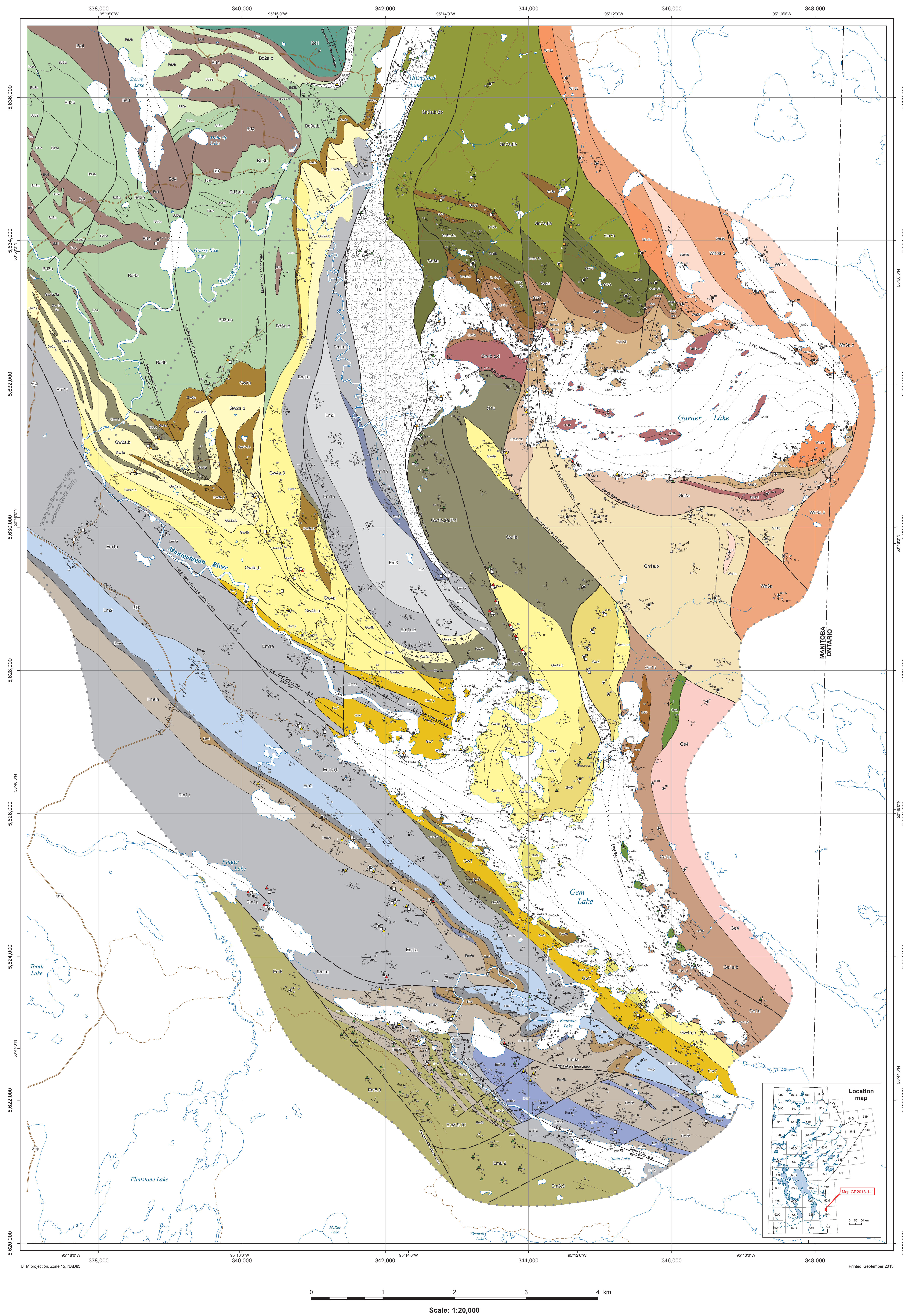




Geology and structure of the Garner–Gem lakes area, Rice Lake greenstone belt, southeastern Manitoba (parts of NTS 52L11, 14)



POST-TECTONIC DIKES

- Pt1 Gabbro, diorite, quartz diorite; narrow dikes with thick chilled margins

UNDIVIDED TECTONITE

- Ust1 Phyllonite, mylonite; uncertain precursor; variable chlorite-sericite-ankerite alteration

EDMUNDS ASSEMBLAGE

- Em10 Quartz-porphyr rhyolite; dikes and sills

- Em9 Gabbro, diorite, quartz diorite; equigranular to sparsely plagioclase-phyric; dikes and sills

Upper facies association

- Em8 Basalt, basaltic andesite and andesite flows; aphyric; sparsely amygdaloidal

- Em7 Oligomitic pebble to boulder conglomerate; mostly felspar-phyric dacite clasts; poorly stratified

- Em6 Greywacke-mudstone turbidite; medium- to coarse-grained, pebbly quartz-litic greywacke; medium- to very thick-bedded

- Em5 Polymictic cobble to boulder conglomerate; abundant tonalite clasts

Lower facies association

- Em4 Greywacke-mudstone-iron formation turbidite; thin-bedded

- Em3 Quartz-litic greywacke; generally massive; rare pebble lags and mudstone beds

- Em2 Polymictic pebble to cobble conglomerate; mostly intra-basinal clasts; locally well-stratified

- Em1 Greywacke-mudstone turbidite; fine- to medium-grained feldspathic greywacke

- Em1a Very thin- to medium-bedded (beds typically <10 cm); siliceous mudstone interbeds

- Em1b Thin- to thick-bedded (beds typically 5–30 cm); minor pebble conglomerate interbeds

WANIPIGOW RIVER PLUTONIC COMPLEX

- Wn3 Orthogneiss

- Wn2 Biotite-granodiorite, granite; foliated

- Wn1 Hornblende-biotite tonalite, granodiorite; foliated

- Wn1a Equigranular

- Wn1b Porphyritic

GEM ASSEMBLAGE

- Ge4 Quartz-feldspar porphyry granite

- Ge3 Gabbro; mesocratic; equigranular

- Ge2 Intermediate to felsic volcaniclastic and epidiastic rocks

- Ge1 Andesite and dacite breccia; tuff breccia, lapilli tuff, felspar-phyric

- Ge1a Volcanic pebble to boulder conglomerate, sandstone, mudstone; mainly andesite and dacite clasts; locally well-bedded

East association

- Gw7 Intermediate to felsic crystal-litic lapilli tuff, minor tuff breccia; buff to white to light grey; felspar-phyric

- Gw6 High-silica rhyolite; dark grey to black; shallow subaqueous lava flow

- Gw5 Rhyolite intrusion breccia, white to pink; blue-quartz- and felspar-phyric; disseminated to fracture-controlled alteration

- Gw4 Dacite and rhyolite; buff to grey to white; aphyric to quartz- and/or felspar-phyric

- Gw3 Crystalline lapilli tuff, lapillstone; minor crystal tuff, tuff breccia; locally stratified

- Gw2 Coherent and brecciated flowstones; patchy sericite-pyrite alteration

- Gw1 Flow-banded dacite

- Gw1a Crystalline tuff, lapilli tuff; abundant quartz crystals; minor breccia, tuff breccia; includes welded ignimbrite

- Gw1b Lapilli tuff, lapillstone; monolithic to heterolithic; includes mafic lapilli

- Gw1c Volcanic sandstone, siliceous mudstone; local thick interbeds of coarse volcaniclastic rocks; sericite-pyrite alteration

Gabbro, diorite

- Gd3 Equigranular; locally amygdaloidal

- Gd2 Plagioclase porphyritic

Epidiastic rocks

- Gw2 Feldspathic volcanic greywacke, mudstone; interbedded siliceous mudstone, volcanic pebble conglomerate

- Gw1 Volcanic pebble to boulder conglomerate; polymictic; minor volcanic sandstone interbeds

Basalt and basaltic andesite; variably plagioclase-phyric

- Gw1a Pillowed, massive and brecciated flows; quartz amygdaloidal; associated volcaniclastic rocks

- Gw1b Monolithic breccia, tuff breccia, lapilli tuff; possible coherent flows

BIDOU ASSEMBLAGE

- Bd4 Gabbro

- Bd3 Dacitic volcaniclastic rocks; felspar-phyric; locally stratified (The Narrows formation)

- Bd2 Feldspathic greywacke and mudstone (Stormy Lake formation)

- Bd1 Includes minor heterolithic volcanic conglomerate, dacite tuff breccia and lapilli tuff, and oxide-facies iron formation

- Bd1a Tholeiitic basalt flows; massive, pillowed and brecciated; amygdaloidal (Gunnar formation)

GARNER ASSEMBLAGE

- Gn8 Gabbro, diorite

- Gn7 Basalt, basaltic andesite and andesite flows; tholeiitic and calcalkalic

- Gn6 Komatiite and komatiitic basalt flows

- Gn5 Volcaniclastic and epidiastic rocks

- Gn4 Garmer Lake intrusive complex

- Gn3 Intermediate to felsic volcaniclastic rocks; locally stratified

- Gn2 Epidiastic rocks

- Gn1 Intermediate to felsic volcaniclastic rocks

- Gn1a Breccia, tuff breccia; heterolithic to monolithic; mostly dacite clasts; stratified

- Gn1b Rhyolite crystal-litic; unstratified to faintly stratified

Symbols

Planar structures

- Bedding: tops unknown, upright, overturned

- Flow contact: tops unknown, known, overturned

- Pillows: tops known, overturned

- Foliation: generation unknown, 1, 2, 4

- Crenulation cleavage: generation 3, 4

- Shear-band cleavage: generation 4, dextral

- Gneissosity: generation 2

- Fault

- Fold-axial plane: generation unknown, 2, 4

Linear structures

- Fold axis, symmetry: unknown: generation 2, 4

- Fold axis, Z asymmetry: generation unknown, 2, 4

- Fold axis, S asymmetry: generation 2, 4

- Fold axis, symmetric: generation 1

- Intersection lineation: generation 2, 3

- L-fabric: generation 2, 4

Alteration

- ▲ Ankerite

- ▲ Carbonate

- ▲ Chlorite

- ▲ Epidote

- ▲ Sericite

- ▲ Silica

- 1: ankerite

- 2: ankerite-chlorite

- 3: carbonate

- 4: carbonate-sericite

- 5: chlorite

- 6: chlorite-ankerite

- 7: chlorite-actinolite

- 8: chlorite-ankerite

- 9: chlorite-carbonate

- 10: chlorite-epidote

- 11: chlorite-sericite

- 12: epidote

- 13: epidote-carbonate

- 14: sericite

- 15: sericite-ankerite

- 16: sericite-chlorite

- 17: silica

- 18: silica-epidote

- 19: silica-K-feldspar

Geological contacts

- Contact: approximate, underwater

- Shear zone/fault: defined, underwater

- Iron formation

- Fold-axial trace: defined

- Anticline, overturned anticline

- Overturned syncline

Cultural features

- Provincial road 314

- Road

- Trail

- Limit of mapping

- Provincial boundary

- Trench

- Gunnar mine (No.1 shaft)

Mineral occurrence

- As - arsenopyrite

- Au - gold

- Ep - epidote

- Gt - garnet

- Hb - hornblende

- Mo - molybdenite

- Mt - magnetite

- Po - pyrrhotite

- Py - pyrite

- Tr - tourmaline

Vein

- Quartz

- Ankerite

Geology by:

S.D. Anderson (2002–2007)

Cartography by: M.E. McFarlane

SUGGESTED REFERENCE FOR MAP GR2013-1-1

Anderson, S.D. 2013. Geology and structure of the Garner-Gem lakes area, Rice Lake greenstone belt, southeastern Manitoba (parts of NTS 52L11, 14); in

Geology of the Garner-Gem lakes area, Rice Lake greenstone belt, southeastern Manitoba (parts of NTS 52L11, 14) Manitoba Mineral Resources, Manitoba Geological Survey, Geoscientific report GR2013-1, Map GR2013-1-1, scale 1:20 000.

