

Legend

Mesoproterozoic rocks

Mackenzie dikes (unit 25)

Paleoproterozoic rocks

Granitic pegmatite (ca. 1773 Ma)

a) K-feldspar or albite dominant; locally garnet, beryl, tourmaline, magnetite, apatite, zircon, chalcocite, boronite and chalcocite bearing

b) albite dominant (alkalite)

Biotite granite, pink monzogranite and other K-feldspar-rich granitoids

a) biotite granitic rocks

b) pink monzogranite

c) porphyritic K-feldspar granite

Thorsteinson Lake pluton (ca. 1829 Ma), monzogranite; locally fluorite bearing

Late intrusive rocks (ca. 1829 Ma; Rayner and Corrigan, 2004)

a) K-feldspar-megacrystic monzogranite: pink; magnetic; biotite hornblende bearing

b) gabbro, diorite and quartz diorite

Magnetite-bearing sedimentary rocks

a) feldspathic arenite and lesser quartzite

b) polymictic conglomerate

Magnetiferous sedimentary rocks

a) conglomerate: polymictic, clast supported with arkosic sandstone matrix

b) quartz and feldspathic arenite: well-bedded

Granite-granodiorite-tonalite (ca. 1849 Ma)

Granite, granodiorite and tonalite

a) tonalite-granodiorite: locally grey to buff; biotite hornblende bearing; locally magnetiferous with biotite aggregates

b) gneissic tonalite: locally plagioclase phytic

c) megacrystic granite

d) feldspathic porphyry

Chipewyan batholith (ca. 1865 to 1855 Ma; Ray and Wanless, 1980)

K-feldspar-megacrystic granite

Partridge Breast Lake assemblage (>1883 to 1860 Ma)

Intermediate, mafic and ultramafic intrusive rocks

a) leucodiorite, quartz diorite, dark grey; magnetiferous

b) diorite: dark grey; hornblende phytic; biotite aggregates

c) gabbro and leucogabbro

d) pyroxenite dikes and sills

Note: Legend boxes are coloured only if the unit or subunit occurs on this map sheet.

Symbols

Planar Structures

Bedding: tops unknown, known, overturned

Crenulation cleavage: generation, sense unknown

Dike; vein

Fault plane: sinistral

Flow contact: tops unknown

Fold axial plane: generation unknown, 1, 2, 3

Foliation: generation unknown, 1, 2, 3

Gneissosity: generation unknown, 1, 2

Igneous layering: tops unknown, known

Pillow: tops known

Shear: generation, sense unknown

Shear band: generation unknown, dextral

Shear zone: sense of movement unknown, normal, dextral, reverse

Linear Structures

Fold axis (unknown symmetry): generation unknown, 2

Fold axis (symmetrical): generation unknown, 2

Fold axis (b-symmetry): generation unknown, 1, 2

Fold axis (p-symmetry): generation unknown, 2, 3

Intersection lineation: generation 1, 2

L-fabric: generation unknown, 1, 2

Mineral lineation: rodding

15 Greywacke, mudstone and polymictic conglomerate; locally interbedded with units 13, 14, and 16, and magnetiferous with amuscovite, staurolite, andalusite and sillimanite

15a a) greywacke and mudstone: weakly magnetiferous, muscovite bearing sedimentary, staurolite, andalusite, garnet

b) polymictic conglomerate

14 Mafic to intermediate volcanoclastic and epiclastic rocks with minor flows

a) andesite

b) mafic tuff and epiclastic rocks: hornblende phytic

c) volcanic conglomerate: heterolithic, clast supported

Intermediate to felsic volcanic rocks: tuff and resedimented tuff

a) dacite

b) rhyolite: quartz phytic and quartz-feldspar phytic

Massive and pillowed amygdaloidal basalt: locally with minor silicate- and sulphide-facies iron formation

Feldspathic and aluminous migmatitic greywacke, minor conglomerate and calcisilicate

a) psammite: grey, massive to crudely bedded; locally with sulphide-facies iron formation

b) pelitic: migmatitic, foliated; contains garnet and sillimanite; locally with sulphide-facies iron formation

c) conglomerate

d) calcisilicate

Northern Indian Lake pluton (ca. 1890 Ma; Martins and MacFarlane, 2016)

Felsic to intermediate intrusive rocks

a) granodiorite: strongly foliated with metasedimentary and gabbroic xenoliths

b) quartz monzonite to quartz diorite: porphyritic; biotite hornblende

Pyroxenite-hornblende, gabbro, leucogabbro, diorite, quartz diorite to tonalite: layered with multiple injections

Pukatawagan Bay assemblage (>1988 to 1890 Ma)

Intermediate, mafic and ultramafic rocks

a) gabbro, locally diabase, rare quartz diorite

b) gabbro with lesser gabbroic and anorthositic leucogabbro

c) peridotite

Psammite and pelitic greywacke: minor iron formation, graphitic and sulphidic layers

Basalt and derived amphibolite: massive to pillowed, minor pillow-fragment breccias

Greywacke paragneiss

Churchill River assemblage (>1988 Ma)

Pillowed basalt with intervening greywacke: rare beds of clast-supported conglomerate and thinly bedded mudstone

Tonalite-granodiorite-granite gneiss: variably migmatitic with rafts of paragneiss

Pelitic to quartzofeldspathic: migmatitic paragneiss: rare volcanic interlayers

Archean rocks

Granodiorite gneiss (ca. 2520 Ma; Kremer et al., 2009)

Planar Structures

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Dike; vein

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Flow contact: tops unknown

Fold axial plane: generation unknown, 1, 2, 3

Foliation: generation unknown, 1, 2, 3

Gneissosity: generation unknown, 1, 2

Igneous layering: tops unknown, known

Pillow: tops known

Shear: generation, sense unknown

Shear band: generation unknown, dextral

Shear zone: sense of movement unknown, normal, dextral, reverse

Linear Structures

Fold axis (unknown symmetry): generation unknown, 2

Fold axis (symmetrical): generation unknown, 2

Fold axis (b-symmetry): generation unknown, 1, 2

Fold axis (p-symmetry): generation unknown, 2, 3

Intersection lineation: generation 1, 2

L-fabric: generation unknown, 1, 2

Mineral lineation: rodding

Domain boundary

Fault: defined, approximate

Geological contact: defined, approximate*

Limit of mapping

* Some contacts are defined according to residual total field aeromagnetic anomalies (Coye and Kiss, 2008)

Mineral Occurrence

Az - azurite

Bn - barroisite

Cc - chalcocite

Grt - garnet

Mgt - magnetite

Mlc - malachite

Py - pyrite

Ttn - titanite

Building

Tower

Light road

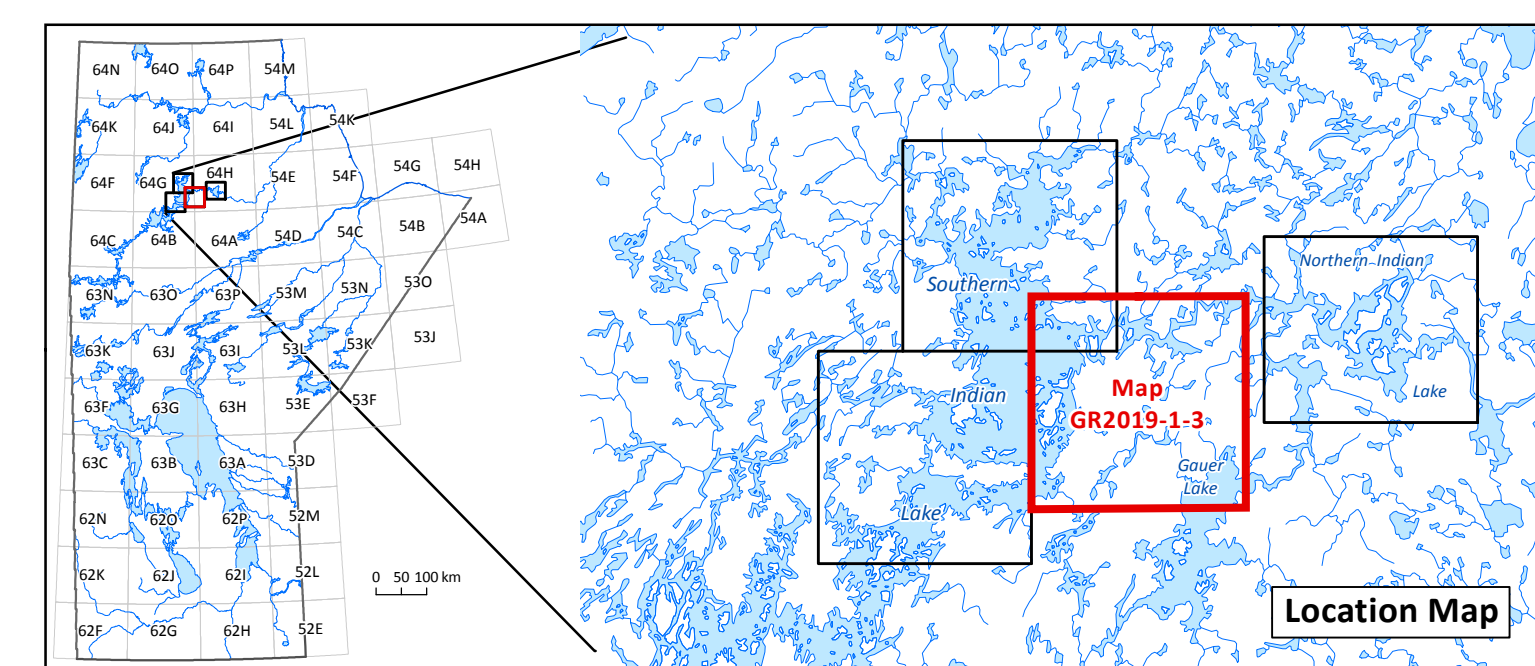
Trail

Runway

North arrow

Map GR2019-1-3

Bedrock geology of the Southern Indian Lake area (southeast), Manitoba (parts of NTS 64G1, 8, 64H4, 5)



Geology by T. Martins (2015, 2016), P.D. Kremer (2009), M.T. Corkery (1979, 1993, 2009) and P.G. Lenton (1979, 1980)

Cartography by M.E. McFarlane, M. Timcoe, S.K.Y. Lee and L.E. Chackowsky

Suggested reference:

Martins, T., Kremer, P.D., Corkery, M.T. and Lenton, P.G.: 2019: Bedrock geology of the Southern Indian Lake area (southeast), Manitoba (parts of NTS 64G1, 8, 64H4, 5); in Geology of the Southern Indian Lake area, north-central Manitoba (NTS 64G1, 2, 7-10, 64H3-6); Manitoba Growth, Enterprise and Trade, Manitoba Geological Survey, Geoscientific Report GR2019-1, Map GR2019-1-3 of 4 maps, scale 1:50 000.

References:

Coye, M. and Kiss, F.: 2008: Partridge Breast Lake aeromagnetic survey, Manitoba; Geological Survey of Canada, Open Files 5922 to 5929 and Manitoba Science, Technology, Energy and Mines, Manitoba Geological Survey, Open Files OF2008-15 to OF2008-30, scale 1:50 000.

Kremer, P.D., Rayner, N. and Corkery, M.T.: 2009: New results from geological mapping in the west-central and northeastern portions of Southern Indian Lake, Manitoba (parts of NTS 64G1, 2, 8, 64H4, 5); in Report of Activities 2009, Manitoba Innovation, Energy and Mines, Manitoba Geological Survey, p. 94-107.

Martins, T. and McFarlane, C.R.M.: 2016: Evidence of juvenile-arc magmatism at Northern Indian Lake: implications for base-metal exploration in north-central Manitoba (parts of NTS 64H3, 5, 6); in Report of Activities 2016, Manitoba Growth, Enterprise and Trade, Manitoba Geological Survey, p. 133-141.

Ray, G.E. and Wanless, R.K.: 1980: The age and geological history of the Wollaston, Peter Lake and Rottenstone domains in northern Saskatchewan; Canadian Journal of Earth Sciences, v. 17, p. 333-347.

Rayner, N. and Corrigan, D.: 2004: Uranium-lead geochronological results from the Churchill River-Southern Indian Lake transect, northern Manitoba; Geological Survey of Canada, Current Research 2004-F1, 14 p.

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