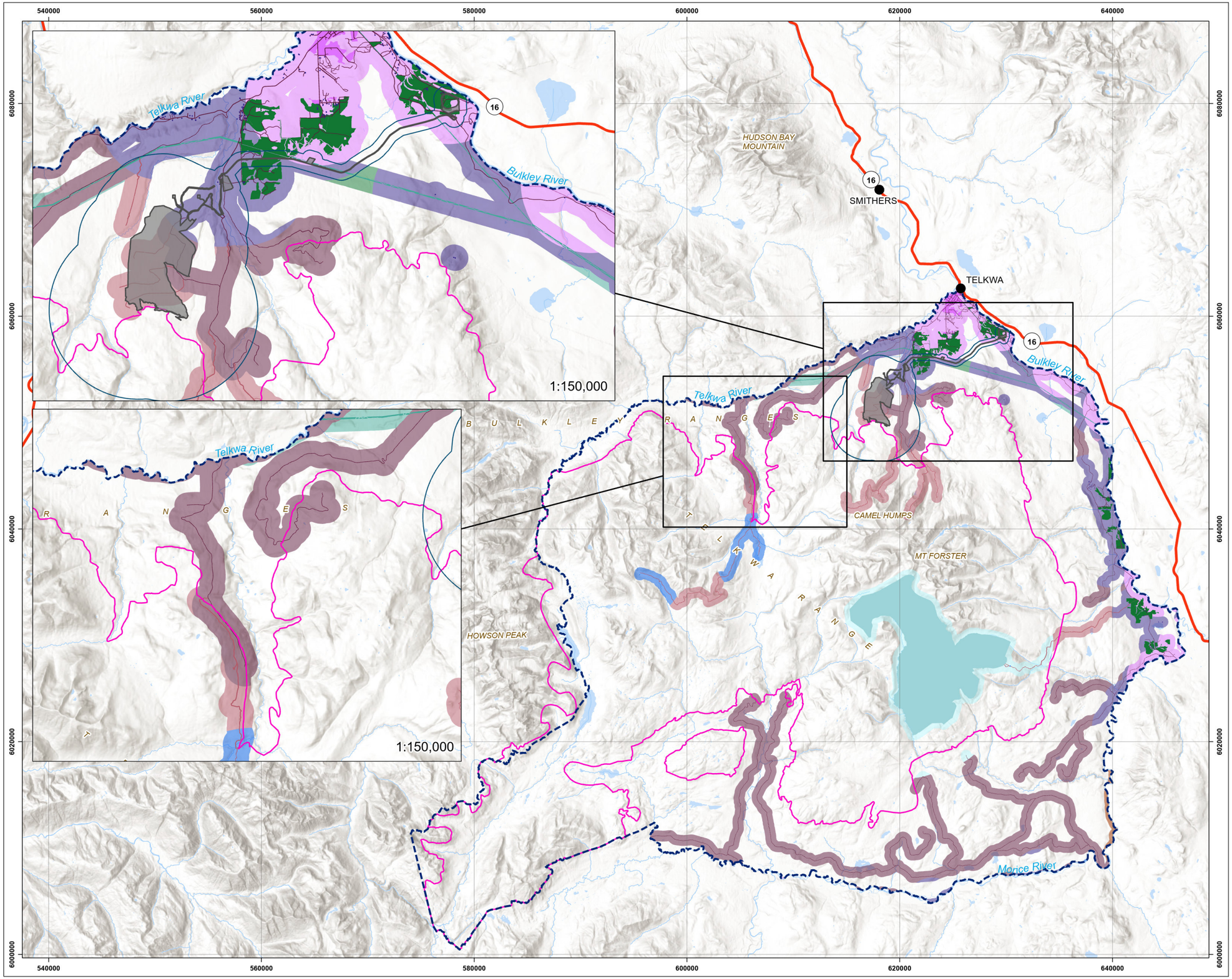
## ECCC-defined Disturbance Effects

With respect to ECCC-defined 'disturbed habitat' (i.e., 500-m buffers around anthropogenic footprints), the biggest potential effect of the Project occurs in low-elevation caribou movement habitat (818.1 ha), followed by low-elevation capable winter range habitat (23.7 ha), followed by high-elevation core range (3.4 ha) (**Map 8**). Note that nearly all this disturbance results from assuming baseline conditions that ignores the current distribution of cutblocks, fires, and tertiary and quaternary roads. **Map 9** provides an overview of all *current* disturbances, most of which are considered restored under the "**optimal/fully restored habitat**" baseline conditions (see Section 5.3.1 for details).

The total ECCC-defined 'disturbed' habitat at low elevation (capable winter range and Type 1 matrix range) is 38,924.2 ha (or 37.0% of the total area [105,237.7 ha]) with the Project and 38,082.4 ha (or 36.2%) without the Project. In both cases, the amount of 'undisturbed' habitat (63.0% and 63.8%, respectively) is slightly lower than ECCC's habitat management objective for the recovery of mountain caribou (minimum 65% undisturbed). The recovery strategy is not explicit about what constitutes minimal disturbance at high elevation. Based on the current assessment, the total disturbance is relatively similar with the Project (19,107.2 ha or 12.1%) or without the Project (19,036.0 ha or 12.0%). The effect on ECCC-defined 'disturbed' habitat does not influence subsequent offset calculations.

# Tenas Project

## Map 8. Disturbances (footprints plus ECCC 500m buffers) under 'optimal' baseline conditions within RSA-1.




## Legend

- City/Town
- Highway
- Watercourse
- Waterbody

**Project Disturbance**

- Project Footprint
- Project Buffer

**Footprint Disturbance**

- Urban
- Building - Residential
- Recreation - Snowmobile
- Road - Primary/ Secondary
- Rail
- Building - Recreation
- Road - Tertiary/Trail
- Agriculture
- Powerline/Pipeline

**Telkwa Caribou Herd**

- Critical Habitat (high/low elevation range; ECCC 2014)
- Draft BC Core Habitat (2019)

**ECCC Disturbance Buffer (500 m)**

- Urban
- Building - Residential
- Recreation - Snowmobile
- Road - Primary/ Secondary
- Rail
- Building - Recreation
- Road - Tertiary/Trail
- Agriculture
- Powerline/Pipeline
- Road - Haul

## Notes

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- Basedata: Government of British Columbia
- Basemap: World Hillshade: Esri, NASA, NGA, USGS

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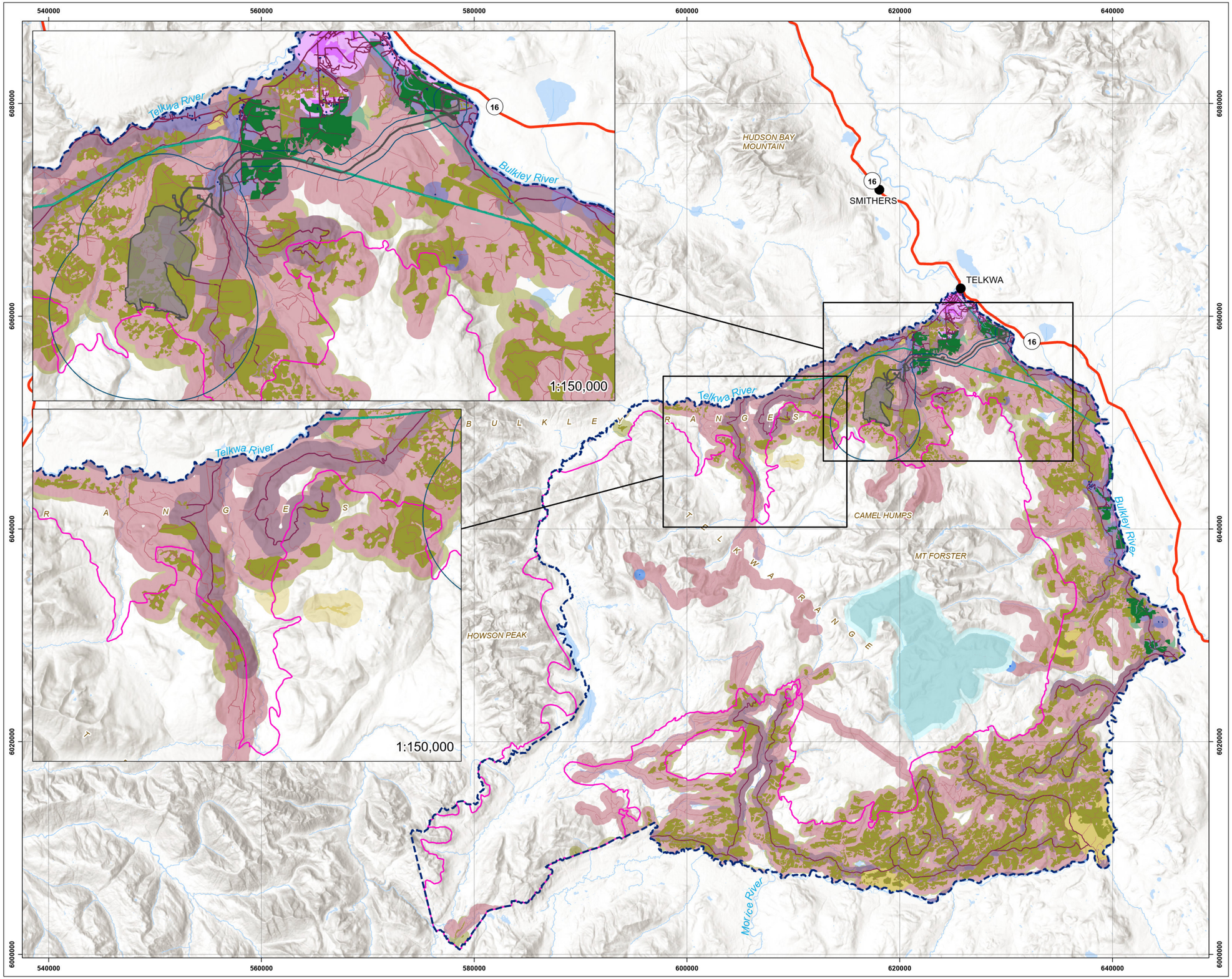
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# Tenas Project

## Map 9. Disturbances (footprints plus ECCC 500m buffers) under current baseline conditions within RSA-1.




Legend

- City/Town
- Highway
- Watercourse
- Waterbody

**Project Disturbance**

- Project Footprint
- Project Buffer

**Telkwa Caribou Herd**

- Critical Habitat (high/low elevation range; ECCC 2014)
- Draft BC Core Habitat (2019)

**Footprint Disturbance**

- Urban
- Building - Residential
- Recreations - Snowmobile
- Road - Primary/ Secondary
- Rail
- Building - Recreation
- Road - Tertiary/Trail
- Agriculture
- Powerline/Pipeline
- Cutblock
- Fire

**ECCC Disturbance Buffer (500 m)**

- Urban
- Building - Residential
- Recreation - Snowmobile
- Road - Primary/ Secondary
- Rail
- Building - Recreation
- Road - Tertiary/Trail
- Agriculture
- Powerline/Pipeline
- Cutblock
- Fire
- Road - Haul

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- Project Data. 2022. Telkwa Coal Ltd.
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### 5.3.4 EFFECTS CHARACTERIZATION

The net direct and indirect effects on caribou habitat relative to the habitat baseline comprise the residual effects of the Project on the caribou subcomponent of the Wildlife Valued Component. Baseline condition in this instance is defined as entirely undisturbed habitat except permanent disturbances and their buffers (i.e., "**optimal/fully restored habitat**" baseline conditions to the extent possible).

Based on the net disturbance expected to be caused by the Project relative to the amount of baseline caribou habitat, both the direct and indirect residual effects are expected to be **Low** (**Table 4**). Indirect effects will be infrequent until the end of the Operation phase, while direct effects will be continuous until caribou habitat is fully restored at the end of the Decommissioning and Reclamation phase.

**Table 4. Summary of the residual effects assessment for alteration and/or loss of caribou habitat.**

| Residual Effect Characteristic | Definition | Rating Definitions | Caribou Rating and Justification |
|---|---|---|---|
| **Magnitude** | The intensity of the residual effect, or a measure of the degree of change from existing (baseline) conditions. | **Effect: Alteration and/or Loss of Habitat**<br>**Low:** Effect occurs that might be detectable but is expected to be within the range of baseline or guideline values, or within the range of natural variability (0-5%)<br>**Moderate:** Effect is expected to be at or to slightly exceed the limits of baseline or guideline values (6-15%) – clearly an effect and may become a management concern.<br>**High:** Effect is expected to exceed the limits of baseline or guideline values (>15%) – can pose a serious risk and represents a management concern. | **Direct Effects**<br>**Overall Low:** Collectively, the amount of caribou habitat within the RSA-1 directly disturbed by the Project represents 0.3% of the baseline conditions.<br>The Project is projected to cause 3.4 ha of net direct disturbance in high-elevation caribou habitat (RSA-2-Core), where there would be 148,615.0 ha of undisturbed habitat without the Project (baseline conditions). Therefore, the high-elevation caribou habitat directly disturbed by the Project represents 0.002% of the baseline conditions (**Low**).<br>The Project is projected to cause 57.0 ha of net direct habitat disturbance in low-elevation capable winter range habitat, where there would be 4,595.0 ha of undisturbed habitat without the Project (baseline conditions). Therefore, the low-elevation capable winter range habitat directly disturbed by the Project represents 1.2% of the baseline conditions (**Low**).<br>The Project is projected to cause 812.4 ha of net direct habitat disturbance in low elevation caribou movement habitat (Type 1 matrix range), where there would be 96,870.6 ha of undisturbed habitat without the Project (baseline conditions). Therefore, the low-elevation caribou movement habitat directly disturbed by the Project represents 0.8% of the baseline conditions (**Low**). |

| Residual Effect Characteristic | Definition | Rating Definitions | Caribou Rating and Justification |
|---|---|---|---|
| | | | **Indirect Effects**<br>**Overall Low**: Collectively, the amount of caribou habitat within the RSA-1 indirectly disturbed by the Project represents 1.4% of the baseline conditions. Also understanding the indirect effects do not preclude/eliminate the use of these habitats by caribou but only potentially reduce caribou use.<br>The Project is projected to cause 1,268.4 ha of net indirect habitat disturbance in high-elevation caribou habitat, where there would be 116,830.2 ha of undisturbed habitat without the Project (baseline conditions). Therefore, the high-elevation caribou habitat indirectly disturbed by the Project represents 1.1% of the baseline conditions (**Low**).<br>The Project is projected to decrease indirect habitat disturbance in low-elevation capable winter range habitat by 56.6 ha, where there would be 2,511.9 ha of undisturbed habitat without the Project (baseline conditions). Therefore, the low-elevation capable winter range habitat indirectly disturbed by the Project represents -2.3% of the baseline conditions (**Low**).<br>The Project is projected to cause 1,127.6 ha of net indirect habitat disturbance in low elevation caribou movement habitat (Type 1 matrix range), where there would be 49,452.4 ha of undisturbed habitat without the Project (baseline conditions). Therefore, the low-elevation caribou movement habitat indirectly disturbed by the Project represents 2.3% of the baseline conditions (**Low**). |
| **Geographic Extent** | The geographic area within which the residual effect is expected to occur. | **Project Area:** Effect is limited to the Project Area.<br>**Local:** Effect is limited to the Wildlife Local Study Area (WLSA).[2]<br>**Regional:** Effect extends beyond the WLSA but within the Regional Study Area. | **Local:** Project-related effects on caribou habitat are projected to occur entirely within the WLSA. |
| **Duration** | Length of time over which the residual effect is expected to persist. | **Short-term:** Less than two (2) years (i.e., effect happens during the Construction Phase only).<br>**Medium-term:** Two (2) years to 52 years (i.e., effect happens from the | **Medium-term:** The residual direct and indirect disturbance of caribou habitat is expected to occur mainly during Construction and Operation phases. Reclamation of the Project Area will be complete at the end of the Decommissioning and Reclamation phase, at |

[2] See BC EAO EAC Application – Tenas Project, Section 4.0 Environmental Effects Assessment Chapter 8 Wildlife Valued Component

| Residual Effect Characteristic | Definition | Rating Definitions | Caribou Rating and Justification |
|---|---|---|---|
| | | Construction Phase through to the end of the Post-closure Phase).<br>**Long-term:** More than 52 years (i.e., effect extends beyond the Post-closure Phase). | which point any indirect disturbance will cease. However, it will take decades for the reclaimed areas (direct disturbances) to become potential caribou habitat (if the area were to remain undisturbed by other human development). |
| **Frequency** | How often the residual effect is expected to occur. | **Infrequent:** Effect occurs several times at sporadic intervals.<br>**Frequent:** Effect occurs many times on a regular basis.<br>**Continuous:** Effect occurs continuously. | **Continuous:** Direct disturbance of caribou habitat disturbance will have a continuous effect on caribou (i.e., direct habitat loss) until the disturbance is fully reversed and habitat is restored.<br>**Infrequent:** Indirect effects to caribou habitat due to sensory disturbance from Project activities is expected to be infrequent during the Project's Construction and Operation phases because caribou must be in the proximity of the Project to be affected and only a small portion of currently occupied range is projected to be affected. |
| **Reversibility** | Whether or not the residual effect can be reversed once the activity causing the residual effect ceases. | **Fully reversible:** A residual effect that diminishes to baseline conditions.<br>**Partially reversible:** A residual effect that partially diminishes to baseline conditions.<br>**Irreversible:** A residual effect that will not diminish to baseline conditions. | **Fully reversible:** Directs effects to caribou habitat are expected to be fully reversible upon reclamation of the Project Area after the Decommissioning and Reclamation phase. Indirect effects to caribou habitat are expected to be fully reversible following the reduction in human activity after the Operation phase. |
| **Context** | The extent to which the Wildlife VC has been affected by past and present environmental and socio-economic processes and conditions, its potential sensitivity to the Project-related residual effect, and its ability to recover from that effect (i.e., resilience). | **Low:** Subcomponent has high resilience to stress or ecological change. This resilience can be a result of the ecological characteristics of the species or ecosystem, and / or a lack of historic and ongoing anthropogenic or natural disturbance. No listed species present.<br>**Moderate:** Subcomponent has moderate resilience to stress or ecological change. This resilience can be a result of the ecological characteristics of the species or ecosystem, and/or an intermediate level of historic or ongoing anthropogenic or natural disturbance with the capacity to assimilate more change. Presence of blue-listed species.<br>**High:** Subcomponent has weak resilience to stress or ecological change. This resilience can be a result | **High:** There is a high level of historic and ongoing anthropogenic disturbance, leading to unfavourable predator-prey conditions for the species. The Telkwa herd is small and potentially not self-sustaining under current conditions. |

| Residual Effect Characteristic | Definition | Rating Definitions | Caribou Rating and Justification |
|---|---|---|---|
| | | of the ecological characteristics of the species or ecosystem, and/or a high level of historic or ongoing anthropogenic or natural disturbance. Presence of red-listed or *SARA*-listed species. | |
| **Likelihood** | Likelihood refers to the probability that the predicted residual effect will occur while considering that the mitigation will be successful. | **Likely:** Moderate to High Probability of an effect<br>**Unlikely:** Low probability of an effect | **Likely:** Both direct and indirect effects on caribou habitat are expected if the Project proceeds. |
| **Significance Determination** | The characterisation of residual effects is based on the review of existing conditions (4. Existing Conditions), the assessment of Project-related effects, other relevant scientific information, and professional judgement. All residual effects (independent of their Significance rating) are carried forward to the CEA. | **Not Significant:** A residual effect that is not expected to result in a change to a Wildlife VC subcomponent and is not expected to alter its population viability or persistence within their respective RSA beyond an acceptable level (e.g., where it is not sustainable or is unavailable to contribute to biodiversity and ecosystem function).<br>**Significant:** A residual effect that is expected to result in a change to a Wildlife VC subcomponent and is expected to alter its population viability and persistence within their respective RSA beyond an acceptable level (e.g., where it is not sustainable or is unavailable to contribute to biodiversity and ecosystem function). | **Not Significant:** The Project is expected to have low net direct and indirect effects on all caribou habitat components within the RSA-1 (collectively 2.1%), including low direct (0.002%) and indirect (1.1%) effects on high elevation (core range) caribou habitat. The Project is expected to have low indirect effects on low-elevation capable winter range (-2.3%) and movement habitat (2.3%).<br>Most indirect effects are occurring in habitat currently unoccupied by most caribou and are fully reversible. Additionally, indirect effects do not entail complete loss of habitat or preclude/eliminate the use of these habitats by caribou. Indirect effects only have the potential to decrease the probability of use by caribou.<br>Therefore, the probability of the Telkwa Caribou Herd recovering to become a self-sustaining subpopulation is not significantly lower than if the Project does not proceed. |
| **Confidence** | Confidence estimates allow the decision-maker to evaluate risk associated with the residual effects of the Project. | **Low Confidence:** is assigned when the VC, subcomponent and/or Project interaction is not well understood, and/or the mitigation has not been proven effective.<br>**Moderate Confidence:** is assigned where the VC is understood in similar ecosystems and effects have been documented in the larger regional area or in the literature, and/or the | **High Confidence:** The direct and indirect effects on caribou habitat relative to the baseline conditions can be calculated with confidence. The effect of current and projected habitat conditions on the demographic performance of the Telkwa Caribou Herd is highly uncertain because they are affected by many factors outside the influence of the Project (e.g., ongoing forest harvesting within WHA #6-333, and unrestricted road-building and recreational access). |

| Residual Effect Characteristic | Definition | Rating Definitions | Caribou Rating and Justification |
|---|---|---|---|
| | | mitigation has been proven effective elsewhere.<br>**High Confidence:** is assigned when the VC, subcomponent, and Project interactions are well understood, and the mitigation has been proven effective. | |

While the Project's direct and indirect effects on caribou habitat are expected to be **Not Significant**, the Telkwa Caribou Herd is currently affected by high levels of anthropogenic habitat disturbance and related stressors (e.g., predator-prey conditions). Even under "**optimal/fully restored habitat**" baseline conditions, the suggested recovery strategy 35% disturbance threshold is exceeded at low elevation (36.2%), and high elevation disturbance reaches 12.0%, using ECCC's criteria for disturbance (see Section 5.3.3). As a result, the Telkwa Caribou subpopulation is potentially not self-sustaining whether the Project proceeds or not, unless additional actions are taken to reverse the decline.

# 6 OFFSETTING FOR DIRECT AND INDIRECT EFFECTS

Section 5.1 addresses the IR theme related to **Offsetting for Direct and Indirect Effects**. This theme corresponds to the following EAO ITT IRs:

- ***ITT IR# 412 – LWRS: The ECCC review thoroughly lists the gaps and expectations. TCL did not adequately consider the comment from ECCC. The clarification on the issue of habitat type requires re-evaluation of the project impacts and subsequent assessment of adverse effects. LWRS comment on 407 also needs to be considered here.***
- ***ITT IR# 412 – ECCC: ECCC advises that SMC critical habitat is likely to be destroyed by the Project. In the event the Project is approved, ECCC's view is that mitigation measures, including offsetting, should be provided to address the Project's contribution to cumulative effects on the Telkwa herd. Offsetting provided should be commensurate with the risk to the Telkwa herd and its critical habitat, including the consideration of the low population number, and that the management thresholds for caribou critical habitat have already been exceeded. In addition, ECCC notes the recommended edits are intended to correct inaccuracies in TCL's text (i.e., the 35% disturbance threshold does not apply to high elevation range).***
- ***ITT IR# 417 – LWRS: LWRS agrees with ECCC comments and recommends the proponent review the Environmental Mitigation Policy and provide an offsetting plan. Offsets must: 1) be designed to deliver tangible, measurable, on the-ground conservation outcomes for caribou that are clearly linked to the impacts predicted to remain after all other mitigation measures are applied. 2) Result in no net loss of caribou habitat.***
- ***ITT IR# 417 – ECCC and LWRS: TCL must work with ECCC and LWRS to develop an adequate assessment following the mitigation hierarchy, including appropriate mitigation, and offsetting measures (e.g., securement, habitat restoration) at agreed upon ratios. Multiple ratios may apply depending on the specifics of the impacted and offset habitat types and locations.***

This section lays out the steps taken by Telkwa Mining to develop a proposal to offset the direct and indirect effects of the Project on caribou.

## 6.1 RATIONALE

BC's environmental mitigation policy[3] outlines a four-step hierarchy: avoid, minimize, restore on-site, and offset. This hierarchy is to be applied throughout the project planning process and the assessment of

[3]http://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/laws-policies-standards-guidance/environmental-guidance-and-policy/environmental-mitigation-policy

environmental effects, such that feasible options are considered before moving to subsequent steps in the hierarchy.

The Project design went through several iterations to reduce potential effects on caribou, and to reduce direct and indirect effects on high-elevation caribou habitat in particular. The direct footprints and indirect (sensory disturbance) buffers, which were used in the revised effects assessment provided in Section 5.3, reflect measures that Telkwa Mining implemented to avoid potential effects, while considering the location of the resource in relation to caribou habitat and the requirements to complete the Project successfully.

Actions taken to avoid effects include:

- Avoiding the placement of material piles, stockpiles, and water management features in high elevation core habitat.
- Avoiding the placement of infrastructure including powerlines, communication features or radio towers in high elevation core habitat.
- Avoiding mining the deeper sections of the Tenas Deposit that would require a greater disturbance footprint for material storage piles.
- Clustering Project components to avoid additional disturbance if they were not clustered.
- Backfilling approximately 50% of the material excavated from the open pit thereby avoiding additional disturbance required for material storage piles.
- Using the BC hydro distribution system versus the transmission system thereby avoiding the construction of 15 km powerline.
- Using a novel design for the rail loadout thereby avoiding the construction of additional 3km of rail infrastructure and associated disturbance.
- Using existing infrastructure to avoid the construction of larger infrastructure footprints and disturbance on site.

Actions inside and outside of the Project Footprint are proposed to minimize effects on caribou. Inside the footprint, additional design (e.g., clustering mine site components) and activity (e.g., blast timings and patterns, vehicle traffic) measures will reduce potential effects. Outside the footprint, recreational access by the public will be monitored and will include an education component focused on minimizing the impact of users' activities on caribou and if required can be controlled. Wet'suwet'en Nation access will be managed through their own laws, traditions, and agreements.

Complete on-site reclamation to reduce direct or indirect effects is not possible during Project operations. However, progressive reclamation activities will occur during the Operation phase, and full reclamation of the

Project is planned Post-closure phase.[4] We address the remaining potential effects of the Project through the offsetting strategy outlined in this section. Offsetting involves taking actions to incrementally benefit caribou within RSA-1 but outside the Project's direct footprint and indirect buffers.

## 6.2 CONSTRAINTS

Note that the design and effectiveness of an offsetting strategy for the Project is constrained in several ways:

1. Telkwa Mining cannot control the use of Crown land by other rights-holders, or by the public engaging in regulated or unregulated activities, outside of the Project's Permitted Area. Therefore, proposed actions (e.g., habitat restoration) will require regulatory approval and alignment with other land users to be effective.

2. Because Telkwa Caribou currently range entirely on Crown land, opportunities for land securement through fee-simple purchase are not available.

3. Caribou are in decline throughout Canada for complex reasons (Festa-Bianchet et al. 2011), and while actions by Telkwa Mining within the RSA-1 can be developed to offset potential Project effects, there are many factors affecting the sustainability of the Telkwa Caribou Herd that cannot be addressed directly through Telkwa Mining's activities (e.g., climate factors, Crown land use policies, predator-prey management), and the risk of further population declines will persist unless other threats are also mitigated.

## 6.3 PRINCIPLES

The proposed offset strategy is based on the following principles:

1. The strategy follows "like-for-like", where practicable. Ideally, this means that potential effects on high-elevation caribou habitat should be offset by actions applied in the high-elevation zone; however, given the limited restoration opportunities at high elevation (see Section 6.5), these effects are offset at low elevation at a higher ratio (see below). Potential low-elevation habitat effects should be offset by low-elevation habitat actions.

2. Different impact–offset ratios were calculated for Project effects in high-elevation habitat, low-elevation capable winter range habitat, and low-elevation caribou movement habitat. BC's Habitat Offset Decision Support Tool (Caribou-Specific Version, version 1.4) was used to calculate offset ratios for each caribou habitat type. **The assumptions and parameters used to calculate offset ratios are documented in Excel workbooks attached to this IR response submission (see submission email, filename "HabitatOffsetTool_version1.4_Caribou_20260122.zip").**

[4] See Section 13.0 Management Plans, Chapter 15 Reclamation and Closure Plan

Use of the offsetting tool required the following key assumptions (as discussed during the December 15, 2025, meeting with BC WLRS and ECCC; see Section 2):

a. Ecological quality of different habitat types assigned as follows: low-elevation capable winter range and Type 1 matrix range = medium quality; high-elevation core range = high quality.

b. Offsets provide functional restoration "*on a path to ecological restoration*".

c. Offset calculations assume a 5-year time lag and a medium discount rate to reflect the risk that restoration activities may not be completed in 5 years.

The final offset ratios were 14.93:1 for high-elevation habitat, 12.12:1 for low-elevation capable winter range habitat, and 10.69:1 for low-elevation caribou movement (Type 1 matrix range) habitat. Effects in high-elevation habitat are planned to be offset with actions in low elevation caribou movement habitat (Type 1 matrix range), which is reflected by the higher ratio. Effects in low-elevation capable winter range habitat and caribou movement habitat are both planned to be offset with actions in caribou movement habitat (Type 1 matrix range).

3. The resulting offset calculations for all habitat components are further inflated by a conversion factor of 1.25 to address the restoration benefit lost to overlapping indirect effects, as applied in similar projects.

4. In the absence of securement options, the primary focus of offsetting is on caribou habitat restoration, specifically the restoration of linear features. This is because linear features comprise most of the habitat disturbance in the high-elevation range, and polygonal features such as fires and forestry cutblocks are generally expected to regenerate naturally or through the legal silviculture obligations of forest licensees. In addition, linear features generate proportionately larger indirect effects on caribou than polygonal features and, therefore, the restoration of these features generates a larger benefit through the reduction of indirect effects.

5. Restoration candidates at high elevation (core range) follow the priorities developed in the *Telkwa Caribou Tactical Restoration Plan* (ERM Consultants Canada Ltd. 2019), which was the best source of information on the current state of disturbance features and associated priorities for restoration, based on the technical methods used and consultations conducted during the development of the plan. However, field reconnaissance identified these features to be mostly poor candidates (see Section 6.5) and they were not considered as part of the final offsetting approach. Restoration candidates at low elevation are numerous in the Telkwa Caribou Herd range and can be prioritized based on stakeholder and regulator input.

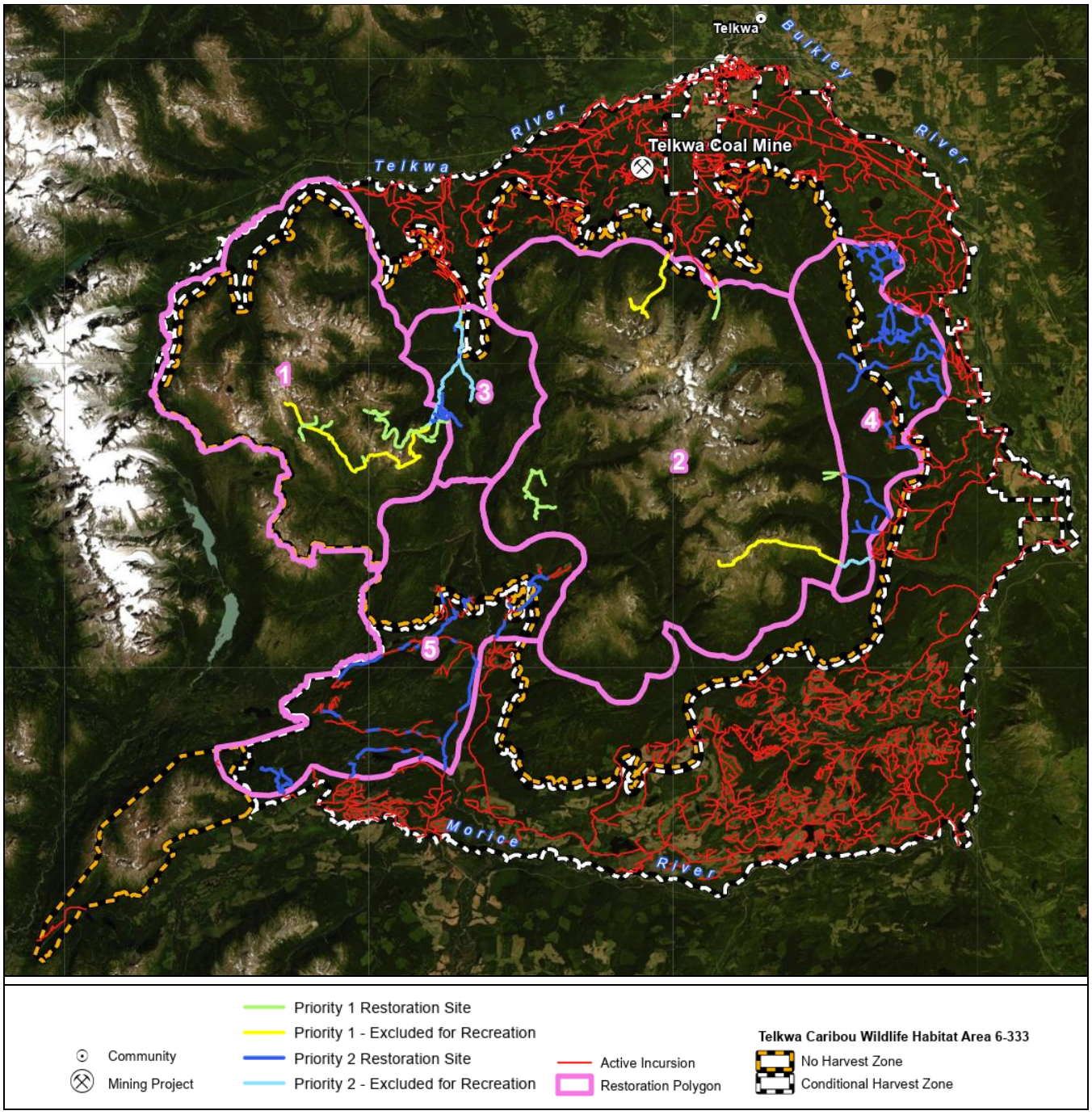
## 6.4 ASSUMPTIONS

With the goal of mitigating direct and indirect effects on caribou habitat, the benefit of restoring high-elevation candidate linear features identified in the *Telkwa Caribou Tactical Restoration Plan* (ERM Consultants Canada

Ltd. 2019) and low-elevation candidate features found in caribou movement (Type 1 matrix range) habitat was assessed. The assumed the cost of treatment to restore linear features was $20,000 per linear kilometre treated to promote low-elevation capable winter range (as per discussion with BC WLRS during the meeting on August 28, 2025; Section 2) and $15,000 per linear kilometre treated in caribou movement habitat (Type 1 matrix range). The difference in these costs is based on the assumption that restoring caribou biophysical habitat is more challenging and likely more costly than restoring habitat to a standard that permits caribou movement and is consistent with a low-predator prey density. Additionally, 1 km of linear restoration was assumed to be equivalent to restoring 100 ha of polygonal disturbance (1 km × 500-m buffer).

## 6.5 RESTORATION OPPORTUNITIES

**Map 10** illustrates the candidate linear features for restoration by their priority ranking, as developed by ERM Consultants Canada Ltd. (2019).




**Map 10. Candidate linear features and associated priorities for restoration within the range of Telkwa Caribou. Taken from ERM Consultants Canada Ltd. (2019; Figure 4.2-1).**

Telkwa Mining conducted field reconnaissance of the priority linear features in all restoration polygons identified in the *Telkwa Caribou Tactical Restoration Plan* (ERM Consultants Canada Ltd. 2019). Linear features in high- and low-elevation habitat zones were assessed for their restoration suitability as part of the proposed offsets for potential direct and indirect Project effects. Visual assessments of Priority 1 features in the high-elevation core range (restoration polygons 1–3; see **Map 10**), and Priority 2 features connecting low-to-high elevations (restoration polygon 4, branching off Lawson Road; see **Map 10**), were completed on September 19 and 21, 2024. Visual assessments of Priority 2 features at low and high elevations (restoration polygon 5, branching of Thautil, Chisolm, and Morice West forestry service roads) were completed on August 14, 2025. A detailed account of the linear feature field reconnaissance is provided in Appendix C.

Among the clusters of candidate linear features surveyed in the high-elevation zone of restoration polygons 1–3 (September 19 and 21, 2024), only two were visible on low-altitude flights (suggesting mapping errors). Both sites would require either new or upgraded access from the nearest public roads to transport heavy equipment to conduct restoration treatments. Additionally, on-site existing vegetation would likely be re-disturbed during treatment (**Photo 3**). From this, Telkwa Mining concluded that treatments in restoration polygons 1–3 would cause a net increase in habitat disturbance and extend recovery times over much of their lengths.



**Photo 3. Examples of regeneration on high-elevation (core range) candidate linear features in restoration polygons 1 (left panel) and 2 (right panel).**

The clusters of candidate linear features surveyed in the low- and high-elevation zones of restoration polygon 5 (August 14, 2025) were heavily disturbed and suitable for restoration. These sites were easily accessible from Thautil, Chisolm, and Morice West foresty service roads (e.g., **Photo 4**). Several features provided connections between low and high elevations. In the high-elevation habitat zone, approximately 9 km of road was apparent.



**Photo 4.** **High-elevation (core range) candidate linear features in restoration polygons 5 accessible by Chisolm Foresty Service Road (left panel) and Morice West Foresty Service Road (right panel).**

Low-elevation linear feature candidates were more accessible and could feasibly be treated to improve conditions in the caribou movement habitat (Type 1 matrix range) (**Photo 5**). Though restoration is unlikely to provide immediate benefit to caribou because it occurs within a landscape of abundant moose and wolves, it meets the BC WLRS objective of reducing overall disturbance in matrix habitat (as per discussion with BC WLRS on August 28, 2025; Section 2).



**Photo 5.** **Low-elevation (Type 1 matrix range) candidate linear features in restoration polygon 4 accessible by Lawson Road.**

## 6.6 OFFSET CALCULATION

**Table 5** presents a summary of direct and indirect effects of the Project, by habitat component, along with the financial offsetting that could be applied to restore habitat, where practicable, or other actions deemed appropriate (see Section 6.7 *Offset Implementation*). The final offset package value is $7,621,581.

**Table 5. Offset calculation for direct and indirect effects of the Project, by habitat component.**

| Habitat Component | Effects Component | **Net Effect** Assumes **optimal/fully restored habitat conditions**, not current baseline **(ha)** | Offset Location | Offset Multiplier | Offset × 1.25 (ha) | Cost per 100-ha | Total Cost |
|---|---|---|---|---|---|---|---|
| High Elevation, Core Range | Direct (Footprints) | 3.4 | Type 1 Matrix | 14.93 | 63.1 | $15,000 | $9,469 |
| | Indirect (Sensory Disturbance) | 1,268.4 | Type 1 Matrix | 14.93 | 23,671.5 | $15,000 | $3,550,727 |
| Low Elevation, Capable Winter Range | Direct (Footprints) | 57.0 | Type 1 Matrix | 12.12 | 863.9 | $20,000 | $172,786 |
| | Indirect (Sensory Disturbance) | -56.6 | – | – | – | – | – |
| Low Elevation, Caribou Movement Habitat (Type 1 Matrix Range) | Direct (Footprints) | 812.4 | Type 1 Matrix | 10.69 | 10,856.2 | $15,000 | $1,628,431 |
| | Indirect (Sensory Disturbance) | 1,127.6 | Type 1 Matrix | 10.69 | 15,067.8 | $15,000 | $2,260,168 |
| | | | | | | **Total** | **$7,621,581** |

## 6.7 OFFSET IMPLEMENTATION

Implementation of the offset plan could begin with the formation of a Telkwa Caribou Guardianship Committee (Guardship Committee), which would assume management of habitat restoration and other projects funded via direct financial payments by Telkwa Mining.

Responsibilities of the Guardianship Committee would include:

1. Establishing and maintaining sound financial control over offset funds.
2. Finalizing restoration priorities and a feasible schedule for implementation.
3. Developing other caribou management priorities that reflect the ecological needs of Telkwa Caribou Herd and affected communities.

4. Meeting regulatory requirements related to proposed projects.
5. Leveraging additional funds to support projects, where possible through the writing of grant applications.
6. Managing, monitoring, and evaluating restoration activities and projects involving off-set funds through the Caribou Monitoring and Mitigation Plan (CMMP).
7. Providing transparent reports of progress to governments and the public.

In the spirit of joint stewardship, the Guardianship Committee could be chaired by representatives of First Nations and Telkwa Mining, and membership could include representatives from local government, business, and non-profit groups, and appointed and/or elected public members. The term of the Committee would be aligned with the term of the Project while the minimum term for committee members would be set at five years.

Given the scope and workload of managing the implementation of habitat offset projects, other organizations, such as the Habitat Conservation Trust Foundation, which has a dedicated caribou habitat restoration fund[5], could receive some portion of the funds and assume some responsibility for implementation.

Once the Guardianship Committee or similar structure is established and financial controls are in place, Telkwa Mining will fund the committee as per an agreed upon schedule developed by the representatives of the committee prior to the start of construction.

## 6.8 ADAPTIVE MANAGEMENT

As Telkwa Mining will be implementing a Caribou Monitoring and Mitigation Plan (CMMP), the effects of the Project will be reviewed on a 5-year basis to align with reclamation and mine plan updates including potential effects to caribou from the Project and effects of restoration activities. There will be an opportunity for additional funds to be provided to the Guardianship Committee if restoration treatments do not produce benefits to completely offset the Project's predicted effects. These funds can be used for a variety of purposes such as completing additional restoration projects and/or developing additional caribou management priorities that reflect the ecological needs of Telkwa Caribou and affected communities.

The science of ecosystem restoration and caribou habitat restoration is evolving quickly, with new and additional provincial and federal projects being carried out in different caribou herds, within varying ecosystem types. To adaptively manage the CMMP, and to keep up with current activities, Telkwa Mining will implement a five-year cycle of literature review and a gap analysis of the Tenas Project to ensure that the best science is being applied to avoid and mitigate potential effects on caribou.

[5] https://hctf.ca/grants/caribou-habitat-restoration-grants/

# 7 SIGNATURE OF QUALIFIED PROFESSIONAL




26 January 2026

Steve Wilson, *Ph.D.*, *R.P.Bio.* Date




January 26, 2026

Kerman Bajina, *M.Sc.*, *R.P.Bio.* Date

# 8 REFERENCES

Ausenco. 2025. Tenas Project – Updated Blasting Noise Assessment. Letter to Dan Farmer. July 28, 2025 email.

BC Ministry of Forests and Range and BC Ministry of Environment (eds.). 2010. Field Manual for Describing Terrestrial Ecosystems, 2nd Edition. BC Ministry of Forests and Range, Victoria. 266 pp.

Dodd, N. and Carswell, T. 2019. Caribou core and matrix habitat in British Columbia - mapping methods. Caribou Recovery Program, Ecosystem Information Section, Knowledge Management Branch, B.C. Ministry of Environment & Climate Change Strategy, Victoria, British Columbia. 4 pp.

Environment and Climate Change Canada. 2022. CWS Summary of Materials Provided to CWS Under Contract #3000731012 (Fiscal Year 2021-22) by Contractor Dr. Eric Palm. Canadian Wildlife Service.

Environment Canada. 2011. Scientific Assessment to Inform the Identification of Critical Habitat for Woodland Caribou (*Rangifer tarandus caribou*), Boreal Population, in Canada. 2011 Update. Canadian Wildlife Service, Ottawa, Ontario. 102 pp. (http://epe.lac-bac.gc.ca/100/200/301/environment_can/2011/scientific_assessment_inform-ef/CW66-296-2011-eng.pdf)

Environment Canada. 2014. Recovery Strategy for the Woodland Caribou, Southern Mountain Population (*Rangifer tarandus caribou*) in Canada. *Species at Risk Act* Recovery Strategy Series. Environment Canada, Ottawa, ON. 103 pp.

ERM Consultants Canada Ltd. 2019. Telkwa Caribou Tactical Restoration Plan. Smithers, British Columbia. 72 pp.

Festa-Bianchet, M., Ray, J.C., Boutin, S., Côté, S.D., and Gunn, A. 2011. Conservation of caribou (*Rangifer tarandus*) in Canada: an uncertain future. Canadian Journal of Zoology 89:419–434. DOI: 10.1139/Z11-025

Government of British Columbia. 2018. *Environmental Assessment Act*. SBC 2018, c. 51. Ministry of Environmental and Climate Change Strategy. Current to April 23, 2024. (https://www.bclaws.ca/civix/document/id/complete/statreg/18051)

Johnson, C. and St-Laurent, M.-H. 2011. Unifying Framework for Understanding Impacts of Human Developments on Wildlife. pp. 27–54. In D.E. Naugle (eds.) Energy Development and Wildlife Conservation in Western North America. Island press, Washington. DOI: 10.5822/978-1-61091-022-4_3

Johnson, C.J., Ehlers, L.P.W., and Seip, D.R. 2015. Witnessing extinction – Cumulative impacts across landscapes and the future loss of an evolutionarily significant unit of woodland caribou in Canada. Biological Conservation 186:176–186. DOI: 10.1016/j.biocon.2015.03.012

Palm, E.C. 2021. Linking habitat, populations and policy for caribou in the face of increasing disturbance. M.Sc. Thesis. University of Montana, Missoula, Montana, USA. 183 pp.

Perra, M., Brinkman, T., Scheifele, P., and Barcalow, S. 2022. Exploring auditory thresholds for Reindeer, *Rangifer tarandus*. Journal of Veterinary Behavior 52–53:37–44. DOI: 10.1016/j.jveb.2022.05.002

Polfus, J.L., Hebblewhite, M., and Heinemeyer, K. 2011. Identifying indirect habitat loss and avoidance of human infrastructure by northern mountain woodland caribou. Biological Conservation 144(11):2637–2646. DOI: 10.1016/j.biocon.2011.07.023

Resources Inventory Committee. 1999. British Columbia Wildlife Habitat Rating Standards. Version 2.0. BC Ministry of Environment, Lands and Parks, Resources Inventory Branch, Victoria, BC. 111 pp. (http://www.llbc.leg.bc.ca/public/PubDocs/bcdocs/335486/whrs.pdf)

Santomauro, D., Johnson, C.J., and Fondahl, G. 2012. Historical-ecological evaluation of the long-term distribution of woodland caribou and moose in central British Columbia. Ecosphere 3(5). (http://www.esajournals.org/doi/pdf/10.1890/ES11-00371.1)

Serrouya, R., Mclellan, B.N., Boutin, S., Seip, D.R., and Nielsen, S.E. 2011. Developing a population target for an overabundant ungulate for ecosystem restoration. Journal of Applied Ecology 48(4):935–942. DOI: 10.1111/j.1365-2664.2011.01998.x

Stevenson, S.K., Lance, A.N., and Armleder, H.M. 1998. Estimating the Abundance of Arboreal Forage Lichens: User's Guide. Land Management Handbook. 43. Ministry of Forests Research Program, Vicotria, BC. 35 pp.

Stronen, A.V. 2000. Habitat selection and calf survival in the Telkwa caribou herd, British Columbia, 1997-2000. M.E.D. University of Calgary, Calgary, Alberta.

Stronen, A.V., Paquet, P., Herrero, S., Sharpe, S., and Waters, N. 2007. Translocation and Recovery Efforts for the Telkwa Caribou, *Rangifer tarandus caribou*, Herd in Westcentral British Columbia, 1997–2005. The Canadian Field-Naturalist 121(2):155–163. DOI: 10.22621/cfn.v121i2.440

Warren, C.D., Peek, J.M., Servheen, G.L., and Zager, P. 1996. Habitat Use and Movements of Two Ecotypes of Translocated Caribou in Idaho and British Columbia. Conservation Biology 10(2):547–553. [Wiley, Society for Conservation Biology].

# APPENDICES

# APPENDIX A UPDATED BLASTING NOISE ASSESSMENT

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July 18, 2025
File No. 103260-07

Telkwa Mining Limited
409 Granville Street
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Vancouver, BC V6T 1T2

Attention: Dan Farmer

**Re: Response to Comments from Environment and Climate Change Canada and the Caribou Recovery Program Regarding EAC Application – Telkwa Mining Ltd.**

## 1.0 Introduction

Telkwa Mining Ltd. (TML) received comments from Environment and Climate Change Canada (ECCC) and the British Columbia Caribou Recovery Program (BC CRP) via the Environmental Assessment Office (EAO) on 26 June 2025. The comments are in response to TML's submission of their Environmental Assessment Certificate (EAC) Application for the Tenas Project (Project). This memo, developed by Ausenco Sustainability ULC (Ausenco), provides responses to the comments as they relate to noise. For ease, the responses are numbered and labelled below to directly correspond to the list of comments submitted to EAO by ECCC and BC CRP.

## 2.0 Comment Response

### 2.1 Comment 7 Caribou IR (ECCC)

***Comment:*** Appendices 1 and 2 reference the Environmental Code of Practice for Metal Mines (ECCC 2009) regarding target noise levels for mining operations. This reference is intended to be used as a general guideline, which states:

*"although the recommendations are intended to be clear and specific to the intended results, they are not intended to discourage the use of alternative technologies and practices that can achieve an equivalent or better level of environmental protection."*

Studies also indicate that caribou sense noise very differently than humans and therefore target noise levels should be specific to caribou (Perra et al. 2022). For assessing effects of noise on caribou, ECCC recommends the Proponent consider noise impact modelling using 30 dB peSPL as a representation of the level at which mine-related activities would no longer be discernable to caribou.

***References:***

Perra, M., Brinkman, T., Scheifele, P. & Barcalow, S. (2022). Exploring auditory thresholds for reindeer, Rangifer tarandus. J. Vet. Behav. 52–53, 37–44. available at: https://www.sciencedirect.com/science/article/pii/S1558787822000478.

***Response:*** As requested, the blasting noise assessment has been updated to include the 30 dBA auditory threshold of caribou.

### 2.2 Comment 20 Caribou IR (BC CRP)

***Comment*:** Bradshaw et al. (1997) and Weber (2022) show that caribou are sensitive to sounds as low as 30–35 dBA, particularly low-frequency noise, which is common in mining and road activity. The proponent's assertion that 55 dBA is a threshold below which caribou cannot detect blasting noise is not scientifically supported. Caribou respond to sounds well below this level, particularly low-frequency industrial noise. Audibility is not the only concern – noise can cause displacement and stress even if subtle. Modelling assumptions do not account for real-world propagation, nor do they include cumulative sensory impacts. Buffer recommendations from ECCC and WLRS (3–5 km) remain valid and precautionary.

***Response:*** As requested, the blasting noise assessment has been updated to include the 30 dBA auditory threshold of caribou. Noise modelling was conducted using the DataKustik CadnaA model and ISO 9613-2 algorithms, developed based on both theoretical equations and empirical data. This approach represents the industrial standard practice for assessing industrial noise and considers, within model limitations, real-world propagation under downwind conditions and moderate temperature inversions. Telkwa Mining Ltd. is also committed to conducting noise monitoring to monitor actual noise levels during Project activities including blasting. The Project noise assessment (EAC Application Section 4.0, Chapter 1) provides the Project noise contribution as well as cumulative noise levels (i.e., Project plus background).

## 3.0 Closure

We appreciate the opportunity to have assisted you with this Project and if there are any questions, please do not hesitate to contact Ron Haley at 604.836.6180.

Report prepared by:
**Ausenco Sustainability ULC**

Report reviewed by:
**Ausenco Sustainability ULC**

PERMIT TO PRACTICE
RR/Delegate name: Nancy Chan
RR/Delegate signature:
Date: 07/22/2025
PERMIT NUMBER: 1003471
EGBC Engineers & Geoscientists British Columbia
Ausenco Sustainability ULC

Nancy Chan, B.A.Sc., P.Eng.
Atmospheric Specialist

Ron Haley, M.Sc., MBA
VP Mine Closure and Reclamation

# Updated Blasting Noise Assessment

**Ausenco Sustainability ULC**
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July 18, 2025
File No. 103260-07

Telkwa Coal Limited
1410 – 409 Granville Street
Vancouver, BC V6C 1T2

Attention: Dan Farmer, Chief Operating Officer

**Re: Tenas Project - Blasting Noise Assessment**

## 1.0 Introduction

Telkwa Coal Limited is proposing to construct and operate the Tenas Project (the Project), located in northwestern British Columbia (BC), approximately 25 kilometres (km) south of the Town of Smithers, and 7 km southwest of the Village of Telkwa. The Tenas Project is an open pit coal mine with an estimated production rate of 750,000 to 825,000 tonnes of metallurgical coal per year and an expected lifespan of 25 years.

An Application for an Environmental Assessment Certificate was submitted for the Project in May 2022. A noise assessment was completed as part of the Application in which blasting air overpressure was assessed using an empirical formula. During the public comment period, information requests were received asking for more detailed noise modelling to consider the potential effects of blasting noise on residences and caribou. This report provides a description of the approach and findings of this detailed noise modelling to fulfill the information requests.

## 2.0 Noise Criteria

Noise is measured in decibels (dB), which express the ratio of the sound pressure level relative to a fixed reference value using a logarithmic scale. For environmental noise, the A-weighted decibel (dBA) is used because it represents the relative loudness perceived by the human ear. The C-weighted decibel (dBC) is sometimes used when low-frequency sounds are of concern. The unweighted decibel is denoted as dBL.

There are no provincial or federal regulations that apply to blasting noise from the Project. However, Environment and Climate Change Canada has developed an Environmental Code of Practice of Metal Mines (ECCC 2009) that provides target noise levels for mining operations including blasting. While these target noise levels were developed in consideration of potential effects on humans, the same target noise levels are recommended to protect against potential wildlife effects. As per recommendation R419 of the Environmental Code of Practice of Metal Mines, the target noise levels

for general mining operations are 55 dBA during the day and 45 dBA at night. For blasting, recommendation R420 states that the target maximum noise level is the limit for concussion of 128 dBL. In addition to this concussion limit, the Ontario Ministry of Environment Conservation and Parks also provides a cautionary limit of 120 dBL (MECP 1978). This assessment considers the daytime target noise level of 55 dBA from ECCC as well as the 120 dBL cautionary limit from the Ontario Ministry of Environment Conservation and Parks.

In addition to these target noise levels, this assessment also considers an auditory threshold of 30 dBA for caribou as requested by the ECCC in an information request (Caribou ECCC IR Comment #7) and the Ministry of Water, Land, and Resource Stewardship (WLRS) in an information request (Caribou WLRS IR Comment #19). This is intended to represent the lowest sound level at which caribou may detect a sound based on recent studies (Perra et al. 2022).

## 3.0 Model Approach

The empirical formula used to assess blasting air overpressure in the Application for an Environmental Assessment Certificate, as referenced in the Office of Surface Mining Reclamation and Enforcement and United States Bureau of Mines by Linehan and Wiss (1980), is as follows:

$$P = 6.31e^{-B}\left(\frac{D}{W^{1/3}}\right)^{-1.16} \quad \text{Equation 1}$$

Where:

P = peak overpressure, in kilopascals (kPa)

B = scaled depth of charge burial ($C/W^{1/3}$), in metres per cube root kilograms ($m/kg^{1/3}$)

C = depth to centre of gravity of charge, in metres (m)

W = maximum charge weight per delay, in kilograms (kg)

D = distance from the blast to the receiver, in metres (m)

For this assessment, noise modelling was conducted using the DataKustik CadnaA noise prediction software to estimate maximum noise levels associated with blasting for the Project. The CadnaA model calculates outdoor sound propagation based on international standard ISO 9613-2. ISO 9613-2 accounts for the following factors:

- Sound power levels and frequency of noise content: Sound power levels associated with blasting are estimated based on the empirical formula in Equation 1 and are dependent on the maximum charge weight per delay and depth below ground. For a maximum charge weight per delay of 495.5 kg and a depth below ground of 8.875 m, the estimated sound power level is 147 dBL at the blast site. Sound waves from blasting typically have a low frequency content, predominantly below 20 hertz (Hz). The CadnaA model and ISO 9613-2 algorithms were designed to consider the range of octave bands with midband frequencies from 31.5 Hz to 8,000 Hz. For the purpose of this assessment, blasting noise was modelled with a midband frequency of 31.5 Hz.
- Distance attenuation between source and receptor: Two discrete receptors were specified in the model, one at the nearest residence to the mine site and one at Camel Humps, a key location for caribou.

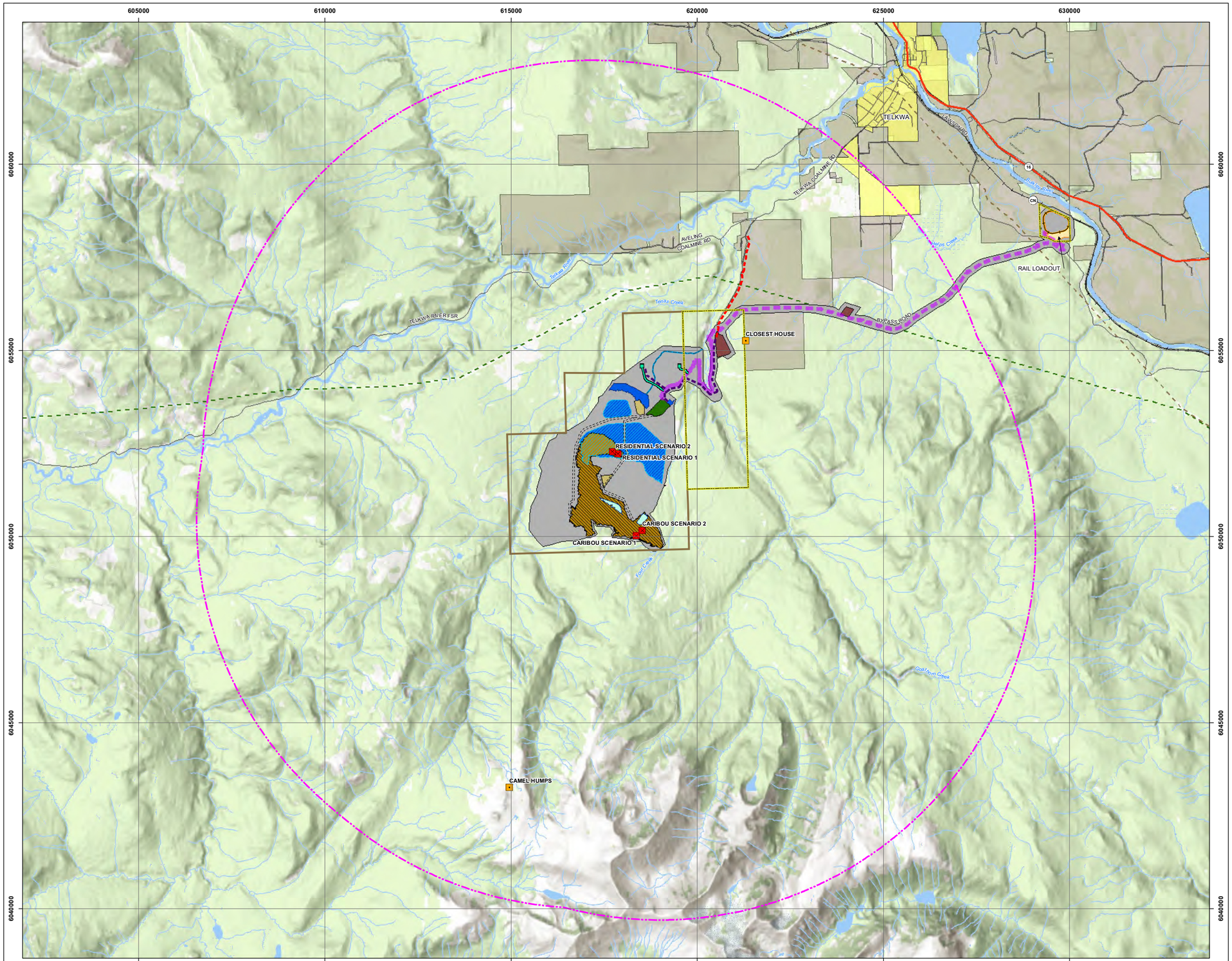
- Meteorological effects: The CadnaA model and ISO 9613-2 considers maximum noise effects under downwind conditions and moderate temperature inversions.
- Topography: Topographical effects are considered by importing projected ground elevations within the mine site, obtained from Telkwa Coal, and existing ground elevations in the surrounding area, obtained from the Government of Canada.

Blasting may occur at different locations throughout the Project lifespan. For this assessment, noise modelling was completed at 4 different blast sites, two sites closest to the nearest residential receptor and two sites closest to Camel Humps (see Figure 1). Additionally, the sites were selected to assess two scenarios:

- Scenario 1: This scenario considers worst-case effects at the beginning of mining activity when blasting would occur near the ground surface.
- Scenario 2: This scenario considers effects as mining progresses when blasting would occur at pit floor below ground surface.

# Tenas Project

## Blast Sites and Key Receptors for Noise Assessment




Legend

- Key Receptors
- Blast Sites
- Noise Study Area
- Rail Line
- Highway
- Road
- Watercourse
- Wetland
- Waterbody
- Municipal Area
- General Private Property
- 138 kV Transmission Line
- 500 kV Transmission Line

**Project Features**

- Existing 25 kV Power Line
- 25 kV Power Line
- Haul Road
- Rail Loop
- Discharge Path
- Tenas Access Corridor
- Backfill Area
- Control and Plant Sedimentation Pond
- Explosive Infrastructure
- Management Pond
- Mine Infrastructure Complex
- Open Pit
- Pit Lake
- Quarry
- Rail Infrastructure
- Topsoil Stockpile
- Tenas Coal Licenses
- Telkwa Coal Limited Private Property
- Project Area

### Notes

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2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.
3. Project line features are for display only.

### Sources

- Project Features: Allegiance Coal, April 21, 2021.
- Basedata: Government of British Columbia
- Basemap: World Topo Base

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Kilometers

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## 4.0 Results

Based on the current analysis, the maximum noise levels may exceed the target daytime noise level of 55 dBA and the caribou auditory threshold of 30 dBA up to 2 km from the blast site. Maximum noise levels may exceed the cautionary limit of 120 dBL up to 1 km from the blast site. The data indicate that the maximum noise levels at the nearest residence receptor and at Camel Humps are modelled to be well below these noise criteria. Isopleths of maximum predicted noise levels are provided in Appendix A.

## 5.0 Closure

Ausenco appreciates the opportunity to have assisted you with this project. If there are any questions, please do not hesitate to call the undersigned.

Report prepared by:
**Ausenco Sustainability ULC**



Nancy Chan, B.A.Sc., P.Eng.
Atmospheric Specialist

Report reviewed by:
**Ausenco Sustainability ULC**



Ron Haley
Vice President, Mine Closure and Reclamation

## 6.0 References

Linehan, P. and J. Wiss. 1980. Vibration and Air Blast Noise from Surface Coal Mine Blasting. Preprint No. 80-336. Society of Mining Engineers of AIME. Littleton, Colorado.

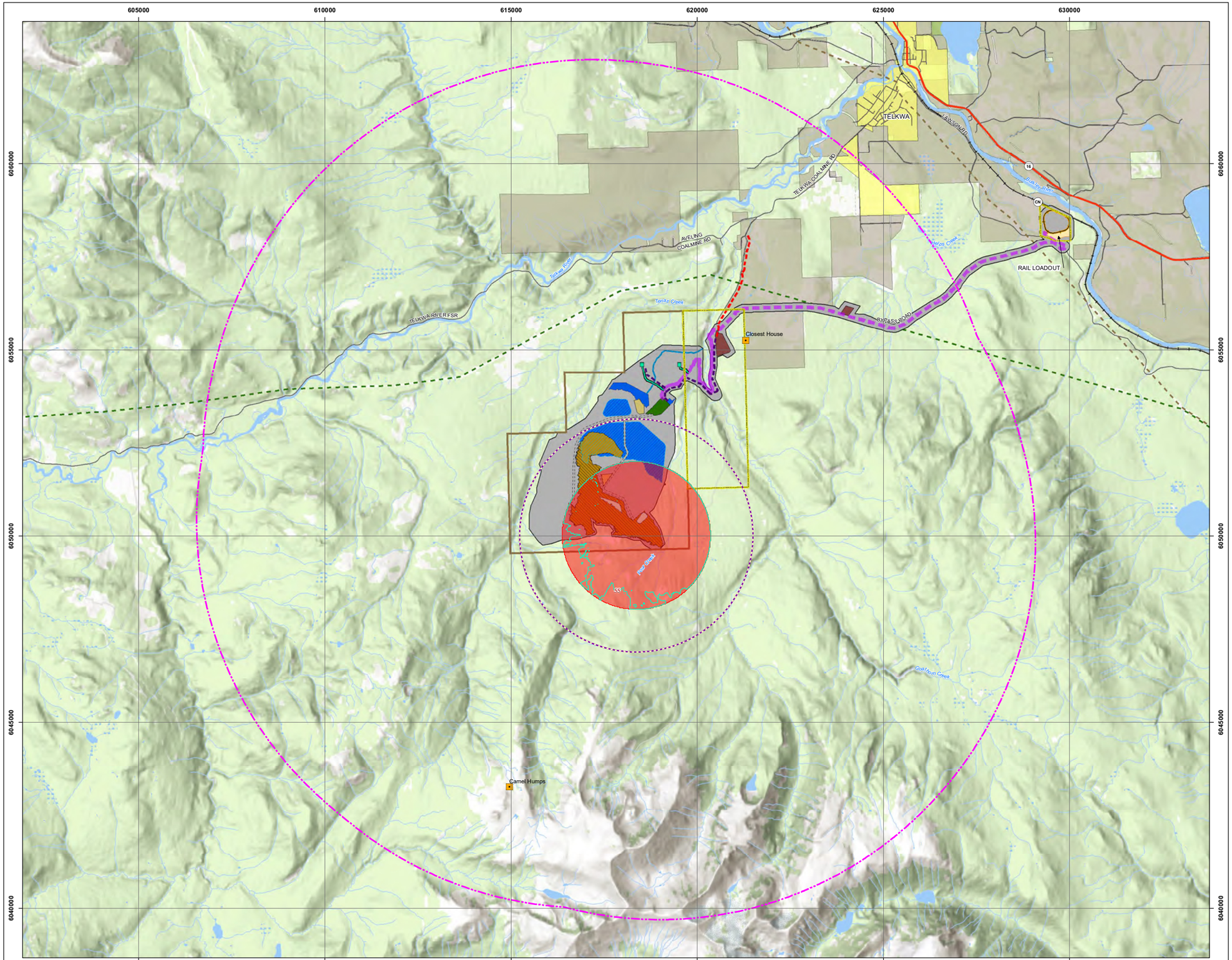
Perra M. et al. 2022. Exploring Auditory Thresholds for Reindeer, Rangifer Tarandus. Journal of Veterinary Behavior, 52-53, p. 37-44. Available at: https://www.sciencedirect.com/science/article/abs/pii/S1558787822000478.

# Appendix A

## Noise Level Isopleths

# Tenas Project

## A-Weighted Noise Levels from Blasting Caribou Scenario 1




### Legend

- Key Receptors
- Noise Study Area
- Rail Line
- Highway
- Road
- Watercourse
- Wetland
- Waterbody
- Municipal Area
- General Private Property
- 138 kV Transmission Line
- 500 kV Transmission Line

**Project Features**

- Existing 25 kV Power Line
- 25 kV Power Line
- Haul Road
- Rail Loop
- Discharge Path
- Tenas Access Corridor
- Backfill Area
- Control and Plant Sedimentation Pond
- Explosive Infrastructure
- Management Pond
- Mine Infrastructure Complex
- Open Pit
- Pit Lake
- Quarry
- Rail Infrastructure
- Topsoil Stockpile
- Tenas Coal Licenses
- Telkwa Coal Limited Private Property
- Project Area

**Predicted Noise Level (dBA)**

- Equal to or Above Noise Level Objective (30 dBA)
- 55 dBA
- Area of Exceedance
- Screening Level Area of Exceedance

### Notes

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3. Project line features are for display only.

### Sources

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- Basedata: Government of British Columbia
- Basemap: World Topo Base

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Kilometers

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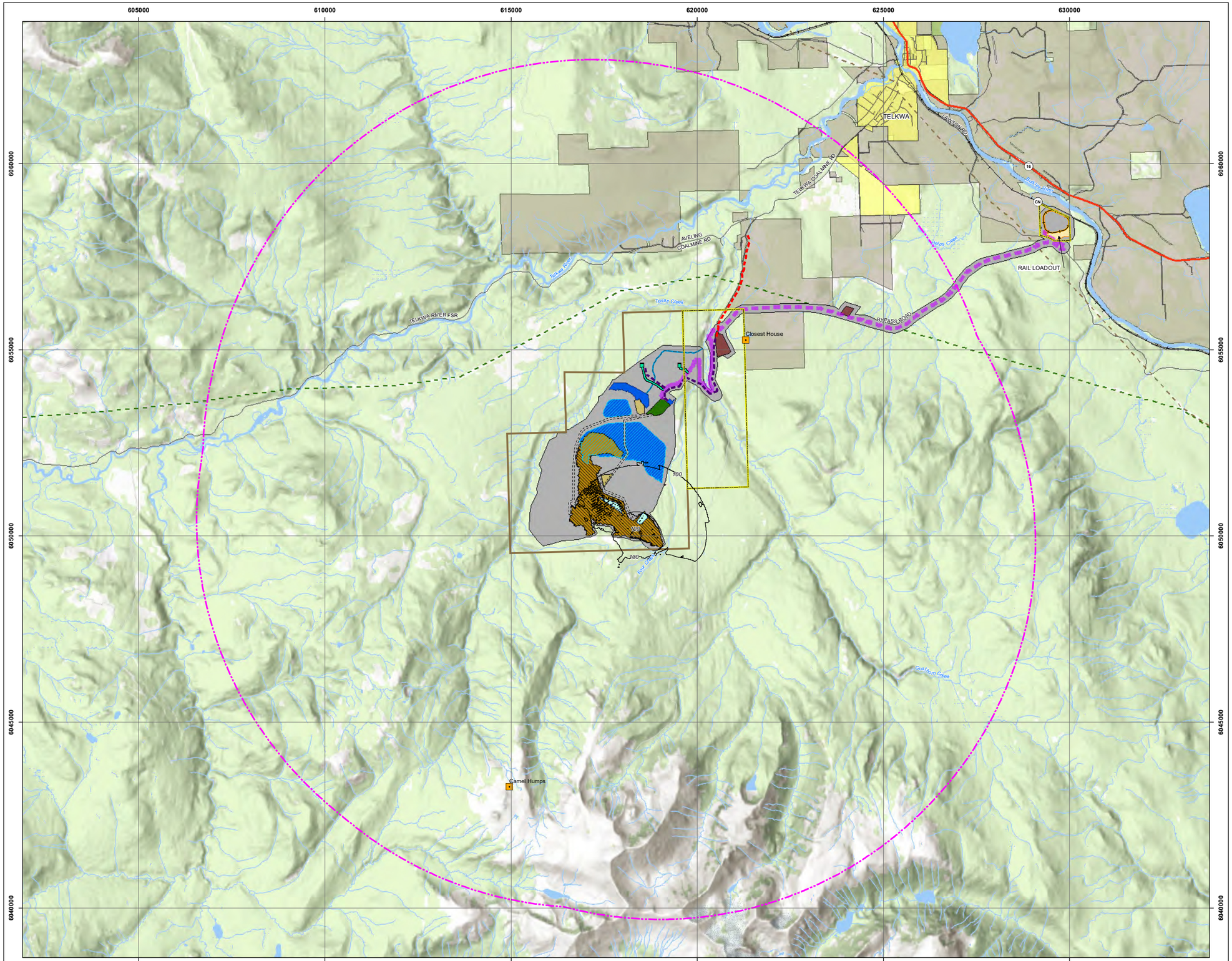
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# Tenas Project

## C-Weighted Noise Levels from Blasting Caribou Scenario 1




### Legend

- Key Receptors
- Noise Study Area
- Rail Line
- Highway
- Road
- Watercourse
- Wetland
- Waterbody
- Municipal Area
- General Private Property
- 138 kV Transmission Line
- 500 kV Transmission Line

**Project Features**

- Existing 25 kV Power Line
- 25 kV Power Line
- Haul Road
- Rail Loop
- Discharge Path
- Tenas Access Corridor
- Backfill Area
- Control and Plant Sedimentation Pond
- Explosive Infrastructure
- Management Pond
- Mine Infrastructure Complex
- Open Pit
- Pit Lake
- Quarry
- Rail Infrastructure
- Topsoil Stockpile
- Tenas Coal Licenses
- Telkwa Coal Limited Private Property
- Project Area

**Predicted Noise Level (dBC)**

- Noise Level Isopleth

### Notes

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- Basedata: Government of British Columbia
- Basemap: World Topo Base

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Kilometers

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# Tenas Project

## Linear-Weighted Noise Levels from Blasting Caribou Scenario 1

### Legend

- Key Receptors
- Noise Study Area
- Rail Line
- Highway
- Road
- Watercourse
- Wetland
- Waterbody
- Municipal Area
- General Private Property
- 138 kV Transmission Line
- 500 kV Transmission Line

**Project Features**

- Existing 25 kV Power Line
- 25 kV Power Line
- Haul Road
- Rail Loop
- Discharge Path
- Tenas Access Corridor
- Backfill Area
- Control and Plant Sedimentation Pond
- Explosive Infrastructure
- Management Pond
- Mine Infrastructure Complex
- Open Pit
- Pit Lake
- Quarry
- Rail Infrastructure
- Topsoil Stockpile
- Tenas Coal Licenses
- Telkwa Coal Limited Private Property
- Project Area

**Predicted Noise Level (dBL)**

- Below Noise Level Objective
- Equal to or Above Noise Level Objective (120 dBL)
- Area of Exceedance

### Notes

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- Basedata: Government of British Columbia
- Basemap: World Topo Base

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Kilometers

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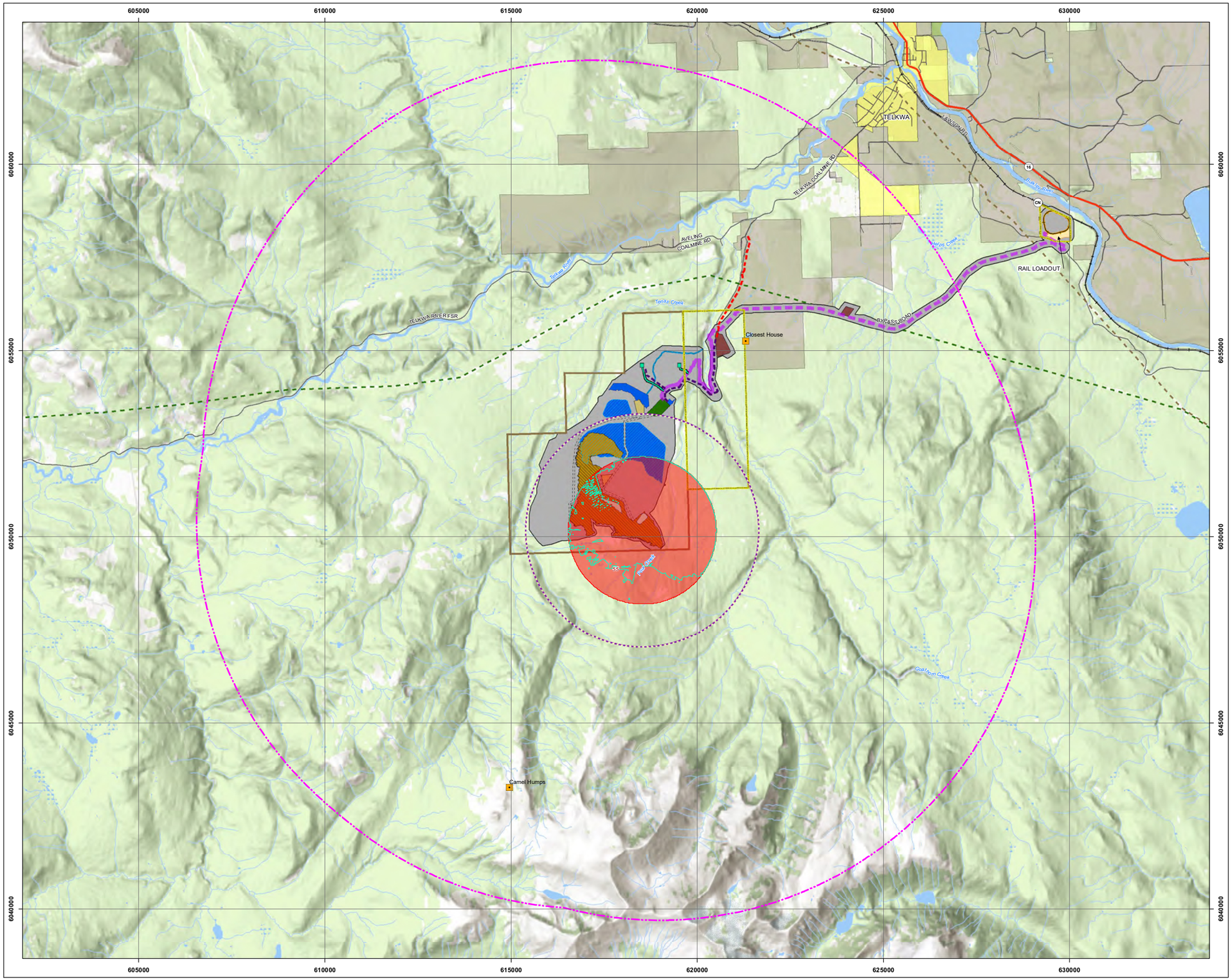
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# Tenas Project

## A-Weighted Noise Levels from Blasting Caribou Scenario 2




### Legend

- Key Receptors
- Noise Study Area
- Rail Line
- Highway
- Road
- Watercourse
- Wetland
- Waterbody
- Municipal Area
- General Private Property
- 138 kV Transmission Line
- 500 kV Transmission Line

**Project Features**

- Existing 25 kV Power Line
- 25 kV Power Line
- Haul Road
- Rail Loop
- Discharge Path
- Tenas Access Corridor
- Backfill Area
- Control and Plant Sedimentation Pond
- Explosive Infrastructure
- Management Pond
- Mine Infrastructure Complex
- Open Pit
- Pit Lake
- Quarry
- Rail Infrastructure
- Topsoil Stockpile
- Tenas Coal Licenses
- Telkwa Coal Limited Private Property
- Project Area

**Predicted Noise Level (dBA)**

- Equal to or Above Noise Level Objective (30 dBA)
- 55 dBA
- Area of Exceedance
- Screening Level Area of Exceedance

### Notes

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3. Project line features are for display only.

### Sources

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- Basedata: Government of British Columbia
- Basemap: World Topo Base

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Kilometers

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# Tenas Project

## C-Weighted Noise Levels from Blasting Caribou Scenario 2

### Legend

- Key Receptors
- Noise Study Area
- Rail Line
- Highway
- Road
- Watercourse
- Wetland
- Waterbody
- Municipal Area
- General Private Property
- 138 kV Transmission Line
- 500 kV Transmission Line

**Project Features**

- Existing 25 kV Power Line
- 25 kV Power Line
- Haul Road
- Rail Loop
- Discharge Path
- Tenas Access Corridor
- Backfill Area
- Control and Plant Sedimentation Pond
- Explosive Infrastructure
- Management Pond
- Mine Infrastructure Complex
- Open Pit
- Pit Lake
- Quarry
- Rail Infrastructure
- Topsoil Stockpile
- Tenas Coal Licenses
- Telkwa Coal Limited Private Property
- Project Area

**Predicted Noise Level (dBC)**

- Noise Level Isopleth

### Notes

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- Basemap: World Topo Base

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Kilometers

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# Tenas Project

## Linear-Weighted Noise Levels from Blasting Caribou Scenario 2

### Legend

- Key Receptors
- Noise Study Area
- Rail Line
- Highway
- Road
- Watercourse
- Wetland
- Waterbody
- Municipal Area
- General Private Property
- 138 kV Transmission Line
- 500 kV Transmission Line

**Project Features**

- Existing 25 kV Power Line
- 25 kV Power Line
- Haul Road
- Rail Loop
- Discharge Path
- Tenas Access Corridor
- Backfill Area
- Control and Plant Sedimentation Pond
- Explosive Infrastructure
- Management Pond
- Mine Infrastructure Complex
- Open Pit
- Pit Lake
- Quarry
- Rail Infrastructure
- Topsoil Stockpile
- Tenas Coal Licenses
- Telkwa Coal Limited Private Property
- Project Area

**Predicted Noise Level (dBL)**

- Below Noise Level Objective
- Equal to or Above Noise Level Objective (120 dBL)
- Area of Exceedance

### Notes

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Kilometers

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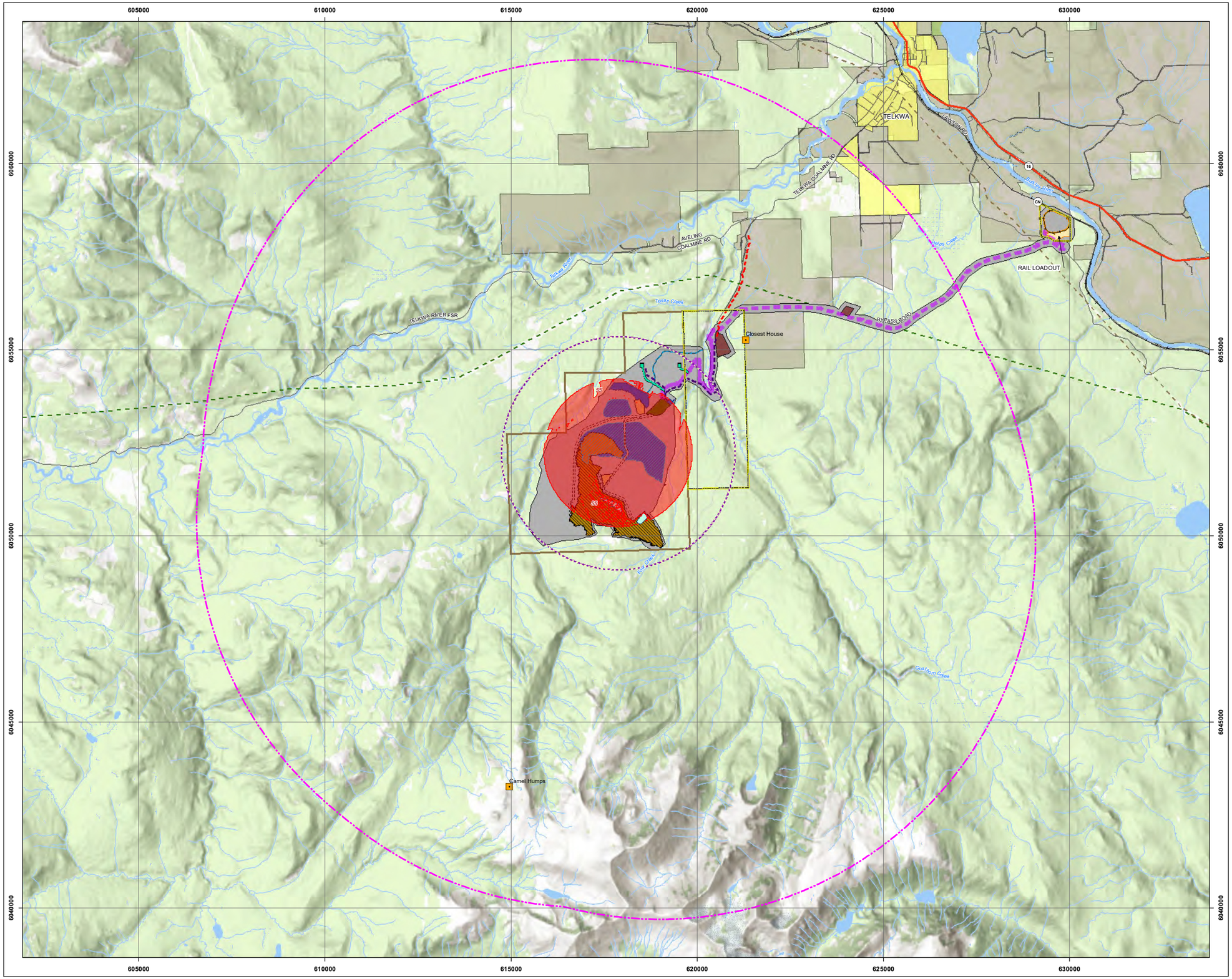
TELKWA COAL LIMITED

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# Tenas Project

## A-Weighted Noise Levels from Blasting
## Residential Scenario 1




### Legend

- Key Receptors
- Noise Study Area
- Rail Line
- Highway
- Road
- Watercourse
- Wetland
- Waterbody
- Municipal Area
- General Private Property
- 138 kV Transmission Line
- 500 kV Transmission Line

**Project Features**

- Existing 25 kV Power Line
- 25 kV Power Line
- Haul Road
- Rail Loop
- Discharge Path
- Tenas Access Corridor
- Backfill Area
- Control and Plant Sedimentation Pond
- Explosive Infrastructure
- Management Pond
- Mine Infrastructure Complex
- Open Pit
- Pit Lake
- Quarry
- Rail Infrastructure
- Topsoil Stockpile
- Tenas Coal Licenses
- Telkwa Coal Limited Private Property
- Project Area

**Predicted Noise Level (dBA)**

- Equal to or Above Noise Level Objective (55 dBA)
- Area of Exceedance
- Screening Level Area of Exceedance

### Notes

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- Basedata: Government of British Columbia
- Basemap: World Topo Base

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Kilometers

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# Tenas Project

## C-Weighted Noise Levels from Blasting Residential Scenario 1

605000 610000 615000 620000 625000 630000

6060000 6055000 6050000 6045000 6040000

TELKWA
TELKWA RIVER FSR
AVELING COALMINE RD
TELKWA COALMINE RD
LAKELSE RD
BYPASS ROAD
RAIL LOADOUT
Closest House
Camel Humps
Telkwa River
Tenas Creek
Telkwa High Line
Goat Horn Creek
Four Creek

### Legend

- Key Receptors
- Noise Study Area
- Rail Line
- Highway
- Road
- Watercourse
- Wetland
- Waterbody
- Municipal Area
- General Private Property
- 138 kV Transmission Line
- 500 kV Transmission Line

**Project Features**

- Existing 25 kV Power Line
- 25 kV Power Line
- Haul Road
- Rail Loop
- Discharge Path
- Tenas Access Corridor
- Backfill Area
- Control and Plant Sedimentation Pond
- Explosive Infrastructure
- Management Pond
- Mine Infrastructure Complex
- Open Pit
- Pit Lake
- Quarry
- Rail Infrastructure
- Topsoil Stockpile
- Tenas Coal Licenses
- Telkwa Coal Limited Private Property
- Project Area

**Predicted Noise Level (dBC)**

- Noise Level Isopleth

### Notes

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# Tenas Project

## Linear-Weighted Noise Levels from Blasting Residential Scenario 1

### Legend

- Key Receptors
- Noise Study Area
- Rail Line
- Highway
- Road
- Watercourse
- Wetland
- Waterbody
- Municipal Area
- General Private Property
- 138 kV Transmission Line
- 500 kV Transmission Line

**Project Features**

- Existing 25 kV Power Line
- 25 kV Power Line
- Haul Road
- Rail Loop
- Discharge Path
- Tenas Access Corridor
- Backfill Area
- Control and Plant Sedimentation Pond
- Explosive Infrastructure
- Management Pond
- Mine Infrastructure Complex
- Open Pit
- Pit Lake
- Quarry
- Rail Infrastructure
- Topsoil Stockpile
- Tenas Coal Licenses
- Telkwa Coal Limited Private Property
- Project Area

**Predicted Noise Level (dBL)**

- Below Noise Level Objective
- Equal to or Above Noise Level Objective (120 dBL)
- Area of Exceedance

### Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.
3. Project line features are for display only.

### Sources

- Project Features: Allegiance Coal, April 21, 2021.
- Basedata: Government of British Columbia
- Basemap: World Topo Base

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Kilometers

NAD 1983 UTM Zone 9N

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TELKWA COAL LIMITED

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# Tenas Project

## A-Weighted Noise Levels from Blasting Residential Scenario 2

### Legend

- Key Receptors
- Noise Study Area
- Rail Line
- Highway
- Road
- Watercourse
- Wetland
- Waterbody
- Municipal Area
- General Private Property
- 138 kV Transmission Line
- 500 kV Transmission Line

**Project Features**

- Existing 25 kV Power Line
- 25 kV Power Line
- Haul Road
- Rail Loop
- Discharge Path
- Tenas Access Corridor
- Backfill Area
- Control and Plant Sedimentation Pond
- Explosive Infrastructure
- Management Pond
- Mine Infrastructure Complex
- Open Pit
- Pit Lake
- Quarry
- Rail Infrastructure
- Topsoil Stockpile
- Tenas Coal Licenses
- Telkwa Coal Limited Private Property
- Project Area

**Predicted Noise Level (dBA)**

- Equal to or Above Noise Level Objective (55 dBL)
- Area of Exceedance
- Screening Level Area of Exceedance

### Notes

1. All mapped features are approximate and should be used for discussion purposes only.
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3. Project line features are for display only.

### Sources

- Project Features: Allegiance Coal, April 21, 2021.
- Basedata: Government of British Columbia
- Basemap: World Topo Base

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Kilometers

NAD 1983 UTM Zone 9N

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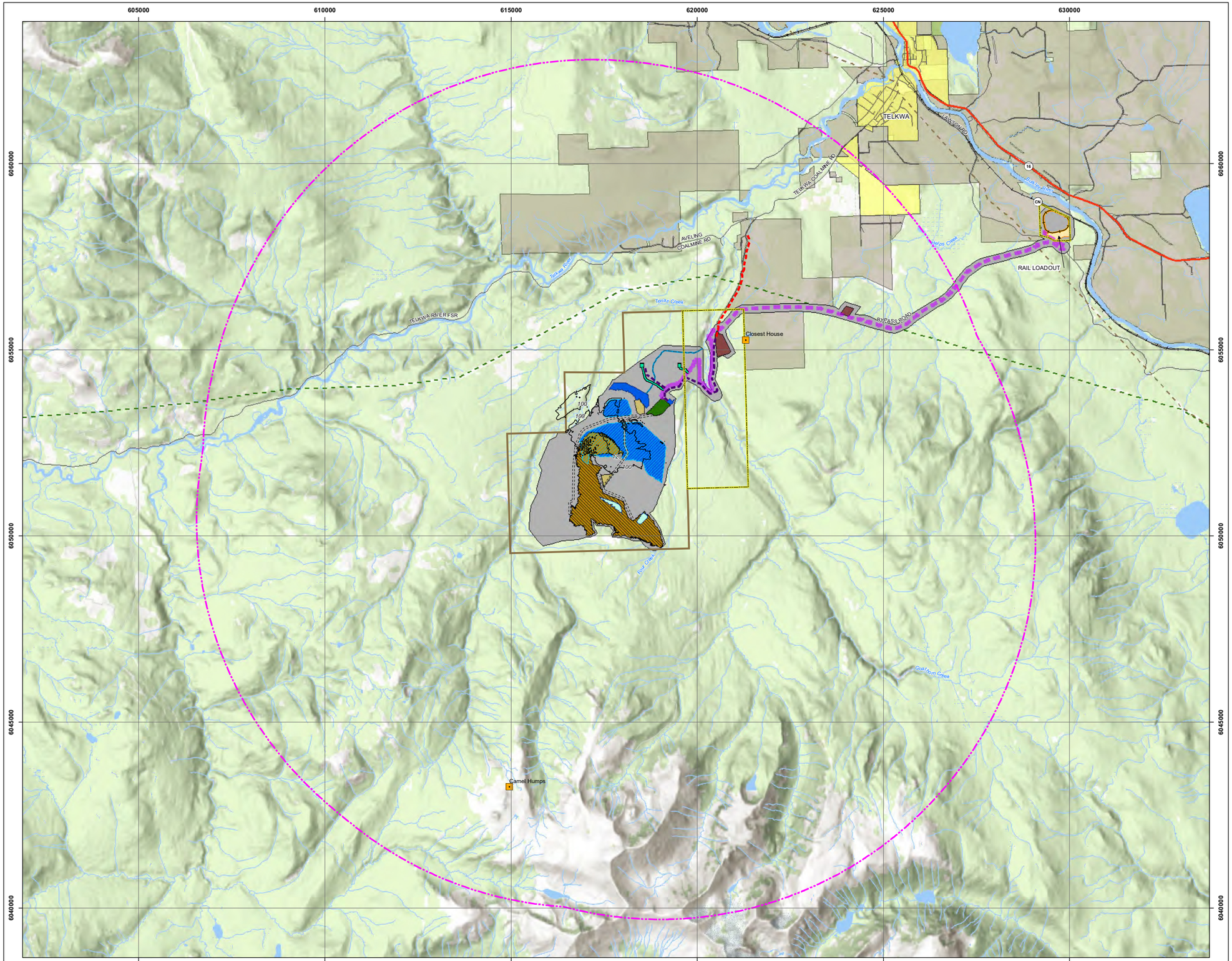
TELKWA COAL LIMITED

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# Tenas Project

## C-Weighted Noise Levels from Blasting Residential Scenario 2




### Legend

- Key Receptors
- Noise Study Area
- Rail Line
- Highway
- Road
- Watercourse
- Wetland
- Waterbody
- Municipal Area
- General Private Property
- 138 kV Transmission Line
- 500 kV Transmission Line

**Project Features**

- Existing 25 kV Power Line
- 25 kV Power Line
- Haul Road
- Rail Loop
- Discharge Path
- Tenas Access Corridor
- Backfill Area
- Control and Plant Sedimentation Pond
- Explosive Infrastructure
- Management Pond
- Mine Infrastructure Complex
- Open Pit
- Pit Lake
- Quarry
- Rail Infrastructure
- Topsoil Stockpile
- Tenas Coal Licenses
- Telkwa Coal Limited Private Property
- Project Area

**Predicted Noise Level (dBC)**

- Noise Level Isopleth

### Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.
3. Project line features are for display only.

### Sources

- Project Features: Allegiance Coal, April 21, 2021.
- Basedata: Government of British Columbia
- Basemap: World Topo Base

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Kilometers

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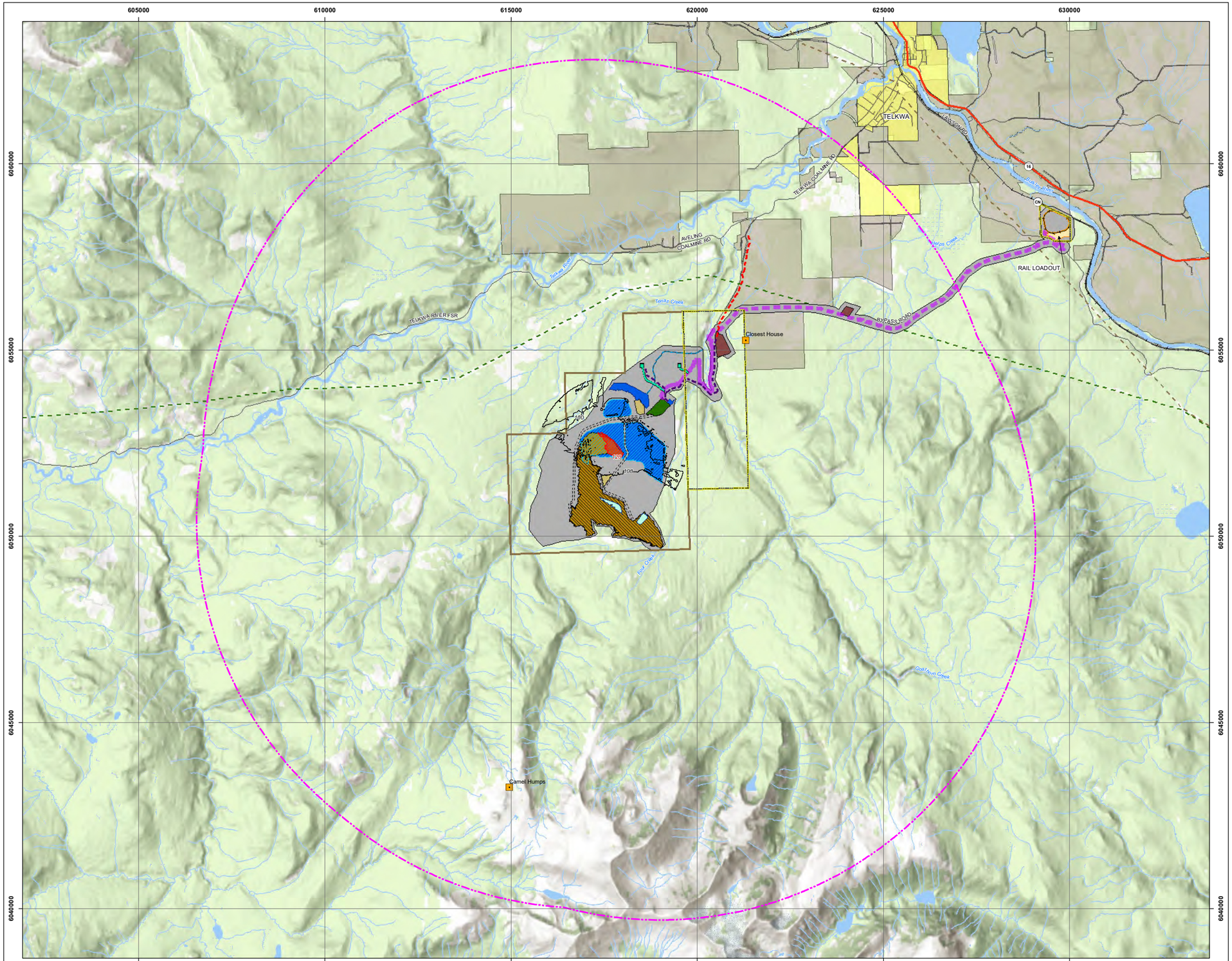
TELKWA COAL LIMITED

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# Tenas Project

## Linear-Weighted Noise Levels from Blasting Residential Scenario 2




### Legend

- Key Receptors
- Noise Study Area
- Rail Line
- Highway
- Road
- Watercourse
- Wetland
- Waterbody
- Municipal Area
- General Private Property
- 138 kV Transmission Line
- 500 kV Transmission Line

**Project Features**

- Existing 25 kV Power Line
- 25 kV Power Line
- Haul Road
- Rail Loop
- Discharge Path
- Tenas Access Corridor
- Backfill Area
- Control and Plant Sedimentation Pond
- Explosive Infrastructure
- Management Pond
- Mine Infrastructure Complex
- Open Pit
- Pit Lake
- Quarry
- Rail Infrastructure
- Topsoil Stockpile
- Tenas Coal Licenses
- Telkwa Coal Limited Private Property
- Project Area

**Predicted Noise Level (dBL)**

- Below Noise Level Objective
- Equal to or Above Noise Level Objective (120 dBL)
- Area of Exceedance

### Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a “stand-alone” document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.
3. Project line features are for display only.

### Sources

- Project Features: Allegiance Coal, April 21, 2021.
- Basedata: Government of British Columbia
- Basemap: World Topo Base

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0 1 2 3 4 5

Kilometers

NAD 1983 UTM Zone 9N

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# APPENDIX B TELKWA HABITAT DISTURBANCE SPATIAL DATABASE INFORMATION

## Disturbance Layers

Road, fire (burns), and cutblock disturbance within the Caribou RSA-1 (ECCC 2014) was updated from the following layers. Layers are from ArcGIS Online layers from the Province.Of.British.Columbia. (arcgis/rest/services) or directly from the BC Data Catalog.

### *Roads*

Oil and Gas Commission Road Segment Permits – Checked Nov 7, 2023

https://maps.gov.bc.ca/arcgis/rest/services/whse/bcgw_pub_whse_mineral_tenure/MapServer

- No new roads (i.e., not in current anthropogenic layer).

Forest Tenure (FTEN) Road Segments – Checked Nov 7, 2023

https://maps.gov.bc.ca/arcgis/rest/services/whse/bcgw_pub_whse_forest_tenure/MapServer

- 46 new road segments with LIFE_CYCLE_STATUS of ACTIVE, no RETIRED.

RESULTS – Forest Cover Inventory – Checked Nov 14, 2023

https://maps.gov.bc.ca/arcgis/rest/services/whse/bcgw_pub_whse_forest_vegetation/MapServer

- 138 new road segments with the following selection STOCKING_STATUS_CODE = 'NP' And STOCKING_TYPE_CODE IN ('RD', 'UNN') And SILV_POLYGON_NUMBER NOT IN ('Landing', 'LND') (Government of British Columbia 2017)

Digital Road Atlas (DRA) Master Partially Attributed Roads– Checked Nov 7, 2023

https://maps.gov.bc.ca/arcgis/rest/services/whse/bcgw_pub_whse_basemapping/MapServer

- No new roads

*Data Processing*

- Clip FTEN and RESULTS – Forest Cover Inventory roads to Caribou RSA-1.
- Create centreline for RESULTS – Forest Cover Inventory roads.
- Merged FTEN and RESULTS roads. Checked with the Motor Vehicle Closure polygon. No roads in closure.
- Classed the FTEN and RESULTS roads classed as "Road's tertiary 1", or "Road's quaternary" where branching off quaternary roads.
- Added fields: Anthro_layer, Rel_Distr_level, Hierarchy, Structural_stage, Age_Class_CD, Decile, Structural_stage_S, Age_Class_CD_S, Decile_S. The fields are populated with the values from Appendix Table 1 for the different road classes.

- Buffer quaternary lines and tertiary lines separately according to ROW, keeping the above fields.
- Union and remove the duplicates/update attributes based on hierarchy. There was no overlap between he two buffers.
- Union with BAS20_AnthroCurrent_V3_20200303 layer. Remove duplicates/update attributes based on hierarchy. Updated polygons identified by Source = BAS23_FTENRESULTSFCIroads_Merge_20231114

***Burns***

Historical Fires 2019 to 2022 – Checked Nov 7, 2023

BC Data Catalog

WHSE_LAND_AND_NATURAL_RESOURCE_PROT_HISTORICAL_FIRE_POLYS_SP

- No new fires identified. Most recent year is 2014 within the Caribou RSA.

No updates required for Fires.

***Cutblocks***

Consolidated Cutblocks – Checked Nov 7, 2023

BC Data Catalog

ConsolidatedCutblocks_Cut_Block_all_BC

- New cutblocks identified from 2019 up to and including 2022.

Forest Reserves – Downloaded Nov 7, 2023

BC Data Catalog

WHSE_FOREST_VEGETATION_RSLT_FOREST_COVER_RESERVE_SVW

- Cutblock areas within the Forest Reserve will be removed.

*Data Processing*

- Union Consolidated cutblocks and forest reserve. Delete areas where forest reserve FID = 1.
- Clip to Caribou RSA-1.
- Filter for Harvest Year > 2018.

## Ruleset for Disturbance Ranking

The following ruleset is used to define rankings for anthropogenic (including cutblocks) and natural (fire) disturbances. Higher rankings (i.e., closer to one) take priority when two disturbance features overlap.

```
if(anthro == 'Urban Areas'):
    return 1
elif(anthro == 'Buildings residential'):
    return 4
elif(anthro == 'Rec Snowmobile'):
    return 5
elif(anthro == 'Roads primary 2'):
    return 10
elif(anthro == 'Roads primary 1'):
    return 11
elif(anthro == 'Roads secondary 2'):
    return 12
elif(anthro == 'Roads secondary 1'):
    return 13
elif(anthro == 'Roads haul'):
        return 14
elif(anthro == 'Rail Main'):
    return 15
elif(anthro == 'Buildings recreation'):
    return 17
elif(anthro == 'Roads tertiary 2'):
    return 18
```

```
elif(anthro == 'Roads tertiary 1'):
    return 19
elif(anthro == 'Roads quaternary closure Loose'):
    return 20
elif(anthro == 'Roads quaternary closure Rough'):
    return 21
elif(anthro == 'Trails'):
    return 22
elif(anthro == 'Roads tertiary seasonal'):
        return 23
elif(anthro == 'Roads quaternary'):
    return 24
elif(anthro == 'Agriculture'):
    return 25
elif(anthro == 'Powerlines'):
    return 26
elif(anthro == 'Pipelines'):
    return 27
elif(harvest >= 1985):
    return 28
elif(fire >= 1985):
    return 29
else:
    return None
```

**Disturbance Under Optimal/Fully Restored Habitat Conditions**

For this scenario, Fire and Cutblocks are considered regrown – no disturbance and no buffers.

Fields for base habitat based on TEM/PEM:

- HabitatQuality_1_nodisturb, HabitatQuality_2_nodisturb, HabitatQuality_3_nodisturb
    - Values are: High, Moderate, Wetland, Not habitat.
- HabitatType_1_nodisturb, HabitatType_2_nodisturb, HabitatType_3_nodisturb
    - Values are Upland, Lowland, Wetland, Not habitat.

Disturbance fields for fire and cutblocks regrown, all other disturbance and buffers included:

- DisturbanceClass_2090
- DisturbanceRank_2090

Disturbance fields for fire, cutblocks, and all tertiary/trails group (includes tertiary roads, quaternary roads, and trails) have been regrown:

- DisturbanceClass_2090_NoTertTrl
- DisturbanceRank_2090_NoTertTrl

Disturbance fields for if fire, cutblocks, all tertiary/trails group and primary/secondary group within Project Footprint (and connecting southern roads) regrown. For this scenario, primary and secondary roads within the Project Footprint and connecting southern roads were selected, exported, and buffered by 1800m (and 500m). The selection was switched, and the remaining roads were buffered by 1800m(and 500 m). These buffers were clipped out of the "regrown" roads' buffers.

- DisturbanceClass_2090_NoTertTrlPrmSec
- DisturbanceRank_2090_NoTertTrlPrmSec

Field of base habitat for Caribou and Moose

- Type1Matrix

**Habitat Layers**

TEM/PEM/VRI

1. Union with Caribou RSA-1 and delete area outside of RSA.

PEM/VRI

2. Union with Caribou RSA-1 and delete area outside of RSA.
3. Union with TEMPEMVRI_CRSA1 (to maintain stand age).
4. Consolidate attributes.
5. Spatial join (temp) with BEC layer and update attributes.

Skeena PEM (https://www.env.gov.bc.ca/esd/distdata/ecosystems/TEI/TEI_Data/) and VRI

Used to fill missing southwest section of PEMVRI.

1. Dissolve PEMVRI layer, cut out of CRSA1 use resulting area.
2. Clip PEM from Skeena PEM layer.
3. Clip VRI
4. Union PEM and VRI

Merge TEMPEMVRI with missing SW section.

Spatial join (temp) with BEC layer and update attributes BEC.

Consolidate/Update attributes: Combine Fire dates/years and earliest non logging disturbance = B (Wildlfire).into Fire Year field; combine harvest dates/years into Harvest Year field; FinalStandAge2022 and FinalStandAge2025 calculated by 2022(2025)-HarvestYear, then 2022(2025)-FireYear if more recent than HarvestYear, then Final_Stand_Age_1 == 9999 transfer over, then 2022(2025) = Final_Stange_Age_1+4(7), then Final_Stand_Age == 10000 transfer over as 9999, then 2022(2025) = Final_Stange_Age+4(7)

Union with new cutblocks and update HarvestYear, FinalStandAge2022, and FinalStandAge2025.

Union with revised Anthro layer. Create new fields BECSiteMC1disturb, 2disturb, 3disturb fields and fill as "Disturbance", update FinalStandAge2022, and FinalStangeAge2025 with 0 for age class 0 (roads and rail will be set to 0) and 10 for age class 1, use fire and cutblocks <=40 years. Cutblocks 40yr 2022 only and Fires 40yr 2022 only attributes are entered for years 1982 to 1984, 1985+ would be disturbance in both 2022 and 2025 scenarios.

Decile check> 11 changed to 5-4-1, 13 changed to 6-3-1, 14 changed to 5-4-1.

Habitats over the three deciles were combined using the following method (from Steve Wilson steven.wilson@ecologicresearch.ca, Nov 3, 2023) and used to map the habitat. Habitat mapping of deciles used opacity: summing the high habitat deciles and multiplying by 1, and then adding the sum of the moderate deciles multiplied by 0.5. E.g., if the polygon were 100% high, it would get an opacity of 100% (no transparency), if moderate the opacity would be 50%. If 50% high and 20% moderate, it would get 0.5 x 1 + 0.2 x 0.5 = 60%, etc.

## Scenarios

The assessment of disturbance accounted for 'direct', 'indirect', and 'ECCC-defined disturbance' effects to caribou habitat. The total disturbances expected under baseline conditions (i.e., **optimal/fully restored habitat** conditions) and Project Conditions (i.e., including all Project-related disturbances) were calculated. Direct disturbances considered disturbance footprints. For indirect habitat disturbances, the buffers applied corresponded to specific disturbance types and elevations (see Section 4). ECCC-defined disturbance due to the Project required a 500 m buffer around permanent disturbances and Project-related disturbances. These assessment components were combined along with the Project Footprint (mine site and access road), RSA-1 (ECCC 2014), draft core/matrix habitat boundaries, and BEC zones.

| Scenario | Disturbance Type | Description |
|---|---|---|
| #1 - Baseline Conditions | Direct | Permanent Disturbance Footprints |
| #2 – Project Conditions | Direct | Permanent Disturbance Footprints AND Project Footprint |
| #1 - Baseline Conditions | Indirect | Permanent Disturbance Footprints + Sensory Buffers |
| #2 – Project Conditions | Indirect | Permanent Disturbance Footprints + Sensory Buffers AND Project Footprint + Sensory Buffers |
| #1 - Baseline Conditions | ECCC-defined | Permanent Disturbance Footprints + 500m Buffers |
| #2 – Project Conditions | ECCC-defined | Permanent Disturbance Footprints + 500m Buffers AND Project Footprint + 500m Buffers |

# APPENDIX C TELKWA CARIBOU CRITICAL HABITAT FIELD STUDIES: HABITAT CONDITIONS AND OFFSETTING OPPORTUNITIES, 2017 TO 2025

# Telkwa Caribou Critical Habitat Field Studies: Habitat Conditions and Offsetting Opportunities, 2017 to 2025



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January 2026

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Down to Earth Biology

# EXECUTIVE SUMMARY

Telkwa Mining Limited's (TML) Environmental Assessment Certification application for the Tenas Project (the Project) is undergoing review by British Columbia's Environmental Assessment Office (BC EAO). During this process, BC EAO directed TML to address information requests related to characterizing, quantifying, and offsetting potential direct and indirect Project effects on the Telkwa Caribou Herd's three Critical Habitat components: high-elevation winter and summer range, low-elevation winter range, and Type 1 matrix. These requests expanded on the Project's Application Information Requirements of assessing effects at two scales: (1) the herd's provincial draft core and matrix boundaries, and (2) the federal recovery strategy's Critical Habitat boundary. TML's original submission assessed effects at potential high-elevation winter and summer range, which is equivalent to the provincial draft core boundary, but did not differentiate low-elevation winter range and Type 1 matrix within the provincial draft matrix boundary.

To inform calculations of caribou habitat effects and offsets in all three Critical Habitat components, TML used results from previous baseline studies (2017–2019) and conducted additional field studies (2024–2025). Baseline studies described caribou occurrence, distribution, and lichen forage abundance. Recent field studies had two objectives: (1) identify and verify the condition of low-elevation winter caribou range (and habitat) within the Tenas Project Area to differentiate it from Type 1 matrix; and (2) identify existing linear features in the herd's Critical Habitat that would be good potential candidates to restore as part of TML's habitat offsetting requirements. These field studies contributed to TML's revised effects assessment for the herd and an offsetting strategy to support the herd's recovery.

**Baseline Field Studies**

The combination of snow track surveys, wildlife camera traps, and wildlife trail surveys (2017–2019) identified no occurrences or signs of use by caribou in the Tenas Project Area, which occurs primarily at low elevations (<1,100 meters above ground level [agl]; Sub-boreal Spruce – Babine Moist Cold [SBS] biogeoclimatic zone). Arboreal and terrestrial lichen forage was most abundant at high elevations (Englemann Spruce – Subalpine Fir [ESSF] biogeoclimatic zone).

**Low-Elevation Winter Caribou Habitat Assessment**

Identification of low-elevation winter caribou habitat relied initially on Terrestrial Ecosystem Mapping (TEM) and Predictive Ecosystem Mapping (PEM) that needed field verification. An initial field reconnaissance (September 2024) identified such low-elevation winter caribou habitat in the broader Critical Habitat (high/low elevation) boundary and determined that TEM/ PEM polygons were overestimating the distribution and abundance of low-elevation winter caribou habitat. A formal, intensive field verification (August 2025) of 66 plots in the Project Footprint determined whether conditions aligned with the assumptions used in the initial identification of capable low-elevation winter caribou habitat (scored from 1 = *high* to 5 = *very low*). Along with habitat capability ratings, current habitat suitability for caribou, as well as moose habitat capability and suitability ratings were collected at plots. Moose were also considered because

good moose habitats are associated with higher predation risk by wolves, and such areas are typically avoided by caribou.

TEM/ PEM polygons associated with low-elevation capable winter caribou habitat were limited in the Project Footprint and mostly overestimated the amount of capable habitat. Other TEM/ PEM polygons occurred in relatively wet ecosystems with limited caribou winter forage (e.g., arboreal lichens and absent of terrestrial lichens). Plots that were considered high capability for caribou were rated very low capability for moose, and vice versa. This contrast demonstrates the opposing habitat use between caribou and moose, primarily driven by moose preference for ecosites with abundant early seral browse compared to caribou preference for lower-productivity sites with abundant ground lichens or stands with abundant arboreal lichens.

This fieldwork confirmed that the Tenas Project Area **is generally poor low-elevation winter caribou habitat** and better moose habitat in its current condition (suitability). Furthermore, even under "optimal" conditions (capability), assuming nearly complete restoration of disturbances, the habitat is still better for moose than caribou due to elevation and terrain. This suggests that the importance of this low-elevation habitat to the long-term sustainability of the Telkwa caribou herd is very limited, even if the area were fully restored to optimal conditions for caribou.

Since the TEM/ PEM overestimated the amount of low-elevation capable winter caribou habitat, an area correction should be applied whereby the total area should be reduced by 50% of the associated polygon sizes. This correction **still produces conservative results** in the revised effects assessment because polygons classified as low-elevation capable winter habitat covered at most 50% (or 5 deciles) of any given TEM/ PEM polygon within the Project Footprint. **This recommendation was implemented as part the revised effects assessment that TML submitted to BC EAO on September 22, 2025, and any subsequent effects assessment submissions.**

**Candidate Linear Features for Restoration**

Field reconnaissance was completed for priority linear features in all restoration polygons identified in the *Telkwa Caribou Tactical Restoration Plan* (ERM Consultants Canada Ltd. 2019). Linear features in high- and low-elevation habitat zones were assessed for their restoration suitability as part of the proposed offsets for potential direct and indirect Project effects. This field reconnaissance consisted of two sessions (September 2024 and August 2025) that involved visual assessment of Priority 1 (high elevation, disconnected from active roads) and Priority 2 linear features (low elevation, mostly accessible by existing forestry service roads).

High elevation (Priority 1) linear features were associated with advanced tree and shrub regeneration. Restoration treatments applied to these features would compromise existing regrowth and have a net negative effect by adding decades to the recovery track. Low elevation (Priority 2) linear features were accessible and in a state that could justify restoration. However, only the upper reaches of these linear features, distant from existing forestry service roads, were associated with sporadic site conditions that could be considered suitable caribou habitat. Any potential benefit to caribou would likely come from restoring linear features at or near

the SBS-ESSF biogeoclimatic zone boundary, where suitable biophysical characteristics could be restored and where features would no longer enhance predator access to core caribou habitat.

Though restoration is unlikely to provide immediate benefit to caribou because it occurs within a landscape of abundant moose and wolves, it nonetheless meets the BC WLRS objective of reducing overall disturbance in matrix habitat

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# 1 INTRODUCTION

Telkwa Mining Limited's (TML) Environmental Assessment Certification application for the Tenas Project (the Project) is undergoing review by British Columbia's Environmental Assessment Office (BC EAO). A key component of the assessment on caribou was the alteration and/or loss of habitat. TML's assessment identified a low magnitude effect on habitat that would not significantly affect the Telkwa Caribou Herd. Following an initial review of the application, BC EAO issued a letter to TML dated October 6, 2022, seeking additional information to support the assessment of potential effects on the Telkwa Caribou Herd, including answers to information requests (IRs) issued by BC Ministry of Water, Land, and Resource Stewardship (WLRS), Environment and Climate Change Canada (ECCC), and Indigenous Nations. These IRs primarily dealt with characterizing, quantifying, and offsetting potential direct and indirect Project effects on the Telkwa Caribou Herd's Critical Habitat components.

Following a series of technical meetings and engagement, TML developed IR responses on four broad themes:

1. **Acoustic Modelling and Impacts –** Improved acoustic modelling to inform the assessment of indirect effects.

2. **Buffers –** Adequate disturbance buffers to characterize Project-related effects, including a minimum of 1.8 km around active resource roads and at least 3 km around active mine activities. Following ongoing discussions with BC WLRS and ECCC, there was a consensus on using a minimum 500 m buffers around roads and trails and a 2.1 km buffer around the Project mine.

3. **Effects Assessment and Critical Habitat –** Appropriate characterization of direct and indirect Project effects to each Critical Habitat type identified in the mountain caribou Recovery Strategy (Environment Canada 2014), including high-elevation winter and/or summer ranges, low-elevation winter range, and Type 1 matrix habitat.

4. **Offsetting for Direct and Indirect Effects –** Appropriate mitigation and offsetting measures based on habitat-specific offset ratios.

Responses to all themes were included in a letter TML submitted to BC EAO on September 22, 2025, which included a revised caribou effects assessment and offsetting proposal. To adequately respond to themes (3) and (4) above, a series of desktop assessments and field studies were completed.

Desktop assessments included revised calculations of potential direct and indirect effects on caribou habitat and determination of offsetting requirements based on those predicted effects. To inform calculations of habitat effects and offsets, TML used results from caribou-focused field studies: baseline studies (2017–2019) that assessed caribou occurrence and lichen forage conditions; and recent fieldwork (2024–2025) that (a) ground-truthed conditions in low-elevation winter range caribou habitat inferred from terrestrial ecosystem mapping (TEM) and predictive ecosystem mapping (PEM) in the Tenas Project Area, and (b) evaluated the status of priority linear feature candidates and their potential for restoration to support habitat offsetting.

The objective of this report is to synthesize the outcomes from field studies that supported TML's IR responses to themes (3) and (4). Below, an overview is provided of each theme as part of the revised caribou effects assessment and how it relates to the caribou field studies (Section 1.1 *Caribou Effects Assessment Components*). A summary of field studies is also provided (Section 1.2 *Field Studies*), whereas details are presented in relevant sections throughout this report.

## 1.1 CARIBOU EFFECTS ASSESSMENT COMPONENTS

### 1.1.1 EFFECTS ASSESSMENT AND CRITICAL HABITAT

Under the direction of ECCC (letter by Kathryn Marshall dated December 5, 2019), TML's initial effects assessment calculated potential direct and indirect Project effects on the Telkwa Caribou Herd at two scales: (1) the full extent of BC's draft core and matrix boundaries (BC, October 2019) to align with the province, identified as RSA-2-Core and RSA-2-Matrix in the assessment, respectively; and (2) the recovery strategy Critical Habitat (high-low elevation range) (ECCC, 2014), identified as RSA-1 in the assessment (Map 1). These spatial bounds were identified as part of the development of the Project's Application Information Requirements.

In their October 6, 2022, letter, BC EAO directed TML to reassess potential direct and indirect Project effects using new disturbance buffers and applying calculations to three Critical Habitat components: high-elevation winter and summer range, low-elevation winter range, and Type 1 matrix. Potential high-elevation winter and summer habitat within the herd's Critical Habitat aligns with the provincial draft core boundary (Map 1). However, the other two Critical Habitat components (low-elevation winter range and Type 1 matrix) occur in provincial draft matrix habitat but were undifferentiated as part of the initial assessment. The new direction by BC EAO was to assess effects separately for low-elevation winter range and Type 1 matrix due to their varying potential suitability for caribou. To differentiate low-elevation winter range habitat (i.e., required biophysical attributes) from the broader Type 1 matrix (i.e., more closely associated with predator prey dynamics), the distribution and abundance of low-elevation winter range caribou habitat was estimated using PEM and TEM polygons (see Section 3.1.1.1). These polygons were not formally evaluated for their value to caribou during the initial assessment process. Additional habitat assessments were necessary to verify that PEM/ TEM classifications could accurately identify low-elevation winter range caribou habitat.

### 1.1.2 OFFSETTING FOR POTENTIAL DIRECT AND INDIRECT EFFECTS

Habitat offsetting amounts needed to be calculated based on the revised effects assessment of three Critical Habitat components (i.e., high-elevation winter and summer range, low-elevation winter range, and Type 1 matrix). TML was directed by BC EAO to identify offsetting measures using ratios agreed to by ECCC and BC WLRS. A key step in TML's offsetting strategy was to assess the potential offset benefit from restoring linear features in Telkwa Caribou Herd's Critical Habitat (RSA-1). In particular, Priority-1 and Priority-2 linear feature candidates identified in the *Telkwa Caribou Tactical Restoration Plan* (ERM Consultants Canada Ltd.

2019). These linear features were selected based on priority areas within Wildlife Habitat Area 6-333, as determined by caribou use, potential high-elevation winter/ summer range, potential low-elevation winter range, linear features connecting low and high elevations, as well as on consultation with stakeholders and the Office of the Wet'suwet'en. However, none of these linear feature candidates were ground-truthed when originally identified (ERM Consultants Canada Ltd. 2019). Additional fieldwork was needed to verify the status of linear feature candidates.

## 1.2 FIELD STUDIES

### 1.2.1 BASELINE FIELD STUDIES

Baseline data collection for caribou involved several field programs, including snow track surveys, wildlife camera traps, wildlife trail surveys, and arboreal and terrestrial lichen abundance surveys. These programs provided evidence of caribou occurrence, distribution, and habitat quality (i.e., lichen abundance) within the Tenas Project Area.

### 1.2.2 HABITAT ASSESSMENT – FIELD RECONNAISSANCE

This included reconnaissance-level investigation of select sites identified as caribou habitat by PEM and TEM classification. This field work provided initial ground-truthing of classifications used to identify low-elevation winter range habitat for the Telkwa Caribou Herd.

### 1.2.3 HABITAT ASSESSMENT – FIELD VERIFICATION

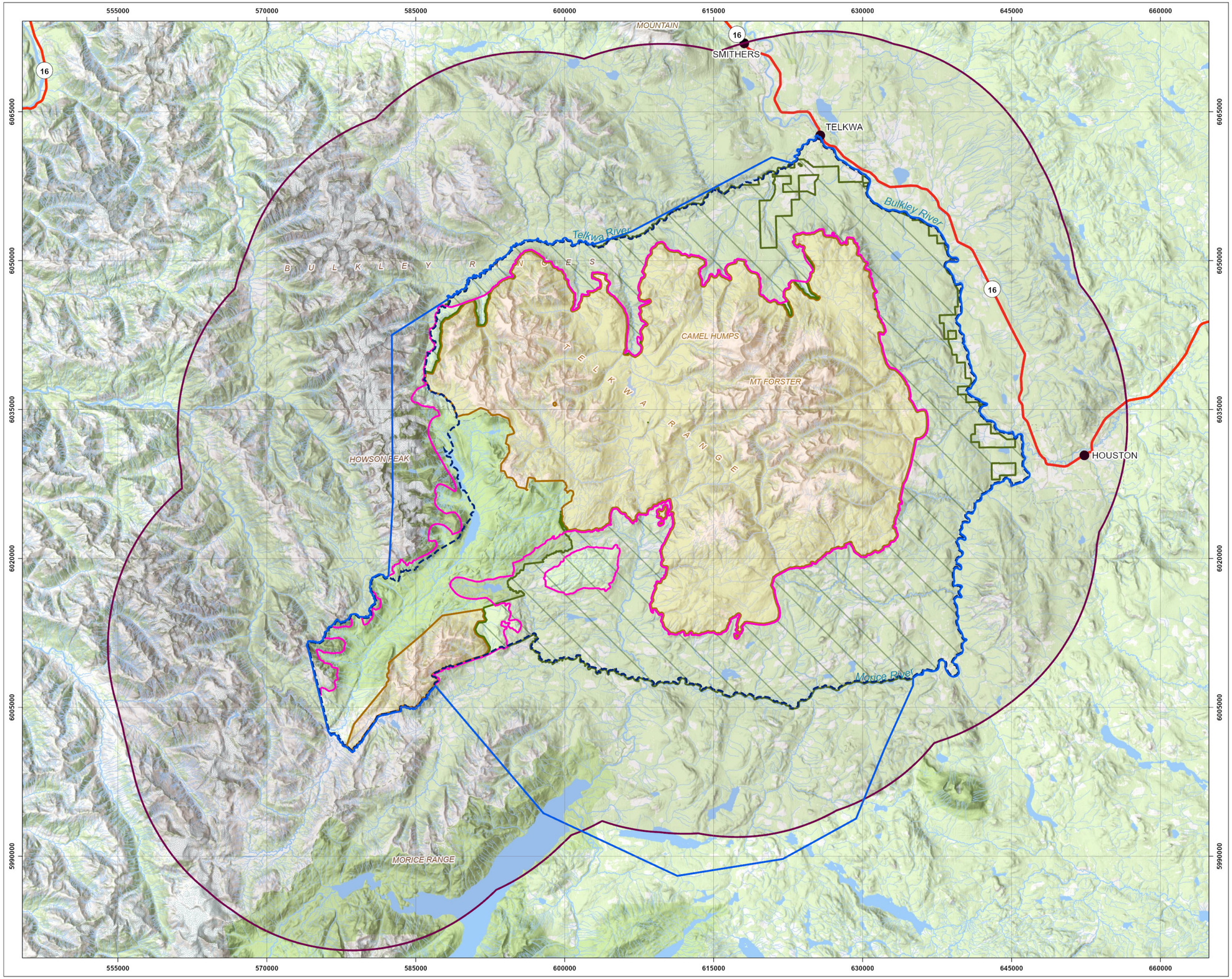
A detailed assessment and verification of caribou and moose habitat (current) suitability and (future) capability within the Tenas Project Footprint was conducted. This fieldwork expanded the field reconnaissance work (above) by establishing formal plots and completing assessments on site conditions, vegetation structure and composition, and assigning habitat suitability and capability ratings relevant to caribou and moose. Moose were included in this assessment because caribou generally avoid areas of suitable moose habitat because of the higher risk of predations by wolves, which tends to occur where moose are at higher densities (DeMars et al. 2023).

### 1.2.4 LINEAR FEATURE RESTORATION CANDIDATES – FIELD RECONNAISSANCE

Reconnaissance-level investigation of the recovery status of Prioriy-1 and Priority-2 linear feature candidates within Telkwa caribou Critical Habitat (RSA-1) were also completed. The level of recovery informed decisions on whether candidates were suitable for restoration activities (i.e., accessible, and sufficiently disturbed) and, thus, could be included in habitat offsetting initiatives.

Tenas Project

# Map 1. Federal and draft provincial habitat boundaries for the Telkwa Caribou Herd




## Legend

- City/Town
- Highway
- Watercourse
- Waterbody

**Telkwa Caribou Herd**

- Telkwa Local Population Unit (2014)
- Critical Habitat (high/low elevation range; ECCC 2014)
- Draft BC Core Habitat (2019)
- Draft BC Matrix Habitat (2019)

Wildlife Habitat Area #6-333 (2015)

- No Harvest Zone
- Conditional Harvest Zone

## Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

## Sources

- Telkwa Caribou Herd boundaries. Government of British Columbia and Government of Canada.
- Wildlife Habitat Area. Government of British Columbia.
- Base Data: Government of British Columbia.
- Basemap Sources: Esri, HERE, DeLorme, increment P Corp., NPS, NRCan, Ordnance Survey, © OpenStreetMap contributors, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

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# 2 BASELINE FIELD STUDIES, 2017–2019

Baseline field studies were conducted from 2017–2019 to detect caribou use of the Tenas Project Area and to assess lichen forage conditions. Detailed methods and results of baseline studies are provided in Appendix 4.8-A *Wildlife Baseline Report* (Ardea Biological Consulting 2022); Section 4, Chapter 8 of the Tenas Project Environmental Assessment Certificate application. In this current report, only a brief overview is provided of baseline studies relevant to addressing caribou habitat effects and offsetting (see Section 1 *Introduction*).

## 2.1 SNOW TRACK TRANSECT SURVEYS

Snow track transects were completed between mid-January and early March 2018 in the Project Footprint (mine site and rail infrastructure) and Goathorn Creek area (Figure 2.6-1 in Ardea Biological Consulting 2022). Methods followed standard protocols recommended in Resources Inventory Committee (1998). Transects were conducted 24–48 hours after a snowfall, and all tracks that bisected or were located within 2 m of the transect line were recorded and identified to species.

A total of 26,887 m of transect surveys were completed, with the majority of transects (76%) occurring within the mine site. No caribou tracks were identified during these transect surveys.

## 2.2 WILDLIFE CAMERA TRAP SURVEYS

Wildlife cameras were deployed from 2017–2018 along roads and trails with known or expected wildlife use within different habitat types in the Tenas Project Area (Figure 2.11-1 in Ardea Biological Consulting 2022). Four to five Reconyx PC800 remote, motion-triggered cameras provided continuous monitoring in seven locations (though some cameras were moved between years). Cameras were positioned to ensure a clear view of roads and trails while avoiding detection by humans.

Cameras collected 32,143 images during the monitoring period, of which 2,154 were images of wildlife. None of these camera images included caribou.

## 2.3 WILDLIFE TRAIL SURVEYS

Surveys for wildlife trails were conducted in July 2019 to detect trails that crossed or ran parallel to the Project's access road (Figure 2.11-2 in Ardea Biological Consulting 2022). The access road alignment was walked from the rail infrastructure area to Goathorn Creek, and all wildlife trails encountered were walked for approximately 50 m on either side of the proposed road centreline to search for evidence of use by species, including caribou.

A total of 439 signs of wildlife use on trails were identified during surveys. No caribou signs were identified on or near wildlife trails.

## 2.4 ARBOREAL AND TERRESTRIAL LICHEN ASSESSMENTS

Arboreal lichen abundance data were collected as part of wildlife baseline studies during bat roost assessments and at plots supporting development of the TEM. Data from the 125 Project-related plots were pooled with data from 376 plots where lichen had been previously collected for other projects in RSA-1 (Figure 2.8-1 in Ardea Biological Consulting 2022). Methods for assessing lichen abundance followed those outlined in Armleder et al. (1992). Arboreal lichen abundance was highest in the Englemann Spruce – Subalpine Fir – Moist Cold (ESSFmc) subzone (mean 35.3 kg/ha), which overlaps the mine site the least (3.4 ha), followed by plots in the Sub-boreal Spruce – Babine Moist Cold (SBSmc2) subzone (mean 22.7 kg/ha), which overlaps most of the Tenas Project Area. The SBS – Dry Cool (SBSdk) subzone was associated with the lowest abundance of arboreal lichen (6.4 kg/ha); only the access road and rail loop are located within this subzone.

Terrestrial lichen abundance was assessed at 189 plots completed during baseline studies and data were pooled with abundance estimates from 383 plots where terrestrial lichen abundance had been estimated for other projects (Figure 2.8-2 in Ardea Biological Consulting 2022). The percent cover of the different genera was summed and total biomass estimated by multiplying by 10.418 g/m$^2$ (Roberts 2000) and then converting to kg/ha. The relative abundance of terrestrial lichens was like that of arboreal lichens, with the highest abundance occurring in plots located in ESSFmc (mean 855 kg/ha), less occurring in SBSmc2 (mean 329 kg/ha), and the least occurring in SBSdk (89 kg/ha).

# 3 LOW-ELEVATION WINTER CARIBOU HABITAT ASSESSMENTS, 2024–2025

The assessment of low-elevation winter range caribou habitat consisted of two phases: (1) an initial reconnaissance-level investigation (September 19–21, 2024) and (2) formal site assessments of caribou habitat suitability and capability (August 11–14, 2025).

## 3.1 RECONNAISANCE-LEVEL INVESTIGATION, SEPTEMBER 2024

### 3.1.1 METHODS

#### 3.1.1.1 Desktop Component

Low-elevation winter range caribou habitat was identified by classifying PEM/ TEM units as either high or moderate capability habitat based on whether they were associated with preferred winter forage and cover characteristics (Table 1). Mapping of habitat capability used the decile values assigned to each of three site series within a PEM/ TEM polygon, multiplied those deciles by weights depending on whether they were associated with high capability (weight = 1) or moderate capability (weight = 0.5), then summed all weighted decile values in a polygon. The result was a single percent value for either high or moderate habitat capability at each PEM/ TEM polygon. In cases where polygons had percent values for both high and moderate habitat capability, the rating with the highest value took precedence.

**Table 1. Predictive ecosystem mapping (PEM) and terrestrial ecosystem mapping (TEM) ecosystem units.**

| Biogeoclimatic Subzone Variant | Habitat Type | Habitat Capability | Site Series & Map Code | Descriptions |
|---|---|---|---|---|
| SBSmc2 | Upland | High | 02PH | Pine – Kinnikinnick – Cladonia |
| | | Moderate | 03BM | Black Spruce, Pine – Feathermoss |
| | Lowland | High | 12SS | Black Spruce, Hybrid Spruce – Scrub Birch – Sedge |
| | | Moderate | 07BF, 32LS, Wb01, Wb05 | Hybrid spruce – Scrub Birch – Feathermoss, Non-forested Fen/Marsh, Black Spruce – Creeping-Snowberry – Peat-moss, Black spruce – Water Sedge – Peat-moss |
| SBSdk | Upland | High | 03LC | Pine – Feathermoss – Cladina |
| | | Moderate | 02LJ | Pine – Juniper – Ricegrass |
| | Lowland | High | 09BS | Black spruce – Creeping-snowberry – Sphagnum |
| | | Moderate | 10SS, 32LS | Black spruce – Soft-leaved sedge – Sphagnum, Non-forested Fen/Marsh |

Reconnaissance sites were selected by reviewing PEM/ TEM spatial data and satellite imagery in a geographic information system (GIS) using QGIS (QGIS Development Team 2023). Six (6) sites were chosen to evaluate low-elevation winter range habitat conditions in Telkwa caribou Critical Habitat (RSA-1): LOW-002 (upland,

100%), LOW-003 (lowland, 100%), LOW-004 (upland, 80–100%), LOW-005 (upland, 100%), LOW-006 (upland, 30–80%), and LOW-007 (upland, 25–50%) (Map 2). Note that percent ranges are provided for certain sites with more than one PEM/ TEM polygon nearby. In some cases, subsites were selected at a site (e.g., LOW-002-A and LOW-002-B) to cover a broader area. Actual coverage of mapped polygons in the field varied for logistical reasons.

# Tenas Project

## Map 2. Field reconnaissance sites selected to assess the suitability of low-elevation winter range caribou habitat

610000
620000
630000
6060000
6050000
16
TELKWA
Bulkley River
Telkwa River
PLP002-A
PLP002-B
LOW005-A
LOW005-B
LOW006-A
LOW004-A
LOW003-A
LOW002-A
LOW002-B
PLP001-B
LOW007-A
LOW007-B
PLP001-A

### Legend

- Field Reconnaissance Site
- Project Footprint

**Telkwa Caribou Herd**

- Critical Habitat (high/low elevation range; ECCC 2014)
- BC Core Habitat (2019)

**Lowland Caribou Habitat**

5.0 – 100

**Upland Caribou Habitat**

5.0 – 100

### Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

### Sources

- Caribou habitat created from PEM, TEM, VRI datasets current to 2018 and updated with disturbance (Roads, Cutblocks, and Fires) to 2022. Contributing datasets from the Government of British Columbia.
- Base Data: Government of British Columbia.
- Basemap Sources: Esri, NASA, NGA, USGS, FEMA

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#### 3.1.1.2 Fieldwork

Fieldwork to investigate reconnaissance sites occurred concurrently with the restoration candidate site investigations from September 19–21, 2024 (see Section 4 *Candidate Linear Features for Restoration, 2024–2025*). Field crew members included Kerman Bajina (EDI Environmental Dynamics Inc.), Steve Wilson (EcoLogic Research), Jessy Chaplin (Chaplin Construction Ltd.) on all three days, and Dallas Nikkal (Nico Ridge Consulting Inc.) on the first two days. The reconnaissance sites were accessed by helicopter or truck. Initial flyovers of sites LOW-001-A/B and LOW-002 were completed on September 19, 2024 (see flightlines in Map 5; Section 4 *Candidate Linear Features for Restoration, 2024–2025*). Site LOW-007 required helicopter access and was also visited on September 19, 2024 (see flightlines in Map 5). All other sites were accessed by truck from September 20–21, 2024 using active or inactive forest service roads.

### 3.1.2 RESULTS

Site LOW-002 occurred in an upland caribou habitat polygon (100% coverage) predicted by PEM/ TEM adjacent to a gated forest service road. Upper topographic positions were primarily dry, open pine stands with high quantities of ground lichen along the roadside (Photo 1a) and in thinned or open portions of those stands (Photo 1b). Areas with higher crown closure were moister and ground cover was dominated by feathermoss. Dense lichen mats were visible at ground level in open-canopy conditions with suspected signs of caribou use (Photo 2). Conditions at site LOW-002 matched the expectations of upland caribou habitat in low-elevation winter range.

**(a)** **(b)**



**Photo 1. Site LOW-002 flyover conditions: (a) lichen patches lining forestry road edges; and (b) lichen mat in thinned pine stands (September 19, 2024). Red arrows identify visible lichen patches.**

(a) (b)



**Photo 2. Site LOW-002 ground conditions: (a) suspected caribou feces on patches of ground lichen; and (b) large, dense lichen mats ~7 m off the forestry road into a thinned pine stand (September 20, 2024).**

Site LOW-003 occurred in a predicted lowland caribou habitat polygon (100% coverage) near an inactive forest service road. However, site conditions did not match what was expected for lowland caribou habitat, i.e., a black spruce bog. The site was mostly well-drained at a mid-slope position (20%) with a closed-canopy, white spruce, and western hemlock overstorey, and feathermoss ground cover (Photo 3a). Signs of moose (Photo 3b) and bears were evident in the area.

(a) (b)



**Photo 3. Site LOW-003 ground conditions: (a) open-to-closed canopy spruce-hemlock stands on 20% slope with substantial deciduous shrub cover; and (b) moose feces (pellets) on feathermoss (and needle bed) ground cover (September 20, 2024). Red arrow identifies wildlife signs.**

Site LOW-004 occurred in a predicted upland caribou habitat polygon (80–100% coverage) adjacent to an active forestry road and powerline corridor. The site primarily consisted of an open pine stand with some

spruce, and low shrubs with substantial surface disturbance near the road and desiccated ground cover (with some exposed ground) farther off the road (Photo 4). Thicker pine stands had arboreal lichen and some ground lichen near stand edges. However, this site was identified as a known hunting area and recreation site (personal communication, Dallas Nikkal), which might explain the lack of wildlife sign in the area. Site LOW-004 did not match the expectations of upland caribou habitat, being too dry and disturbed.

**(a)** **(b)**



**Photo 4.** **Site LOW-004 ground conditions: (a) sparse pine and spruce stands near forestry road; and (b) shotgun shells in a known hunting and recreation area (personal communications, Dallas Nikkal) (September 20, 2024). Red arrow identifies shotgun shells.**

Site LOW-005 occurred in an upland caribou habitat polygon (100% coverage) surrounded by human disturbance, including industrial shops, fire services, and a deactivated airstrip. The site consisted primarily of open pine stands with substantial arboreal lichens (Photo 5a). Drier areas contained patchy ground lichens (Photo 5b) while wetter areas contained more feathermoss. Much of the area had been treated for fire protection by limbing trees up to 2 m. Such treatments would make arboreal lichens inaccessible to caribou during shallow snow conditions, although the increase in light penetration and ventilation afforded by the treatments might have encouraged growth of ground lichens. No wildlife sign was evident in the area. Overall, the proximity to permanent human-related infrastructure meant that the site did not match expectations of upland caribou habitat.

(a) (b)



**Photo 5. Site LOW-005 ground conditions: (a) open pine stand with arboreal lichens, actively treated for fire protection (branch removal up to 2 m); and (b) sparse and patchy ground lichen (September 20, 2024).**

Site LOW-006 occurred in an upland caribou habitat polygon (30–80% coverage) in the Project's proposed railyard, adjacent to the Bulkley River. The site consisted of open young pine stands that varied in moisture regime. The driest areas had stands with little-to-no ground lichen and desiccated ground cover (Photo 6a), whereas other areas had large patches of ground lichen in openings surrounded by pine stands (Photo 6b). Signs of moose and bears were evident in the area. Only small portions of the polygon comprised upland caribou habitat (e.g., those seen in Photo 6b) but the site was primarily agricultural and adjacent to permanent human infrastructure, rendering it unsuitable as caribou habitat.

(a) (b)



**Photo 6. Site LOW-006 ground conditions: (a) young open pine stand, very dry with minimal ground/arboreal lichen; and (b) ground lichen patches in large openings near young pine stands (September 20, 2024).**

Site LOW-007 occurred in an upland caribou habitat polygon (25–50% coverage) within the Project Footprint. The site conditions were generally wetter than expected for low-elevation, upland caribou habitat. Forest stands consisted of closed canopy spruce mixed with aspen at lower topographic positions (Photo 7a and b), which transitioned to pine stands with arboreal lichens and feathermoss ground cover at higher topographic positions (Photo 8a). Signs of moose (Photo 8b) and bears were evident in the area. Ground lichen was mostly absent and restricted to a few areas near road edges. These conditions did not correspond to upland caribou habitat.

**(a)** **(b)**



**Photo 7.** **Site LOW-007 flyover conditions: (a) proposed Project area near an existing forestry access road; and (b) within the upland caribou habitat polygon (September 19, 2024).**

**(a)** **(b)**



**Photo 8.** **Site LOW-007 ground conditions: (a) open canopy pine and spruce forest with substantial shrub cover; and (b) moose feces (pellets) (September 19, 2024). Red arrow identifies wildlife signs.**

A complete summary of low-elevation winter range caribou habitat conditions at reconnaissance sites is provided in Table 2, below.

**Table 2. Status of low-elevation winter range caribou habitat conditions at field reconnaissance sites, September 19–21, 2024.**

| Site ID | Habitat Type | PEM Polygons % | Wildlife Signs | Description |
|---|---|---|---|---|
| LOW-002 | Upland | 100 | Suspected caribou (feces - single) and moose (feces) signs. | Upland caribou habitat (100%) near gated forestry service road. Dry sites at higher topographic positions dominated by open pine stands, whereas lower topographic positions mostly consist of mixed spruce/pine stands with feathermoss ground cover. Visible patches of ground lichen along road edges and dense lichen mats in pine stand openings or in visibly thinned stands (>60% lichen cover); light penetration that produces warmer and dryer microclimates seems to initiate lichen growth. |
| LOW-003 | Lowland | 100 | Moose (feces, browse) and bear (feces) signs. | Classified as lowland habitat polygon (100%) but did not contain a black spruce bog. Mostly occurring on well-drained, 20% slope. Closed canopy spruce/hemlock stands with deciduous shrubs (including devil's club) and feathermoss ground cover. Signs of stand thinning/treatment evident. |
| LOW-004 | Upland | 80–100 | No signs visible. | Upland caribou habitat polygons (80–100%) consisting of open spruce/pine stands and low shrubs with substantial surface disturbance near forestry service road and desiccated ground cover further off-road. Very minimal ground lichen (<5%), with some areas having desiccated (and dead) lichen due to overexposure. Transition between open and thicker stands had isolated patches of ground lichen. Thicker pine stands had high amounts of arboreal lichen (~60%). Known hunting area and recreation site (personal communications, Dallas Nikkal) with signs of human use (shotgun shells). |
| LOW-005 | Upland | 100 | No signs visible. | Upland caribou habitat polygons (100%) located in an area with human disturbance including industrial shops, fire services, and a deactivated airstrip. Open pine stands with substantial arboreal lichen (~70% cover). Drier conditions corresponded with patchy ground lichen (~30% cover) and wetter conditions contained more feathermoss (~40% cover). Forest stands were actively treated for fire protection by removing branches up to 2-m high, which would make any arboreal lichen inaccessible to caribou in low-snow conditions. |
| LOW-006 | Upland | 30–80 | Moose (feces) and bear (feces) signs. | Upland caribou habitat polygons (30–80%) located in the Project's proposed railyard. Primarily open young pine stands varying in moisture regime. Very dry sites contained little-to-no ground lichen, visibly desiccated graminoids, and minimal arboreal lichen (which were exclusive to infrequent mature trees [<1%]). Other portions of polygons contained larger patches of ground lichen (~40% cover) in large openings near young pine stands. Area around site dominated by agriculture and other human-related infrastructure. |
| LOW-007 | Upland | 25–50 | Moose (feces) and | Upland caribou habitat polygons (25–50%) located in the Project Footprint. Overall wetter conditions than expected for upland caribou habitat. Mostly closed canopy spruce stands |

| Site ID | Habitat Type | PEM Polygons % | Wildlife Signs | Description |
|---|---|---|---|---|
| | | | bear (feces) signs. | mixed with aspen at lower topographic positions. Higher topographic positions transition to pine stands with primarily feathermoss ground cover; pine trees contained substantial arboreal lichen (~60%). Some drier sites contained minimal ground lichen (<5%), and in some cases foliose lichen, due to edge effects (light penetration). |

## 3.2 HABITAT FIELD VERIFICATION, AUGUST 2025

### 3.2.1 METHODS

#### 3.2.1.1 Desktop Component

Assumptions about caribou low-elevation capable winter range habitat based on site series (Table 1) were further verified within the Project Footprint with format site assessments. This field program was conducted from August 11–14, 2025. The purpose of the field verification was to determine whether the capability ratings used to map low-elevation capable winter range caribou habitat aligned with observed conditions within the Project Footprint. As a secondary objective, moose habitat conditions (e.g., presence of early seral browse) were also assessed at each site because of the limiting effect moose can have on caribou herd recovery. Apparent competition between caribou and moose, which increases the predation of caribou by wolves, is thought to be the primary driver of caribou herd declines (DeMars et al. 2023).

The spatial extent of the sampling was the Project Footprint, excluding the access road and rail loop, because this is where most of the potential direct effects of the Project are expected to occur. One hundred candidate plot locations (sites) were pseudo-randomly selected, excluding shrub dominated structural stages (where habitat capability is more difficult to assess), maintaining >200 m between each location. At each sampling point, a 5.64-m radius (0.01 ha) plot was established. Plot centres were ignored or adjusted where the pseudo-randomly selected sites were impractical to access or close to an ecosystem edge (e.g., cut block) that could affect vegetation characteristics. The following general plot data were recorded:

- Plot centre location (UTMs);
- Elevation, slope, aspect;
- Mesoslope position;
- Site series, assigned visually with prior knowledge of the BEC subzone variant but not the TEM site series classification;
- Structural stage;
- Crown closure;
- Photos in the four cardinal directions;
- Percent cover of all trees in the A1 (>25 m), A2 (>20 m), and A3 (>10 m) layers;

- Percent cover of the three most dominant species in the B2 (2–10 m) and B1 (<2 m) shrub and herb (C) layer;
- Percent cover of moss and lichen (to genera) in the ground (D) layer;
- Number of live and dead trees >15 cm diameter at breast height (DBH) and their average DBH;
- Arboreal lichen abundance class, applying the methods of Armleder et al. (1992); and
- Evidence of use by wildlife (species and activity).

Collectively, this information was used to rate the current habitat suitability and estimate future capability of winter and growing season habitat (Resources Inventory Committee 1999). Specifically, both species were assigned habitat ratings for two seasons (winter and growing) for each of three life-history attributes (food, security, thermal), as well an overall seasonal rating. Habitat suitability ratings were based on the conditions observed in the plot, based on a series of ratings assumptions for the species compiled from various sources (see Appendix A *Caribou and Moose Habitat Ratings Assumptions*). The rating scheme followed the approach of Resources Inventory Committee (1999) and is presented in Table 3.

**Table 3. Rating scheme used to estimate the suitability and capability of caribou and moose habitat at sample sites in the Tenas Project's proposed mine site.**

| Percent Relative to the Provincial Best | Habitat Rating | Code |
|---|---|---|
| 76–100% | High | 1 |
| 51–75% | Moderately High | 2 |
| 26–50% | Moderate | 3 |
| 6–25% | Low | 4 |
| 1–5% | Very Low | 5 |
| 0% | Nil | 6 |

* Adapted from Resources Inventory Committee (1999)

Adjustments to the low-elevation capable winter range caribou habitat assumptions were considered where >50% of plots were assigned a rating higher or lower than those in Table 1, or where site series not identified in Table 1 were assigned capability ratings in the field of ≤2 (high capability) or 3 (moderate capability).

#### 3.2.1.2 Fieldwork

Ground-based field verification occurred from August 11–14, 2025. Two field crews completed site assessments: (1) Kerman Bajina (EDI Environmental Dynamics Inc.) and Gary Michell (Office of the Wet'suwet'en); and (2) Steve Wilson (EcoLogic Research) and Christy Hunter (EDI Environmental Dynamics Inc.). Helicopter and crews accessed the Project Footprint and then navigated on foot using GPS devices to plot centres. The crews worked together on the first day of sampling, calibrating methods to ensure consistency in data collection and to calibrate habitat suitability and capability estimates. A total of 66 plots (with one duplicate for field calibration) were visited during the four days of field sampling (Map 3).

# Tenas Project

**Map 3. Location of habitat verification field plots within the proposed Project Footprint, August 11–14, 2025**

615000 617500 620000

6055000 6052500 6050000

Tenas Creek

Goartney Creek

S85 S41 S61 S29 S16 S89 S70 S23 S10 S58 S24 S-W67 S78 S31 S97 S55 S72 S6 S52 S66 S90 S26 S18 S38 S36 S99 S-W762 S12 S65 S39 S86 S32 S42 S59 S33 S47 S40 S60 S101 S34 S22 S-W763 S4 S25 S11 S30 S53 S27 S56 S77 S57 S63 S82 S68 S91 S43 S80 S102 S49 S45 S3 S100 S93 S71 S88

## Legend

- Field Plots
- Watercourse
- Waterbody
- Project Footprint
- Draft BC Core Habitat (2019)

## Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

## Sources

- Telkwa Caribou Herd. Government of British Columbia and Government of Canada
- Base Data: Government of British Columbia.
- Basemap Sources: Esri, HERE, DeLorme, increment P Corp., NPS, NRCan, Ordnance Survey, © OpenStreetMap contributors, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

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NAD 1983 UTM Zone 9N

Page Size: 11" x 17"

| 25P0200 | Production Date: Jan 16, 2026 | Map 3 |
|---|---|---|

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### 3.2.2 RESULTS

Low-elevation capable winter range caribou habitat ratings by site series encountered at field plots are presented in Table 4. Because most of the Project Footprint is located within the SBSmc2 biogeoclimatic subzone variant, only two plots were in the ESSFmc, which is considered high-elevation core caribou habitat, and none were located within the SBSdk. Only three plots corresponded to low-elevation capable winter range site series as defined in Table 1: the plot at site series SBSmc2-02 met expectations of high capability, but the plots at site series SBSmc2-03 and -12 did not meet expectations of moderate capability. No adjustments to ratings were made based on these field observations due to low sample sizes. For all other site series, the number of plots with ratings >3 was greater than the number of plots with ratings ≤3. Therefore, none of these site series were reclassified as low-elevation capable winter range habitat.

**Table 4. Caribou low-elevation capable winter range habitat ratings assigned to field plots within the Project Footprint, by observed site series.**

| Biogeoclimatic Subzone Variant | Site Series[1] | Caribou Low-Elevation Capable Winter Range Habitat Rating | | | | | Median Lichen Load Class |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | |
| ESSFmc | 01 | – | 1 | – | 1 | – | 3 |
| SBSmc2 | 01 | 1 | – | 3 | 6 | | 2 |
| SBSmc2 | **02** | – | 1 | – | – | – | 3 |
| SBSmc2 | **03** | – | – | – | 1 | – | 1 |
| SBSmc2 | 05 | – | – | 6 | 12 | 5 | 1 |
| SBSmc2 | 06 | – | – | 8 | 10 | 1 | 1 |
| SBSmc2 | 09 | – | – | – | 4 | 1 | 1 |
| SBSmc2 | 10 | – | – | 3 | – | – | 2 |
| SBSmc2 | **12** | – | – | – | – | 1 | 1 |
| SBSmc2 | 31 | – | – | – | – | 1 | 0 |

[1] Site series identified as low-elevation capable winter range based on TEM/PEM mapping (see Table 1) are bolded. Site series 01 in ESSFmc falls within the herd's Core range, not low-elevation capable winter range.

Habitats encountered in the Project Footprint were generally devoid of significant ground lichens, the expected abundance of which was the basis for capability ratings assigned in Table 1. While being unsuitable for caribou cratering through snow for terrestrial lichens, which is characteristic behaviour of mountain caribou ranging at low elevations in winter, some sites surveyed were considered capable of generating arboreal lichen loads sufficient to provide at least moderately capable winter habitat (Photo 9). Though limited in samples, median arboreal lichen loads tended to be greatest at upland sites in the SBS (i.e., SBSmc2-02) and higher elevation ESSF sites (Table 4). As expected, median arboreal lichen loads were lowest in wetter ecosites (i.e., SBSmc2-05 to -31).

(a)



(b)



**Photo 9. (a) Relatively abundant arboreal lichens in a mature stand; and (b) low lichen capability in an old stand.**

Moose winter habitat capability ratings differed substantially from those of caribou. Sites considered to be high capability for caribou (e.g., SBSmc2-02) were rated very low capability for moose. Correspondingly, many site series that were considered low or very low capability for caribou (e.g., SBSmc2-05, -06, -09) were rated either moderate or moderately high capability for moose. This contrast demonstrates the opposing habitat use between caribou and moose, primarily driven by moose preference for wetter ecosites with abundant early seral browse.

**Table 5. Moose low-elevation capable winter habitat ratings assigned to field plots within the Project Footprint, by observed site series.**

| Biogeoclimatic Subzone Variant | Site Series | Moose Capable Winter Habitat Rating | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| ESSFmc | 01 | – | – | – | 2 | – |
| SBSmc2 | 01 | – | – | 5 | 4 | 1 |
| SBSmc2 | 02 | – | – | – | – | 1 |
| SBSmc2 | 03 | – | – | – | 1 | – |
| SBSmc2 | 05 | – | 2 | 13 | 7 | 1 |
| SBSmc2 | 06 | – | 5 | 5 | 7 | 2 |
| SBSmc2 | 09 | – | 1 | 4 | – | – |
| SBSmc2 | 10 | – | 3 | | – | – |
| SBSmc2 | 12 | – | 1 | | – | – |
| SBSmc2 | 31 | – | | 1 | – | – |

Caribou sign was identified on a wildlife trail running downslope near the top of the Project Footprint, at approximately 1,047 m elevation near the SBS-ESSF biogeoclimatic zone boundary (Photo 10). Additional signs suspected of being caribou were identified at three sites at lower elevations. Moose signs were common throughout the Project Footprint and wolf signs were occasionally encountered.

**(a)**



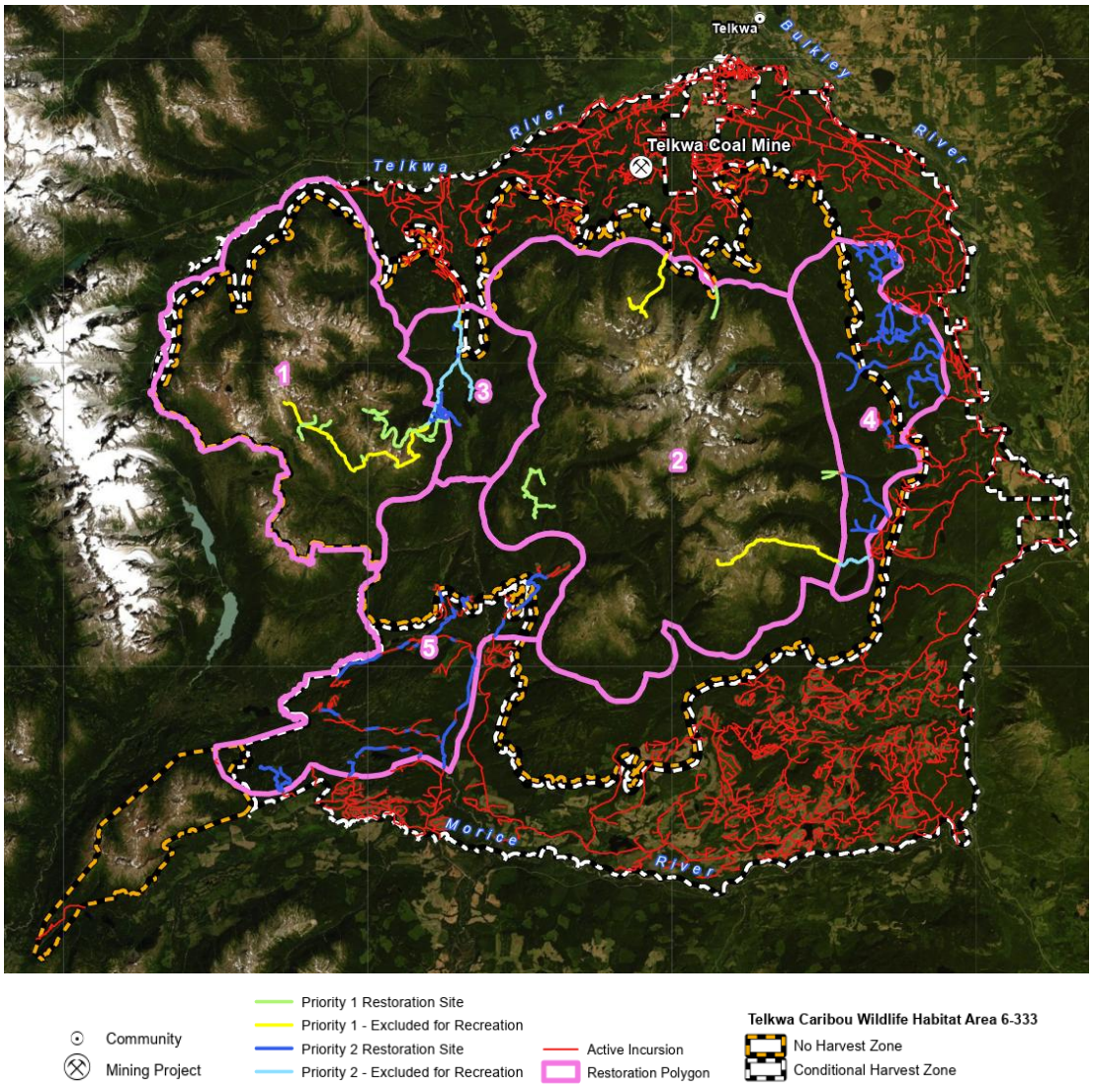
**(b)**



**Photo 10. Wildlife trail and caribou sign near the SBS-ESSF biogeoclimatic zone boundary: (a) wildlife trail leading north and downslope into low-elevation habitat; and (b) caribou feces on the trail.**

# 4 CANDIDATE LINEAR FEATURES FOR RESTORATION, 2024–2025

Field reconnaissance was completed for priority linear features in all restoration polygons identified in the *Telkwa Caribou Tactical Restoration Plan* (ERM Consultants Canada Ltd. 2019). Linear features in high- and low-elevation habitat zones were assessed for their restoration suitability as part of the proposed offsets for potential direct and indirect Project effects. This field reconnaissance consisted of two sessions. Visual assessments of Priority 1 features in the high-elevation core range (restoration polygons 1–3; see Map 4), and Priority 2 features connecting low-to-high elevations (restoration polygon 4, branching off Lawson Road; see Map 4), were completed on September 19 and 21, 2024. Visual assessments of Priority 2 features at low and high elevations (restoration polygon 5, branching of Thautil, Chisolm, and Morice West forestry service roads) were completed on August 14, 2025.




**Map 4.** **Candidate linear features and associated priorities for restoration within the Telkwa Caribou Herd range. Taken from ERM Consultants Canada Ltd. (2019; Figure 4.2-1).**

## 4.1 METHODS

### 4.1.1 DESKTOP COMPONENT

#### 4.1.1.1 Session #1 – September 2024

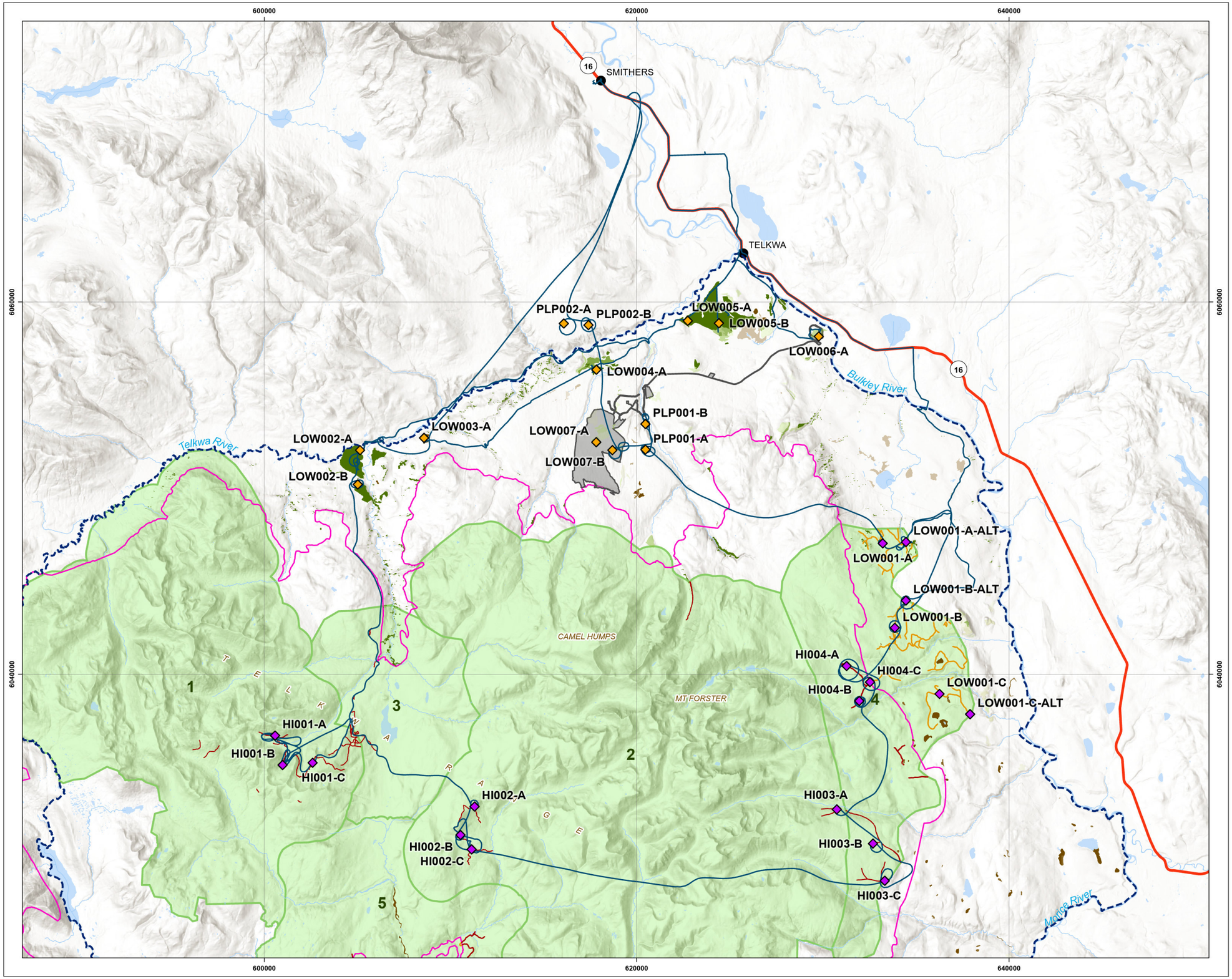
Four (4) high-elevation sites (HI-001, HI-002, HI-003, and HI-004) and three low-elevation sites (LOW-001-A, LOW-001-B, LOW-001-C) were selected to evaluate the status of a sample of Priority-1 and Priority-2 linear feature candidates (Map 5). These sites were located centrally and along the eastern border of RSA-1. In some cases, subsites were also identified at a site that consisted of an isolated network of linear features (e.g., HI-001-A/B/C) to ensure broad coverage of the feature during field reconnaissance. Low-elevation sites (LOW-001-A, LOW-001-B, LOW-001-C) occurred in a cluster on the eastern side of the Telkwa caribou Critical Habitat (RSA-1), and all were accessible by existing forest service roads. Alternative sites were also identified (e.g., LOW-001-A-ALT) in cases where access to the primary sites could have been an issue, as determined by a review of satellite imagery (e.g., LOW-001-A-ACCESS; access potentially flooded by a creek).

#### 4.1.1.2 Session #2 – August 2025

Five (5) additional high-elevation sites (HI-005, HI-006, HI-007, HI-008, and HI-009) and five additional low-elevation sites (LOW-008, LOW-009, LOW-010, LOW-011, and LOW-012) were selected to evaluate remaining Priority-1 and Priority-2 linear feature candidates (Map 6). These sites were located primarily along the southwest border of RSA-1 near Thautil, Chisolm, and Morice West forestry service roads.

# Tenas Project

## Map 5. Linear feature restoration candidates and helicopter flight paths on September 19, 2024




## Legend

**Field Reconnaissance Sites**
- Candidate Linear Features
- Caribou Habitat
- Flight Path
- Project Footprint
- Restoration Polygon

**Telkwa Caribou Herd**
- Critical Habitat (high/low elevation range; ECCC 2014)
- BC Core Habitat (2019)

**Restoration Candidates**
- High-Elevation
- Low-Elevation

**Lowland Caribou Habitat**
5.0 – 100

**Upland Caribou Habitat**
5.0 – 100

## Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

## Sources

- Caribou habitat created from PEM, TEM, VRI datasets current to 2018 and updated with disturbance (Roads, Cutblocks, and Fires) to 2022. Contributing datasets from the Government of British Columbia.
- Base Data: Government of British Columbia
- Basemap Sources: Esri, NASA, NGA, USGS

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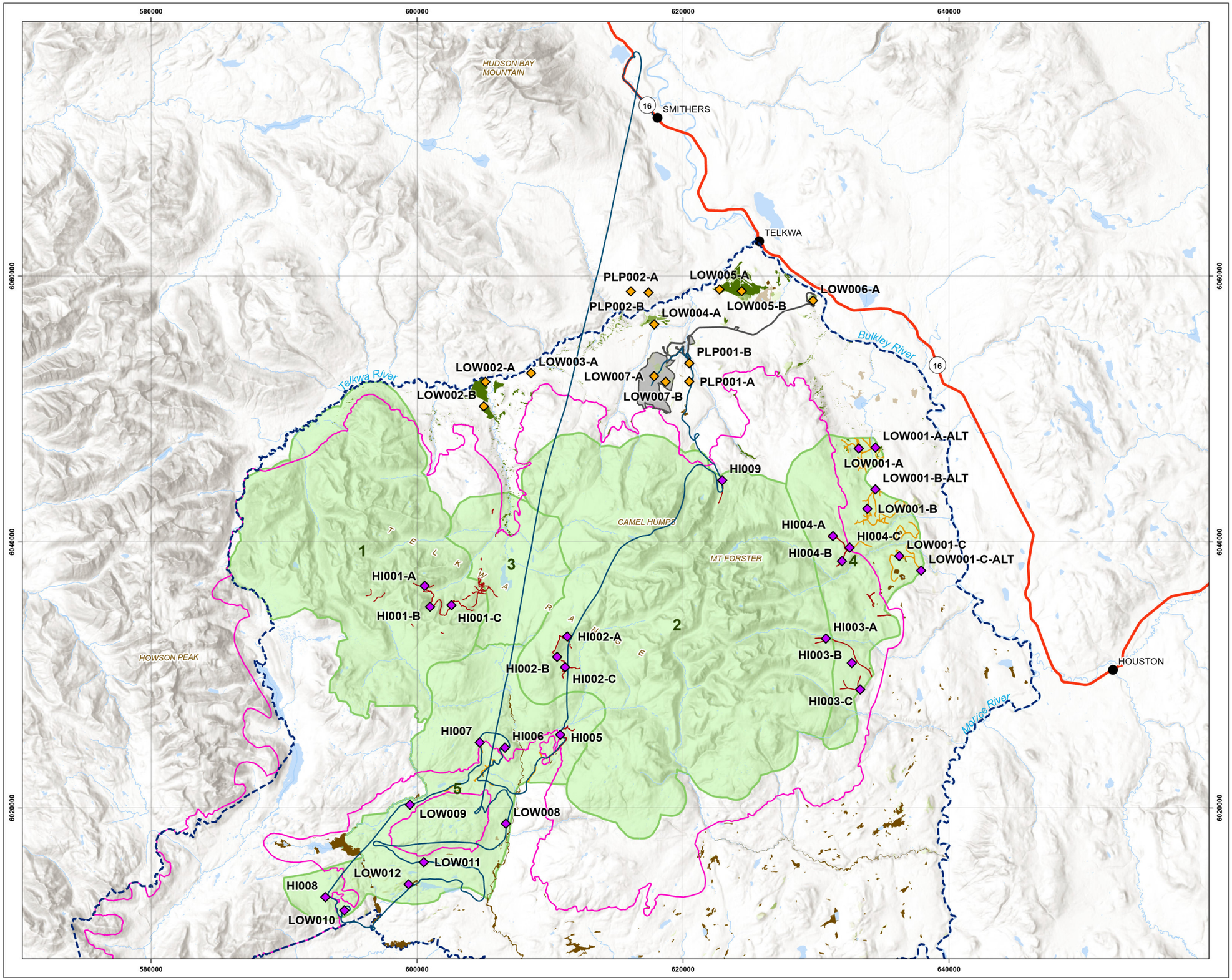
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# Tenas Project

## Map 6. Linear feature restoration candidates and helicopter flight paths on August 14, 2025




## Legend

**Field Reconnaissance Sites**

- Candidate Linear Features
- Caribou Habitat
- Flight Path
- Project Footprint
- Restoration Polygon

**Telkwa Caribou Herd**

- Critical Habitat (high/low elevation range; ECCC 2014)
- BC Core Habitat (2019)

**Restoration Candidates**

- High-Elevation
- Low-Elevation

**Lowland Caribou Habitat**

5.0 – 100

**Upland Caribou Habitat**

5.0 – 100

## Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

## Sources

- Caribou habitat created from PEM, TEM, VRI datasets current to 2018 and updated with disturbance (Roads, Cutblocks, and Fires) to 2022. Contributing datasets from the Government of British Columbia.
- Base Data: Government of British Columbia
- Basemap Sources: Esri, NASA, NGA, USGS

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| 23P0480 | Production Date: Jan 09, 2026 | Map 6 |
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### 4.1.2 FIELDWORK

During both field sessions, sites were assessed to determine (a) overall condition and level of regeneration of linear feature candidates and (b) potential access routes from public roads that would be required to transport heavy equipment to sites to complete restoration treatments.

#### 4.1.2.1 Session #1 – September 2024

Field crew members included Kerman Bajina (EDI Environmental Dynamics Inc.), Steve Wilson (EcoLogic Research), Jessy Chaplin (Chaplin Construction Ltd.), and Dallas Nikkal (Nico Ridge Consulting Inc.). Crew placement in the helicopter was as follows: navigator (Kerman Bajina) located to the left of the pilot, primary observer (Steve Wilson) located behind the navigator, secondary observer (Dallas Nikkal) located behind the pilot, and tertiary observer (Jessy Chaplin) located between the primary and secondary observers. Visibility was variable but did not obstruct assessment of sites from the air. All helicopter site access occurred on September 19, 2024. Helicopter flight paths for aerial site assessments are provided in Map 5. Flight altitudes varied from 900 m above sea level (asl) at low elevation (RSA-2-Matrix) to 1,600 m asl at high elevation (RSA-2-Core).

High-elevation sites (HI-001, HI-002, HI-003, and HI-004) were assessed from the air by helicopter (AStar aircraft), with follow-up ground reconnaissance on foot at two sites (HI-001 and HI-002). Low-elevation sites were accessed via helicopter or by truck and then visited on foot, if accessible. For these sites, the field crew walked along the linear feature while documenting broad vegetation communities, levels of regeneration, and signs of wildlife use. Truck access to low-elevation sites occurred on September 20–21, 2024. Actual coverage of the aerial and ground reconnaissance varied in some instances for logistical reasons.

#### 4.1.2.2 Session #2 – August 2025

Field crew members included Kerman Bajina (EDI Environmental Dynamics Inc.), Steve Wilson (EcoLogic Research), Gary Michell (Office of the Wet'suwet'en), and Christy Hunter (EDI Environmental Dynamics Inc.). All restoration candidates during this session were surveyed from the air via helicopter (AStar aircraft). Crew placement in the helicopter was as follows: navigator (Kerman Bajina) located to the left of the pilot, primary observer (Steve Wilson) located behind the navigator, secondary observer (Gary Michell) located behind the pilot, and tertiary observer (Christy Hunter) located between the primary and secondary observers. Visibility was not compromised by weather conditions. Helicopter flight paths for aerial site assessments are provided in Map 6. Flight altitudes mostly varied from 900 m above sea level (asl) at low elevation (RSA-2-Matrix) to 1,200 m asl at high elevation (RSA-2-Core), with some instances reaching as high as 1,600 m asl when moving from the northeast to the southwest of RSA-1.

All high-elevation and low-elevation sites were assessed from the air by helicopter (AStar aircraft). Flight paths followed the linear feature rights-of-way to assess their recovery/ regeneration status.

## 4.2 RESULTS

### 4.2.1 STATUS OF HIGH ELEVATION LINEAR FEATURES

Site HI-001 occurred at the highest elevation (~1,600 m). The linear feature (a mining access trail likely >50 years old) followed steep slope contours along mountainsides (Photo 11) and was visible at low and high slope positions and varied in the level of revegetation depending on the surrounding vegetation community, slope, and other site conditions (Photo 12). Signs of caribou and perhaps red fox were present on the linear feature (Photo 13).

**(a)** **(b)**



**Photo 11.** **Site HI-001 flyover conditions: (a) linear feature candidate visible along slope with open Engelmann spruce-subalpine fir stands and scree; and (b) linear feature candidate visible along slope adjacent to open and closed spruce-fir stands (September 19, 2024). Red arrows identify visible linear features.**

**(a)** **(b)**



**Photo 12.** **Site HI-001 linear feature conditions ranging from (a) low shrub and graminoids adjacent to open spruce-fir stands, to (b) rock and bare ground adjacent to scree slope (September 19, 2024).**

(a) (b)



**Photo 13. Site HI-001 wildlife signs: (a) caribou track and (b) feces of a small carnivore, possibly fox (September 19, 2024). Red arrows identify the wildlife signs.**

Site HI-002 varied from moderate (~1,200 m) to high (~1,600 m) elevations, and the linear feature (also abandoned mining access) was most visible at moderate elevations (Photo 14). Mostly occurring in an open-to-closed ESSF forest, the linear feature candidate had substantial revegetation in certain portions (Photo 15a) while still having exposed ground in others (Photo 15b). Signs of caribou and moose were present in a small meadow near the linear feature (Photo 16), and there were signs of bear use on the feature.

(a) (b)




**Photo 14. Site HI-002 flyover conditions: (a) linear feature candidate mostly not visible at higher elevation (plateau with open spruce-fir forest with ground lichen); and (b) linear feature candidate visible at moderate elevations in open spruce-fir stand (September 19, 2024). Red arrows identify visible linear features.**

(a) (b)



**Photo 15.** Site HI-002 linear feature conditions ranging from (a) some young tree regeneration with dense low shrub and graminoid cover; to (b) patchy shrub and graminoid cover with bare or bryophyte ground (September 19, 2024).

(a) (b)



**Photo 16.** Site HI-002 wildlife signs: (a) caribou track; and (b) moose track (September 19, 2024). Red arrows identify the wildlife signs.

Sites HI-003 and HI-004 were not visible from the air, either due to a dense canopy, complete regeneration of those linear features, or mapping errors (Photo 17 and Photo 18). However, low-to-high elevation access was partially visible for the linear feature at site HI-003 (Photo 17b).

(a) (b)

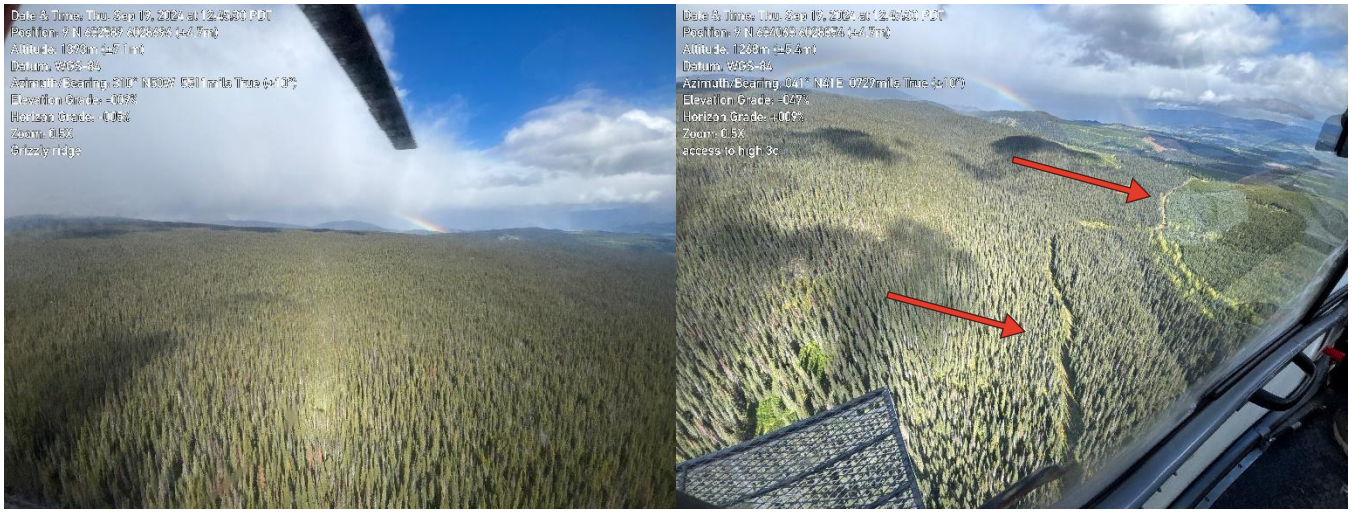



**Photo 17. Site HI-003 flyover conditions: (a) linear feature candidate not visible on landscape; and (b) partial low-to-high elevation access from partially revegetated non-priority linear features (September 19, 2024). Red arrows identify visible linear features.**

(a) (b)

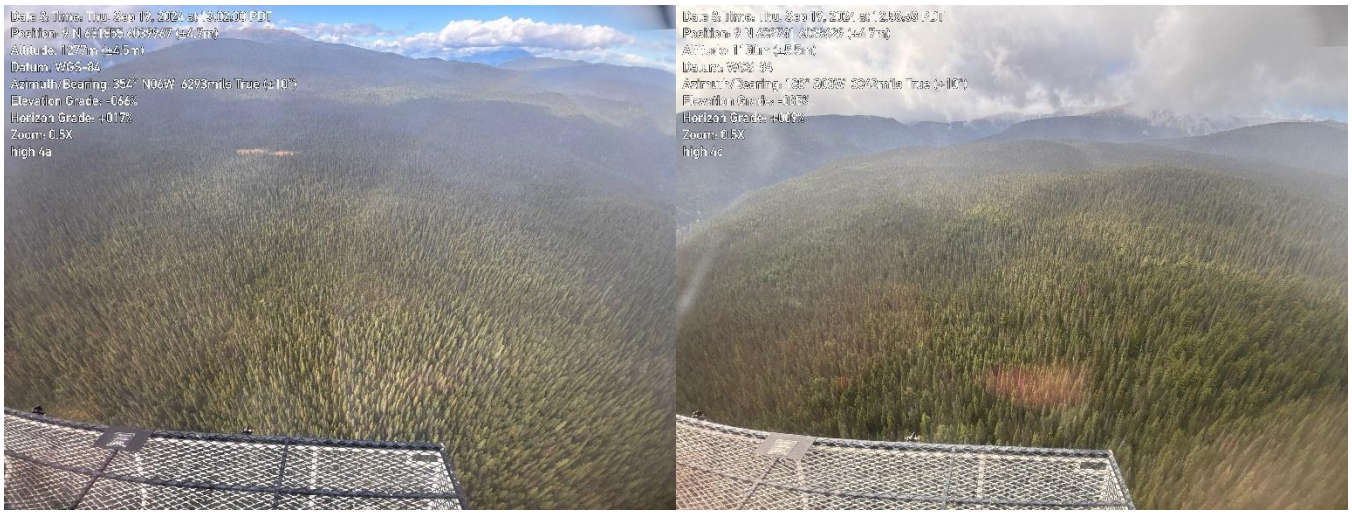



**Photo 18. Site HI-004 flyover conditions: (a) linear feature candidate not visible on landscape; and (b) no visible low-to-high elevation access (September 19, 2024).**

Site HI-005 was a visible forestry road with signs of frequent use at and above the SBS-ESSF biogeoclimatic zone boundary (Photo 19). The site looked accessible from the Chisolm Forestry Service Road. Sites HI-006 and HI-007 were in open-to-closed ESSF forest and only partially visible along all high elevation segments of those linear features (Photo 21). Bare earth was still visible at HI-006 (Photo 21a) whereas substantial graminoid and shrub cover emerged at HI-007 (Photo 21b). Both sites are accessible by the Chisolm and Thautil forestry service roads, respectively, at lower elevations.

(a) (b)




**Photo 19.** **Site HI-005 flyover conditions: (a) linear feature candidate at the SBS-ESSF biogeoclimatic zone boundary, and (b) linear feature candidate in the ESSF biogeoclimatic zone (August 14, 2025). Red arrows identify visible linear features.**

(a) (b)

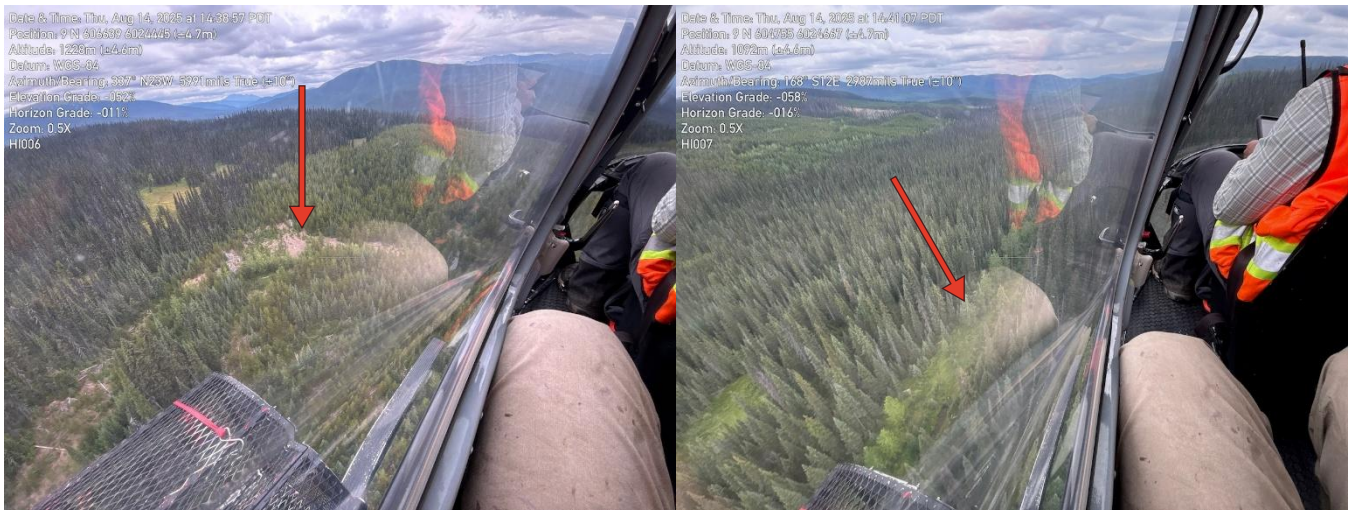



**Photo 20.** **Flyover conditions at partially recovered linear feature candidates: (a) site HI-006 in the ESSF biogeoclimatic zone, and (b) site HI-007 at the SBS-ESSF biogeoclimatic zone boundary (August 14, 2025). Red arrows identify visible linear features.**

Site HI-008 was the most southern linear feature at high-elevation in RSA-1; the forestry road was associated with little vegetation regrowth (i.e., some graminoid growth but had distinct vehicle tracks) in open-to-closed ESSF forest (Photo 21a) and likely to be accessible by some vehicles via the Morice West Forestry Service Road. Site HI-009 is the most northern linear feature (recreational trail) at high elevation in the RSA-1; the trail is partially visible in certain segments but is inaccessible by vehicle at higher elevations due to the steep slope (Photo 21b). Access to this trail from low-elevation roads is limited because it requires crossing Goathorn Creek to enter the Tenas Project Area.

(a) (b)




**Photo 21. Flyover conditions at: (a) site HI-008, mostly unrecovered linear feature at the SBS-ESSF biogeoclimatic zone boundary, and (b) site HI-009, mostly recovered recreational trail in the ESSF biogeoclimatic zone (August 14, 2025). Red arrows identify visible linear features.**

A complete summary of high-elevation linear feature site conditions is provided in Table 6, below.

**Table 6. Status of high-elevation linear features candidates for habitat offsetting.**

| Site ID | Restoration Priority | Visible? | Accessible? | Wildlife Signs | Description |
|---|---|---|---|---|---|
| HI-001 | Priority 1 | Yes | No | Caribou (tracks), possibly fox (feces), and bears (feces). | Linear feature following low and mid slope positions along mountainsides (~1,600 m altitude) and visible from overhead. Access from low-to-high elevation present but narrow and not completely cleared. Conditions varied from open canopy conifer (spruce/fir) stands to bare rock (and exposed soil) and scree slopes. Linear feature condition varied considerably depending on surrounding vegetation community and site conditions; where vegetation occurred, it primarily consisted of graminoids and low shrubs (<2 m tall) up to 50% cover in total. Some small, isolated patches of lichen visible (<10% cover). |
| HI-002 | Priority 1 | Yes | No | Caribou (several tracks), moose (tracks and feces), and bears (feces). | Linear feature in moderate (~1,200 m) to high (~1,600 m) elevations; somewhat visible from overhead (less visible at higher elevations). Access from low-to-high elevation narrow and not completely cleared. Conditions varied from open to closed canopy conifer (spruce/fir) stands. Linear feature conditions varied from patchy bare ground and graminoid cover (~40%) to increasing levels of low shrub (~20%; up to 1.5 m tall). Certain areas along |

| Site ID | Restoration Priority | Visible? | Accessible? | Wildlife Signs | Description |
|---|---|---|---|---|---|
| | | | | | linear feature and its edges contained up to 10% lichen cover. |
| HI-003 | Priority 1 & 2 | No | Partial | N/A | Dense closed-canopy spruce/fir forest at SBS-ESSF biogeoclimatic zone boundary (~900–1,100 m). Linear features not detectable from overhead. Access partially visible from low-elevation areas. |
| HI-004 | Priority 2 | No | No | N/A | Dense closed-canopy spruce/fir forest at SBS-ESSF biogeoclimatic zone boundary (~900–1,100 m). Linear features not detectable from overhead. No visible access from low-elevation areas. |
| HI-005 | Priority 2 | Yes | Yes | N/A | Dense closed-canopy spruce/fir forest at SBS-ESSF biogeoclimatic zone boundary (~1,000–1,100 m). Linear feature visible from overhead and accessible by vehicle. Access visible from the Chisolm Forestry Service Road. |
| HI-006 | Priority 2 | Yes | Yes | N/A | Open-to-closed canopy spruce/fir forest at SBS-ESSF biogeoclimatic zone boundary (~1,000–1,100 m). Linear feature visible from overhead but partially overgrown and unlikely to be accessible by vehicle. Access available from the Thautil Forestry Service Road. |
| HI-007 | Priority 2 | Yes | Yes | N/A | Open-to-closed canopy spruce/fir forest at SBS-ESSF biogeoclimatic zone boundary (~900–1,000 m). Linear feature visible from overhead and mostly unrecovered; likely to be accessible by some vehicles. Access available from the Thautil Forestry Service Road. |
| HI-008 | Priority 2 | Yes | Yes | N/A | Dense closed-canopy spruce/fir forest at SBS-ESSF biogeoclimatic zone boundary (~900–1,000 m). Linear feature visible from overhead and mostly unrecovered; likely to be accessible by some vehicles. Access available from the Morice West Forestry Service Road. |
| HI-009 | Priority 1 | Partial | Partial | N/A | Open canopy, partially stunted, and exposed conifer (spruce/fir) stands along a steep slope in the ESSF biogeoclimatic zone (~1,100–1,200 m). Linear feature is a recreational trail partially visible from overhead but only in certain segments. Inaccessible by vehicles at higher elevations. Access to trail from low elevation roads is limited (i.e., requires crossing Goathorn Creek to enter the Tenas Project Area). |

### 4.2.2 STATUS OF LOW ELEVATION LINEAR FEATURES

Site LOW-001-A was in a low-elevation forest (~800–850 m) that varied in vegetation communities but mostly consisted of white or hybrid spruce and lodgepole pine stands with balsam poplar trees lining the linear feature's right of way (Photo 22a). The level of revegetation varied along the feature, affecting the field crew's travelling speed. Portions of the linear feature occurred adjacent to potential upland caribou habitat with substantial arboreal lichens (Photo 22b). There were several signs of use by wildlife such as moose (Photo 22c), wolves (Photo 22d), and bears.

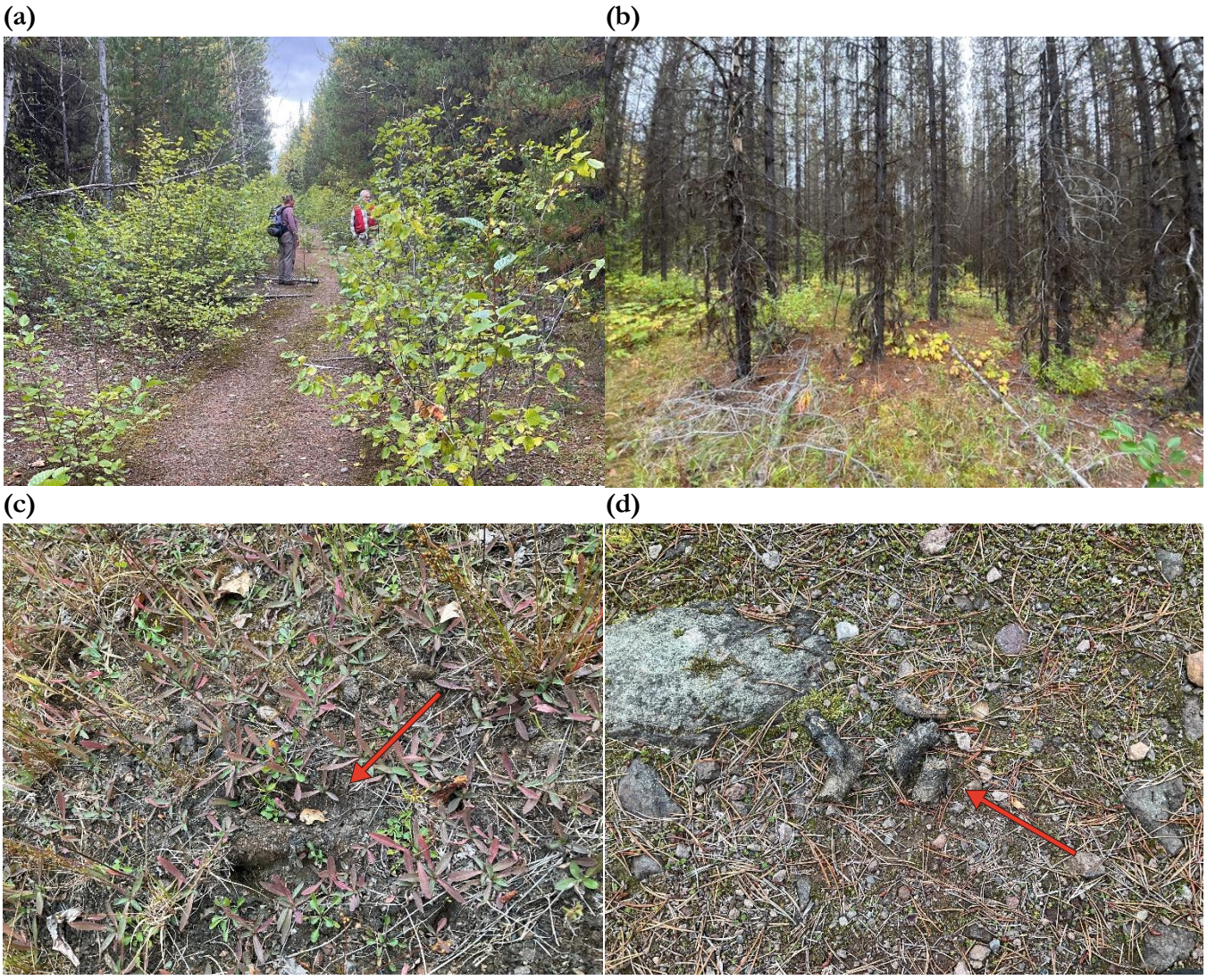



**Photo 22. Site LOW-001-A ground conditions: (a) linear feature right of way, (b) arboreal lichen in mature pine stands, (c) moose tracks, and (d) wolf feces (September 21, 2024). Red arrow identifies wildlife signs.**

Site LOW-001-B was higher in elevation (~850–900 m) and was mostly lined with poplar trees and overgrown with Sitka alder shrubs (Photo 23a). The level of revegetation varied along the feature (Photo 23a–c), affecting

the field crew's travelling speed. Little-to-no ground lichen cover was present, and there was little arboreal lichen on trees. Signs of use by moose (Photo 23d) and bears were present.




**Photo 23. Site LOW-001-B ground conditions: varying plant communities and levels of revegetation in (a) through (c), and (d) moose feces (pellets) (September 21, 2024). Red arrow identifies wildlife signs.**

Site LOW-001-C was the lowest elevation linear feature (580 m) stemming off Walcott Forestry Service Road. However, the linear feature was inaccessible; the feature was blocked with a log and included 'private property' signage that prohibited access (Photo 24). Therefore, the crew were unable to evaluate the condition of this linear feature.

(a) (b)



**Photo 24. Site LOW-001-C ground conditions: (a) vehicle access blocked by log, and (b) private property signage restricting access (September 21, 2024).**

As expected, dedicated forestry service roads and branching spur roads varied in their level of recovery near the southwest portion of RSA-1. Most linear features in this area occurred in open-to-closed canopy spruce forests. Site LOW-008, located at the northern extent of Thautil Forestry Service Road was well used and exposed (Photo 25a). Whereas site LOW-009, branching west from the northern point of Thautil Forestry Service Road was mostly recovered with substantial shrub and graminoid overgrowth (Photo 25b).

(a) (b)




**Photo 25. Flyover conditions at: (a) site LOW-008, a well used portion of the Thautil Forestry Service Road, and (b) site LOW-009, a mostly recovered linear feature branching west off the Thautil Forestry Service Road (August 14, 2025). Red arrows identify visible linear features.**

Site LOW-010 was the highest elevation site below the SBS-ESSF biogeoclimatic zone boundary and connected to site HI-008; this linear feature was partially recovered and unlikely to be accessible by most vehicles (Photo 26a). Sites LOW-011 and LOW-012 occurred on linear features in parallel that branched west off the Thautil Forestry Service Road. The level of recovery was considerably different between these sites. Site LOW-011 was well used and accessible by vehicles (Photo 26b). Site LOW-012 was mostly overgrown and only partially visible in certain segments, particularly at distances farther from the Thautil Forestry Service Road (Photo 26c).

**(a)**




**(b)**




**c)**




**Photo 26. Flyover conditions at: (a) site LOW-010, a partially recovered linear feature that connects to site HI-008, and (b) site LOW-011, a well used linear feature branching west off the Thautil Forestry Service Road, and (c) site LOW-012, a portion of a linear feature branching west off the Thautil Forestry Service Road that is mostly recovered (August 14, 2025). Red arrows identify visible linear features.**

A complete summary of low-elevation linear feature conditions is provided in Table 7, below.

**Table 7. Status of low-elevation linear features as candidates for habitat offsetting.**

| Site ID | Restoration Priority | Visible? | Accessible? | Wildlife Signs | Description |
|---|---|---|---|---|---|
| LOW-001-A | Priority 2 | Yes | Yes | Moose (track, feces), wolf (feces), and bear (feces) signs. | Linear feature in low-elevation forest (~800–850 m), varying in adjacent vegetation communities. Right of way lined with poplar trees adjacent to spruce/pine stands. Level of revegetation varies from 10%–50% (mostly alder or poplar shrub overgrowth), which altered the speed of travel for the field crew. Certain sections of the linear feature were adjacent to mature pine stands with substantial arboreal lichen (~80%). Wetter sites near base of slopes contained dense low shrub (20%) and graminoid (40%) cover. These mature pine stands are likely associated with relatively deep snowpacks during winter but have accessible arboreal lichens. |
| LOW-001-B | Priority 2 | Yes | Yes | Moose (feces) and bear (feces) signs. | Linear feature in low-elevation forest (~850–900 m) mostly overgrown with balsam poplar trees and Sitka alder shrubs. Forest primarily a mix of white or hybrid spruce and lodgepole pine. Level of revegetation varies from 5%–60% (mostly alder or poplar shrub overgrowth), which altered the speed of travel for the field crew. Certain areas mostly compacted with grass and sedge ground cover (~40%). Little-to-no ground lichen cover and minimal arboreal lichens. |
| LOW-001-C | Priority 2 | Yes | No | N/A | Linear feature at low elevation (580 m). Access off primary forestry road (Walcott Forest Service Road) blocked with 'private property' signage. |
| LOW-008 | Priority 2 | Yes | Yes | N/A | Linear feature at low-elevation (~1,000 m) in dense, closed-canopy spruce forest. Linear feature visible from overhead; well used with visible bare earth. Accessible by vehicles from the Thautil Forestry Service Road. |
| LOW-009 | Priority 2 | Yes | Yes | N/A | Linear feature at low elevation (~1,000 m) in dense, closed-canopy spruce forest. Linear feature visible from overhead but considerably overgrown; regeneration of graminoid and shrub layer is evident. The length of linear feature is likely inaccessible by vehicle, but access to it is available from the Thautil Forestry Service Road. |
| LOW-010 | Priority 2 | Yes | Yes | N/A | Open-to-closed canopy spruce forest just below SBS-ESSF biogeoclimatic zone boundary (~1,000–1,100 m). Linear feature visible from overhead but partially recovered; unlikely to be accessible by most vehicles. This site links to site HI-008. Access available from the Morice West Forestry Service Road. |
| LOW-011 | Priority 2 | Yes | Yes | N/A | Open-to-closed canopy spruce forest just below SBS-ESSF biogeoclimatic zone boundary (~1,000–1,100 m). Linear feature visible from |

| Site ID | Restoration Priority | Visible? | Accessible? | Wildlife Signs | Description |
|---|---|---|---|---|---|
| | | | | | overhead; well used with visible bare earth. Accessible by vehicles from the Thautil Forestry Service Road. |
| LOW-012 | Priority 2 | Partial | Yes | N/A | Open-to-closed canopy spruce forest at low elevation (~900–1,000 m). Linear feature only partially visible from overhead in certain segments and considerably overgrown; regeneration of graminoid and shrub layer is evident. Access to the linear feature is available from the Thautil Forestry Service Road, but vehicles are likely unable to access portions of the feature distant from the forestry road. |

# 5 CONCLUSIONS

The combined information from caribou baseline studies, caribou habitat assessments, and linear feature reconnaissance surveys led to several conclusions that supported the Project's assessment of habitat effects and offsetting opportunities.

1. **Most polygons identified as upland, and lowland (low-elevation capable winter range) caribou habitat are not currently in suitable conditions.**

   If TEM/ PEM polygons were identified as having >80% moderate and/or high capability habitat, then observed habitat conditions generally aligned with what was expected. For example, sites that were most associated with predicted upland caribou habitat in RSA-1 (e.g., LOW-002) occurred adjacent to forest service road clearings or thinned pine stands, both of which allowed light penetration (and microclimate conditions) to facilitate growth of abundant ground lichens. Where ground lichens were lacking in these same habitat polygons (generally due to limited light penetration and, therefore, more mesic conditions), there was often sufficient arboreal lichen to serve as winter forage.

   Where TEM/ PEM polygons were <80% of moderate and/or high capability habitat, then overall habitat conditions were generally poor for caribou. For example, large upland habitat polygons (25–50%) overlapping the Project Footprint mostly lacked the pine-lichen stands or arboreal lichen loads that characterize suitable caribou habitat.

   Overall, low-elevation winter range habitat classifications used to assess Project effects on caribou likely overestimate the suitability of low-elevation areas that provide suitable caribou habitat and, therefore, overestimate the amount of direct habitat loss that will result from the Project. This was a result of the mix of habitats occurring in the polygons and of their current suitability, in contrast with habitat capability, which was the basis of the mapping.

   In some drier pine sites, there might be options to improve the suitability of stands for caribou by thinning; a reduced forest canopy was clearly associated with more abundant ground lichens and, in some cases, more abundant arboreal lichens as well. High densities of relatively large trees inevitably produced wetter conditions and a ground cover of feathermoss. However, there were also very open, disturbed sites where lichen had suffered apparent mortality during the summer from desiccation. So optimal growing conditions might be quite specific. Areas would need to be retreated because the greater light penetration is also likely to encourage free seedling growth.

   While some low-elevation sites could be enhanced to increase their habitat suitability, these areas remain hostile to caribou due to moose and wolf use, and/or due to being very close to permanent human-related infrastructure. As a result, habitat enhancement might not be effective without further management actions to address other stressors.

2. **Field verification of caribou habitat capability ratings generally aligned with assumptions based on the TEM/ PEM, but habitat capability was generally not high for caribou.**

   Detailed plot investigations did not identify any significant deviation from assumptions made about the capability of different site series to generate suitable caribou biophysical attributes, at least among site series encountered in the field. Most field plots were estimated to have a capability rating of three (*moderate*) to four (*low*). Even in late-mature forest stands with no forest harvest history, the abundance of terrestrial and arboreal lichen was relatively low, indicating the area to be relatively low value for caribou as winter habitat. Rooted forage conditions were variable, indicating better habitat conditions for caribou in the growing season; however, caribou generally use higher elevations during this season as a tactic to avoid overlap with moose and the corresponding risk of predation from wolves.

3. **Winter habitat capability differs between caribou and moose, highlighting the spatial separation between these ungulate species.**

   Low-elevation capable winter caribou habitat was minimal in the Project Footprint because most habitat conditions were conducive to moose. High or moderately high ranked caribou habitat was restricted to drier, upper slope positions in SBSmc2 (i.e., site series 02), which are rare in occurrence, or the zonal site series (01) at higher elevations in ESSFmc. High or moderately high ranked moose habitat occurred in wetter, more common site series occurring in SBSmc2 (e.g., site series 05 through -12).

   The differences in habitat requirements were consistent with observed signs of caribou and moose. No caribou were identified in the Tenas Project Area during baseline field studies. During the habitat field verification program, confirmed caribou feces and tracks, though minimal overall, primarily occurred near the SBS-ESSF biogeoclimatic zone boundary (though a few potential signs were also evident at low elevation). In contrast, moose feces and tracks were observed frequently throughout the Tenas Project Area and Footprint. Several sites ranked as moderate capability for both caribou and moose had no evidence of use by caribou but substantial evidence of use by moose (e.g., signs of browsing or tree rub). These observations are consistent with the caribou behavioural strategy of minimizing use of lower elevations that are abundant with moose to evade predation by wolves.

4. **Poor caribou habitat capability limits the Project Footprint's effect on the sustainability of Telkwa caribou.**

   Because the capability of habitats within the Project Footprint were ranked relatively low for caribou, the area is unlikely to contribute significantly to the sustainability of the Telkwa caribou herd, even in the absence of the Project and/or with full habitat restoration. Restored low-elevation habitat would likely be used more by a recovered Telkwa subpopulation at present. A recovered population would use such habitat for dispersal and perhaps seasonal movements to other mountain blocks. However, caribou would most likely continue to use high-elevation habitats extensively while limiting low-elevation use because of the limited caribou biophysical attributes and the higher risk of predation.

**5. Restoring linear features at high and low elevation as part of a caribou offsetting strategy is unlikely to benefit caribou in the short term, but it meets provincial recovery objectives.**

Linear features at high elevation located centrally within RSA-1 (HI-001 to HI-004) had inadequate access to support the heavy equipment required to conduct restoration treatments. Either new access roads would need to be developed, or existing trails upgraded, to provide required access, which would likely result in a net increase in disturbance on the landscape. High-elevation linear features located at the southwest portion of RSA-1 (HI-005 to HI-009) are more easily accessible by existing forestry roads. Some additional clearing may be required between restoration sites and existing forestry roads, in partially recovered areas, to provide access for heavy equipment.

Portions of the high-elevation linear features were associated with advanced tree and shrub regeneration, and although the features might currently be providing some marginal benefit for travelling predators, any restoration treatment would likely compromise the existing regrowth. In such cases, the net effect of restoration treatments in the short term would be net negative, and additional decades would be added to their eventual recovery. Leaving these areas to recover naturally is likely a better policy.

At elevations above approximately 1,400 m, dense forest conditions give way to more open, parkland habitats and alpine. It is unclear how much linear features are benefiting the movements of predators in these areas, which in turn further questions the benefit of restoration. Any potential benefit to caribou likely comes from restoring linear features at or near the SBS-ESSF biogeoclimatic zone boundary (~1,000–1,100 m).

Linear features at low elevation (LOW-001 and LOW-008 to LOW-012) have access and are in a state that could justify restoration. However, only the upper reaches of these linear features, distant from existing forestry service roads, were associated with sporadic site conditions that could be considered suitable caribou habitat. As with linear features occurring at high elevation, the only potential benefit to caribou likely comes from restoring linear features at or near the SBS-ESSF biogeoclimatic zone boundary (~1,000–1,100 m). To the east of RSA-1 (LOW-001-A/B/C), most of the area was instead consistent with matrix habitat (e.g., mixed wood, moist forest conditions) and, therefore, hostile to caribou. It is unclear whether restoring linear features in these conditions will benefit caribou in the near term. In such cases, maintaining access for hunters to reduce ungulate prey might ultimately provide more benefit to caribou than restoration. In contrast, low-elevation linear features in the southwest portion of RSA-1 (LOW-008 to LOW-012) primarily occur in open-to-closed spruce forests ≥1,000 m, though below the SBS-ESSF boundary. From a habitat perspective these areas may be more suitable for restoration, but caribou use of these areas is currently limited.

Some might argue that linear features might facilitate movement of predators from low to high elevations and increase predation on caribou. However, the benefit to predators of such behaviour is not clear, when low-elevation areas provide abundant prey without the need to make long forays (often in deep snow conditions) into caribou habitat where prey is scarcer. Currently, there is little evidence available to suggest that treating such features reduces predation pressure on caribou.

Though restoration is unlikely to provide immediate benefit to caribou because it occurs within a landscape of abundant moose and wolves, it nonetheless meets the BC WLRS objective of reducing overall disturbance in matrix habitat.

# 6 RECOMMENDATIONS

There are several recommendations arising from the field studies completed for caribou:

1. The TEM/ PEM overestimated the distribution and abundance of capable low-elevation winter range habitat for caribou. As a result, estimates of potential effects of the Project should be adjusted. TEM/ PEM polygons used to identify low-elevation capable winter range within the Project Footprint should be reduced by 50% of the associated polygon sizes. In other words, half the total area of a given polygon with site series SBSmc2-02, -03, or -12 should be considered low-elevation capable winter range habitat. This approach still produces conservative results in the effects assessment (i.e., overpredicts the affected low-elevation capable winter range habitat) because site series SBSmc2-02, -03, or -12 cover, at most, 50% (or 5 deciles) of any given TEM/ PEM polygon within the Project Footprint. **This recommendation was implemented as part the revised effects assessment that TML submitted to BC EAO on September 22, 2025, and subsequent effect assessment submissions.**

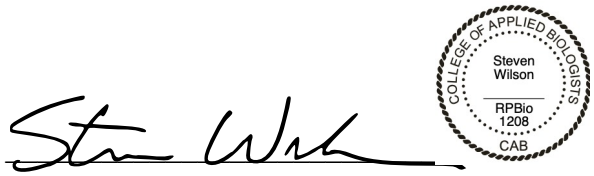
2. Much of the potentially suitable low-elevation caribou habitat within the northeast and eastern sections of RSA-1 are too close to permanent, human-related infrastructure to be occupied by caribou, even if the population is fully recovered. Critical habitat boundaries should be adjusted accordingly.

3. Predator-prey management is likely required for any restoration treatment in low-elevation caribou habitat to have any effect on caribou habitat range use and should be implemented wherever low-elevation habitat treatments occur.

4. Given that linear features already occur at a low density in open, high-elevation caribou habitat, the benefit of any restoration in this zone should be carefully considered before implementation. While abundant linear features occur in low-elevation portions of RSA-1, the rationale for restoring such features in matrix habitat is unclear and may not generate a significant benefit for caribou, especially in the short term. Again, restoration activities should be carefully considered and justified prior to implementation.

5. Before any linear feature is subject to a restoration treatment, trail cameras should monitor use for at least one year to determine how frequently the feature is being used by predators and to estimate the expected benefit of the treatment relative to its cost.

# 7 SIGNATURE OF QUALIFIED PROFESSIONAL




26 January 2026

Steve Wilson, *Ph.D.*, *R.P.Bio.* Date




January 26, 2026

Kerman Bajina, *M.Sc.*, *R.P.Bio.* Date

# 8 REFERENCES

Ardea Biological Consulting. 2022. Tenas Project Wildlife Baseline Report. Prepared for Telkwa Coal Limited, Telkwa, British Columbia. 232 + app pp.

Armleder, H.M., Stevenson, S.K., and Walker, S.D. 1992. Estimating Abundance of Arboreal Forage Lichens. Land Management Handbook 7. BC Ministry of Forests, Williams Lake, B.C. 22 pp.

DeMars, C.A., Johnson, C.J., Dickie, M., Habib, T.J., Cody, M., Saxena, A., Boutin, S., and Serrouya, R. 2023. Incorporating mechanism into conservation actions in an age of multiple and emerging threats: The case of boreal caribou. Ecosphere 14(7):e4627. DOI: 10.1002/ecs2.4627

Environment Canada. 2014. Recovery Strategy for the Woodland Caribou, Southern Mountain Population (*Rangifer tarandus caribou*) in Canada. *Species at Risk Act* Recovery Strategy Series. Environment Canada, Ottawa, ON. 103 pp.

ERM Consultants Canada Ltd. 2019. Telkwa Caribou Tactical Restoration Plan. Smithers, British Columbia. 72 pp.

QGIS Development Team. 2023. QGIS Geographic Information System. Open Source Geospatial Foundation Project.

Resources Inventory Committee. 1998. Ground-based Inventory Methods for Selected Ungulates: Moose, Elk and Deer. Standards for Components of British Columbia's Biodiversity. No. 33. Version 2.0. BC Ministry of Environment, Lands and Parks, Resources Inventory Branch, Victoria, BC. 59 pp.

Resources Inventory Committee. 1999. British Columbia Wildlife Habitat Rating Standards. Version 2.0. BC Ministry of Environment, Lands and Parks, Resources Inventory Branch, Victoria, BC. 111 pp. (http://www.llbc.leg.bc.ca/public/PubDocs/bcdocs/335486/whrs.pdf)

Roberts, A. 2000. Telkwa Caribou Herd Lichen and Forage Survey. Report prepared for CanFor and BC Environment, Smithers, British Columbia.

# APPENDICES

# APPENDIX A CARIBOU AND MOOSE HABITAT RATINGS ASSUMPTIONS

## CARIBOU HABITAT RATINGS ASSUMPTIONS

The following ratings assumptions are adapted from Sargent et al. (2010).

- All ecosystem units with a steep modifier (z or q) are rated nil (6).
- All non-vegetated units (e.g., rocky outcrop [RO], gravel bar [GB], cultivated field [CF]) are rated nil.
- Recent cut blocks are rated very low (5).
- Structural stages 6 and 7 are rated highest (up to high [1]), followed by structural stage 5 (up to moderate [3]).
- Structural stages 1 to 4 are rated lowest (generally no higher than low [4], some wetland ecosystem units may be rated higher [up to 3] in early winter).
- Wetlands are rated no higher than low (4) in the winter. Shrubby and pole sapling (structural stages 3 and 4) units are generally rated very low (5) to low (4) in the early and late winter at lower elevations, and very low to nil in the late winter in the Engelmann Spruce Subalpine Fir. However, pine-lichen units (e.g., site series 02) are rated higher than other site series in all biogeoclimatic variants (up to moderately high [2]).
- Structural stages 5 to 7 are generally rated from very low to moderate depending on the ecosystem unit (i.e., pine-lichen units are rated higher than other units).
- Ecosystem units with relatively high forest cover had higher value in late winter than in early winter.

## MOOSE HABITAT RATINGS ASSUMPTIONS

The following ratings assumptions are adapted from Appendix 4.8-A *Wildlife Baseline Report Appendix G Moose Species Account and Habitat Model Report* (Ardea Biological Consulting 2022) and Sargent et al. (2010).

- All ecosystem units and ecosite phases with a steep modifier (z or q) are rated nil.
- All non-vegetated units (e.g., rocky outcrop [RO], gravel bar [GB], cultivated field [CF]) are rated nil.
- Cool aspects are generally rated lower for winter feeding and shelter, especially at higher elevations and in more open ecosystem units and ecosite phases (including deciduous-dominated stands).
- Recent cut blocks are rated low (4) for winter feeding and nil for winter shelter.
- Pipeline rights-of-way and powerline easements and cutlines are rated very low (5) for winter feeding and nil (6) for winter shelter.
- Areas at low elevations (less than 900 m) with low snowpack were rated highest.
- Ecosystem units and ecosites phases that provide abundant, preferred winter browse (e.g. willows, cottonwood, dogwood, and aspen) are rated highest for winter feeding.
- Structural stage 3b (tall shrub) and mature seral forested sites with high shrub cover (more than 20%) area rated highest for winter feeding.
- Structural stage 2 wetlands are rated no higher than low (4) for winter feeding.

- Floodplain sites (site modifier = a) that are structural stage 3 or higher and are ecosystem units or ecosite phases with an abundance of preferred forage species are increased in value by one class for winter feeding.
- Ecosystem units and ecosites phases that are structural stage 6 and 7 are rated highest for winter shelter. However, in lower elevation areas with reduced snowpack (e.g., Boreal White and Black Spruce), structural stage 3b (tall shrub) are also rated relatively high for winter shelter.
- Forested ecosystem units and ecosite phases with very open canopy (less than 30%) are rated lower for winter shelter, and those with more than 60% canopy closure are rated highest for winter shelter.
- Winter forage:
    - Seral, shrub-stage cut blocks and burns 3a, 3b.
    - Disclimax shrub-stage ecosystems (wetlands, shrub-carrs, alder swales) 3a, 3b.
    - Cottonwood and spruce floodplains along the Bulkley, Morice, and Telkwa rivers 3–7.
    - Seral deciduous and mixed forest stands 3–7.
    - Valley bottom riparian shrub ecosystems with willow and other shrubs for winter browse 3–7.
- Security/thermal:
    - Closed canopy mature conifer forests with diverse understory for visual cover and snow interception 5–7.
    - Security/thermal cover is assumed to be provided by forested stands of structural stage 5 or greater with canopy closure 30% or greater as these would provide snow interception for thermal cover and diverse understory for security cover. Polygons more than 100 m from security/thermal cover were originally downgraded by one class.
        - Habitat ratings are downgraded by one class for slopes between 25 and 37° and reduced by two classes on slopes greater than or equal to 38°.

## REFERENCES

Ardea Biological Consulting. 2022. Tenas Project Wildlife Baseline Report. Prepared for Telkwa Coal Limited, Telkwa, British Columbia. 232 + app pp.

Sargent, P., C.A. Bryden, and R. Wiacek. 2010. Wildlife habitat modelling: approach, methods, and species accounts. Enbridge Northern Gateway Project. Jacques Whitford Axys Ltd., Calgary, AB.

# Enclosure 2

# APPENDIX 2 (OW-033-1): TENAS PROJECT, INFORMATION REQUIREMENT 492 RESPONSE, EDI

# Memorandum

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| **To:** | Dan Farmer \| *Chief Operating Officer* — Telkwa Mining Ltd. |
| **From:** | Steve Wilson \| *Ph.D., R.P.Bio.* — On behalf of EDI Environmental Dynamics, Inc. |
| **Date:** | April 8, 2024 |
| **Project No:** | 23P0480 |
| **Re:** | Information Requirement Response — Impact of Upgraded Recreational Access on the Telkwa Mountain Caribou Subpopulation |

## Introduction

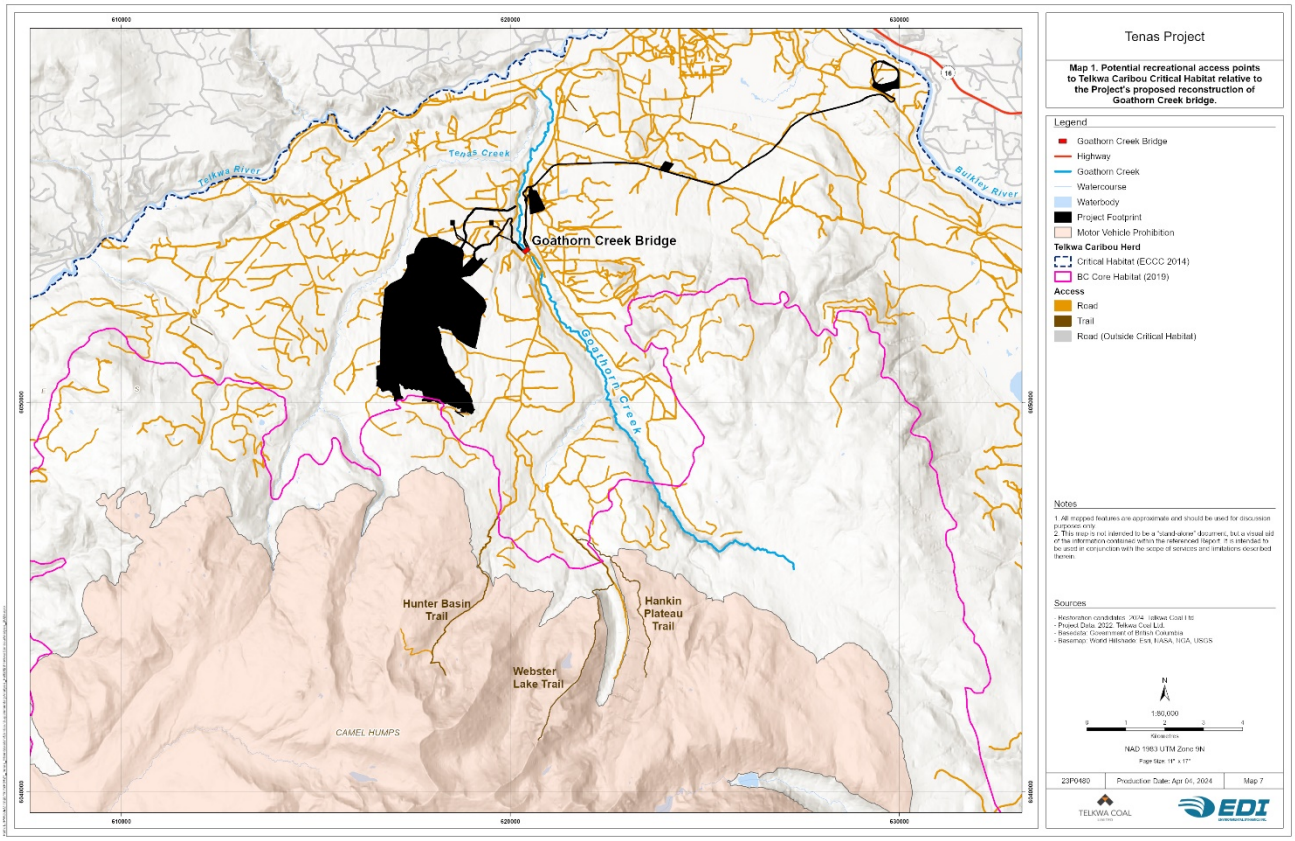
This memo addresses an EA Information Requirement regarding the potential for increased recreational access to the Telkwa Mountains due to the Tenas Project. The following items are covered: (i) a description of recreational access, (ii) proposed mitigations, and (iii) an assessment of effects to the Telkwa mountain caribou subpopulation.

## Description of Recreational Access

As part of the Tenas project (hereafter, 'the Project'), Telkwa Mining Limited (TML) intends to construct a new bridge over Goathorn Creek and conduct minimal access improvements to serve the proposed mine site and recreational areas (Map 1). A previous bridge provided access to the forestry road network west of Goathorn Creek and east of Tenas Creek. This network provides access to trailheads and routes into alpine habitat (Map 1). Most of the existing road network and the trails are located within Critical Habitat for caribou, as designated by the southern mountain caribou recovery strategy (Environment Canada 2014), most of which is considered 'Core' caribou habitat by the province of British Columbia (BC) (Dodd and Carswell 2019).

The original bridge washed out in approximately 2012, but Goathorn Creek is currently passable in low-water conditions via trucks, all-terrain vehicles, horseback, walking, snowmobiles, and biking. Hunter Basin, Hankin, and Webster Lake trails are accessible from the road network after crossing Goathorn Creek (Map 1) and are open from 15 July to 30 September for hiking only (and no dogs), under a voluntary agreement established in 2003 to support caribou recovery. Areas outside of the high elevation are accessible year round and TML has observed various users through its baseline and exploration programs over the years. Upper sections of these trails are located within a regulated year-round motor vehicle prohibition enacted in 2017 under BC's *Wildlife*

*Act* (Government of British Columbia 1996) while the lower sections remain unregulated but closed to motor vehicles under the voluntary agreement.




**Map 1.** **Potential recreational access points to Telkwa Caribou Critical Habitat in relation to the Project's proposed reconstruction of Goathorn Creek bridge.**

## Proposed Mitigations

TML has committed to updating the Project's Public Access Management Plan (S13.0-C14) to include additional commitments to mitigate potential effects on caribou resulting from upgraded access into the area. Access to the new bridge will be gated and public use will require escort by TML personnel due to its proximity to the mine site. The escort will include a mandatory educational component, using materials approved by the Government of BC or TML, explaining potential access effects on caribou resulting from recreation, and will include both information on alternative recreational areas outside 'Core' caribou habitat as well as best practices to avoid and minimize impacts on caribou.

Public access to the area via Goathorn Creek will be recorded by TML, including: (1) type of recreational use, (2) destination, (3) vehicle type, (4) number of users, and (5) timing and duration. Data will be reported annually to the Government of BC. TML will cooperate fully with any regulatory or policy changes implemented by the Government of BC to further restrict recreational access.

# Tenas Project

**Map 1. Potential recreational access points to Telkwa Caribou Critical Habitat relative to the Project's proposed reconstruction of Goathorn Creek bridge.**

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6050000 6040000

Telkwa River
Tenas Creek
Bulkley River
Goathorn Creek
Goathorn Creek Bridge
16
Hunter Basin Trail
Hankin Plateau Trail
Webster Lake Trail
CAMEL HUMPS
E
S

## Legend

- Goathorn Creek Bridge
- Highway
- Goathorn Creek
- Watercourse
- Waterbody
- Project Footprint
- Motor Vehicle Prohibition

**Telkwa Caribou Herd**

- Critical Habitat (ECCC 2014)
- BC Core Habitat (2019)

**Access**

- Road
- Trail
- Road (Outside Critical Habitat)

## Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

## Sources

- Restoration candidates. 2024. Telkwa Coal Ltd.
- Project Data. 2022. Telkwa Coal Ltd.
- Basedata: Government of British Columbia
- Basemap: World Hillshade: Esri, NASA, NGA, USGS, FEMA

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| 23P0480 | Production Date: Apr 04, 2024 | Map 7 |
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TELKWA COAL LIMITED

EDI ENVIRONMENTAL DYNAMICS INC.

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Offsetting for the Project will include restoration activities in high elevation areas to reduce habitat disturbance, following the proposed tactical restoration plan for the Telkwa Caribou Herd (ERM Consultants Canada Ltd 2019). The Hunter Basin Trail was excluded as a restoration candidate in the tactical plan.

## Effects Assessment

Prior to 2012, the Goathorn Creek bridge provided unfettered access to the road and trail network, limited only by voluntary compliance with the recreation access plan. Road and trail use is unmonitored, so how much use declined after the loss of the bridge can be assessed only anecdotally based on local knowledge. Since 2017, motorized vehicles have been prohibited in high elevation areas but are still allowed at lower elevations where the Project is located.

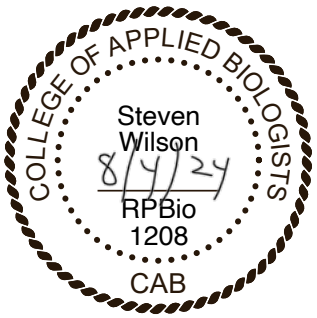
A new bridge over Goathorn Creek and minimal associated road upgrades will provide the opportunity for increased public use in the area, although gated, escorted, and monitored access is likely to dissuade some users. Under TML's plan, all public users will be provided with materials that will likely increase compliance with existing voluntary and legal measures in place to protect caribou and might further dissuade use.

Access requirements and concomitant increases in compliance with existing recreational restrictions is likely to offset any increase in risk to caribou posed by improved access afforded by the bridge and road upgrade. The result will be **no significant residual adverse impacts** to caribou. Restoration of disturbance in high-elevation habitat to offset the effects of the Project will further dissuade recreational use throughout high-elevation caribou habitat in the Telkwa caribou range.

Monitoring will provide more information on recreational access than was available in the past and the *Caribou Monitoring and Mitigation Management Plan* to be developed for permit applications will provide additional and relevant information on the status of the Telkwa caribou subpopulation. If effects on caribou from recreation are deemed unacceptable by regulatory agencies, Qualified Professionals or Indigenous peoples, enforcement of any new restrictions imposed by the BC government will benefit from access controls provided by TML.

## Signature of Qualified Professional

Steve Wilson, *Ph.D., R.P.Bio.*



## Literature Cited

Dodd, N. and Carswell, T. 2019. Caribou core and matrix habitat in British Columbia - mapping methods. Caribou Recovery Program, Ecosystem Information Section, Knowledge Management Branch, B.C. Ministry of Environment & Climate Change Strategy, Victoria, British Columbia. 4 pp.

Environment Canada. 2014. Recovery Strategy for the Woodland Caribou, Southern Mountain Population (*Rangifer tarandus caribou*) in Canada. *Species at Risk Act* Recovery Strategy Series. Ottawa. viii + 103 pp.

ERM Consultants Canada Ltd. 2019. Telkwa Caribou Tactical Restoration Plan. Smithers, British Columbia. 72 pp.

Government of British Columbia. 1996. *Wildlife Act*. RSBC 1996, c. 488. (http://www.bclaws.ca/civix/document/id/complete/statreg/96488_01)

# Enclosure 3

# APPENDIX 3:
# TENAS PROJECT, SUPPLEMENTAL RESPONSES TO QUESTIONS FROM THE OFFICE OF THE WET'SUWET'EN (OW) BASED ON JANUARY 28, 2025, TELKWA MINING'S PRESENTATION, EDI

# Memo

**Date:** February 19, 2025

**To:** Julia Onderwater, Natural Resources Project Assessment Coordinator, Office of the Wet'suwet'en

**From:** Dan Farmer, Project, and Development Manager, Telkwa Mining Limited

Steve Wilson, Ecologic Research, and Kerman Bajina, Environmental Dynamics Inc.

**Reference:** Response to Questions from Technical Meeting (January 28, 2025)

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Telkwa Mining Limited (TML) engaged with representatives of the Office of the Wet'suwet'en (OW) and the Firelight Group on January 28, 2025, to discuss TML's draft information request response to British Columbia (BC) Environmental Assessment Office (EAO) for the Tenas Project (the Project). The response included an updated effects assessment approach for Telkwa Caribou. The primary action item following that engagement was for TML to provide additional written responses to OW's technical questions. This memo provides answers to the technical questions submitted by OW to TML on January 31, 2025. Furthermore, OW will facilitate additional discussion in the future with both OW and the House Groups (Cas Yex, and Kwen Bea Yex) on this topic.

## QUESTION #1

**Your response to IR's depended again on making assumptions of caribou use based on telemetry data. BC EAO has stated previously noted concerns with the interpretation of telemetry data for assessing caribou use noting in their September 9, 2022 letter that: "*The telemetry monitoring was not designed to investigate habitat/range use. Therefore, analysis on range use needs to clearly articulate the assumptions in using location data for that purpose, the limitations on how this can be interpreted, and the uncertainty associated with this included in the assessment.*"**

The primary purpose of GPS telemetry is to investigate habitat/range use. Data collected from GPS telemetry is the best available information to infer and interpret habitat/range use by Telkwa caribou. The historic *Telkwa Caribou Herd Recovery Plan* (BC Ministry of Environment, Lands and Parks 1998) and the *DRAFT Woodland Caribou Plan for the Telkwa Subpopulation* (BC Caribou Recovery Team n.d.) have both stressed the need to use telemetry data to inform annual movements and habitat use patterns. The *Telkwa Caribou Tactical Restoration Plan* (ERM Consultants Canada Ltd. 2019) also relied heavily on GPS telemetry data to delineate priority restoration sites to support the herd's recovery. There are certainly sampling considerations when estimating the relative use of habitat types from telemetry locations (e.g., collared individuals being representative of the population), but we know of no other information that contradicts the habitat/range use inferences that have been made from the telemetry data.

**How have you accounted for this uncertainty in your assessment of caribou use, particularly for low elevation habitats?**

With respect to assessing low-elevation habitat use by Telkwa caribou, we know of no reason that collared caribou would be less likely to use low-elevation habitat than uncollared caribou (i.e., collar bias). Dense forest cover can reduce the success rate of GPS location fixes (i.e., fix bias), which can bias estimates of relative habitat use; however, higher elevation Englemann Spruce – Subalpine Fir (ESSF) forest could then also generate a bias similar to lower elevation Sub-boreal Spruce (SBS) forests. Therefore, these biases are insufficient to explain the almost complete absence of collared caribou locations in Matrix habitat. Nor do we know of any other evidence that caribou are using Matrix habitat more than what has been documented by telemetry data. In fact, the general avoidance of low-elevation SBS forest by collared Telkwa caribou is consistent with the patterns observed for both northern and southern caribou in BC (Wilson 2022), likely because this zone provides extensive habitat suitable for moose and wolves (Meidinger et al. 1991, Environment Canada 2014).

For assessing the suitability of low-elevation habitat, we did not rely on telemetry data but instead interpreted the suitability of areas based on ecosystem characteristics, guided by available research for the northern and central groups of southern mountain caribou. Studies consistently report caribou using winter ranges composed of lower productivity ecosystems, including upland pine-lichen stands and lowland treed bogs, and we used TEM/PEM to identify the location of these habitats in the RSA and to calculate the potential effects of the Project.

## QUESTION #2

**Your response to IR's discounted the Project impacts to Type 1 matrix habitat for caribou, specifically you noted that "*Where the Project footprint occurs in a low-elevation area that is not of moderate or high suitability for caribou, effects on caribou are not expected.*" (p. 14) As a result it sounds like your effects assessment completely excludes effects on Type 1 Matrix habitat for caribou.**

As a point of clarification, the first step in TML's updated effects assessment included both (1) direct/indirect effects on caribou biophysical attributes (i.e., moderate and high suitability) and (2) Environment and Climate Change Canada (ECCC) defined disturbance (i.e., fire and 500-m buffers around anthropogenic disturbances) on caribou Critical Habitat. The assessment using ECCC's criteria considered *all areas* to be Critical Habitat. However, we proceeded with effects characterization using only assessment (1) because it yielded a larger net effect at low elevation (i.e., direct biophysical attributes affected = 49.7 ha versus ECCC-defined habitat effects = 3.5 ha due to different buffers being utilized), resulting in a more conservative assessment (i.e. higher disturbance). Please refer to Table 1 in TML's information request response to BC EAO.

**How do you plan on reconciling this when Type 1 matrix habitat is considered critical habitat for Telkwa Caribou Herd?**

The Federal Recovery Strategy defines the function of Type-1 Matrix range as providing "*some forage, connectivity between seasonal ranges, security from human disturbance, and a low risk of predation*" (pg. 13, Environment Canada 2014). We assume the future use of low-elevation habitat by caribou, if

it were to occur, would see caribou in winter using suitable patches of winter range habitat providing abundant lichen forage. These patches would be embedded in a Matrix of less suitable habitat where security is the primary concern. This was the motivation for identifying areas that could serve as caribou winter ranges (and biophysical attributes) and calculating the potential direct effects of the Project. The area of suitable winter range habitat occurring within the Project Footprint was included in the calculation of direct effects and subsequent offsets.

The main concern with habitat alteration in Matrix habitat is the enrichment of primary prey and predator populations via increases in the abundance of early seral vegetation (i.e., primary prey forage) caused by forest harvesting and fire. The mine footprint will not generate more primary prey forage (in fact it will reduce it by removing all vegetation) and, therefore, will not contribute to higher prey and predator densities, so there is no requirement for offsetting.

With respect to indirect disturbance, there is currently none at low elevation because caribou are not using these areas, nor are they likely to do so during the life of the Project, given the hypothesized habitat conditions required to reduce primary prey and predators within 30 km of the Core caribou habitat. Therefore, we assume the Project has no indirect effect in low-elevation habitat. Note also that low-elevation habitat is already highly disturbed, and therefore we calculated no marginal (net) effect of the Project using indirect disturbance buffers (mine = 3 km, haul road = 1.8 km) and only 3.5 ha using a 500-m buffer (i.e., ECCC anthropogenic disturbance criteria within critical habitat).

**What conversations have you had with ECCC to confirm this approach is acceptable?**

We have not yet proposed this approach to ECCC. Our priority has been to first engage with OW and Wet'suwet'en House Groups, come to an agreement on the assessment approach, then present that approach to ECCC and the BC Ministry of Water, Lands, and Resource Stewardship (MWLRS).

## QUESTION #3

**You noted that some of the PEM/TEM mapping for moderate and high suitability low elevation areas did not align with the on the ground conditions noted during surveys.**

**Based on these findings you made some strong statements about the accuracy of the effects assessment and assumed that these are over estimated.**

We stated that our assessment of low-elevation winter range habitat overestimates habitat effects to Telkwa caribou for several reasons:

1. We visited most moderate and high suitability habitat patches within the northern and eastern extents of the herd's Matrix habitat. We focused on these northern/eastern areas because they had the greatest amount/distribution of expected (TEM/PEM derived) suitable habitat and due to their proximity to the Project.
2. Most suitable habitat patches were either already disturbed (e.g., human use, stand thinning) or near sources of human disturbance (e.g., access/forestry roads, light industrial). In many cases, stand-tending treatments like thinning contributed to light penetration (and microclimate conditions) that promoted ground lichen growth, which generated higher

suitability upland caribou habitat. These areas of human use and high moose/wolf abundance are unlikely to constitute suitable caribou habitat, even if caribou were present at low elevation.

3. The areas between patches of moderate and suitable habitat patches that we visited (both by air and by road) were predominantly mixed wood forests with substantial early seral deciduous vegetation (e.g., alder and poplar shrubs), which is suitable moose habitat.

**Would you say that your surveys included a representative sample of these areas?**

Based on our initial desktop review and outcomes from our ground/air-based field surveys, we believe our surveys were representative at a *reconnaissance* level. Please refer to Map 3 in the field reconnaissance report (Appendix C within Appendix A of the information request response memo) to see the overlap between our survey coverage (flight lines and ground sites) and lowland/upland caribou habitat.

**Did you sample low suitability areas as well to confirm their accuracy and show that there are not moderate or high suitability areas in these locations?**

We did not sample low suitability areas, although we flew over most of the northern/eastern Matrix habitat and found it to be predominantly mixed wood forests and, therefore, unsuitable for caribou. However, during the next field season (summer 2025), TML will validate the mapping within the Project footprint to understand both errors of omission and commission in identification and classification of caribou habitat.

## QUESTION #4

**What conversations have occurred between ECCC and WLRS on offsetting locations for the Telkwa herd? How have these conversations helped to guide the choice of offsetting locations noted in your response?**

We have not yet discussed offsetting locations with ECCC and BC WLRS. Our priority has been to first engage with OW and Wet'suwet'en House Groups, come to an agreement on offsetting options/locations, then present that approach to ECCC and BC MWLRS.

**How do you plan to engage with Wet'suwet'en the offsetting plan and specific offsetting locations?**

Telkwa Mining is committed to further engagement with the Wet'suwet'en on this topic as we wish that the Wet'suwet'en will be fully engaged in directing how offsetting and reclamation efforts will be implemented to maximize the benefit to the Telkwa Caribou Herd.

## QUESTION #5

**Your offsetting scouting revolved around area identified in the Telkwa Tactical Restoration Plan – it seemed like some of these areas were found to be less suitable. Are there plans to look at other**

**offsetting areas in the future? How will you engage with Wet'suwet'en when looking at additional offsetting locations?**

Based on our initial assessment, we are not planning on identifying additional offsetting/restoration opportunities in the northern/eastern extents of Telkwa caribou Matrix habitat. However, we will conduct additional field reconnaissance to identify other opportunities in the southern/western extents of the Telkwa caribou Matrix habitat. This will be conducted during the next field season in consultation with OW, Wet'suwet'en House Groups, and BC MWLRS.

We are also focused on defining the funding envelope and potential project management arrangement(s) to allow the stewardship of the Telkwa Caribou Herd during the life of the Project. TML, through the OW, has further meetings to discuss this topic including identification of potential offsetting locations based on their knowledge of the region.

## CLOSING

TML welcomes any further questions and suggestions to support our effects assessment of Telkwa caribou and potential management actions that could be undertaken to assist with the recovery of the Telkwa Caribou Herd.

Sincerely,



Daniel J. Farmer, P.Eng.
Project and Development Manager, Telkwa Mining Limited

## SIGNATURE OF QUALIFIED PROFESSIONAL




Steve Wilson, *Ph.D.*, *R.P.Bio*.

February 18, 2025

Date




Kerman Bajina, *M.Sc.*, *R.P.Bio*.

February 18, 2025

Date

## Literature Cited

BC Caribou Recovery Team. n.d. DRAFT Woodland Caribou Plan: Telkwa Subpopulation, Telkwa Local Population Unit. 23 pp.

BC Ministry of Environment, Lands and Parks. 1998. Telkwa Mountains Caribou Herd Recovery Plan. Skeena Region, Smithers, BC. 27 pp.

Environment Canada. 2014. Recovery Strategy for the Woodland Caribou, Southern Mountain Population (*Rangifer tarandus caribou*) in Canada. *Species at Risk Act* Recovery Strategy Series. Environment Canada, Ottawa, ON. 103 pp.

ERM Consultants Canada Ltd. 2019. Telkwa Caribou Tactical Restoration Plan. Smithers, British Columbia. 72 pp.

Meidinger, D., Pojar, J., and Harper, B.M. 1991. Chapter 14: Sub-Boreal Spruce Zone. pp. 223–236. In D. Meidinger, J. Pojar (eds.) Ecosystems of British Columbia. Special Report Series 6. British Columbia Ministry of Forests, Victoria, BC.

Wilson, S. 2022. North mountain caribou range delineation analysis. Prepared for BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development, Prince George, British Columbia.

# Enclosure 4

# APPENDIX 4:
# TENAS PROJECT, SUPPLEMENTAL RESPONSES TO QUESTIONS FROM THE OFFICE OF THE WET'SUWET'EN (OW) BASED ON THEIR LETTERS PROVIDED ON FEBRUARY 28, MARCH 12, AND MAY 15 (CARIBOU-RELATED), 2025, EDI

# Memo

**Date:** May 1, 2025; Revised September 22, 2025, and January 15, 2026

**To:** Julia Onderwater, Natural Resources Project Assessment Coordinator, Office of the Wet'suwet'en

**From:** Dan Farmer, Project and Development Manager, Telkwa Mining Limited

Steve Wilson, EcoLogic Research; Kerman Bajina, EDI Environmental Dynamics Inc.

**Reference:** Responses to the Office of the Wet'suwet'en Information Request Comments and Requests in the Internal Tracking Table

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In a meeting held on January 28, 2025, the Office of the Wet'suwet'en (OW) was presented the results of the woodland caribou effects assessment and habitat offsetting strategy for the Tenas Project (hereafter "the Project") prepared by Telkwa Mining Limited (Telkwa Mining) in response to Information Requests (IRs) from Environment and Climate Change Canada (ECCC) and the (former) BC Ministry of Land, Water and Resource Stewardship (LWRS).

This memo provides detailed responses to OW's Internal Tracking Table (ITT) IR comments included in their March 12, 2025, Information Response Letter. A revised effects assessment and habitat offsetting strategy that considers OW's comments has been provided in **Appendix 1 (Attachment OW-026-1)**.

## OW-026

***Original Topic and IR Comment:***

*Effects assessment and critical habitat*

*Based on the location of the Project within the Telkwa caribou range, the Application does not provide sufficient rationale to support the determination that the Project and its associated disturbances will result in no direct or indirect habitat loss. TCL must work with ECCC and LWRS to appropriately characterize the adverse effects of the Project, both direct and indirect, given revised disturbance buffering outlined above, and given the context that the total existing disturbance in the Telkwa herd range already exceeds both federal disturbance thresholds (i.e., minimal disturbance of high elevation winter and/or summer ranges, and at least 65% undisturbed habitat for low elevation winter range and Type 1 matrix categories of critical habitat). Working with ECCC and LWRS will enable mutual understanding of the varying definitions of direct and indirect effects. TCL must identify adverse effects (loss, alteration, disruption) to each critical habitat type as identified in the Recovery Strategy using the most current critical habitat mapping and using scientifically relevant buffers regardless of current*

*habitat disturbance status. Based on the location of the Project within the Telkwa caribou range, the Application does not provide sufficient rationale to support the determination that the Project and its associated disturbances will result in no direct or indirect habitat loss.*

**(A)**

***OW Comment***

*It is currently unclear what work has been done between Telkwa Mining and ECCC / WLRS to enable a mutual understanding of the definitions for direct and indirect impacts, based on the information provided by Telkwa Mining in their response and associated appendices.*

***OW Recommendation***

*Please provide documentation of the additional communications that occurred between Telkwa Mining and ECCC / WLRS that lead to the current definitions that were used by Telkwa Mining in their response to the Information Request, as this is unclear to other parties.*

**TELKWA MINING RESPONSE**

As mentioned during Telkwa Mining's engagement with OW (January 28, 2025), and in the subsequent written responses to OW's questions (February 19, 2025), Telkwa Mining had not initiated discussions on this (or any) IR response with BC WLRS or ECCC. Telkwa Mining's objective was to first receive feedback from OW, adjust IR responses based on that feedback, and then to present a refined response for all IR topics to BC WLRS and ECCC. Since then, EAO and Telkwa Mining have invited OW and other participating Indigenous Nations to all subsequent discussion with BC WLRS and ECCC. Please see Section 2 of Appendix 1 (Attachment OW-026-1) for an account of all meetings with BC WLRS and ECCC.

**(B)**

***OW Comment***

*ECCC / WLRS stated that the application does not provide sufficient rationale to support the conclusion that the Project effects will result in no direct or indirect habitat loss. Telkwa Mining's formal response included a revised effects assessment completed by EDI, which includes a number of instances where their calculation of direct and indirect effects appears to be flawed/unclear* (See below).

**TELKWA MINING RESPONSE**

Please see responses to comments B1 through B4, below.

**(B1)**

***OW Comment***

*In section 3.1.1 (PDF p. 14) EDI noted that they only calculated direct effects of the Project where the Project overlapped with moderate to high suitability habitat, and did not assess*

*direct effects that are not in those habitats. EDI further notes that "Where the Project footprint occurs in a low-elevation area that is not of moderate or high suitability for caribou, effects on caribou are not expected. These areas are not currently, nor are they likely in future, to function as caribou habitat because they do not provide suitable biophysical attributes. Rather, they are areas more suitable to moose that caribou might move through to access suitable low-elevation winter range areas if/when caribou re-occupy low-elevation winter range. [emphasis added]" (PDF p. 14). Given the highly fragmented spatial distribution of the moderate and high suitability low elevation winter habitat within RSA-1 (outside of RSA-2 Core) as shown in Map 3 (PDF p. 13), it is concerning that the Type 1 matrix habitat is being discounted as these areas provide important movement access to those moderate and high suitability winter habitats.*

***OW Recommendation***

*Please provide an updated direct and indirect effects assessment that includes impacts to all of the Critical Habitat area (RSA-1), including impacts to moderate and high suitability low elevation winter habitat AND Type 1 matrix habitats.*

**TELKWA MINING RESPONSE**

Please see Section 5.2.3.3 and Section 5.3 of **Appendix 1 (Attachment OW-026-1)**. Loss of caribou biophysical attributes due to the Project was assessed by estimating the distribution and abundance of currently suitable, or potentially suitable (i.e., capable), low-elevation winter range habitat within the Project Footprint. The previous assessment excluded Type 1 matrix because there is no evidence that those habitats are currently being used by caribou or providing movement habitat to access low-elevation winter range habitat. This could change in future if predator-prey conditions improve; however, this represents a *speculative future* scenario. While not a standard practice for estimating project effects in an Environmental Assessment context, Telkwa Mining has nevertheless revised their effects assessment to address OW's concerns. The revised effects assessment quantifies the Project's direct and indirect effects on high elevation Core Range, low-elevation Capable Winter Range (i.e., biophysical attributes), and low-elevation Caribou Movement Habitat (Type 1 matrix) under "**optimal/ fully restored habitat**" baseline conditions.

**(B2)**

***OW Comment***

*It appears that the only place where EDI accounted for some of the direct and indirect effects of the Project on Type 1 matrix habitat was in their assessment of ECCC-defined Disturbed Habitat. In this assessment, they applied 500m buffers around existing disturbances that will be <40 years old by 2050. This approach is concerning as it appears to rely on the assumption that any additional direct and indirect effects of this Project will not result in increased effects on the Telkwa Caribou Herd. As a result, it appears that EDI does not adequately account for the loss of natural regeneration in disturbed areas that will be <40 years old by 2050. Having an area that may be considered recovered 3 years after the Project Operational phase (2050),*

*is much different than an area that was re-impacted by the Project and won't be recovered until 2090. As well, it appears that EDI does not adequately account for any worsening of indirect effects in these areas, as an old cut block may not have the same level of indirect effects on caribou as an old cut block that has an active mine access road running through it as the noise from travelling vehicles could be considered an additive effect from the Project.*

***OW Recommendation***

*Please provide a clear rationale as to how the direct and indirect effects of the Project will not worsen existing conditions in disturbed areas for the Telkwa Caribou Herd and explain how the loss of potential natural regeneration of disturbed areas <40 years old by 2050 is being accounted for.*

**TELKWA MINING RESPONSE**

Please see Section 5.3 of **Appendix 1 (Attachment OW-026-1)**. Telkwa Mining's revised effects assessment considers Project effects on all high elevation and low elevation habitats in relation to a revised baseline that now assumes regeneration of all natural (e.g., fire) and forestry (i.e., cutblocks) disturbances, and reclamation of all tertiary and quaternary roads and trails. Certain recreational trails that are unlikely to be reclaimed were retained as permanent disturbances (e.g., Hunter's Basin, Hankin Plateau, Webster Lake, and Star Basin trails). This treatment of non-permanent habitat disturbances maximized the potential effects of the Project and generates an overly conservative effects assessment because it assumes no future habitat disturbance other than the Project.

Any indirect effects of the Project are considered to result in a complete loss of caribou habitat. This approach, while overly conservative (i.e., sensory disturbance reduces the probability of use but does not remove habitat), accounts for the worsening or additive effects of the Project under the "**optimal/ fully restored habitat**" baseline conditions scenario.

Furthermore, the Project is proposing to offset 10–15-times the amount of habitat for the herd than it is affecting. This amount of restoration is significantly greater than anything proposed in the absence of the Project. It constitutes a net benefit to the herd.

**(B3)**

***OW Comment***

*In section 3.1.3 (PDF P. 17) EDI states that in the two scenarios used to assess direct and indirect effects they "…considered burns and cut blocks to be permanent disturbances only if they were <40-years old by the end of the Project's operational phase (2050). This criterion excluded burns and cut blocks as permanent disturbances (thus increasing the Project's total disturbance) if they had the potential to recover during the Project's operational lifetime. The 2050 cutoff accounts for the removal of caribou habitat due to the Project." (PDF p. 17). However, this logic discounts any recovery that might occur in stands that are naturally regenerating but <40 years old and lumps them as disturbances without value to caribou. As noted above, having an area that may be considered recovered 3 years after the Project*

*Operational phase (2050), is much different than an area that was re-impacted by the Project and won't be recovered until 2090, so the effects assessment should include additional scenarios to provide a more accurate picture of Project effects.*

***OW Recommendation***

*Please provide an updated version of the direct and indirect effects assessment that includes scenarios where:*

- *The total disturbance is calculated from existing, permanent disturbances in the Critical Habitat area. All burns and cut blocks are assumed to eventually provide habitat and are not included in the total disturbance; and*
- *The Project's total disturbance is added to the existing above disturbance.*

**TELKWA MINING RESPONSE**

Please refer to the revised effects assessment in Section 5.3 of **Appendix 1 (Attachment OW-026-1)**.

**(B4)**

***OW Comment***

*In Table 2 EDI notes that there are 0 hectares of indirectly affected low elevation potential winter range caribou habitat. The rationale that EDI uses to justify this conclusion is that "Low elevation potential winter range caribou habitat is currently unoccupied by caribou and is not expected to be during the life of the Project, so sensory disturbance was not considered for this habitat." (PDF p. 18). This appears to completely ignore that while caribou may not currently be using the habitat, they may reoccupy it in the future and this potential for reoccupation will be indirectly affected by the project. Indirect effects in these areas may prolong potential caribou avoidance of these areas. In addition, this rationale ignores BC LWRS's concerns with Telkwa Mining's interpretation of the available telemetry data (see their September 9, 2022, letter to Telkwa Mining).*

***OW Recommendation***

*As Map 3 clearly shows there is moderate and high suitability low elevation habitat in close proximity to the Project footprint and this area will be impacted by indirect effects, please provide a calculation of the area of these habitats that will be indirectly affected regardless of current caribou presence/absence. As well, please provide details of the communications between Telkwa Mining and WLRS that confirms that their concerns related to the use of available telemetry data from the Telkwa Caribou Herd to determine a lack of habitat use have been addressed.*

**TELKWA MINING RESPONSE**

Please refer to Section 5.3 of **Appendix 1 (Attachment OW-026-1)**. Indirect effects to moderate and high suitability caribou biophysical attributes (i.e., low-elevation Capable Winter Range as described above) were already calculated in the previous assessment. However, updated calculations of direct and indirect effects to this habitat are provided in the revised effects assessment.

As a point of clarification, telemetry data were not used to inform the Project's direct and indirect effects assessment calculations. Instead, caribou habitat capability was used to inform calculations of direct and indirect effects, even though there is limited evidence of caribou using these areas.

As mentioned during the engagement with OW (January 28, 2025), Telkwa Mining had not commenced discussions on this IR response with ECCC and BC WLRS. Telkwa Mining's objective was to first receive feedback from OW, adjust IR responses based on that feedback, and then to present a refined response for all IR topics to BC WLRS and ECCC. Since then, EAO and Telkwa Mining has invited OW and other participating Indigenous Nations to all subsequent discussion with BC WLRS and ECCC. Please see Section 2 of Appendix 1 (Attachment OW-026-1) for an account of all meetings with BC WLRS and ECCC.

**(C)**

***OW Comment***

*ECCC/ WLRS requested that Telkwa Mining identify direct and indirect effects to each habitat type regardless of current habitat disturbance status. Based on the content provided in Appendix A, this calculation was not completed as all scenarios completed by EDI factor in existing disturbance.*

***OW Recommendation***

*Please provide an updated version of the effects assessment that includes the area of direct and indirect effects within RSA-1 and RSA-2-Core regardless of the current habitat disturbance status.*

**TELKWA MINING RESPONSE**

Please refer to the revised effects assessment in Section 5.3 of **Appendix 1 (Attachment OW-026-1)**.

As requested by OW, Telkwa Mining will discuss appropriate incorporation of the results of forthcoming information related to caribou into Project design, monitoring, mitigation, and adaptive management plans.

## OW-027

***Original Topic and IR Comment:***

*<u>Effects assessment and critical habitat</u>*

*ECCC recommends that the text in Paragraph 2 be revised to include the following edits:*

*"The Recovery Strategy (Environment Canada 2014) indicates that, for the Northern Group, which includes the Telkwa Caribou Herd, minimal disturbance of high elevation winter and/or summer ranges (which is applicable to CRSA2 Core), and at least 65% undisturbed habitat for low elevation winter range and Type 1 matrix range is considered necessary to achieve recovery. The amount of disturbed habitat (using the actual footprint and a 500-m buffer around the existing human disturbance, plus unbuffered natural disturbances [e.g., forest*

*fires]), as defined by the Recovery Strategy (Environment Canada 2014), currently exceeds both of these 35% disturbance thresholds in most Caribou study areas, except for the CRSA2 Core (Table 4.2-4). Note that because the WLSA, CRSA1, and CRSA2 Matrix include both high-elevation and low elevation areas, these figures underestimate the total percent disturbance for LE only when comparing to the maximum 35% threshold. Regardless, this Low elevation threshold has been exceeded."*

*Where caribou habitat is below the management thresholds outlined in the Recovery Strategy, as described above, ECCC recommends additional mitigation measures to offset the residual and cumulative effects of the Project on the Telkwa caribou herd. Mitigation measures should be developed:*

- *with appropriate buffers;*
- *using the most current draft of caribou critical habitat mapping;*
- *in consideration of the high risk to caribou given previous impacts to the landscape and the small population size of the Telkwa herd; and*
- *following the mitigation hierarchy of avoid, reduce, and compensate/ offset. ECCC recommends that offsetting mitigation measures follow the guidance outlined in the Operational Framework for the Use of Conservation Allowances.*

*Reference*

*Environment Canada. 2012. Operational Framework for Use of Conservation Allowances. Environment Canada, Ottawa, ON. 13pp. Available at: https://publications.gc.ca/collections/collection_2012/ec/En14-77-2012-eng.pdf*

***OW Comment***

*(See comments below regarding offsetting and mitigation measures.) Based on the information provided it is unclear where the requested specific content edits from ECCC are supposed to occur and there is no corresponding updated paragraph in Telkwa Mining's response.*

***OW Recommendation***

*Please provide details of where ECCC's content edits were actioned by Telkwa Mining.*

**TELKWA MINING RESPONSE**

Telkwa Mining acknowledges the comment. The referenced ITT IR 412 has been removed from the Caribou IR and assigned to the Effects Assessment stage by BC EAO, so further discussions on this will need to be directed to BC EAO. ITT IR 407 has also been allocated to the Effects Assessment stage.

## OW-028

***Original Topic and IR Comment:***

*Effects assessment and critical habitat*

*TCL must work with ECCC and LWRS to appropriately characterize the adverse effects of the Project, both direct and indirect, given revised disturbance buffering outlined above, and given*

*the context that the total existing disturbance in the Telkwa herd range already exceeds both federal disturbance thresholds (i.e., minimal disturbance of high elevation winter and/or summer ranges, and at least 65% undisturbed habitat for low elevation winter range and Type 1 matrix categories of critical habitat). Working with ECCC and LWRS will enable mutual understanding of the varying definitions of direct and indirect effects. TCL must identify adverse effects (loss, alteration, disruption) to each critical habitat type as identified in the Recovery Strategy using the most current critical habitat mapping and using scientifically relevant buffers regardless of current habitat disturbance status.*

***OW Comment***

*(See above comments regarding the buffers used by Telkwa Mining.) It is currently unclear what work has been done between Telkwa Mining and ECCC / WLRS to appropriately characterize the adverse effects of the Project, based on the information provided by Telkwa Mining in their response. (See above comments regarding calculation of direct and indirect effects on different habitat types, and buffers.)*

***OW Recommendation***

*Please provide documentation of the additional communications that occurred between Telkwa Mining and ECCC / WLRS that lead to the current characterization of the adverse effects of the Project that was used by Telkwa Mining in their response to the Information Request, as this is unclear to other parties.*

**TELKWA MINING RESPONSE**

Telkwa Mining acknowledges the comment. As mentioned during Telkwa Mining's engagement with OW (January 28, 2025), and in the subsequent written responses to OW's questions (February 19, 2025), Telkwa Mining had not initiated discussions on this (or any) IR response with BC WLRS or ECCC. Telkwa Mining's objective was to first receive feedback from OW, adjust IR responses based on that feedback, and then to present a refined response for all IR topics to BC WLRS and ECCC. Since then, EAO and Telkwa Mining have invited OW and other participating Indigenous Nations to all subsequent discussion with BC WLRS and ECCC. Please see Section 2 of Appendix 1 (Attachment OW-026-1) for an account of all meetings with BC WLRS and ECCC.

As requested by OW, Telkwa Mining will discuss appropriate incorporation of the results of forthcoming information related to caribou into Project design, monitoring, mitigation, and adaptive management plans.

## OW-029

***Original Topic and IR Comment:***

*<u>Offsetting for direct and indirect effects</u>*

*TCL must work with ECCC and LWRS to develop an adequate assessment following the mitigation hierarchy, including appropriate mitigation and offsetting measures (e.g., securement, habitat restoration) at agreed upon ratios. Multiple ratios may apply depending on the specifics of the impacted and offset habitat types and locations.*

*Mitigation measures should be developed with scientifically defensible buffers using the most current draft of caribou critical habitat mapping, while considering the high risk to caribou given previous impacts to the landscape and the small population size of the Telkwa caribou herd, and follow the mitigation hierarchy of avoid, reduce, and compensate/offset.*

*Offsets must be designed to deliver tangible, measurable, on-the-ground conservation outcomes for caribou that are clearly linked to the impacts predicted to remain after all other mitigation measures are applied, and result in net increase of caribou habitat, at agreed upon ratios. The temporal lag of measures needs to be clearly represented in the assessment of conservation outcomes.*

**(A)**

***OW Comment***

*(See above comments regarding the buffers used by Telkwa Mining.) Based on the content provided in Telkwa Mining's response and the EDI supporting document, it is currently unclear what work has been done between Telkwa Mining and ECCC / WLRS to develop an assessment following an appropriate mitigation hierarchy with agreed upon offsetting ratios.*

***OW Recommendation***

*Please provide documentation of the additional communications that occurred between Telkwa Mining and ECCC / WLRS that led to the current offsetting activities proposed by Telkwa Mining in their response to the Information Request, as this is unclear to other parties.*

**TELKWA MINING RESPONSE**

As mentioned during Telkwa Mining's engagement with OW (January 28, 2025), and in the subsequent written responses to OW's questions (February 19, 2025), Telkwa Mining had not initiated discussions on this (or any) IR response with BC WLRS or ECCC. Telkwa Mining's objective was to first receive feedback from OW, adjust IR responses based on that feedback, and then to present a refined response for all IR topics to BC WLRS and ECCC. Since then, EAO and Telkwa Mining have invited OW and other participating Indigenous Nations to all subsequent discussion with BC WLRS and ECCC. Please see Section 2 of Appendix 1 (Attachment OW-026-1) for an account of all meetings with BC WLRS and ECCC.

**(B)**

***OW Comment***

*EDI's effects assessment still contains serious flaws that must be addressed to fully understand the direct and indirect effects of the Project on the Telkwa caribou herd (see above comments regarding the calculation of direct and indirect effects on different habitat types and buffers). Telkwa Mining's current estimates of directly / indirectly affected habitat used to determine offsetting requirements appear to be under-estimated.*

***OW Recommendation***

*Please provide an updated direct and indirect effects assessment based on the above comments and an updated estimate of required offset areas based on this revised effects assessment.*

**TELKWA MINING RESPONSE**

Please refer to the revised effects assessment in Section 5.3 of **Appendix 1 (Attachment OW-026-1)**.

**(C)**

***OW Comment***

*In addition to the above concern regarding the apparent underestimation of directly and indirectly affected habitat used by Telkwa Mining to determine offsetting requirements, EDI states that based on their reconnaissance:*

*"...Telkwa Mining is suggesting that the assessment of potential direct effects of the Project is over-estimating the impact on low-elevation winter range habitat for caribou by approximately 50%. Consequently, the required offsetting should be reduced by 50%. Telkwa Mining is also suggesting a 50% reduction in potential high-elevation restoration because accessing such sites (e.g., linear feature candidates) would create far greater disturbance than the positives from restoration treatments." (PDF p. 33)*

*However, in their reconnaissance survey (Appendix C) EDI only surveyed 4 high elevation areas and 4 low elevation areas that were potential candidates for offsetting, and an additional 6 low land areas. This limited reconnaissance survey does not appear to be suitable to be making sweeping statements about the overall habitat conditions for caribou or the predicted direct and indirect effects of the Project, especially as not all potential low-elevation winter habitat features with moderate/high suitability were assessed and no low-suitability, low-elevation winter habitat areas were assessed. As well, shortcomings in the current PEM / TEM mapping may point to the need for further ground truthing and baseline studies to ensure that all predicted Project effects that rely on accurate PEM / TEM mapping are accurate (i.e., caribou and all wildlife species that depend on terrestrial habitats).*

*EDI makes no mention of further actions that will be taken to identify other suitable areas for high-elevation restoration offsetting.*

**TELKWA MINING RESPONSE**

Please see responses to C1 through C3, below.

Based on the work completed in September 2024, over 90% of the identified high elevation restoration offset targets were reviewed at a reconnaissance level and determined that undertaking restoration activities may cause more disturbance than allowing natural regeneration to occur on its own. Telkwa Mining reviewed the remaining 10% of high-elevation restoration candidates, with the participation of OW, during August 2025 fieldwork. The candidates surveyed in August 2025 were used to inform offsetting calculations.

Telkwa Mining is committed to meeting offsetting requirements. Based on the results of the field reconnaissance and the limited number of restoration candidates in high elevation, Telkwa Mining is proposing to offset direct and indirect effects in high-elevation core range and low elevation range with restoration activities in low-elevation Type 1 matrix range. Based on this decision, Telkwa Mining has calculated offsetting requirements using a higher ratio (14.93:1). In other words, Telkwa Mining is committed to offsetting 14.93-ha in Type 1 matrix for each 1-ha of direct and indirect effects in high-elevation core range. The resulting offset ratios used for other habitats were as follows: 12.12:1 for low-elevation capable winter range habitat to Type 1 matrix, and 10.69:1 for low elevation caribou movement habitat (Type 1 matrix range) to Type 1 matrix.

Further details are provided in Section 6.5 of **Appendix 1 (Attachment OW-026-1)**.

**(C1)**

***OW Recommendation***

*Please provide a clear commitment to offset Project related direct and indirect effects on Telkwa caribou herd habitat based on a revised Project effects assessment (see above comments).*

**TELKWA MINING RESPONSE**

Please refer to the revised effects assessment and habitat offsetting strategy in Section 5.3 and Section 6 of **Appendix 1 (Attachment OW-026-1)**.

Telkwa Mining is committed to offset Project-related direct and indirect effects on caribou habitat based on either item (B), above, or a table of effects that has been approved by regulatory bodies for the Tenas Project.

**(C2)**

***OW Recommendation***

*Please provide further details of the field-based assessments noted in Appendix C, including but not limited to:*

- *The spatial extent of on the ground survey activities at each location;*
- *The methods used to confirm / discount PEM / TEM mapping; and*
- *The spatial extent of each PEM / TEM mapping polygon in which surveying was conducted.*

**TELKWA MINING RESPONSE**

Please refer to Section 5.2.3.3 and Section 6.5 of **Appendix 1 (Attachment OW-026-1)**. In addition to reconnaissance-level assessment of moderate/high suitability low elevation caribou habitat (September 2024), 66 (5.65-m radius) plots were assessed for site series and caribou habitat suitability and capability in the Project Footprint (August 2025). Based on these field observations, no adjustments were made to the TEM/PEM-defined low-elevation capable winter range habitat.

Recall from the *Vegetation and Ecosystems Baseline Report* (Appendix 4.7-A in the Project Application; Ardea Biological Consulting 2022) that the TEM occurred within the Vegetation Local Study Area (LSA; Project Footprint + 250–500 m buffer) and PEM mapping occurred in the Vegetation Regional Study Area (RSA; Project Footprint + 5 km buffer) and beyond, including the broader RSA-1 (Telkwa Caribou Herd Critical Habitat boundary). As part of the development of the TEM, 780 ecosystem plots were investigated from 1997–2019 and were used to characterize vegetation and ecosystem types (Table 3.2-2 in Appendix 4.7-A). At the mine site, 445 plots were completed; 371 of these plots were completed from 2017–2019. A detailed mapping accuracy assessment was completed for TEM polygons using the methods outlined in (Meidinger 2003). For more details related to the PEM/TEM, please refer to Appendix 4.7-A in the Project Application.

**(C3)**

***OW Recommendation***

*Please commit to undertaking further assessments of PEM / TEM mapping, inclusive of areas not identified as moderate or high suitability habitat to confirm its absence of these features, to better understand where moderate/high suitability caribou habitat may actually be present or absent. Telkwa Mining should undertake further discussions with ECCC, WLRS, and Wet'suwet'en to 1) ensure that the proposed scale, extent, timing, and methods of this survey are appropriate and 2) discuss other opportunities for habitat offsetting in areas without advanced regeneration.*

**TELKWA MINING RESPONSE**

Telkwa Mining considers the TEM developed for the Project Footprint to be robust and adequately verified based on the extensive plot work and subsequent accuracy assessment. Telkwa Mining has no intention of conducting additional work to confirm the PEM outside the Project Footprint because this would have no impact on the Project effects assessment, and detailed ground reconnaissance would be a component of any habitat restoration projects considered in these areas.

Please refer to Section 5.2.3.3 of **Appendix 1 (Attachment OW-026-1)**. Telkwa Mining completed field assessments, with the participation of an OW representative, of TEM/PEM-derived low-elevation capable winter range habitat and evidence of caribou use within the Project Footprint in August 2025. The fieldwork validated the use of the TEM/PEM approach, and identified limited evidence of caribou use within the Project Footprint.

**(D)**

***OW Comment***

*EDI notes that offsetting ratios of 10:1 for high elevation habitat effects would be used, while an offsetting ratio of 4:1 on low elevation habitat effects would be used citing documents from BC as the rationale. Given the current low population levels and highly fragmented landscape that the Telkwa caribou herd reside in, it would be prudent to provide further rationale and summary of possible offsetting ratios that could be used by Telkwa Mining to*

*offset Project effects. ECCC noted in their August 26, 2022, round 2 comments of the EAC Application review that ratios ranging from 10:1 to 30:1 should be used where caribou were predicted to be impacted.*

***OW Recommendation***

*Please undertake further discussions with Telkwa Mining, ECCC, WLRS, and Wet'suwet'en to determine offsetting ratios that will be required for the Project. To inform these discussions, Telkwa Mining should provide further rationale and summary of possible offsetting ratios that could be used to offset Project effects. Given the current low population levels and highly disturbed landscape that the Telkwa caribou herd occupy, any further disturbance could have increasingly dire consequences for the herd's continued existence and the proposed offsetting ratios must reflect this context.*

**TELKWA MINING RESPONSE**

The offset ratios provided are Telkwa Mining's suggestions and are intended for discussion. Following discussions with BC WLRS and ECCC, revised offset calculations assume a medium discount rate and a 5-year time lag on functional restoration treatments "on a path to ecological restoration", as per the guidance provided by ECCC. Additionally, all effects in high-elevation core range are now offset in Type 1 matrix and use the relevant (higher) offset ratio due to the uncertainty associated with the amount of high elevation core habitat available for offsetting. Effects on low-elevation capable winter range and Type 1 matrix range are still both offset in Type 1 matrix range, again to reflect the uncertainty with the amount of low-elevation capable winter range available for offsetting. The resulting offset ratios used were as follows: 14.93:1 for high-elevation habitat to Type 1 matrix, 12.12:1 for low-elevation capable winter range habitat to Type 1 matrix, and 10.69:1 for low elevation caribou movement habitat (Type 1 matrix range) to Type 1 matrix. Please refer to the revised habitat offsetting strategy for more details; see Section 6 of **Appendix 1 (Attachment OW-026-1)**.

**(E)**

***OW Comment***

*In section 4.7 (PDF p. 34-35), EDI notes that only 2/3 of offsetting funds would be released at the start of the Project, with the remaining 1/3 being released over 20 years thereafter. As time lags associated with undertaking offsetting actions were noted as a concern by ECCC and LWRS, it appears contrary to say that not all of the funds would be provided at the start of the project, as this would only prolong potential time lags in undertaking effective offsetting work and thereby increase the level of Project effects.*

***OW Recommendation***

*Please commit to providing all offsetting funds at the start of the Project, to ensure that the maximum effectiveness and benefit of offsetting activities on the Telkwa caribou herd are realized.*

**TELKWA MINING RESPONSE**

Telkwa Mining will commit to a higher percentage of offsetting funds to be available at the start of the Project, however, some funds need to remain to conduct annual inspections, monitoring, and reporting activities by various groups.

As requested by OW, Telkwa Mining will discuss appropriate incorporation of the results of the Rights Impact Assessment, CUS, and Wellbeing Study into Project design, monitoring, mitigation, and adaptive management plans.

## OW-030

***Original Topic and IR Comment:***
*Offsetting for direct and indirect effects*

*ECCC advises that SMC critical habitat is likely to be destroyed by the Project. In the event the Project is approved, ECCC's view is that mitigation measures, including offsetting, should be provided to address the Project's contribution to cumulative effects on the Telkwa herd.*

*Offsetting provided should be commensurate with the risk to the Telkwa herd and its critical habitat, including the consideration of the low population number, and that the management thresholds for caribou critical habitat have already been exceeded. In addition, ECCC notes the recommended edits are intended to correct inaccuracies in TCL's text (i.e., the 35% disturbance threshold does not apply to high elevation range).*

*The ECCC review thoroughly lists the gaps and expectations. TCL did not adequately consider the comment from ECCC. The clarification on the issue of habitat type requires re-evaluation of the project impacts and subsequent assessment of adverse effects. LWRS comment on 407 also needs to be considered here.*

***OW Comment***
*(See above comment regarding offsetting.) (See above comment regarding the Project effects assessment.) Based on the information provided it is unclear where the requested specific content edits from ECCC are supposed to occur or what WLRS's 407 comment was.*

***OW Recommendation***
*Please provide details of where ECCC's content edits were actioned by Telkwa Mining.*

**TELKWA MINING RESPONSE**

Telkwa Mining acknowledges the comment. Please see responses related to habitat offsetting in previous sections. Please also refer to the revised habitat offsetting strategy in Section 6 of **Appendix 1 (Attachment OW-026-1)**.

ITT IR 407 and red text in ITT IR 412 have been moved to the Effects Assessment stage by the BC EAO. Telkwa Mining suggests that OW discuss this item with the BC EAO and the technical working group.

Note: there are several duplicated IR numbers (including IR 412) in the tracking table provided by BC EAO, which may be causing confusion.

As requested by OW, Telkwa Mining will discuss appropriate incorporation of the results of forthcoming information related to caribou on Indigenous interests or Indigenous Nations into Project design, monitoring, mitigation, and adaptive management plans.

## OW-031

***Original Topic and IR Comment:***
*Offsetting for direct and indirect effects*

*TCL must work with ECCC and LWRS to develop an adequate assessment following the mitigation hierarchy, including appropriate mitigation and offsetting measures (e.g., securement, habitat restoration) at agreed upon ratios. Multiple ratios may apply depending on the specifics of the impacted and offset habitat types and locations. LWRS agrees with ECCC comments and recommends the Proponent review the Environmental Mitigation Policy and provide an offsetting plan.*

*Offsets must:*

1) *Be designed to deliver tangible, measurable, on-the-ground conservation outcomes for caribou that are clearly linked to the impacts predicted to remain after all other mitigation measures are applied.*
2) *Result in no net loss of caribou habitat.*

*ECCC advises that SMC critical habitat is likely to be destroyed by the Project. In the event the Project is approved, ECCC's view is that mitigation measures, including offsetting, should be provided to address the Project's contribution to cumulative effects on the Telkwa herd.*

*Offsetting provided should be commensurate with the risk to the Telkwa herd and its critical habitat, including the consideration of the low population numbers and that the management thresholds for caribou critical habitat have already been exceeded.*

***OW Comment***

*(See above comment regarding offsetting.)*

***OW Recommendation***

*(See above comment regarding offsetting.)*

**TELKWA MINING RESPONSE**

Telkwa Mining acknowledges the comment. Please see responses related to habitat offsetting in previous sections. Please also refer to the revised habitat offsetting strategy in Section 6 of **Appendix 1 (Attachment OW-026-1)**.

## CLOSING

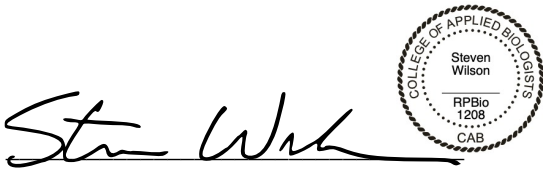
Telkwa Mining welcomes any further questions and suggestions to support our effects assessment of Telkwa caribou and potential management actions that could be undertaken to assist with the recovery of the Telkwa Caribou Herd.

Sincerely,



Daniel J. Farmer, P.Eng.
Project and Development Manager, Telkwa Mining Limited

## SIGNATURE OF QUALIFIED PROFESSIONAL




Steve Wilson, *Ph.D.*, *R.P.Bio*.

26 January 2026

Date




Kerman Bajina, *M.Sc.*, *R.P.Bio*.

January 26, 2026

Date

## REFERENCES

Ardea Biological Consulting. 2022. Tenas Project Ecosystems and Vegetation Baseline Report. Prepared for Telkwa Coal Limited, Telkwa, British Columbia. 87 + app pp.

Meidinger, D. 2003. Protocol for Accuracy Assessment of Ecosystem Maps. Technical Report 11. Research Branch, BC Ministry of Forests, Victoria, BC.

# Enclosure 5

# APPENDIX 5:
# BC CARIBOU HABITAT OFFSET DECISION SUPPORT TOOL RESULTS, 2026, EDI

# Caribou-Specific Habitat Offset Decision Support Tool

*Trial V*

*Last Modified: M*

## Tab 4: Results

Impact Site = High-elevation Core Range

Offset Site = Low-elevation Caribou Movement Habitat (Type 1 Matrix)

**Key Inputs**

| | | |
|---|---|---|
| Baseline Offset Ratio | 10.00 | :1 |
| Number of Hectares Impacted | 1271.78 | ha |
| Adjusted Value of Impacted Habitat per Hectare | 3.29 | |
| Adjusted Value of Offset Habitat per Hectare | 2.36 | |
| Conservation Action Adjustment | 1.63 | |
| Time Lag | 5.00 | yrs |

**Results**

| | | |
|---|---|---|
| Offset Ratio Without Conservation Actions and Risk | 17.83 | :1 |
| Offset Ratio Adjusted for Conservation Actions and Risk | 14.93 | :1 |
| Offset Area with Conservation Actions and Risk | 18987.90 | ha |

**Contact us:**

For assistance or questions regarding the Habitat Offset Tool, please email:

mitigate@gov.bc.ca

**Resources:**

Note: see file "HabitatOffsetTool_version1.4_Caribou_20260122.zip" for a completed Excel workbook.

# Caribou-Specific Habitat Offset Decision Support Tool

*Trial V*

*Last Modified: M*

## Tab 4: Results

Impact Site = Low-elevation Capable Winter Range
Offset Site = Low-elevation Caribou Movement Habitat (Type 1 Matrix)

**Key Inputs**

| | | |
|---|---|---|
| Baseline Offset Ratio | 10.00 | :1 |
| Number of Hectares Impacted | 57.03 | ha |
| Adjusted Value of Impacted Habitat per Hectare | 2.67 | |
| Adjusted Value of Offset Habitat per Hectare | 2.36 | |
| Conservation Action Adjustment | 1.63 | |
| Time Lag | 5.00 | yrs |

**Results**

| | | |
|---|---|---|
| Offset Ratio Without Conservation Actions and Risk | 14.47 | :1 |
| Offset Ratio Adjusted for Conservation Actions and Risk | 12.12 | :1 |
| Offset Area with Conservation Actions and Risk | 691.20 | ha |

**Contact us:**

For assistance or questions regarding the Habitat Offset Tool, please email:
mitigate@gov.bc.ca

**Resources:**

Note: see file "HabitatOffsetTool_version1.4_Caribou_20260122.zip" for a completed Excel workbook.

# Caribou-Specific Habitat Offset Decision Support Tool

*Trial V*

*Last Modified: M*

## Tab 4: Results

Impact Site = Low-elevation Caribou Movement Habitat (Type 1 Matrix)
Offset Site = Low-elevation Caribou Movement Habitat (Type 1 Matrix)

**Key Inputs**

| | | |
|---|---|---|
| Baseline Offset Ratio | 10.00 | :1 |
| Number of Hectares Impacted | 1940.06 | ha |
| Adjusted Value of Impacted Habitat per Hectare | 2.36 | |
| Adjusted Value of Offset Habitat per Hectare | 2.36 | |
| Conservation Action Adjustment | 1.63 | |
| Time Lag | 5.00 | yrs |

**Results**

| | | |
|---|---|---|
| Offset Ratio Without Conservation Actions and Risk | 12.76 | :1 |
| Offset Ratio Adjusted for Conservation Actions and Risk | 10.69 | :1 |
| Offset Area with Conservation Actions and Risk | 20737.03 | ha |

**Contact us:**

For assistance or questions regarding the Habitat Offset Tool, please email:
mitigate@gov.bc.ca

**Resources:**

Note: see file "HabitatOffsetTool_version1.4_Caribou_20260122.zip" for a completed Excel workbook.