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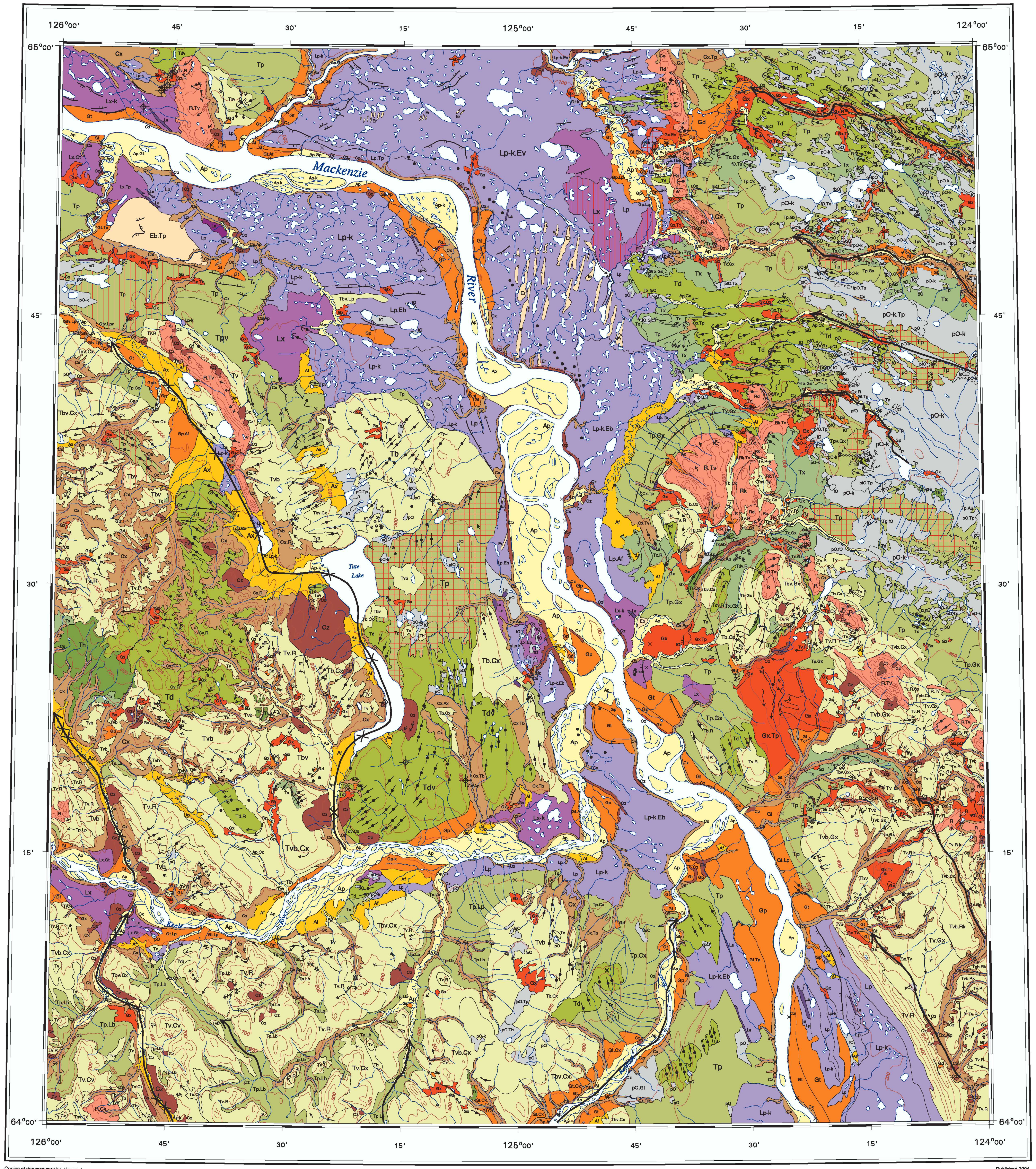
GEOLOGICAL SURVEY OF CANADA / COMMISSION GÉOLOGIQUE DU CANADA



Published 2004

LEGEND

HOLOCENE

ORGANIC DEPOSITS: *peat and muck, occurring as flat to gently sloping plains*

fO, pO, pO-k, pfO, fpO	***fO**, fenland, consisting of woody sedge peat, 2-3 m thick; **pO**, peatland, sphagnum peat generally underlain by woody sedge peat 0.5-4 m thick; **pO-k**, peatland containing thermokarst depressions; **pfO**, peatland and fenland undivided; **fpO**, fenland and peatland undivided*
(pattern)	*Fenland constituting 10 - 50 % of the map unit*
(pattern)	*Peatland constituting 10 - 50 % of the map unit*
(pattern)	*Peatlands and fenlands undivided constituting 10 - 50 % of the map unit*

ALLUVIAL DEPOSITS: *sand, silt and minor gravel in association with modern drainage regime*

Ap, At, Ap-k	***Ap**, coarse sand and gravel with silt and fine sand, occurring as channel and overbank floodplain sediments, 3-5 m thick; **At**, sand and silt, in places underlain by gravel, occurring as terraces, 2-4 m thick; **Ap-k**, floodplain sediments containing thermokarst depressions*
Af, Ax, Ax-k	***Af**, mainly sand and silt with minor gravel and discontinuous layers of peat occurring as fan deposits; **Ax**, complexes of floodplain and fan deposits undivided; **Ax-k**, complexes of floodplain and fan deposits undivided containing thermokarst depressions*

COLLUVIAL AND SHEETWASH DEPOSITS: *diamicton and rubble derived from bedrock and surficial material through a variety of colluvial and sheetwash processes*

Cv, Cx	***Cv**, discontinuous veneer of diamicton and rubble that conforms to local topography, 0-2 m thick; **Cx**, slope complex consisting of a veneer to blanket (> 2 m thick) diamicton and rubble. This unit may include minor landslides (**Cz**) and/or alluvial fan (**Af**) units*
Cz	***Cz**, rubble and/or diamicton occurring as stepped or fan-shaped deposits; formed by rotational slumping, retrogressive thaw flow, debris flows, rock topple and translational slides in surficial sediments and/or bedrock. They are particularly prominent along former meltwater channels and along slopes adjacent to the Mackenzie River. Large rotational slides were usually triggered by post-glacial stream down-cutting during Late Pleistocene and continue during the Holocene*

EOLIAN DEPOSITS: *fine to medium sand, minor silt derived from deltaic or glaciolacustrine deposits in association with deglacial wind direction*

Eb, Ev, Er	***Eb**, eolian blanket deposited over surficial materials particularly lacustrine and till plains, 3-5 m thick; **Ev**, eolian veneer < 3 m thick; **Er**, parabolic dunes up to 30 m thick*

LATE PLEISTOCENE DEPOSITS

GLACIOLACUSTRINE DEPOSITS: *silt and clay with minor sand commonly overlain by a discontinuous veneer of organic deposits and locally by eolian sand; sediments deposited in a glacial lake*

Lp, Lp-k, Lpv	***Lp**, thick sediments occurring as a flat to gently sloping plain, 2-80 m thick; **Lp-k**, lacustrine plain containing thermokarst depressions; **Lpv**, lacustrine veneer conforming to underlying unit, 0-2 m thick*
Ls	***Ls**, lacustrine sediments occurring as low, ridged beach deposits of sand and gravel. Locally along the east side of glacial Lake Mackenzie the deposits are intercalated with till deposits*
Lx, Lx-k	***Lx**, lacustrine complex or transitional between glaciofluvial and glaciolacustrine deposits with upper 0-5 m consisting of sand, 0-20 m thick; **Lx-k**, lacustrine complex containing thermokarst depressions, 0-20 m thick*
Le	***Le**, lacustrine plain completely modified by mass wasting*

GLACIOFLUVIAL DEPOSITS: *sand and gravel locally with a veneer of eolian silt and/or sand; deposited as proglacial or ice-contact sediment by glacial meltwater*

Gp, Gp-k, Gt, Gt-k, Gv, Gtv, Gd	*Outwash deposits: **Gp**, flat to gently sloping plain, 2-20 m thick; **Gp-k**, glaciofluvial plain containing thermokarst depressions, 2-20 m thick; **Gt**, glaciofluvial terrace, 2-30 m thick; **Gt-k**, glaciofluvial terrace, 2-30 m thick containing thermokarst depressions; **Gv**, glaciofluvial veneer with slopes conforming to underlying topography, < 2 m thick; **Gtv**, deposit underlying a terrace > 3 m thick; **Gd**, gently sloping delta deposited in a glacial lake, 5 - 30 m thick*
Gr, Gh, Ghr, Gx	*Ice contact glaciofluvial deposits: **Gr**, eskers, 2-15 m thick; **Gh**, hummocks < 2.5 m thick; **Ghr**, hummocky and ridged deposits 2-15 m thick; **Gx**, glaciofluvial complex of eskers, kames and plains, 2-30 m thick*

TILL: *nonsorted silt, sand, and clay with clasts (pebbles, cobbles and sometimes boulders); deposited by glacial ice in a variety of landforms. Glacial deposits in the map area are of continental (Laurentide) origin*

Tp, Tpv	***Tp**, flat to gently sloping till plain, 3-20 m thick; **Tpv**, thin till plain, < 3 m thick*
Tv, Tb, Tv-k	***Tv**, till veneer with slopes conforming to underlying topography, < 2 m thick; **Tb**, gently to moderately sloping plain conforming to underlying topography; **Tv-k**, till veneer with slopes conforming to underlying topography, < 2 m thick, with thermokarst depressions*
Td, Tdv, Tvd	***Td**, drumlinoid and hilly plain with individual drumlins or extensively fluted, 2-30 m; **Tdv**, till veneer over glacially eroded streamlined bedrock ridges, < 3 m thick; **Tvd**, thin till over glacially eroded streamlined bedrock ridges, 0-3 m thick*
Tr, Th	*Generally coarse till (20 - 50 % pebble size) deposited as ridges **(Tr)** (commonly lateral moraines) and hummocks **(Th)** (locally with gravel hummocks); up to 30 m of relief and 30 m thick*
Tx, Tx-k	***Tx**, Till complex largely hummocky, ridged, and/or hilly with patches of gravel; **Tx-k**, till complex with thermokarst depressions*

PRE-QUATERNARY

BEDROCK: *Cretaceous shale and limestone in plains area; Ordovician, Silurian, Devonian dolomite (Franklin Mountain, Mount Kindle, Bear Rock formations), Devonian shale (Hume Formation) and sand/gravel conglomerate lower Tertiary (Tertiary Hills) in mountainous areas*

R, Rd, R-k	***R**, primarily prominent ridges escarpments and hills associated with Devonian and Tertiary rocks; **Rd**, glacially eroded streamlined bedrock with rare glacial erratics on the surface; **R-k**, carbonate rocks affected by solution and collapse karst forms expressed as sinkholes and channels commonly developed in Franklin Mountain and Bear Rock formations*

UNCORRELATED

Ct	***Ct**, colluvial talus occurring as cryoplanation terrace deposits, 1-3 m thick mantle over shallow bedrock terraces on mountain slopes*

Geological boundary (defined, approximate)
Glacial meltwater channel (major, minor)
Filled channel or buried valley (Stewart-Tate lakes Phase)
Filled channel or buried valley (Summit Creek Phase)
Shoreline of former lake
Moraine ridge
Crevasse-fill ridge
Esker
Kames
Crag and tail
Drumlin or drumlinoid ridge (sense of ice flow determined, not determined)
Recorded station
Helicopter observation
Shotpoint

PREFIXES, COMBINED MAP UNITS AND MODIFYING PROCESSES

Lower case prefixes are used to distinguish two types of organic deposits, fenland (fO) and peatland (pO)

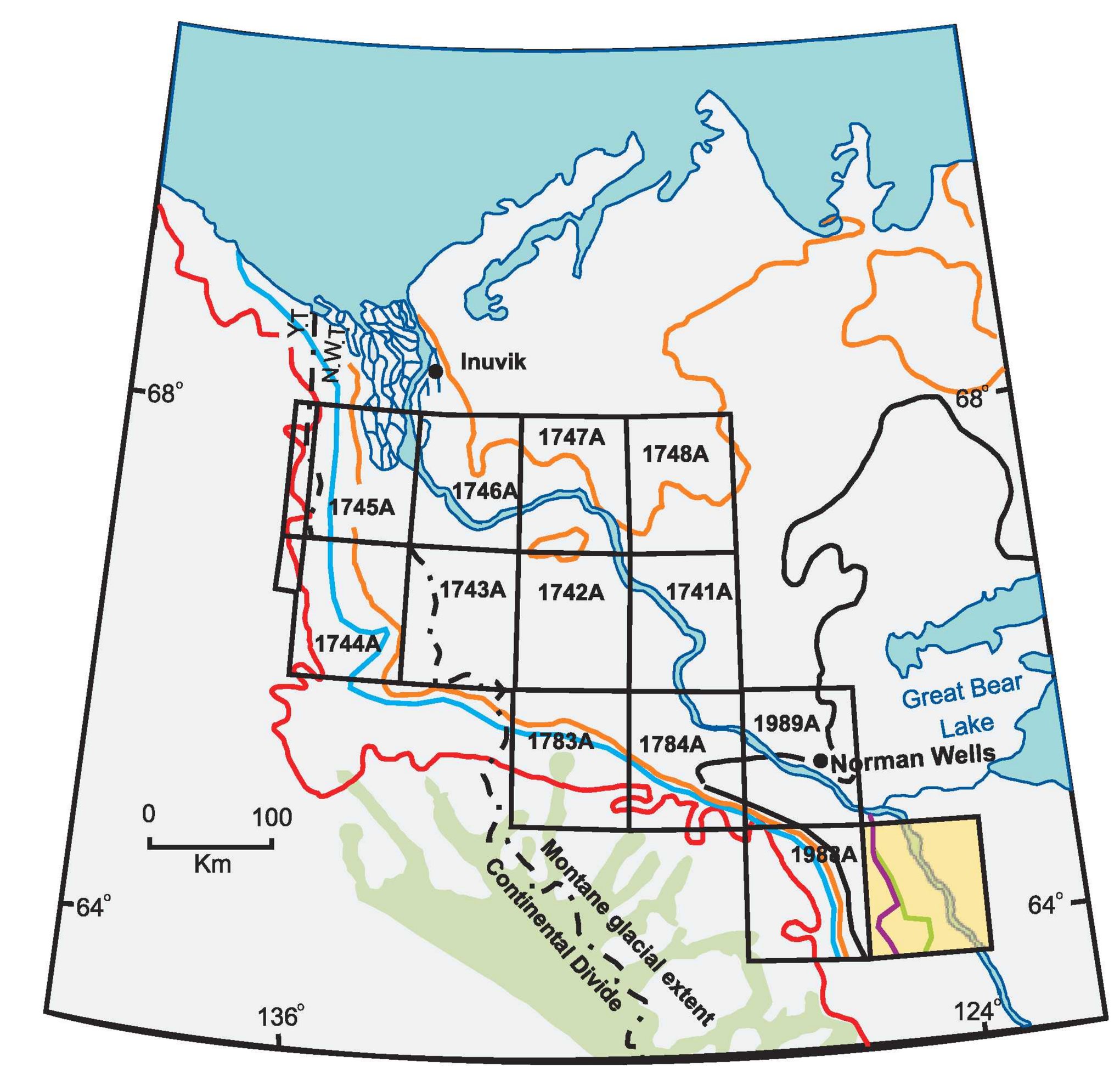
Combined map units are used where, for reasons of scale, two intermingled units can not be delineated individually. There are two different forms of combined unit designators: 1) Where the two units are from the same genetic group, the second upper case letter representing the genetic category of the subordinate unit is dropped (e.g., alluvial plain and terrace undifferentiated becomes Apt). In some cases, where the combined unit has characteristics different from the two individual units, the combined unit is described in the legend (e.g., Tpv). 2) Where the map unit designator is composed of different genetic categories the dominant , unit (>50%) is followed by a dot and then the second unit which makes up 20-50% of the map area (e.g., Tp.Cx)

Special designators are used to indicate former or current activity of modifying processes: thermokarst activity (k) (e.g., Lp-k) and channelling (c) (e.g., R-c)

The organic units are shown as in any other geologic unit with a colour where the organic deposits are dominant (e.g., pO.Mp). Where they appear as a secondary unit they are shown with a pattern

Geology by A. Duk-Rodkin 1990, 1991, 1994, 2003, and A. Couch 2003
Digital cartography by A. Couch, R. Noble, and D. Nunez Geological Survey of Canada (Calgary)
Any revisions or additional geological information known to the user would be welcomed by the Geological Survey of Canada

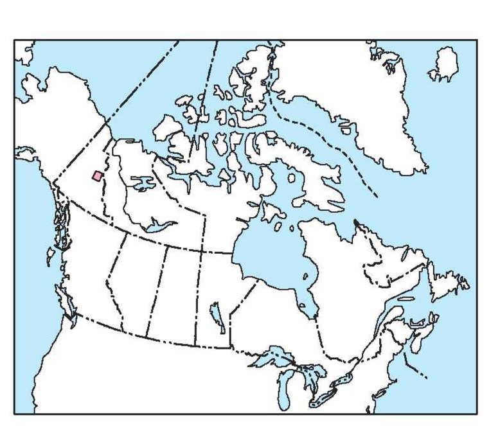
Digital base map from data compiled by Geomatics Canada, modified by the Geological Survey of Canada
CONTOUR INTERVAL 100 METRES
Elevations in metres above mean sea level
North American Datum 1983
Universal Transverse Mercator Projection



LIMITS OF CONTINENTAL ICE (LAURENTIDE)

Maximum limit
Katherine Creek Phase
Tutsieta Lake Phase
Kelly Lake Phase
Summit Creek Phase
Stewart-Tate lakes Phase

Copies of this map may be obtained
from the Geological Survey of Canada
601 Booth Street, Ottawa, Ontario K1A 0E8
3303-33rd Street, N.W., Calgary, Alberta T2L 2A7
100 West Pender Street, Vancouver, B.C. V6B 1R8



LOCATION MAP

SURFICIAL GEOLOGY

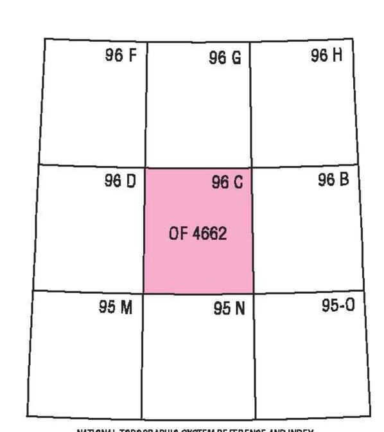
FORT NORMAN

NORTHWEST TERRITORIES

Scale 1:250 000/Échelle 1/250 000

kilometres 5 0 5 10 15 20 kilomètres

Universal Transverse Mercator Projection
Projection transverse universelle de Mercator



NATIONAL TOPOGRAPHIC SYSTEM REFERENCE AND INDEX TO ADJOINING GEOLOGICAL SURVEY OF CANADA MAPS

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2004

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