

Appendix 13.4-G

Chance Find Procedure for Paleontological Resources in British Columbia – Tenas Project Phase 1

CHANCE FIND PROCEDURE FOR PALAEOLOGICAL RESOURCES IN BRITISH COLUMBIA – TENAS PROJECT

PHASE I

PREPARED FOR

ERM Consultants Canada Ltd.

1111 West Hastings Street, 15th Floor

Vancouver, B.C. V6E 2J3

By

Miriam Reichel-Bodner,
Senior Project Palaeontologist
LIFEWAYS OF CANADA LIMITED
105, 809 Manning Rd. NE
Calgary, Alberta T2E 7M9

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INTRODUCTION

Palaeontological resources (or fossils) in the Province of British Columbia are protected under the *Land Act* (LA), by the B.C. Fossil Management Office, Heritage Branch (BCHB). According to BCHB “...all fossils on Crown Land are property of the province and may not be sold or removed from the province. Collecting of fossils is prohibited without a permit”. Therefore, when a developer encounters a fossil during ground disturbing activities, it is required that the find is reported to the Heritage Branch. Additionally, fossils are qualified under the *Heritage Conservation Act* (HCA) as items having “heritage value” because of their scientific and educational worth. The HCA provides protection and regulation for fossils or fossil sites when they are designated as Provincial Heritage Objects or Sites under the HCA.

As thus, under section 12.2 of the HCA, a person must not “*damage, desecrate or alter a Provincial heritage site or a Provincial heritage object or remove from a Provincial heritage site or Provincial heritage object any heritage object or material that constitutes part of the site or object*”.

Therefore, the following guidelines are established, should the Project development activities come across any fossil materials.

PROJECT BACKGROUND INFORMATION

The Tenas Project (the Project) is located in the Bulkley Nechako region, 25 km south of Smithers and 7 km southwest of Telkwa, B.C. The Project area consists of the mine site and an 11 km bypass road (and additional haul/access roads), as well as rail infrastructure consisting of a 2.5 km loop that will connect to the existing CN Railway line (Figure 1).

Because of the open pit excavation methods for the mine site, this is the portion of the Project expected to have the most impact to the underlying (volcanic and sedimentary) rock. The railway infrastructure is expected to have some cuts to rocks at a maximum of 4 metres. The various road development related excavations are expected to mostly stay within 4 metres in depth, however the portion in Goathorn Creek valley may have rock cuts of up to 24 metres.

Excavations for the roads and railway developments will impact sedimentary, intrusive, and volcanic rocks.

FOSSIL POTENTIAL

The nature of Project development activities indicate that the impact to underlying (volcanic and sedimentary) rocks from Telkwa and Bulkley Canyon Formations within the mine site will be significant. For the areas including the roads and railway infrastructure, the impact to underlying rock (sedimentary, volcanic, and intrusive) will vary, ranging from up to 4 metres in some of the roads and railway infrastructure to up to 24 metres at the Goathorn Creek valley (thus impacting sedimentary rocks from Bulkley Canyon Formation). The Telkwa Formation deposits have fossiliferous potential, with documented occurrences of fossils such as the bivalve *Myophorella* and *Weyla*, as well as brachiopods and ammonites such as *Paltechioceras* (Figure 2). The sedimentary Bulkley Canyon Formation rock is of the highest concern for this project, as it has a high density of fossils documented within close proximity to the Project boundaries, including macrofossils of the bivalves *Myophorella* (Figure 3) and *Columbitrignia* sp. (Figure 4). Drill holes related to this project have confirmed that these deposits have potential to yield bivalve fossils (Figure 1).

CHANCE FIND PROCEDURE

The documented macrofossils for the Project area include a variety of bivalve and ammonoid shells. The images provided for reference (Figures 2-4) may serve as a general guide, although a much more extensive variety of fossils can be expected. Additional site-specific photographs may be added to this guide, should there be a field survey of the Project area preceding development. The field survey may help determine the presence and approximate locations of significant fossils. Once the BCHB has reviewed the Preliminary Study and indicated the appropriate next actions by the proponent, it is anticipated that **fossils deemed significant** will require mitigation through a chance find protocol.

If any significant fossil sites (or individual fossils) are encountered during development activities, the following steps are to be followed:

1. Any ground disturbance in the immediate vicinity of the find is to be suspended, and the fossil(s) to be left in place;
2. A buffer of 30-50 metres around the find is to be established, and taped off. Work must be redirected to another area, until the following steps are taken;
3. As soon as possible, contact the Project Palaeontologist working on your project OR the B.C. Fossil Management Office, Heritage Branch directly to report the find;

- a. Senior Project Palaeontologist at Lifeways of Canada Limited: Dr. Miriam Reichel-Bodner, 780-278-6697, miriam@lifewaysofcanada.com,
www.lifewaysofcanada.com
 - b. BC Fossil Management Office: (778)-698-4186, Fossil.Management@gov.bc.ca,
<https://forms.gov.bc.ca/industry/report-a-fossil/>
4. Photograph the specimen (in place), adding a scale (an object such as a pen or a coin may be used). Take GPS coordinates of the location, as well as altitude;
 5. Include notes about the type of fossil (if known) and depth data (if found in an excavation, as opposed to the surface);
 6. If required, the Project Palaeontologist will collect initial data and will contact the B.C. Fossil Management Office, Heritage Branch or the Royal B.C. Museum;
 7. The Project Palaeontologist will develop a mitigation plan in cooperation with the BCHB; and
 8. Work must not resume at that location until approved by the B.C. Fossil Management Office, Heritage Branch.

Map of the study area showing geological features, fossil locations, and sampling sites. The map includes a north arrow, a scale bar (0 to 5 km), and a legend. The legend defines symbols for fossils (blue dots for drilling, red dots for microfossils, yellow dots for macrofossils), watercourses (blue lines), contours (brown lines), the project area (PA, black outline), and a 1 km buffer (dotted line). It also defines rock classes: intrusive (green), sedimentary (purple), and volcanic (orange). The map shows the PA area in the center, surrounded by a 1 km buffer. Fossil locations are marked with dots, and sampling sites are labeled 18-07D, 18-05D, and 19-10D. The map also shows geological features like the Columbia River and various rock classes.

Figure 1. Map of the Project area (PA), showing rock types and known fossil localities. Note that mine site (west portion of PA, where the mine site is situated) is identified as Telkwa Formation (volcanic) rocks according to the latest BCGS geology map (Cui et al 2017). However, it has been determined that this area also contains Bulkley Canyon Formation (sedimentary) rocks (Alldrick and Lin 2007).



Figure 2. An example of a fragmentary ammonite *Paltechioceras* from the Telkwa Formation (modified from Pálffy and Schmidt 1994).

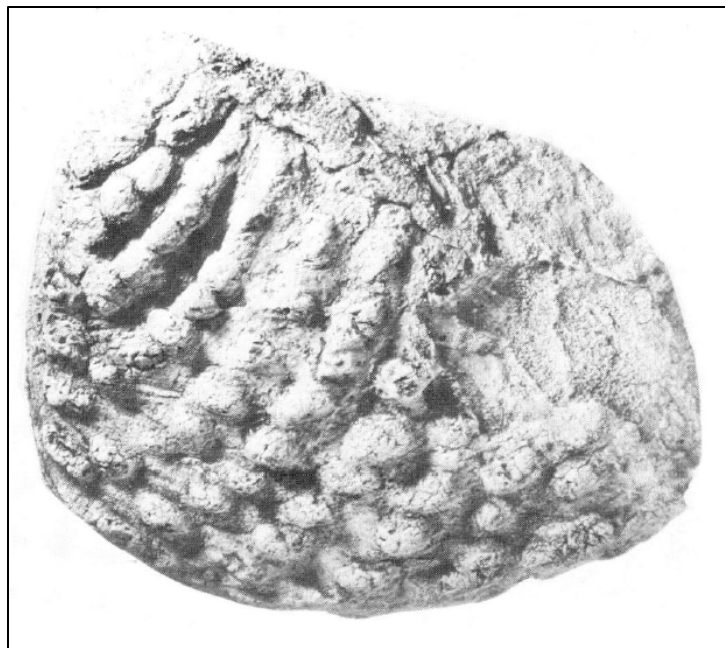


Figure 3. An example of a fragmentary bivalve *Myophorella*, such as those from the Bulkley Canyon Formation (modified from Poulton 1977).



Lifeways OF CANADA LIMITED
ARCHAEOLOGICAL, PALAEOLOGICAL, & HISTORICAL RESOURCE CONSULTING

105, 809 Manning Road NE
Calgary, Alberta T2E 7M9
Telephone (403) 730-9461
Fax (403) 730-5192
www.lifewaysofcanada.com

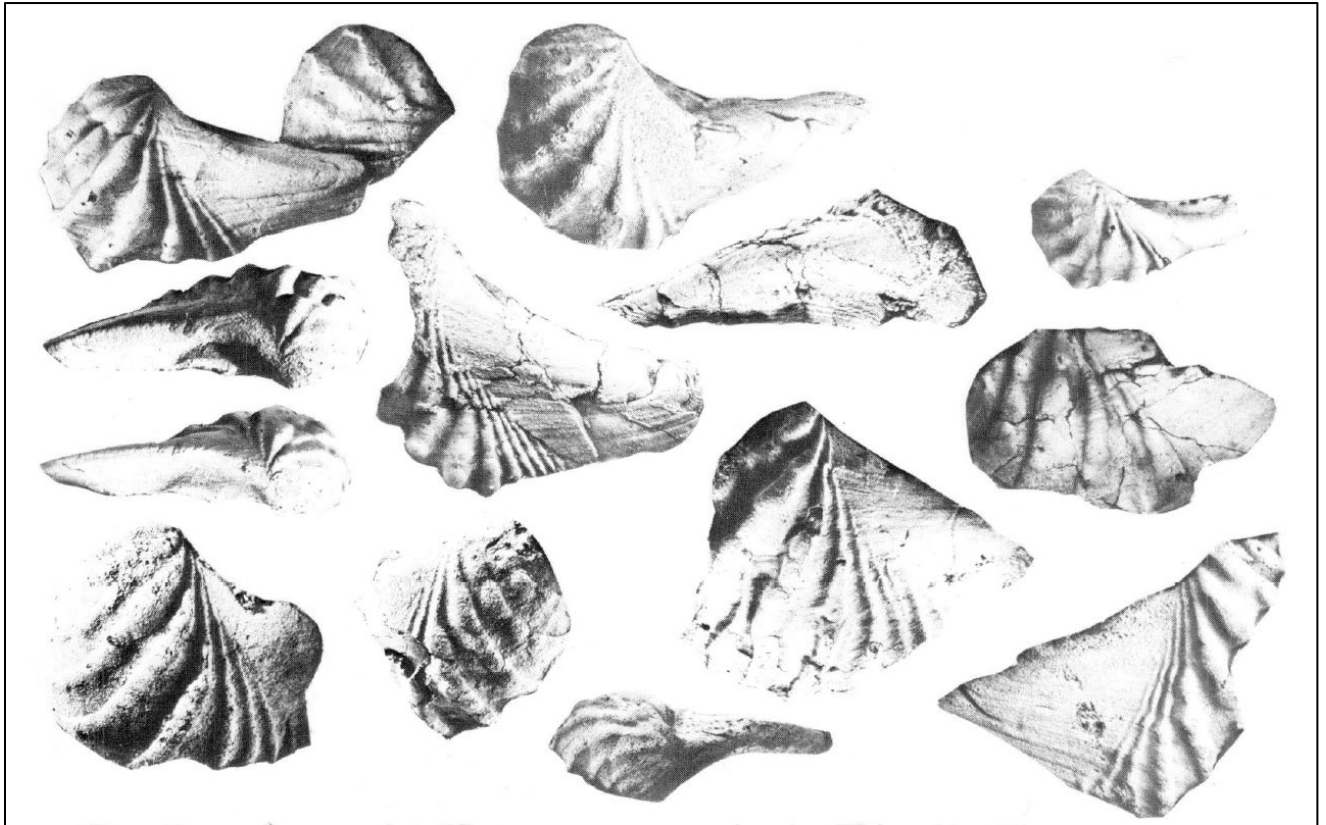


Figure 4. Examples of the bivalve *Columbitrignia*, such as those from the Bulkley Canyon Formation (modified from Poulton 1977).

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