

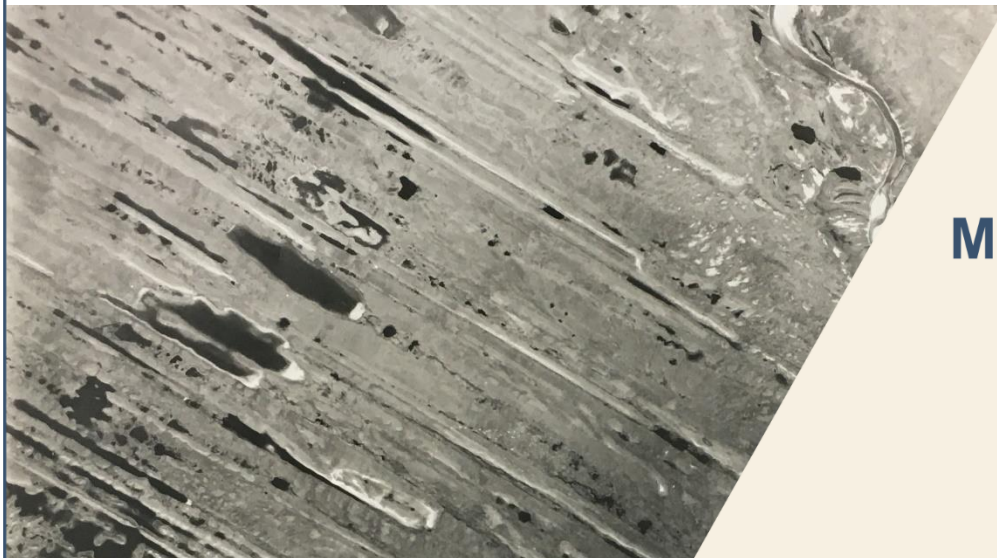


Natural Resources  
Canada

Ressources naturelles  
Canada

**CANADIAN GEOSCIENCE MAP 440**  
**RECONNAISSANCE SURFICIAL GEOLOGY**  
**CLARKE RIVER**

Northwest Territories  
NTS 65-M north



**Map Information  
Document**

**Geological Survey of Canada  
Canadian Geoscience Maps**

**2022**

**Canada** 



## **MAP NUMBER**

Natural Resources Canada, Geological Survey of Canada  
Canadian Geoscience Map 440

## **TITLE**

Reconnaissance surficial geology, Clarke River, Northwest Territories, NTS 65-M north

## **SCALE**

1:125 000

## **CATALOGUE INFORMATION**

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## **RECOMMENDED CITATION**

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## **ABSTRACT**

The Clarke River map area (north half) comprises isolated areas of glacially and meltwater scoured bedrock, till veneers and blankets, locally fluted, and strongly fluted (mega-scale glacial lineations) streamlined till in the northeast. Ridged till may overlie fluted till blanket and streamlined till. Glaciofluvial esker complexes and associated meltwater outwash sediments trend westward (some may parallel pre-glacial valleys), southwestward, and northwestward. Glaciolacustrine sediments are a minor component. An early regional warm-based diverging southwestern and southern ice flow is well preserved in the central regions across the map area. The youngest late deglacial ice flows, in the extreme southwest and broader northeast region, are both northwesterly. The latter represents the Dubawnt Lake ice stream. During ice retreat, ridged till was deposited with minor moraines and larger recessional moraines locally. Ponding meltwater formed pro-glacial lakes with deltas, beaches, and trim lines from 355 m elevation, in the southwest, to 155 m, in the northeast.

## **RÉSUMÉ**

La région cartographique de Clarke River (demie nord) renferme des secteurs isolés de substratum rocheux affouillé par les glaciers et les eaux de fonte, des placages et des nappes de till, localement cannelé, et du till profilé fortement cannelé (linéations glaciaires à grande échelle) dans le nord-est. Du till à crêtes peut surmonter les nappes de till cannelé et le till profilé. Des complexes d'eskers fluvioglaciaires et des sédiments d'épandage par les eaux de fonte associés s'étirent vers l'ouest (certains peuvent être parallèles à des vallées préglaciaires), le sud-ouest et le nord-ouest. Des sédiments glaciolacustres sont un composant mineur. Les traces d'un écoulement régional précoce d'un glacier à base chaude, qui diverge vers le sud-ouest et le sud, sont bien conservées dans les régions centrales de part en part de la région cartographique. Dans l'extrême sud-ouest et la région plus large au nord-est, les écoulements glaciaires les plus récents survenus à la fin de la déglaciation se dirigeaient dans les deux cas vers le nord-ouest. L'écoulement dans la région nord-est correspond au courant glaciaire de Dubawnt Lake. Pendant le retrait glaciaire, du till à crêtes a été déposé avec des moraines mineures et, localement, des moraines de retrait de plus grande taille. La retenue des eaux de fonte a formé des lacs proglaciaires avec des deltas, des plages et des épaulements depuis une altitude de 355 m au sud-ouest, jusqu'à 155 m au nord-est.

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## **SHEET 1 OF 1, RECONNAISSANCE SURFICIAL GEOLOGY**

### **GENERAL INFORMATION**

Author: D.E. Kerr

Geology by D.E. Kerr, based on interpretation of 1:60 000 scale air photos taken September, 1955.

Geological data conforms to Surficial Data Model v. 2.4.0 (Deblonde et al., 2019).

Geomatics by L. Robertson

Cartography by N. Côté

Scientific editing by L. Ewert

Initiative of the Geological Survey of Canada, conducted under the auspices of the Supporting Adaptation in Permafrost Regions project as part of Natural Resources Canada's Climate Change Geoscience program

Map projection Universal Transverse Mercator, zone 13  
North American Datum 1983

Base map at the scale of 1:50 000 from Natural Resources Canada, with modifications  
Elevations in metres above mean sea level

Mean magnetic declination 2022, 7°01'E, decreasing 0.4' annually  
Readings vary from 5°50'E in the NE corner to 8°07'E in the SW corner of the map.

This map is not to be used for navigational purposes.

Title photograph: Northwest-trending drumlinoid ridges (mega-scale glacial lineations), west of the Finnie River. Photo from the National Air Photo Library. NAPL photo A15066-64

The Geological Survey of Canada welcomes corrections or additional information from users ([gscpublications-cgcpublishations@nrcan-rncan.gc.ca](mailto:gscpublications-cgcpublishations@nrcan-rncan.gc.ca)).

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 (<https://geoscan.nrcan.gc.ca/>).

### **MAP VIEWING FILES**

The published map is distributed as a Portable Document File (PDF), and may contain a subset of the overall geological data for legibility reasons at the publication scale.

### **CARTOGRAPHIC REPRESENTATIONS USED ON MAP**

This map utilizes ESRI Cartographic Representations in order to customize the display of standard GSC symbols for visual clarity on the PDF of the map only. The digital data still contains the original symbol from the standard GSC symbol set. The following legend features have Cartographic Representations applied:

- GEM\_LINES\_Rep

### **REFERENCES**

Deblonde, C., Cocking, R.B., Kerr, D.E., Campbell, J.E., Eagles, S., Everett, D., Huntley, D.H., Inglis, E., Parent, M., Plouffe, A., Robertson, L., Smith, I.R., and Weatherston, A., 2019. Surficial Data Model: the science language of the integrated Geological Survey of Canada data model for surficial geology maps; Geological Survey of Canada, Open File 8236, ver. 2.4.0, 1 .zip file.  
<https://doi.org/10.4095/315021>

### **SUGGESTED READINGS**

Campbell, J.E., McMartin, I., Normandeau, P.X., and Godbout, P.-M., 2019. Report of 2018 activities for the GEM-2 Rae project glacial history activity in the eastern Northwest Territories and the Kitikmeot and Kivalliq Regions, Nunavut; Geological Survey of Canada, Open File 8586, 16 p. <https://doi.org/10.4095/314741>

Craig, B.G., 1964. Surficial geology of east-central district of Mackenzie; Geological Survey of Canada, Bulletin 99, 52 p. <https://doi.org/10.4095/100618>

Stokes, C.R. and Clarke, C.D., 2003. The Dubawnt Lake palaeo-ice stream: evidence for dynamic ice sheet behavior on the Canadian Shield and insights regarding the controls on ice-stream location and vigour; *Boreas*, v. 32, p. 263–279.  
<https://doi.org/10.1111/j.1502-3885.2003.tb01442.x>

### **AUTHOR CONTACT**

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### ***COORDINATE SYSTEM***

Projection: Universal Transverse Mercator  
Units: metres  
Zone: 13  
Horizontal Datum: NAD83  
Vertical Datum: mean sea level

### ***BOUNDING COORDINATES***

Western longitude: 104°00'00"W  
Eastern longitude: 102°00'00"W  
Northern latitude: 64°00'00"N  
Southern latitude: 63°30'00"N

### ***SOFTWARE VERSION***

Data has been originally compiled and formatted for use with ArcGIS™ desktop version 10.7.1 developed by ESRI®.

### ***DATA MODEL INFORMATION***

#### **Surficial**

The Geological Survey of Canada (GSC) through the Geo-mapping for Energy and Minerals Program (GEM) has undertaken the Geological Map Flow to develop protocols for the collection, management (compilation, interpretation), and dissemination of surficial and bedrock geology data and map information. To this end, a data model has been created.

The Surficial Data Model (SDM) was designed using ESRI geodatabase architecture. The XML workspace document provided can be imported into a geodatabase, and the geodatabase will then be populated with the feature datasets, feature classes, tables, relationship classes, subtypes, and domains.

Shapefile and table (.dbf) versions of the data are included within the data. Column names have been simplified and the text values have been maintained within the shapefile attributes. The direction columns are numerical, to display rotation for points, and the symbol fields will hold the correct values to be matched to the appropriate style file.

For a more in depth description of the data model please refer to the official publication:

Deblonde, C., Cocking, R.B., Kerr, D.E., Campbell, J.E., Eagles, S., Everett, D., Huntley, D.H., Inglis, E., Parent, M., Plouffe, A., Robertson, L., Smith, I.R., and Weatherston, A., 2019. Surficial Data Model: the science language of the integrated Geological Survey of Canada data model for surficial geology maps; Geological Survey of Canada, Open File 8236, ver. 2.4.0, 1 .zip file.  
<https://doi.org/10.4095/315021>