

LEGEND

Coloured legend blocks indicate map units that appear on this map

QUATERNARY

SURFICIAL DEPOSITS

POST LAST GLACIATION

NONGLACIAL ENVIRONMENTS

ORGANIC DEPOSITS: peat, 1 to 2 m thick; formed by the accumulation of vegetation in poorly drained depressions (swamps and bogs); produces flat, wet terrain

Bog peat: Sphagnum or forest peat formed in an ombrotrophic environment; may be forest or treeless with a cover of ericaceous shrubs; hummocky, wet terrain, in places underlain by ground ice, O^h; undifferentiated bog and fen deposits, O

Fen peat: peat derived from sedges and partially decayed shrubs in a eutrophic environment; forms relatively open peatlands with a mineral rich water table that persists seasonally near the surface; often covered with low shrubs and sometimes a sparse layer of trees

COLLUVIAL DEPOSITS: mass wasting debris <1.00 m thick; associated to poorly sorted, massive to stratified debris deposited by direct, gravity-induced movement

Landslide and slump debris: active and inactive landslides, undivided, C; hummocky topography, Ch

Colluvial veneer: thin cover of slumped material <1 m; overlying bedrock or till

ALLUVIAL DEPOSITS: sorted gravel, sand, and organic debris deposited by flowing water

Fluvial deposits: sorted gravel and sand >1 m thick; forming active flood plains with meander channels and scroll marks. Ap, alluvial fan deposits, poorly sorted gravel and sand >1 m thick, At, numerous subparallel alluvial channels covering gentle to moderate slopes, Ac, low terraces with meander scars and active and inactive channels, primarily along the Liard River, Al, undifferentiated, A

Alluvial veneer: thin discontinuous deposits, <1 m thick, usually overlying till

Fluvial terraces: inactive; alluvial fan terraces, At

LACUSTRINE DEPOSITS: sand, silt and minor clay deposited in a former lake; generally overlain by organic deposits; exposed by recent fluctuations in lake levels

EOLIAN DEPOSITS: wind deposited sand forming small dune ridges a few tens of metres long

POSTGLACIAL OR LATE WISCONSINAN

PROGLACIAL AND GLACIAL ENVIRONMENTS

GLACIOLACUSTRINE DEPOSITS: fine sand, silt, and clay, deposited in glacier-dammed lakes in valleys or along the margin of the retreating Laurentide Ice Sheet

Glaciolacustrine deposits: sediment >1 m thick; usually overlain by organic deposits in lowlands with level topography; hummocky topography, Lh

GLACIOFLUVIAL DEPOSITS: glacial outwash, gravel and sand with minor diamictites deposited in front of the ice margin, usually 1-10 m thick; forming distal outwash terraces Gt, ice-contact ridges, Gr, proximal knotted outwash terraces, Gk; undifferentiated, G

TILL: nonsorted debris deposited directly by glaciers; matrix is sandy to clayey and contains stratified clasts of various lithologies, including many Canadian Shield erratics in the lowlands

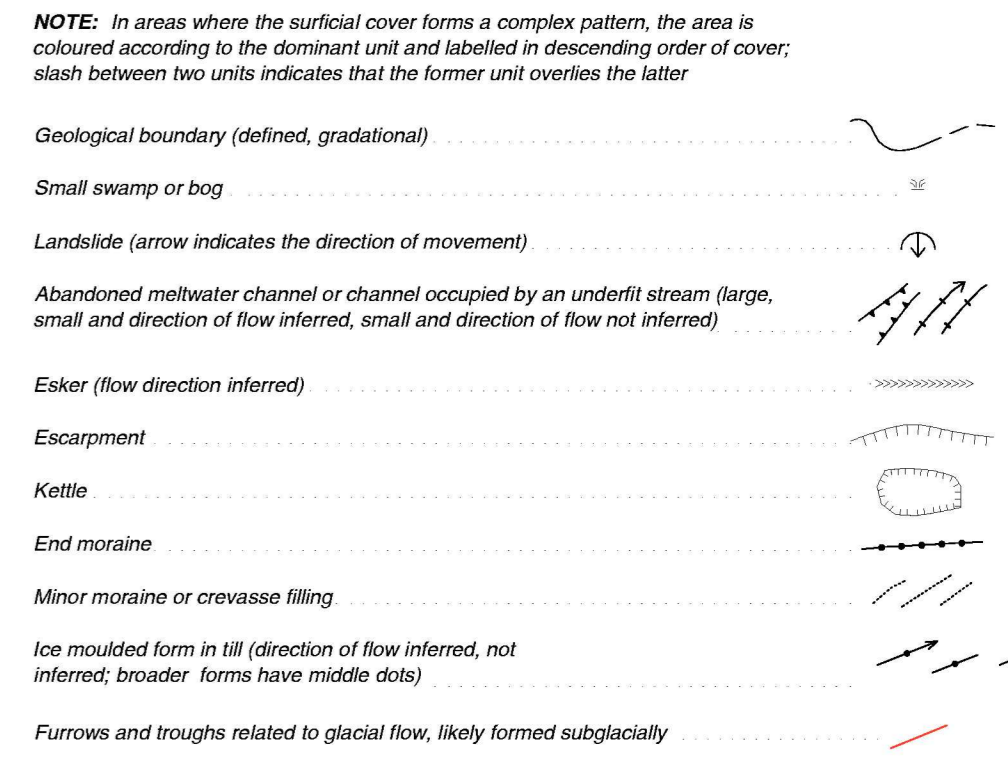
Till blanket: >1 m thick; forming undulating topography; contains Canadian Shield erratics; extensively fluted and drumlined till blanket, Td; moraines or crevasse fillings forming a ridged topography, Tr; hummocky moraine, Th; rolling topography, Tm; pitted topography, Tpk

Ridged moraine: moraines or crevasse fillings forming a ridged topography

Till veneer: <1 m thick and discontinuous; underlying bedrock topography is discernible

PRE-QUATERNARY BEDROCK

R Sedimentary bedrock, R, Paleozoic to Mesozoic rocks exposed in the steep cliffs along the Pellott River and along the crest of the Bovie Lake structure, a north-trending ridge bordering the east side of the map area.

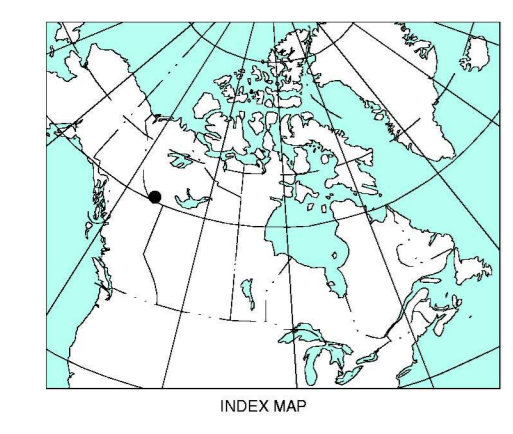


NOTES ON GLACIAL HISTORY:

Fort Liard map area was glaciated during the Late Wisconsinan glaciation (ca. 25 000-10 000 years ago). Although the area may have been first glaciated by montane ice from the west, the last major ice cover was by the continental Laurentide Ice Sheet, which generally flowed from northeast to southwest. West of here, the Laurentide Ice Sheet came in contact with Cordilleran ice and was forced to flow northward, against the regional topography. Extensive glacial flutes and subglacial furrows in this map area show the gradual swing in ice flow direction caused by this deflection.

During deglaciation, the Liard River system was blocked by the eastward retreating Laurentide Ice Sheet and short-lived glacial lakes were created in many depressions. Glacial Lake Liard formed within the main Liard River valley. A prominent lake level (about 254 m above sea level) is marked by a delta near Fort Liard townsite. Meltwaters issuing from retreating ice and glacial lake drainage cut several large meltwater channels in the map area, although some channels may have reoccupied preglacial valleys. Some of these channels may have been occupied by a proto Pellott River, while others are partially filled with till and may have been tunnel valleys beneath the glacier.

A detailed record of the eastward retreating Laurentide ice margin is provided by fine end moraines and crevasse fillings found to be overlying glacial flutings at sharp angles. As opposed to the flutings, these features are very narrow (<50 m) and made up of short segments that can be traced for kilometers. In places, these moraines form sets of closely spaced parallel ridges, which may mark seasonal pulses of ice retreat that are annual.



CONTOUR INTERVAL 50 FEET
Elevations in Feet above Mean Sea Level

Digital Topographic Data provided by Geomatics Canada, Natural Resources Canada and adjusted to conform to Landsat Geocover image by the author

OPEN FILE 1760
SURFICIAL GEOLOGY
FORT LIARD
NORTHWEST TERRITORIES - BRITISH COLUMBIA

Scale 1:50 000 Échelle

Universal Transverse Mercator Projection
North American Datum 1983
© Her Majesty the Queen in Right of Canada, 2003

Projection transverse universelle de Mercator
Système de référence géodésique nord-américain, 1983
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Geology by J. Bednarski, 2000, 2001, 2002
Geological compilation and digital cartography by J. Bednarski, 2002

This is a product of the Central Foreland NATMAP Project

Any revisions or additional geological information from the user would be welcomed by the Geological Survey of Canada

95 B/5 Fisherman Lake GSC OF 4380	95 B/6 Rabbit Creek GSC OF 4380	95 B/7 Tourbrière River GSC OF 1761
95 B/4 Betanama Lake GSC OF 1761	95 B/3 Fort Liard GSC OF 1760	95 B/2 Lake Bovie GSC OF 1761
94 O/13 Esthine Lake	94 O/14 Maxhamish Lake	94 O/15 Emilie Creek

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