



## LEGEND

Some units and symbols shown in the legend may not appear on this map

## SURFICIAL DEPOSITS

## NONGLACIAL ENVIRONMENT

ORGANIC DEPOSITS: lichen-moss, sedge, and woody peat containing ice, up to 3 m thick; derived from the accumulation and preservation of vegetation in a wet reducing environment; produces flat, wet terrain

6c Tundra peat: thin deposit or veneer of mossy, fibrous peat with ice-wedge polygons; derived from tundra (lichen-heath-moss) vegetation

6b Fen peat: wet, dense, amorphous sedge peat, minor forest peat; includes string fen, palsas, and floating vegetation mats on lakes; occurs as infillings in relict and modern drainageways; derived from sedge and moss vegetation

6a Forested bog peat: spongy, stratified amorphous, fibrous, and woody peat with some charcoal layers; characterized by raised bog with irregular thermokarst depressions up to 3 m deep; derived from spruce forest vegetation; contains some areas of fen peat

5 FLUVIAL DEPOSITS (modern alluvium): cross-stratified sand and rounded gravel, deposited by running water in modern streams; commonly less than 3 m thick; occurs as floodplains, point bars, river islands, and deltas

## PROGLACIAL AND GLACIAL ENVIRONMENT

LACUSTRINE/GLACIOLACUSTRINE DEPOSITS: silt-clay with granules overlain, and in places underlain, by sand; deposited in littoral and offshore environments of glacial Lake Agassiz and enlarged versions of modern lakes

4b Littoral sand: well sorted, horizontally stratified sand; generally occurs as a featureless blanket several metres thick, commonly overlain by peat and swamp, or as thin irregular deposits over rock and till. Beach ridges composed of sand, gravel, or rounded cobbles are widespread below 400 m (1300 ft) elevation

4a Deepwater pelite: silty clay with granules and dropstones; generally massive, locally grading to varves; slightly calcareous; commonly less than 3 m thick and intercalated with till

FLUVIAL/GLACIOFLUVIAL DEPOSITS: distal, proglacial, and ice-contact deposits; sorted, mainly stratified sand and minor gravelly sand deposited by flowing water associated with the melting of glacial ice; form, texture, and structure vary

3c Alluvium: cross-stratified sand and gravelly sand; occurs as overbank deposits, terraces, and abandoned floodplains

3b Outwash deposits: cross-stratified sand and gravel, broken by braided channels and kettle depressions; occurs as aprons and terraces; may grade to unit 3c in meltwater channels

3a Kame and esker deposits: kame deposits consist of sorted, poorly stratified sand, with some gravel; occurs as isolated hummocks, irregular mounds flanking eskers, and arcuate moraines which mark outer margins of ice lobes. Esker and interlobate kame deposits consist mainly of stratified, well sorted sands in prominent ridges 10 to 20 m high; formed in or at the mouths of tunnels in glacier ice, particularly where subglacial tunnels debouched into lakes; interlobate kames mark margins of former ice flow regimes. Surfaces of some deposits have been reworked into beaches by lacustrine processes

## GLACIAL ENVIRONMENT

2 BOULDERY TILL: boulder-rich till with sandy matrix; many deposits have openwork or sedimentary structures indicative of water sorting; occurs mainly as belts of rib moraine or as irregular, pitted topography; also occurs as a blanket till deposit where large amounts of frost-shattered rock have been incorporated (northern part of 64 N) and as a till veneer over bedrock. This unit is associated with brittle glacier ice or impeded ice flow

SANDY TILL: chiefly unsorted, sandy textured debris; olive-grey; felsic composition; surfaces may show signs of washing (trimlines, restructuring of upper layers, or winnowing of fines) by glaciolacustrine processes. This unit was deposited beneath or at the front of moving glaciers

1b Blanket and thick till deposits: sandy till, commonly with indistinct and discontinuous sedimentary structures in upper part; 1 to 10 m thick; occurs as a till blanket with fluted and drumlinized zones and as end moraines. De Geer moraines (symbolized) consist of sandy till containing interbeds of lacustrine silt and sand

1a Till veneer: thin (less than 1 m thick) sandy till overlying rock and interspersed with areas of thick till, lacustrine sediment, and outcrops. Underlying rock structure is visible on air photographs

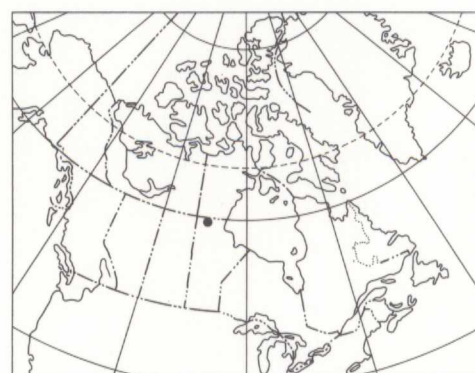
## BEDROCK

R ROCK: bare or vegetated igneous and metamorphic rocks; surfaces are commonly pitted but polished surfaces and striae are preserved locally; unit includes undifferentiated patches of erratic boulders, till, and lacustrine sediment

Frost shattered rock (symbolized) occurs as stacked angular blocks in wet depressions and around margins of present and former lakes. Surfaces are unweathered

- Geological boundary.....
- Small outcrop.....
- Blockfield (concentration of boulders).....
- Drumlins, flutings.....
- Striation (ice flow direction known).....
- Lineation caused by floating ice.....
- Moraine ridge crest.....
- De Geer moraines.....
- Rib moraine.....
- Hummocky (morainic) terrain.....
- Esker or ridged interlobate kame.....
- Washed esker.....
- Meltwater channel (large, small, sidehill).....
- Beach.....
- Trimline.....
- Delta.....
- Stony earth circles.....
- Dunes.....
- Ground observation and sampling point.....
- Composition and/or genesis of material uncertain.....?

Note: Symbols in red may form geological boundaries



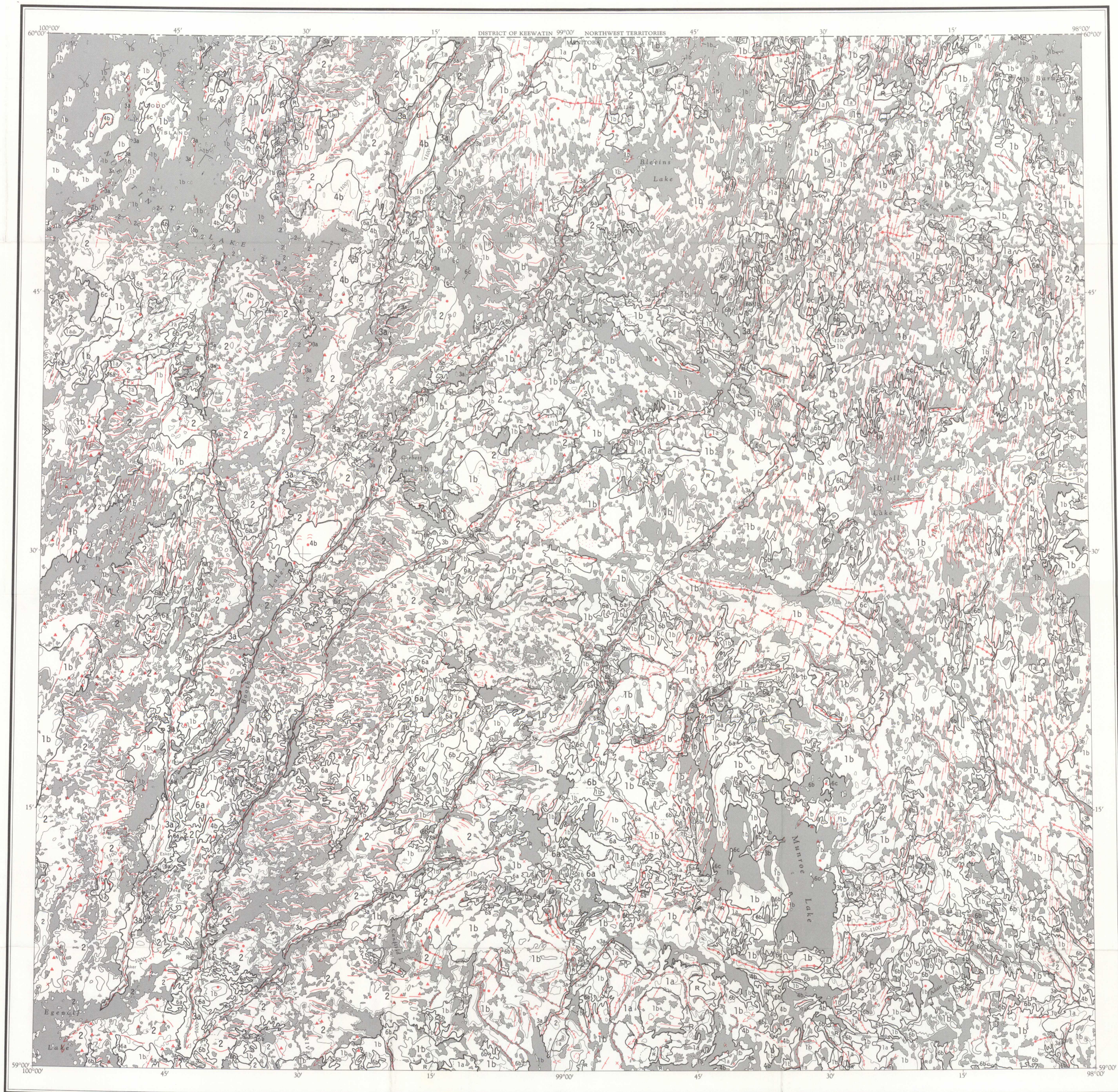
INDEX MAP

Geology by F.M. Nixon, L.A. Dredge, and R.J. Richardson, 1980

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

Base map at the same scale published by the Surveys and Mapping Branch in 1963



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

MAP 20-1981  
SURFICIAL GEOLOGY

MUNROE LAKE  
MANITOBA

Scale 1:250 000

Kilometres 6 0 6 12 18 Kilometres

Miles 4 0 4 8 Miles

Universal Transverse Mercator Projection

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Elevations in feet above mean sea level

OCT 13 1982

GEOLOGICAL SURVEY  
COMMISSION GÉOLOGIQUE

Copies of the topographical edition of this map may be obtained from the Canada Map Office, Department of Energy, Mines and Resources, Ottawa, Ontario K1A 0E9

Magnetic declination 1982 varies from 12°33.8' easterly at centre of west edge to 8°41.1' easterly at centre of east edge. Mean annual change -18.3'

64 M	64 N	64 O
MAP 19-1981	MAP 20-1981	
64 L	64 K	64 J
MAP 18-1981	MAP 17-1981	
64 E	64 F	64 G

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

MAP 20-1981

MUNROE LAKE  
MANITOBA

Canada