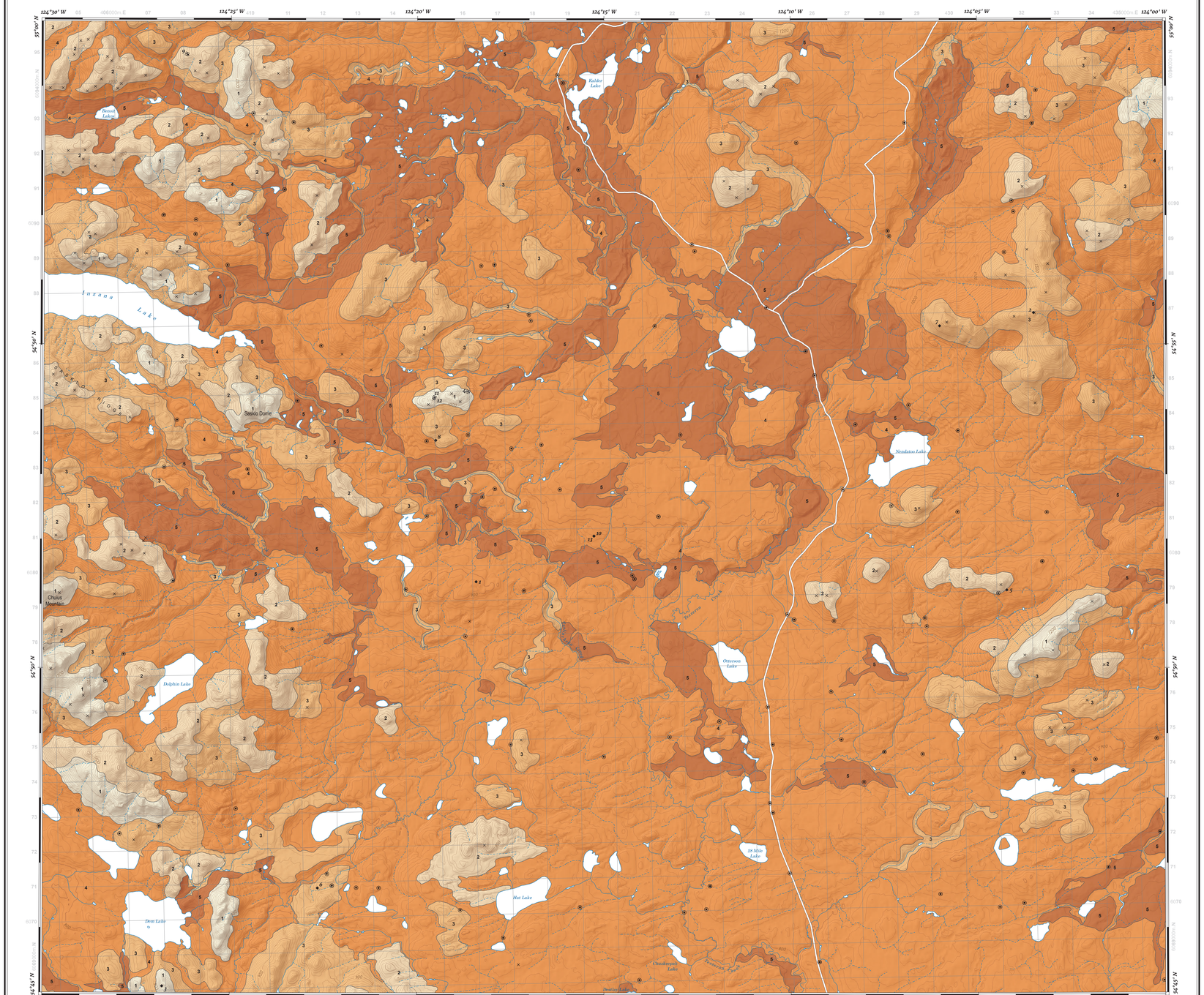



North American Datum 1983
Shaded relief and contour lines derived from the digital elevation model supplied by Natural Resources Canada. Illumination: azimuth 315°, altitude 45°, vertical exaggeration 1x.
Base map at the scale of 1:50 000 from Natural Resources Canada, with modifications.
Contour interval 10 metres. Elevations in metres above mean sea level.

**ONE THOUSAND METRE GRID**
UNIVERSAL TRANSVERSE MERCATOR GRID
ZONE 10 NORTH

GRID NORTH 1°01' WEST OF TRUE NORTH.
APPROXIMATE MEAN MAGNETIC DECLINATION 2021 FOR CENTRE OF MAP IS 17°10' EAST, DECREASING ANNUALLY 13.4'

Disclaimer: whilst every effort has been taken to ensure the accuracy of the information on this map, the data are provided 'as-is', without any warranty, guarantee, or representation of any kind, whether expressed or implied. It is the responsibility of the user to check the facts before entering any financial or other commitment based upon this information. This map is not intended for navigation purposes.

**Geoscience BC Map 2021-03-03c**

# Drift thickness of the Tezzeron Creek area NTS 093K/16, British Columbia

**Geology by C. Johnson, D. Sacco and C. McGregor**

1 0 1 2 3 4 5
KILOMETRE SCALE

**Scale 1:50,000**

Cartography by B. Elder

Geoscience BC

Palmer™

## Legend

### DRIFT THICKNESS (DT) CLASSIFICATION

| DT class | Description | Surficial geology map unit example* | Implications for exploration |
|---|---|---|---|
| 1 | Bedrock is the dominant unit exposed at surface. | **R; R.Tv** | Bedrock occurs at surface; optimal target for bedrock mapping and sampling programs. |
| 2 | Bedrock outcrops are common but not dominant, otherwise sediment cover is thin (<2 m). | **Tv.R** | Bedrock occurs at surface in less than half of drift thickness class 2 units. Bedrock mapping and sampling programs should target topographic highs where bedrock is most common. Bedrock may also be exposed in streams and meltwater channels where modern or glacial watercourses have eroded drift. Bedrock can typically be accessed in hand-dug pits on topographic highs where sediment cover is thin, but deeper excavations are required in concavities. |
| 3 | Bedrock is overlain by a continuous veneer (<2 m) of sediment with minor outcrop occurrences. | **Tv** | Bedrock may be exposed in streams and meltwater channels where modern or deglacial watercourses have eroded drift. Bedrock may be accessible in hand-dug pits on topographic highs where sediment cover is thin, but deeper excavations are required in concavities. |
| 4 | Bedrock is likely overlain by a continuous blanket (>2 m) of sediment. | **GLv/Tb** | Bedrock is unlikely to occur at surface; may be accessed with a small excavator on some topographic highs, but deeper excavations or drilling will be required in concavities. My be suitable for drill-supported till sampling where till does not occur at surface, or where profile sampling is desired. |
| 5 | Bedrock is likely overlain by thick depositional landforms and/or multiple stratigraphic sediment units. | **GFc; GLb/Tb** | Bedrock does not occur at surface. Minimum drift thicknesses of 5 m are expected. Deep excavations or drilling will be required to reach bedrock. Optimal locations for drill-supported till sampling where till does not occur at surface, or where profile sampling is desired. |

**For full explanation of surficial geology classification see companion map publication "Surficial geology of the Tezzeron Creek map area (NTS 093K/16), British Columbia, Geoscience BC map 2021-03-03a"*

### ONSITE SYMBOLS

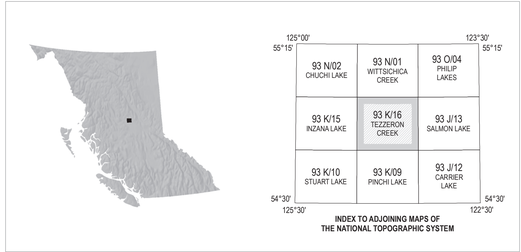
- Bedrock outcrop
- Till sample site
- Mineral occurrence (see Table 1; numbers indicate Map ID)
  - Past Producer
  - Prospect
  - Developed Prospect
  - Showing
- Park or protected area
- Road[1]
- Rail line
- Stream[2]
  - Definite
  - Intermittent or indefinite

1 - Roads displayed on map are from the CanVec 1:50k database (Natural Resources Canada) and do not include the extensive gravel forest service road network present in the area.

2 - Classification provided by BC Freshwater Atlas.

**Table 1.** Mineral occurrences from MINFILE database (MINFILE, 2020). Letter and number designation under deposit type correspond to definitions provided by Lefebure and Ray (1995) and Lefebure and Hity (1996).

| Map ID | MINFILE No. | Name | Status | Commodity | Deposit Type |
|---|---|---|---|---|---|
| 1 | 093K004 | HA-1 | Showing | Cu | |
| 2 | 093K020 | MAX | Showing | Cu, Au | L03: Alkalic porphyry Cu-Au |
| 3 | 093K077 | DEM | Showing | As, Au, Ag | K04: Au skarn |
| 4 | 093K080 | TAS | Prospect | Au, Cu | L03: Alkalic porphyry Cu-Au |
| 5 | 093K083 | LYNX | Showing | Cu | K01: Cu skarn |
| 6 | 093K084 | HAT LAKE | Showing | Cu | L03: Alkalic porphyry Cu-Au |
| 7 | 093K086 | K-2 | Showing | Cu, Ag | I06: Cu+/-Ag quartz veins |
| 8 | 093K091 | FREE GOLD ZONE | Showing | Au, Cu | L03: Alkalic porphyry Cu-Au |
| 9 | 093K108 | FRAN | Prospect | Au, Ag, Cu, Zn, Pb | L03: Alkalic porphyry Cu-Au |
| 10 | 093K109 | BIO | Showing | Cu | L03: Alkalic porphyry Cu-Au |
| 11 | 093K110 | TAS-WEST | Prospect | Au, Cu | I05: Polymetallic veins Ag-Pb-Zn+/-Au L03: Alkalic porphyry Cu-Au |
| 12 | 094C178 | TAS-WEST | Prospect | Au, Cu | I05: Polymetallic veins Ag-Pb-Zn+/-Au L03: Alkalic porphyry Cu-Au |
| 13 | 094C179 | BIO | Showing | Cu | L03: Alkalic porphyry Cu-Au |




**INDEX TO ADJOINING MAPS OF THE NATIONAL TOPOGRAPHIC SYSTEM**

## Descriptive Notes

The mapping presented here is part of a series of surficial geology, till sampling suitability, and drift thickness maps completed for Geoscience BC's **C**entral Interior **C**opper-**G**old **R**esearch (**CICGR**). Surficial Exploration Project (See index map). The purpose of this map series is to inventory and characterize surficial materials and landforms to inform resource exploration (*e.g.*, mineral, water and aggregate) and infrastructure development in British Columbia. The surficial geology interpretations follow standardized mapping protocols defined by the Geological Survey of Canada (Deblonde *et al.*, 2018) and used by the British Columbia Geological Survey, ensuring accordance with existing and ongoing surficial geology mapping produced by the government. Polygons are delineated based on surficial material and morphology, and overlays are used to indicate geomorphological processes. Features such as bedrock outcrop or glaciofluvial landforms that are too small to delineate as polygons are identified using point and line symbols. The surficial geology was interpreted from 1:5 m resolution colour and near-infrared SPOT satellite imagery. Pseudo-stereo models were produced from the imagery using the Canadian Digital Elevation Model (Natural Resources Canada, 2015). The till sampling suitability mapping builds on earlier drift exploration potential maps developed by Proudfoot *et al.* (1995) and basal till potential mapping (*e.g.*, Sacco *et al.*, 2014; Ferbey, 2014).

This map series was initiated to streamline the CICGR regional till geochemical and mineralogical sampling program. Subglacial till is ideal for assessing bedrock hosted mineral potential in areas covered by Quaternary sediments because it is commonly the first derivative of bedrock (Shilts, 1993), it has a relatively simple and predictable transport history related to ice-flow directions, and geochemical and mineralogical anomalies in till are more extensive than its bedrock source (Levson, 2001). This mapping focuses on identifying discrete occurrences of subglacial till to guide exploration programs. In central British Columbia, it is specifically important to distinguish subglacial till facies from ablation till facies, as ablation till has a more complex transport and depositional history and, therefore, is less suitable for mineral exploration.

Till sampling suitability is derived from the surficial geology interpretations. Each mapped polygon is attributed a suitability using a multi-class index that considers the proportions of surficial materials and geomorphological processes that have affected them. Suitability ratings are ultimately a function of the proportion of a polygon that contains *in situ* subglacial till that is suitable for sampling. This helps to inform the planning and execution of till sampling surveys by identifying areas where subglacial till can be readily sampled and areas where extra efforts or alternative sampling methods or materials may be required.

Drift thickness mapping provides an indication of the relative thickness of Quaternary sediment cover based on the results of the surficial geology interpretations. Drift thickness estimations consider the interpreted surface expression of map units (polygons) and the potential for preserved stratigraphic sequences. Stratigraphic sequences are assumed where depositional environments were non-erosional and pre-existing materials are likely preserved (*e.g.*, beneath glaciolacustrine sediments and ablation till). The interpretations have not been calibrated with known depths to bedrock. Drift thickness maps can be used to inform bedrock mapping and prospecting programs because they identify areas where bedrock outcrops are likely present or where bedrock is overlain by shallow cover and may be accessed with hand tools. This mapping can also be used in combination with till sampling suitability to identify areas where drilling or trenching may be required to sample till, or provide information such as ice flow direction for drift-based exploration programs.

The surficial geology of the Tezzeron Creek map area (NTS map sheet 093K/16) was previously interpreted at a scale of 1:100 000 by Plouffe (2000). The map area lies primarily in the Fraser Basin physiographic region, except for a northeastern portion within the Nechako Plateau and a small southwest portion within the Nechako Plain (Holland, 1976). The region is characterized by flat to gently rolling topography with surface elevation typically between 800 and 1500 m. The map area is dominantly composed of thick till (**Tb**) that is locally streamlined to the northeast. Till is thinner in upland areas that occur on the west and east edges of the map area, which are punctuated by bedrock outcrop at the highest locations. Ablation till (**Tu, Th**) and ice-contact glaciofluvial materials (**GFc, GFh, GFf**)occur locally throughout the map area in valley bottoms indicating the location of stagnant or detached masses of ice. Glaciolacustrine material is rare, limited to the relatively low-lying area north of Tezzeron Lake. Ice dominantly flowed northeast across the map area; however, ice-flow indicators representing the later stages of deglaciation indicate that it transitions to the east (Plouffe, 2000; Sacco *et al.*, 2017). It is possible that the late-stage changes in ice-flow direction minimally affected sediment transport direction and distribution as macroforms were only minorly reoriented to a more eastern direction, dominantly in the south of the map area.

The Tezzeron Creek map area is well suited to till sampling due to the extensive occurrence of subglacial till throughout the region. The abundance of streamlined till (*e.g.*, **Ts**) in the south of the map area is conducive to till sampling because road construction can create numerous exposures that provide access to unweathered material. At higher elevations, where till cover is thin, till sampling efforts should focus on the down-ice side of the topographic high. Ablation till occurs locally throughout areas of low elevation and in most valleys and should be avoided during till sampling programs. Subglacial till is likely preserved beneath ablation till and glaciolacustrine sediments due to the non-erosive nature of their deposition. Where these materials are thin, underlying subglacial till may be accessed using hand-tools or in deep road cuts. Where these materials are thicker, mechanical assistance (*e.g.*, drilling or trenching) will likely be required to access subglacial till.

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