References and additional ice flow and field data from:

Aylsworth, J.M., Cunningham, C.M., Kettles, I.M., and Shilts, W.W., 1986. Surficial geology, Henik Lakes, District of Keewatin, Northwest Territories; Geological Survey of Canada, Map 2-1985, scale 1:125 000. doi:10.4095/121055

Cocking, R.B., Deblonde, C., Kerr, D.E., Campbell, J.E., Eagles, S., Everett, D., Huntley, D.H., Inglis, E., Lavoiette, A., Parent, M., Plouffe, A., Robertson, L., Smith, I.R., and Weatherston, A., 2016. Surficial Data Model, version 2.2.0: Revisions to the science language of the integrated Geological Survey of Canada data model for surficial geology maps; Geological Survey of Canada, Open File 8041, 45 p. doi:10.4095/298767

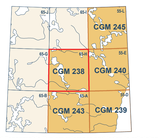
Wright, G.M., 1967. Surficial geology, southeastern Barren Grounds, District of Keewatin and District of Mackenzie; Geological Survey of Canada, Map 1217A, scale 1:1 000 000. doi:10.4095/108855

Abstract

This new surficial geology map product represents the conversion of Map 2-1985 and its legend only, using the Geological Survey of Canada's Surficial Data Model (SDM) version 2.2) which can be found in Open File 8041. All geoscience knowledge and information from Map 2-1985 that conformed to the current SDM were maintained during the conversion process. Additional material such as marginal notes or figures which may exist on the original map, are not included here. Supplementary, limited legacy information was added to complement the converted geoscience data. This consists of glacial striations from Wright, 1967. It is identified in the accompanying geodatabase. The purpose of converting legacy map data to a common science language and common legend is to enable and facilitate the efficient digital compilation, interpretation, management and dissemination of geologic map information in a structured and consistent manner. This provides an effective knowledge management tool designed around a geo-database which can expand following the type of information to appear on new surficial geology maps.

Résumé

Ce nouveau produit dérivé de la carte des formations superficielles 2-1985 a été produit avec le Modèle de données des formations superficielles (MDFS version 2.2) de la Commission géologique du Canada qui a été publié sous forme de cartogier public 8041. La connaissance et toutes les données de la carte 2-1985 se retrouvant dans le MDFS ont été maintenues pendant le processus de conversion. Des éléments supplémentaires tels que les notes marginales ou les figures qui peuvent exister sur la carte originale, ne sont pas incluses ici. Des données complémentaires limitées ont été ajoutées pour compléter les données géoscientifiques converties. Ce sont des stries glaciaires de Wright, 1967. Elles sont identifiées dans la base de données géospatiales. Le but de convertir les cartes publiées antérieurement en langage scientifique commun et en légende commune est de permettre et faciliter la compilation, l'interprétation, la gestion et la diffusion numériques efficace d'information de cartes géologiques de façon structurée et cohérente. Cette base de données géospatiales est un outil de gestion qui pourra évoluer suivant le type d'information à paraître sur les nouvelles cartes des formations superficielles.



National Topographic System reference and index to adjoining published Geological Survey of Canada maps

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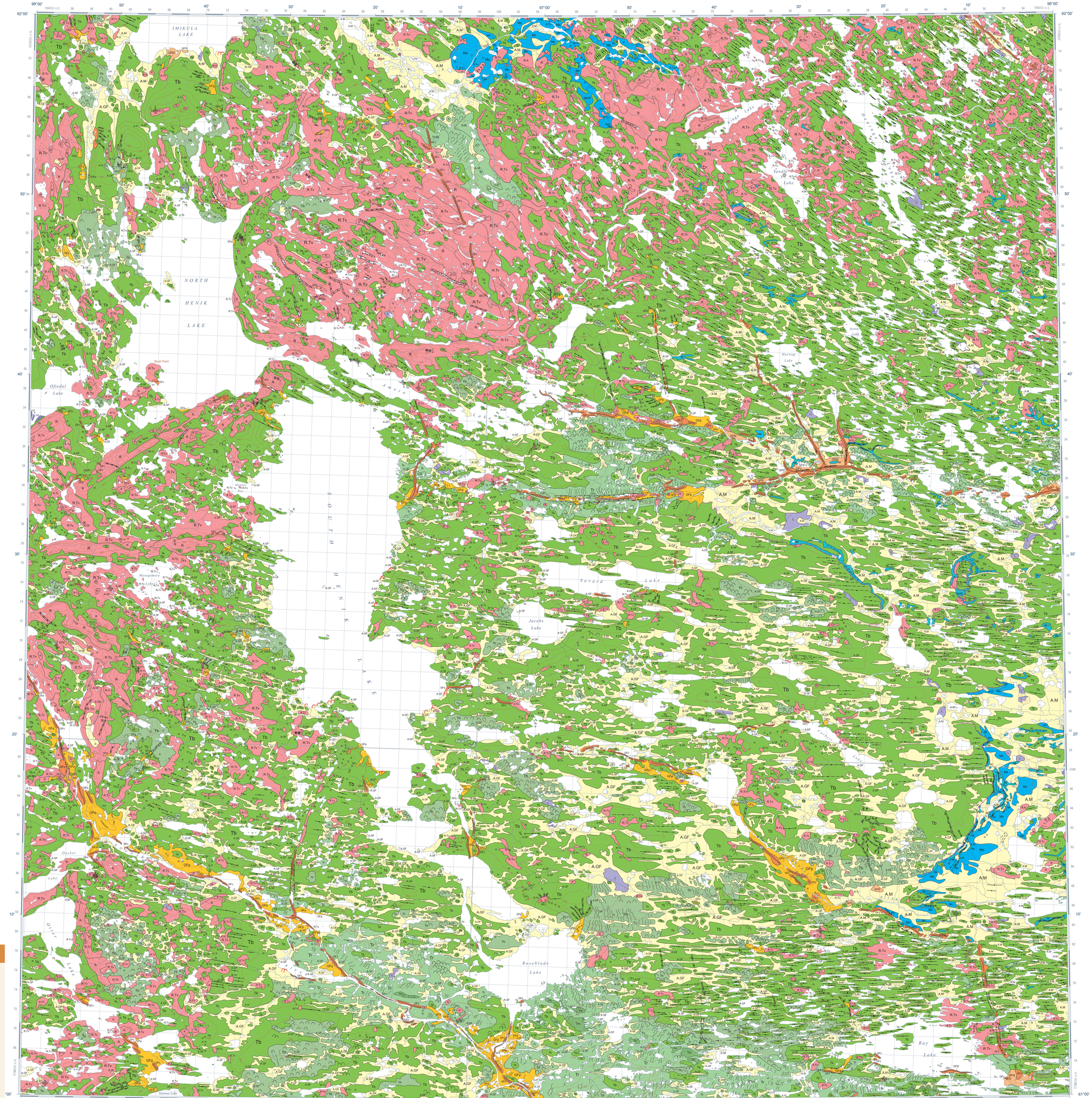
CANADIAN GEOSCIENCE MAP 238
SURFICIAL GEOLOGY
HENIK LAKES
Nunavut
NTS 65-H
1:125 000



QUATERNARY

ALLUVIAL SEDIMENTS: stream deposited material within modern active drainage systems; "modern" is defined as the period since retreat of the sea, proglacial lakes, or glacial ice.

Ap — **Floodplain sediments:** silt, sand, and gravel; variable thickness; deposited in channels and on floodplains; may include alluvial sediments in terraces which formed as streams cut to present level in glacial and marine sedimentary fill.

A — **Alluvial sediments, undifferentiated:** silt, sand and gravel; variable thickness; when associated with marine sediments it occurs as flat areas consisting of modern alluvium mixed with silt and sand that were washed from slopes by wave action or deposited in the sea by meltwater streams; when associated with glaciofluvial sediments it occurs as flat areas in stream valleys or abandoned channels above marine limit; surface generally covered by 40 cm to more than 1 m of fibrous peat on which mosses, sedges, and grasses grow; maximum active layer is 15 to 50 cm thick; surface characterized by frost polygons and thaw ponds related to vertical ice wedges extending to a depth of 2 to 3 m.

Ld — **Lacustrine deltaic sediments:** sand, gravel, and boulders; variable thickness; deposited as deltas where modern streams enter lakes.

L — **Lacustrine sediments, undifferentiated:** silt and sand; variable thickness; permanently drained postglacial lake basins; may include deposit of silty sediment with up to 15% organic carbon.

MARINE SEDIMENTS: materials deposited in the Tyrrell Sea and during marine regression, and glacial deposits modified by marine processes.

Mr — **Beach sediments:** sand, gravel, cobbles, or boulders; variable thickness; generally well sorted; deposited as beaches, bars, spits, and ice-pushed ridges in littoral and nearshore environments; surface characterized by sparse vegetation and orthogonal frost cracks.

Md — **Marine deltaic sediments:** sand, pebbly sand, and gravel; variable thickness; deposited in the Tyrrell Sea by glacial streams, and during regression by nonglacial streams; surface characterized by sparse vegetation and polygonal frost cracks.

Mo — **Offshore sediments:** clay, silt and silty sand; variable thickness; deposited in a deep water environment; may occur anywhere below marine limit but distribution is patchy above 60 m a.s.l.; thickest deposits generally occur in major river valleys or valleys with major eskers; may include gently dipping, striped or mottled pattern on ariphotos; difficult to differentiate on airphotos from till; surface vegetation is dominantly shrubs in turf circles around mudboils; striped pattern consists of dark and light stripes, 10 to 20 m wide, running downslope and reflects vegetation differences; mottled pattern due to shrub- and mudboil-covered mounds, 5 to 10 m in diameter and less than 0.5 m high, surrounded by light coloured grass-sedge vegetation; likely has high ground ice content.

M — **Marine sediments, undifferentiated:** clay, silt and silty sand; variable thickness; deposited in various marine environments. Occurs in secondary unit only.

GLACIOFLUVIAL SEDIMENTS: water-sorted sediments deposited in, or around, or near a glacier, largely as a result of meltwater stream flow.

GFp — **Outwash plain sediments:** sand, gravel, variable thickness; with terraced, hummocky, and kettled surfaces, deposited by subaerial meltwater streams in areas above local sea level or level of proglacial lakes; includes 1) sediment deposited between the esker ridge and valley sides, commonly over stagnant ice that forms temporary floor; 2) outwash fans, 3) outwash plains, and 4) materials on the floor or at the mouth of meltwater channels; sparsely vegetated.

GFf2 — **Subaqueous outwash fan sediments:** silt, sand, fine gravel; variable thickness; terraced, hummocky, and kettled surfaces; distal fine sediment debouching from the subaqueous mouth of an ice tunnel; material settled preferentially in depressions between the esker ridge and valleysides; vegetation is commonly sedge, grass, and moss growing on thin, fibrous peat; surface characterized by thaw ponds and tundra polygons; difficult to differentiate on airphotos from unit A.

GFc — **Ice-contact sediments:** sand and gravel; variable thickness; stratified, deposited near ice margins in, over, or around ice or in ice tunnels, commonly as eskers but includes isolated hummocky deposits of uncertain origin; many eskers are beaded or interrupted at irregular intervals by major bulges marking positions where deltaic or subaqueous fan deposition occurred during periods of slowed ice retreat.

GF — **Glaciofluvial sediments, undifferentiated:** silt, sand and gravel, variable thickness; deposited in or near a glacier. Occurs in secondary unit only.

GLACIAL SEDIMENTS (TILL): poorly sorted till with distinctive forms deposited directly by glacial ice.

Th — **Hummocky till:** till; variable thickness; without significant boulder cover occurring as low, rounded hummocks; includes ridges of till that are minor end moraines or erosion remnants between subparallel meltwater channels; extensive areas are present in the region of the Keewatin Ice Divide and in some places adjacent to areas of ribbed moraines (Tr); exact origin unknown; may have formed in association with stagnant ice and in some places from erosion of till surfaces by streams in anastomosing meltwater channels; vegetation and periglacial features similar to those on till plain (Tb).

Tm — **Moraine complex:** till, sand, and gravel; variable thickness; undifferentiated disintegration moraine; occurs as short ridges or hummocks, probably deposited in holes and crevasses in stagnant ice; ridge orientation may form a reticulate pattern; sparsely vegetated; periglacial features vary from mudboils in till to frost cracks in sorted sediments.

Tr — **Ridged moraine:** generally bouldery till, in places sand and gravel; variable thickness; ribbed (Rogen) moraine, forming hummocks and straight to sinuous ridges, generally less than 1 km long and 2 to 10 m high; ridges generally oriented at right angles and form trains parallel to direction of ice flow; individual ribs may be asymmetric in cross-section with steep side facing down-ice; trains of ribs pass laterally into drumlin fields and may be drumlinized in the transition zone; surfaces have sparse vegetation and generally a heavy cover of large boulders and mudboils where composed of till, and are marked by frost cracks where composed of gravel.

Tv — **Till veneer:** generally sandy, silty diamicton; less than 1 m thick. Occurs in secondary unit only.

Tb — **Till blanket:** generally sandy, silty till with less than 25% clay sized particles; noncalcareous; grey; variable thickness; forms till plains; includes areas of clay-rich red till; may exhibit solifluction and stripes; vegetation grows in elevated peaty rings around mudboils.

PRE-QUATERNARY

R — **Bedrock, undifferentiated:** Precambrian intrusive igneous and metamorphic rocks, red volcanic rocks, and unmetamorphosed sediments; surface comprises more than 80% outcrop; vegetation sparse; surface may be glacially rounded or covered by felsenmeer; bedrock is mantled with less than 1 m of the surficial deposit indicated in complex polygons.

Complex units: two map-unit designators are used in cases where the surficial cover forms a complex area and the map units are too small to be mapped individually, yet constitute a significant areal extent of the total polygon (e.g. R.Tv designates an area of bedrock with numerous small deposits of till veneer). In such instances a dot (.) is used to separate the map-unit designator.

Stratigraphic relationship: a stratigraphic relationship is shown with two map-unit designators separated by a slash (/) (e.g. Tr/R designates ridged till overlying bedrock).

- Dune crest, direction unspecified
- Geological contact, defined
- Beach crest, bar, or ice-shoved ridge
- Limit of submergence, marine, defined
- Meltwater channel, major, direction unknown
- Moraine ridge, minor, ribbed, unspecified
- Esker, paleoflow direction known
- Drumlinoid:
  - *Buried, may be obscured by solifluction processes, water-laid sediments or wave reworking*
  - *Drumlinoid, fluting, length mapped to scale*
- Crag-and-tail, length mapped to scale
- Hummock, hummocky moraine
- Striation:
  - *Ice flow direction unknown*
  - *Ice flow direction known*
  - *Crossed, 1 = older, 2 = younger*
- Small bedrock outcrop
- Dated sample location, with number (*see* Table 1)

Map ID	Sample ID	Latitude	Longitude	Elevation (m a.s.l.)	Material	Radiocarbon Age
1	GSC-2634	61.853271	96.530895	110	Organic	5080 ± 170

Table 1. Radiocarbon age.

Recommended citation
Geological Survey of Canada, 2017. Surficial geology, Henik Lakes, Nunavut, NTS 65-H; Geological Survey of Canada, Canadian Geoscience Map 238 (preliminary, Surficial Data Model v. 2.2 conversion of Map 2-1985), scale 1:125 000. doi:10.4095/299882

Celebrating 175 yrs

Geological Survey of Canada
Canadian Geoscience Maps

Canada

Author: Geological Survey of Canada

Geology based on airphoto interpretation and field observations by J.M. Aylsworth, C.M. Cunningham, I.M. Kettles, and W.W. Shilts, 1975, 1977.

Geology conforms to Surficial Data Model v. 2.2

Data conversion by D.E. Kerr, 2012, 2014, 2015

Geomatics by C. Lai and S. Eagles

Cartography by N. Côté

Initiative of the Geological Survey of Canada, conducted under the auspices of the Natural Resources Canada's Geo-mapping for Energy and Minerals (GEM) program

Map projection Universal Transverse Mercator, zone 14.
North American Datum 1983

CANADIAN GEOSCIENCE MAP 238
SURFICIAL GEOLOGY
HENIK LAKES
Nunavut
NTS 65-H

1:125 000

2 0 2 4 6 8 10 km

Base map at the scale of 1:250 000 from Natural Resources Canada, with modifications.
Elevations in metres above mean sea level

Mean magnetic declination 2017, 00°09'E, decreasing 3.5' annually.
Readings vary from 1°36'E in the SW corner
to 1°24'W in the NE corner of the map.

This map is not to be used for navigational purposes.

The Geological Survey of Canada welcomes corrections or additional information from users.

Data may include additional observations not portrayed on this map. *See* map info document accompanying the downloaded data for more information about this publication.

This publication is available for free download through GEOSCAN (http://geoscan.nrcan.gc.ca/).

Preliminary publications in this series have not been scientifically edited.

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