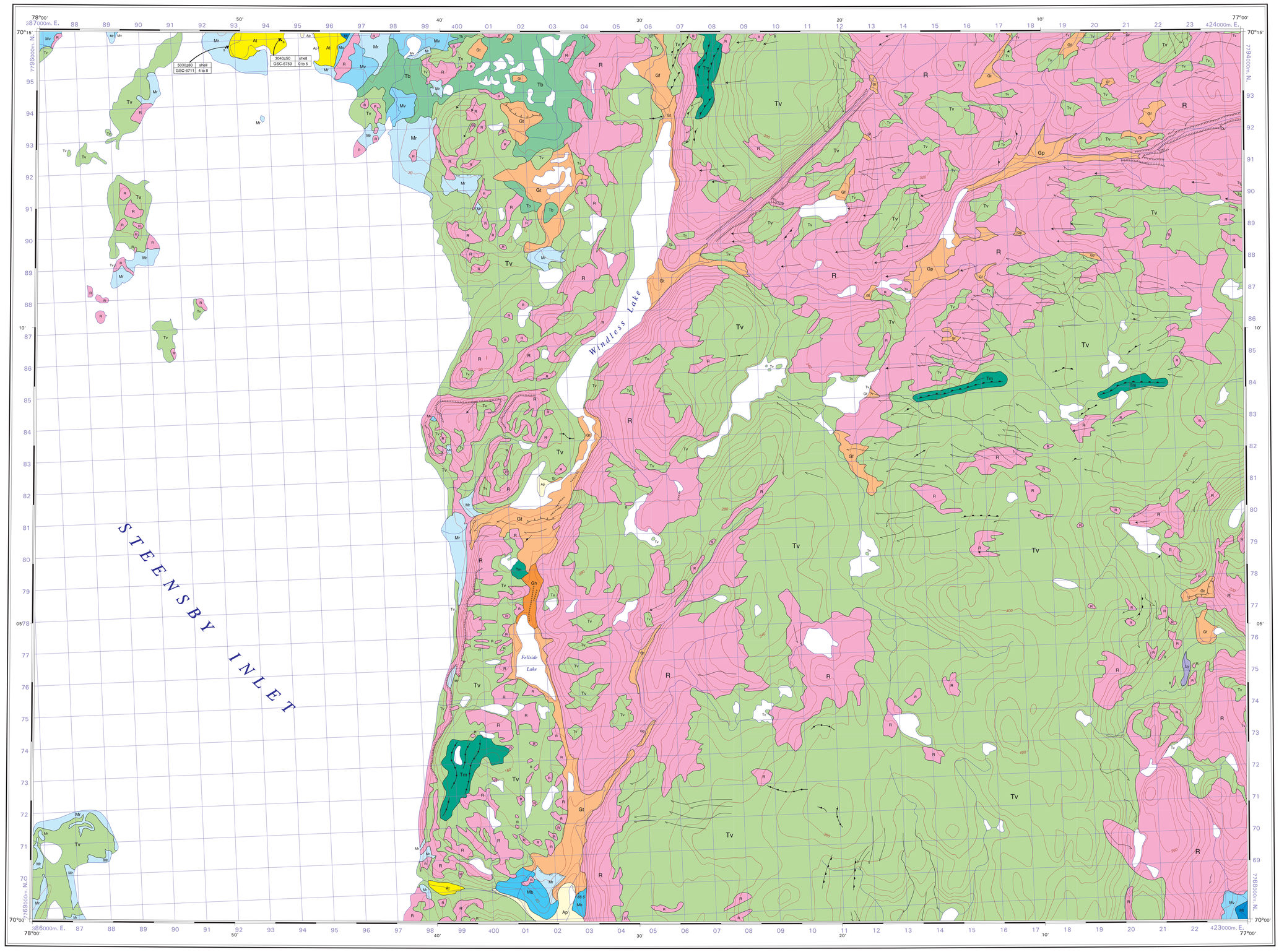
Natural Resources Canada | Ressources naturelles Canada

GEOLOGICAL SURVEY OF CANADA | COMMISSION GÉOLOGIQUE DU CANADA



LOCATION MAP

OPEN FILE 4684

SURFICIAL GEOLOGY

WINDLESS LAKE

BAFFIN ISLAND

NUNAVUT

Scale 1:50 000/Échelle 1/50 000

kilometres 1 0 1 2 3 4 kilometres

Universal Transverse Mercator Projection
North American Datum 1983
© Her Majesty the Queen in Right of Canada 2005

Projection transverse universelle de Mercator
Système de référence géodésique nord-américain, 1983
© Sa Majesté la Reine du chef du Canada 2005

Author: A.S. Dyke

Geology by A.S. Dyke, 2004

Field data provided by De Beers Canada Corporation, 2003

Airphotos of the southeast part of this map area were flown at a time of extensive snow cover
The airphoto interpretation is therefore less reliable than it is elsewhere

Digital cartography by M.M. Proulx, Earth Sciences Sector Information Division (ESS Info)

This map was produced from processes that conform to the
ESS Info Publishing Services Subdivision Quality Management System,
registered to the ISO 9001: 2000 standard

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

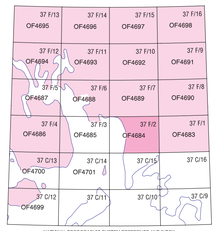
Digital base map from data compiled by Geomatics Canada, modified by ESS Info

Locational accuracy of the base appears to be ±100 m based on plotting of GPS measured field site locations

Proximity to the North Magnetic Pole causes the magnetic compass to be erratic in this area
Mean magnetic declination 2005, 42°31'W, decreasing 40.2' annually

Elevations in metres above mean sea level
Contour interval 20 m

Field altimetry and the placement and trend of raised shorelines may conflict significantly with the contours



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

LEGEND

This legend is common to Open Files 4683 to 4701.
Coloured legend blocks indicate map units that appear on this map.
Not all map symbols shown in the legend necessarily appear on this map.

SURFICIAL DEPOSITS
QUATERNARY
HOLOCENE

COLLUVIUM: *block and rubble accumulations, 1–50 m thick.*

Ca — ***Talus:*** *active block and rubble accumulations as much as 50 m thick forming talus (scree) aprons and fans below cliffs resulting from rock falls and debris flows; commonly crossed by debris flow channels and levées.*

Cr — ***Rock glacier debris:*** *talus, generally 10–50 m thick, deformed by active flow of interstitial or buried ice to form rock (talus) glaciers with transverse ridges and furrows, and pits, and with steep, unstable sides and fronts.*

FLUVIAL SEDIMENTS: *alluvium; gravel and sand, 2–20 m thick.*

Ap — ***Alluvial plains:*** *active braided floodplains; includes active proglacial outwash.*

At — ***Alluvial terraces:*** *gravel and sand, 2–20 m thick.*

Af — ***Alluvial fans:*** *gravel and sand, 2–20 m thick.*

MARINE AND GLACIAL MARINE SEDIMENTS: *gravel, sand, silt, and clay, 1–20 m thick, deposited in deltaic and beach environments during regression of the postglacial sea.*

Mr — ***Beach sediments:*** *gravel and sand, 1–5 m thick, forming ridges and swales.*

Mt — ***Deltaic sediments:*** *clay, silt, sand, and gravel, 5–20 m thick, forming coarsening upward sequences under dissected terraces.*

Mv — ***Deepwater proglacial silt veneers:*** *silt, clay silt, and fine sand with dropstones, 1–2 m thick.*

Mb — ***Deepwater proglacial silt blankets:*** *silt, clay silt, and fine sand with dropstones and minor gravel, 2–10 m thick.*

GLACIAL LACUSTRINE SEDIMENTS: *clay, silt, sand, and gravel deposited in glacier dammed lakes in deepwater, beach, and deltaic environments.*

Lt — ***Deltaic sediments:*** *clay, silt, sand, and gravel, 5–20 m thick, forming coarsening upward sequences under dissected terraces.*

Lv — ***Deepwater proglacial silt veneers:*** *silt, clay silt, and fine sand with dropstones, 1–2 m thick.*

Lb — ***Deepwater proglacial silt blankets:*** *silt, clay silt, and fine sand with dropstones, 2–5 m thick.*

GLACIOFLUVIAL SEDIMENTS: *gravel and sand, 1–10 m thick, deposited behind, at, and in front of the ice margin.*

Gp,t,f — ***Proglacial outwash:*** *gravel and sand, 1–10 m thick, forming braided floodplains, Gp; terraces, Gt; and fans, Gf.*

Gr,h — ***Ice contact stratified drift:*** *gravel and sand, 1–5 m thick, forming eskers, Gr; and kames, Gh.*

EARLY HOLOCENE AND WISCONSINAN

TILL: *nonsorted stony muds; 0.5–60 m thick, deposited in subglacial and ice marginal environments; lithic composition generally reflects underlying bedrock.*

Tm — ***End moraines:*** *5–60 m high, composed of or mantled by till, extensively kettled in places; large features mainly cored by debris-rich relict glacier ice.*

Tv — ***Till veneer:*** *0.5–2 m thick and discontinuous.*

Tvw — ***Washed till veneer:*** *0.5–2 m thick, surface armoured by stones due to washing by subglacial meltwater.*

Tb — ***Till blanket:*** *2–10 m thick forming an undulating blanket with drumlins and ribbed moraines in places.*

Tbr — ***Ribbed till blanket:*** *2–10 m thick forming ribbed (Rogen) moraines.*

BEDROCK
PRE-QUATERNARY

R — ***ROCK:*** *rock of various compositions and ages (Jackson and Sangster, 1987) variously modified by glacial erosion during the Quaternary and with patchy till cover; hilly and hummocky surfaces, ice moulded in places, with lake basins in subglacially scoured regions; smooth surfaces exhibiting little or no sign of glacial erosion in peninsular interiors (Dyke, 1993); cliffs resulting from glacial over-steepening; in places veneered by thin till, commonly bouldery.*

Geological boundary (defined, assumed)
Areas covered by perennial icefields during the Little Ice Age (indicated by a white pattern)
Glacial lake spillway
Glacial lake limit
Marine limit
Marine limit elevation in metres • 60
Weakly developed strandline
Cliff in bedrock
Lateral meltwater channel; barb on upslope side
Subglacial and proglacial meltwater channel (large, small)
Esker
Kame
Ice contact face
Ribbed moraines
Lateral moraine
End moraine
Margin of glacial dispersal train; teeth toward axis, steep side of teeth face down ice
Lateral sliding boundary; teeth on sliding side, cold-based ice on other side; steep sides of teeth face down ice
Iceberg scour
Drumlinoid hill
Crag-and-tail
Ice moulded bedrock
Striae (ice flow direction known, unknown)
Crossed striae (numbers indicate relative age, 1 being the oldest)
Field observation site: bouldery diamicton (bd), bouldery gravel (bg), diamicton (d), gravel (g), gravelly sand (gs), mud (m), muddy sand (ms), rock (r), sand (s), sandy gravel (sg), stony mud (sm), till (t) • 1
Field observation site: material as above near rock outcrop • t(r)
Radiocarbon date — Date | Material | Lab no | Elevation (m)

REFERENCES

Dyke, A.S.
1993: Landscapes of cold-centred Late Wisconsinan ice caps, Canadian Arctic; Progress in Physical Geography, v. 17, p. 223–247.

Jackson, G.D. and Sangster, D.F.
1987: Geology and resource potential of a proposed national park, Bylot Island and northwest Baffin Island, Northwest Territories; Geological Survey of Canada, Paper 87-17, 31 p.

OPEN FILE
DOSSIER PUBLIC
4684
GEOLOGICAL SURVEY OF CANADA
COMMISSION GÉOLOGIQUE DU CANADA
2005

Open files are products that have not gone through the GSC formal publication process.

Les dossiers publics sont des produits qui n'ont pas été soumis au processus officiel de publication de la CGC.

Recommended citation:
Dyke, A.S.
2005: Surficial geology, Windless Lake, Baffin Island, Nunavut; Geological Survey of Canada, Open File 4684, scale 1:50 000.

Canada