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## Suggested Readings


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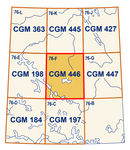
### Abstract

The oldest regional ice flow in the Nose Lake map area is southwestward. Subsequent northwestward flow is inferred from streamlined bedrock in central and eastern regions. The final and youngest flow was southwestward in these same regions, recorded by an abundance of streamlined landforms in till blanket and bedrock. The western edge of this late active ice lobe is defined by recessional moraines, part of the Twin Jugs moraine, also marking the eastern limit of a broad band of hummocky till from downwasting ice. During deglaciation, short-lived proglacial lakes, identified by raised beaches and deltas, developed within parts of the river valleys of the Mara (420 to 410 m elevation), Hackett (445 to 395 m), and Storak (440 to 415 m). Lakes also formed west of Nose Lake (490 to 430 m elevation) and in the Contwoyto-Pellatt-Ghurka lake basins (470 to 450 m). Orientation of many eskers, associated subglacial meltwater corridors, and sheet drainage is variable, but can be perpendicular to local ice flow.

### Résumé

Le plus ancien écoulement glaciaire régional dans la région cartographique de Nose Lake était dirigé vers le sud-ouest. Un écoulement subséquent vers le nord-ouest est déduit des formes de relief profilées du substratum rocheux dans les régions du centre et de l'est. L'écoulement final, le plus récent, était dirigé vers le sud-ouest dans ces mêmes régions, comme en témoigne l'abondance de formes de relief profilées dans la nappe de till et le substratum rocheux. La bordure ouest de ce lobe glaciaire actif à un stade tardif est définie par des moraines de retrait et une partie de la moraine de Twin Jugs, qui marque également la limite est d'une large bande de till bosselé laissé par la fonte du glacier. Au cours de la déglaciation, des lacs proglaciaires de courte durée, qu'on reconnaît à la présence de plages et de deltas soulevés, se sont formés dans des parties des vallées des rivières Mara (de 420 à 410 m d'altitude), Hackett (de 445 à 395 m) et Storak (de 440 à 415 m). Des lacs se sont également formés à l'ouest du lac Nose (de 490 à 430 m d'altitude) et dans les bassins des lacs Contwoyto, Pellat et Ghurka (de 470 à 450 m). De nombreux eskers, les couloirs d'eau de fonte sous-glaciaires associés, ainsi que les traces d'écoulement en nappe des eaux présentent une orientation variable, mais peuvent être perpendiculaires à l'écoulement glaciaire local.


**National Topographic System reference and index to adjoining published Geological Survey of Canada maps**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# CANADIAN GEOSCIENCE MAP 446

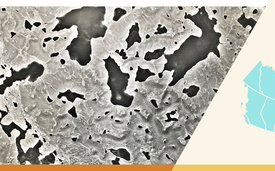
## RECONNAISSANCE SURFICIAL GEOLOGY

# NOSE LAKE

Nunavut–Northwest Territories

NTS 76-F

**1:125 000**



Geological Survey of Canada
Canadian Geoscience Maps

Canada

**Author: D.E. Kerr**

Geology by D.E. Kerr based on airphoto interpretation in 2020 and 2021 of 1:60 000 scale photos taken in August 1957; striations from Campbell et al., 2021 and unpublished field manuscript map by W. Blake Jr., Operation Bathurst, 1962

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

Geomatics by L. Robertson

Cartography by D. Viner

Scientific editing by L. Ewert

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

Map projection Universal Transverse Mercator, zone 12 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


CANADIAN GEOSCIENCE MAP 446

RECONNAISSANCE SURFICIAL GEOLOGY

NOSE LAKE

Nunavut–Northwest Territories

NTS 76-F

1:125 000


2 0 2 4 6 8 10 km

Mean magnetic declination 2022, 12°38'E, decreasing 6.8' annually
Readings vary from 11°40'E in the NE corner to 13°29'E in the SW corner of the map.

This map is not to be used for navigational purposes.

Title photograph: Hummocky till with morainal ridges, Nunavut.
Photo from the National Air Photo Library, NAPL photo A15778-153

The Geological Survey of Canada welcomes corrections or additional information from users (gscpublications-cgcpublications@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/).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CANADIAN GEOSCIENCE MAP 446

RECONNAISSANCE SURFICIAL GEOLOGY

NOSE LAKE

Nunavut–Northwest Territories

NTS 76-F


## QUATERNARY

### HOLOCENE

#### POSTGLACIAL ENVIRONMENT

Isn — **Snowpack, icing:** ice and snow accumulations along creeks and small rivers; variable thickness; observed on air photographs taken in August, 1957.

O — **Organic deposits, undifferentiated:** peat bogs and muskeg; variable thickness but generally less than 2 m; formed predominantly by the accumulation of vegetative material in bogs; occur in depressions; may contain ice-wedge polygons, generally underlain by till or glaciolacustrine sediments; small unmapped organic deposits occur in most map units.

E — **Eolian sediments, undifferentiated:** fine to medium sand; variable thickness; deposited by wind; active and stabilized areas; may contain dunes and blowouts, derived primarily from glaciofluvial and glaciolacustrine sediments.

C — **Colluvial deposits, undifferentiated:** diamicton; variable thickness; predominantly derived from till; deposited by gravity-induced movement and remobilized along steep slopes and bedrock escarpments.

**ALLUVIAL SEDIMENTS:** silt, sand, and gravel deposited by modern streams and rivers since deglaciation.

Ap — **Floodplain sediments:** silt, sand, gravel, and cobbles; variable thickness; deposits related to Holocene drainage regime; seasonally flooded; more elevated surfaces may exhibit paleochannels and ice-wedge polygons.

Af — **Fan sediments:** silt, sand, and gravel; variable thickness; forming a fan-shaped deposit by past and present intermittent streams; locally dissected by postglacial streams.

At — **Terraced sediments:** silt, sand, and gravel; 3 to 5 m thick; forming raised terraces above modern rivers; confined to valleys; surfaces may exhibit paleochannels and ice-wedge polygons.

A — **Alluvial sediments, undifferentiated:** fine to coarse sand with minor gravel; 3 to 10 m thick; generally associated with combinations of smaller floodplains and terraces.

**LACUSTRINE SEDIMENTS:** silt and sand, deposited in modern lakes and ponds.

Ld — **Deltaic sediments:** silt, sand, and gravel; variable thickness; deposited by modern and late Holocene rivers draining into lakes.

L — **Lacustrine sediments, undifferentiated:** silt and sand; variable thickness; associated with small drained or partially infilled lakes; may be vegetated.

### LAST GLACIATION (WISCONSIN)

#### PROGLACIAL AND GLACIAL ENVIRONMENT

**GLACIOLACUSTRINE SEDIMENTS:** sediments deposited at or beyond a retreating ice front by meltwater entering a short-lived glacial lake, as well as ponding of meltwater in stagnant-ice areas; may contain ground ice.

GLr — **Beach sediments:** sandy gravel, may contain cobbles and boulders; variable thickness; derived mainly from reworked glaciofluvial sediments and till; forming raised beach ridges and swales associated with short-lived glacial lakes associated with Nose, Pellatt, and Contwoyto lakes; may also include shingle beaches derived from exposed bedrock outcrops or colluvium.

GLd — **Deltaic sediments:** sand, gravel, and cobbles, stratified; up to 10 m thick; surfaces may exhibit paleochannels, ice-wedge polygons, and kettle lakes.

GL — **Glaciolacustrine sediments, undifferentiated:** silty clay, sand, gravel, and cobbles; 0.5 to 10 m or more thick; forming limited deposits along the Mara and Storak rivers; coarser material may reflect reworking by successively lower lake levels; may also form a discontinuous lag deposit of gravel and cobbles.

**GLACIOFLUVIAL SEDIMENTS:** sand and gravel; deposited by meltwater flowing from, or in contact with, glacier ice; may contain ground ice.

GFp — **Outwash plain sediments:** sand and gravel; 2 to 10 m or more thick; deposited proglacially or in front of ice margin; form a flat plain whose surface may exhibit kettle lakes, paleochannels, terraces, and ice-wedge polygons; may overlie bedrock locally.

GFc — **Ice-contact sediments:** sand to rounded gravel; massive to cross-stratified; 2 to 15 m or more thick; deposited beneath or at ice margin and subglacially; occur as hummocky terrain, locally forming silty badlands; may exhibit esker ridges, kettle lakes, ice-wedge polygons, and small raised beaches.

GFr — **Esker sediments:** sand, gravel, and cobbles; 2 to 15 m or more thick; form sinuous ridges with both sharp-crested and flat-topped ridges, may include flanking aprons, kames, kame terraces, and outwash plains; formed subglacially or englacially; locally overle unit Th.

GF — **Glaciofluvial sediments, undifferentiated:** sand, gravel, and minor silt; 1 to 20 m or more thick; may occur as combinations of small braided fans, outwash plains, eskers, and hummocky terrain with minor moraine ridges; may contain ground ice.

#### GLACIAL ENVIRONMENT

**GLACIAL SEDIMENTS (TILL):** unsorted glacial debris, diamicton; deposited beneath, or along the margin of glacier as lodgment till, meltout till, and gravity-flow deposits; may contain ground ice.

Th — **Hummocky till:** diamicton; 2 to 10 m or more thick; irregular to rolling terrain consisting of small to large mounds, rounded to irregular reticulated ridges, and major moraine ridges; distinguishes moraine overlying till blanket; contains erosional depressions, kames, kettles, ice-wedge polygons; may contain massive ground ice.

Tm — **Moraine complex:** diamicton; 2 to 10 m or more thick; forming interlobate or recessional moraine ridges, up to 10 km long, within larger Th map units; may contain unmapped ice-contact sediments with small kettle lakes.

Tr — **Ridged till:** diamicton, sand, gravel; 0.5 to 2 m thick; contains minor ribbed and other minor moraine ridges, varying in orientation from parallel to transverse to ice flow; includes deposits too small to be mapped and may be associated with glaciofluvial sediments, till veneer, and bedrock.

Tv — **Till veneer:** diamicton; 0.5 to 2 m thick; occurs as a discontinuous layer where underlying bedrock structure is generally visible; may exhibit erosional lags, and narrow linear subglacial meltwater corridors alternating with ribbons of till on bedrock; may include minor moraine ridges, small areas of bedrock outcrop, and till blanket.

Tb — **Till blanket:** diamicton; 2 to 5 m or more thick; occurs as gently undulating till plain; poorly to well defined streamlined landforms; locally dissected by eskers in subglacial meltwater corridors.

## PRE-QUATERNARY

R — **Bedrock, undifferentiated:** intrusive and metamorphic rocks; glacially polished, fluted bedrock, and washed bedrock surfaces (meltwater scours); may include small pockets of isolated till, glaciolacustrine, and glaciofluvial sediments.

**Stratigraphic units:** two map-unit designators separated by a slash (/) are used where a stratigraphic relationship is observed or confidently inferred (e.g. Th/Tb indicates hummocky till overlying till blanket). The map-unit polygon is coloured according to the overlying unit.

- Geological contact, defined
- Thermokarst depression
- Ice-wedge polygons
- Felsenmeer (W. Blake, Jr., unpublished field notes, Operation Bathurst Inlet, 1962)
- Solifluction lobe, orientation known
- Dune crest
- Terrace scarp
- Beach crest, may include erosional wave cut trim line
- Kettle
- Meltwater channel:
  - *Minor subglacial or proglacial, paleocurrent direction unknown*
  - *Minor subglacial or proglacial, paleocurrent direction known*
- Meltwater erosional depression
- Subglacial meltwater corridor margin:
  - *Approximate*
  - *Defined*
- Moraine ridge:
  - *Minor, may include other unspecified ridges*
  - *Major, recessional, unspecified*
- Ice-contact scarp
- Kame
- Esker ridge:
  - *Direction unknown*
  - *Direction known or inferred*
  - *Submerged in lake*
- Drumlinoid ridge:
  - *Buried, poorly defined*
  - *Large (1 = older, 3 = youngest)*
- Drumlin ridge
- Crag-and-tail:
  - *Buried, poorly defined*
  - *Large (1 = older, 2 = youngest)*
- Pre-crag ridge
- Fluted drift:
  - *Poorly defined, direction unspecified*
  - *Well defined, direction unspecified*
- Fluted bedrock:
  - *Poorly defined, buried, direction known*
  - *Well defined, direction known (1 = older, 2 = youngest)*
- Striation:
  - *Poorly defined, ice-flow direction known*
  - *Well defined, ice-flow direction unknown*
  - *Well defined, ice-flow direction known*
  - *Crossed (1 = older, 2 = younger)*
- Gossan (W. Blake, Jr., unpublished field notes, Operation Bathurst Inlet, 1962)
- Small outcrop
- Station location:
  - *Remote observation (W. Blake, Jr., unpublished field notes, Operation Bathurst Inlet, 1962)*
  - *Ground observation (Campbell et al., 2021)*