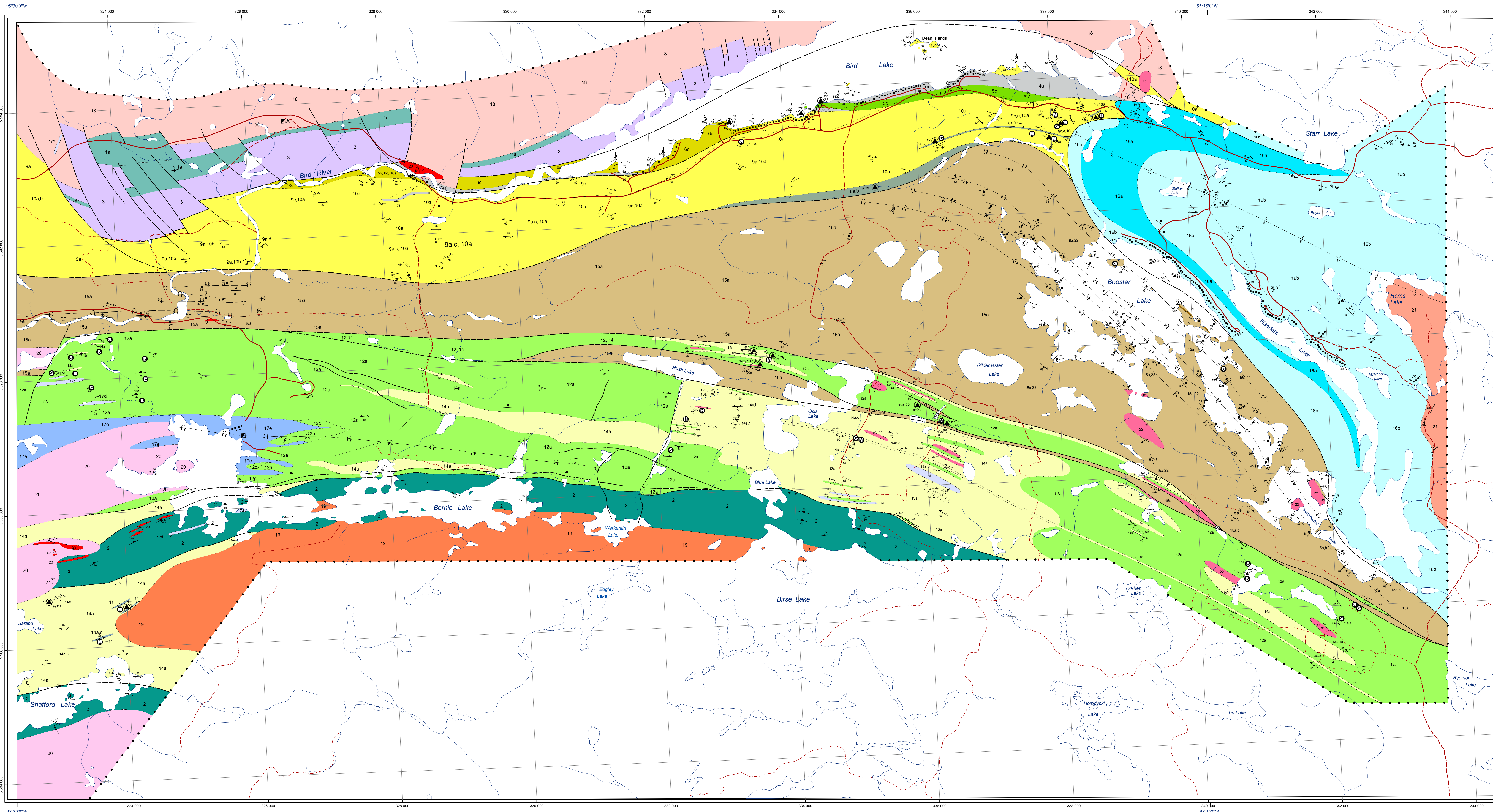


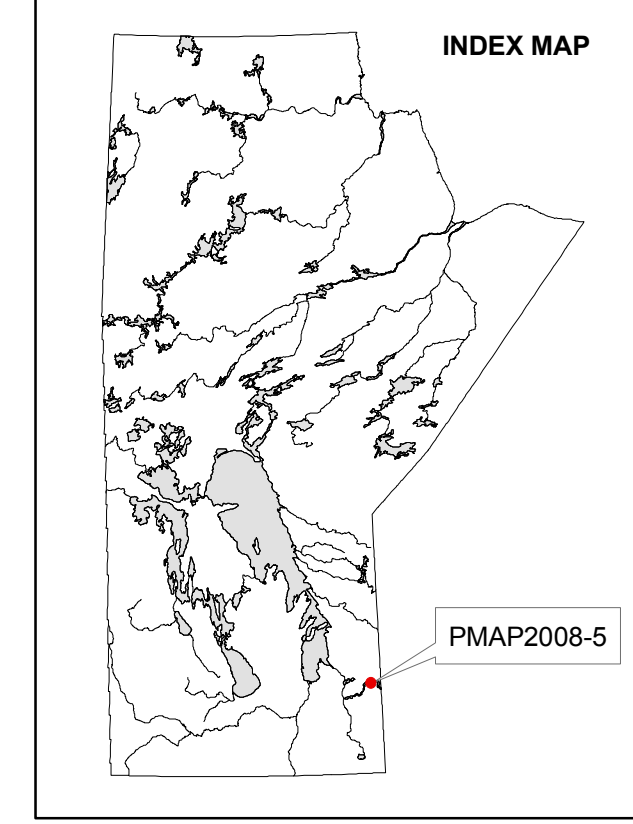


# Geology of the east part of the Bird River area, southeastern Manitoba (part of NTS 52L6)



- NEOARCHAIC INTRUSIVE ROCKS**
- 23 Quartz-pyroxene porphyry, felsic rocks of uncertain age
  - 22 Pegmatite, pegmatitic granite (includes TANCO pegmatite, 2640 ±1 Ma)
  - 21 Granite, granodiorite (Marjane Lake pluton, 2645 ±1.3 Ma)
  - 20 Granite, granodiorite (La C du Bonnet Batholith, 2650 ±2 Ma and related intrusions)
  - 19 Tonalite, granodiorite (Brose Lake pluton, 2723 ±0.7 Ma)
  - 18 Quartz diorite, granodiorite, granite (Maskwa Lake Batholith 2723 ±0.7 Ma, 2644 ±1.2 Ma, 2652 ±1.1 Ma)
- Mafic rocks (<2731 Ma except unit 17d, which includes possibly older synvolcanic intrusions)**
- 17a Diabase, pyroxene-hornblende gneiss, quartz-amphibolite
  - 17b Diabase, aphyric
  - 17c Gabbro, mesocratic
  - 17d Gabbro, mesocratic to melanocratic (synvolcanic and intrusions of unknown age)
  - 17e Gabbro, diorite, quartz diorite (includes TANCO gabbro intrusion 2733 ±0.8 Ma)
- SEDIMENTARY ROCKS**
- 16a Flinders Lake Formation (<2097 ±18 Ma)
  - 16b Pyroxene conglomerate
  - 16c Arinite, telopachite wacke
  - 16d Booster Lake Formation (<2712 ±17 Ma)
  - 15a Greywacke, siltstone, felsic wacke, minor argillite and cherty siltstone
  - 15b Intermediate to felsic paragneiss
  - 15c Volcanic-derived conglomerate
- ARC-TYPE VOLCANIC AND SEDIMENTARY ROCKS**
- 14a Bernice Lake Formation (2726.8 ±1.1 Ma)
  - 14b FELSIC VOLCANIC ROCKS AND DERIVED GNEISS AND SCHIST
  - 14c Diabase and rhyolite, aphyric to porphyritic, related breccia and intrusive rocks
  - 14d Felsic gneiss
  - 14e Altered felsic volcanic rocks (calcification hornblende agmatite)
- INTERMEDIATE TO FELSIC VOLCANIC FRAGMENTAL ROCKS**
- 13a Heterolithic volcanic breccia, lapilli tuff
  - 13b Intermediate to felsic tuff, locally reworked
- MAFIC TO INTERMEDIATE VOLCANIC ROCKS**
- 12a Basalt and andesite, aphyric to sparsely pyroxene-phryic, locally pillowed (a breccia); related amphibolite and gneiss (agmatite)
  - 12b Monolithic volcanic breccia - silicified basalt clasts in mafic tuff matrix, locally associated with silicified pillowed basalt
  - 12c Heterolithic intermediate tuff and lapilli tuff, minor breccia
  - 12d Altered basalt, derived gneiss (calcification aspatite hornblende agmatite)
- SEDIMENTARY ROCKS**
- 11 Oxide facies iron formation
  - 10a Peterson Creek Formation (2731.1 ±1 Ma)
  - 10b FELSIC VOLCANIC FLOWS AND RELATED INTRUSIVE ROCKS
  - 10c Rhyolite, diorite, aphyric to sparsely pyroxene-phryic, massive to fragmental, related intrusive rocks
  - 10d Rhyolite with spherulitic domains of uncertain origin
  - 10e Diorth, aphyric to pyroxene-phryic, quartz amygdales a chlorite-amphibole alteration
- INTERMEDIATE TO FELSIC VOLCANIC FRAGMENTAL ROCKS**
- 9a Heterolithic felsic lapilli tuff and volcanic breccia
  - 9b Monolithic felsic lapilli tuff and volcanic breccia
  - 9c Intermediate to felsic tuff, crystal tuff
  - 9d Andesite-diorite, aphyric to sparsely pyroxene-phryic, locally pillowed, related breccia
  - 9e Altered felsic volcanic rocks, silicified or with sedimentary detritus (hornblende agmatite and/or breccia)
- SEDIMENTARY ROCKS**
- 8a Oxide facies iron formation
  - 8b Sulphide facies iron formation
- Diverse Arc Basalt/Mag (2708 ±23 Ma)**
- FELSIC VOLCANIC AND RELATED FRAGMENTAL ROCKS**
- 7a Rhyolite, sparsely pyroxene-phryic, related fragmental rocks
  - 7b Rhyolite, spherulitic
  - 7c Felsic tuff and crystal tuff, locally reworked
- INTERMEDIATE TO FELSIC VOLCANIC FRAGMENTAL ROCKS**
- 6a Heterolithic intermediate volcanic breccia, matrix-supported, locally reworked
  - 6b Heterolithic felsic volcanic breccia, clast-supported, locally reworked
  - 6c Heterolithic intermediate volcanic breccia, clast-supported, locally reworked
- MAFIC TO INTERMEDIATE VOLCANIC ROCKS**
- 5a Andesite, aphyric, quartz-amphibolite, locally pillowed
  - 5b Basalt, aphyric, locally pillowed, related gneiss
  - 5c Basalt and andesite, aphyric to porphyritic, locally amygdaloidal and/or pillowed, locally altered (diorthic/orthopyroxene/orthopyroxene/orthopyroxene agmatite hornblende diorite)
- SEDIMENTARY ROCKS**
- 4a Chert, siliceous siltstone
  - 4b Chert, siliceous siltstone
  - 4c Oxide facies iron formation
  - 4d Carbonate (arketic + calcitic) / arketic siltstone, with chloritic schist laminae
  - 4e Polymictic conglomerate (derived from units 1 and 3 to 10)
- INTRUSIVE ROCKS**
- 3 Bird River Sill (2744.7 ±5.2 Ma)
  - 2a Diabase, gabbro, granite, andesite and gabbro
- MORB-TYPE MAFIC VOLCANIC ROCKS**
- 7 Southern MORB-type Formation
  - 1a Basalt, locally pillowed
  - 1b Northern MORB-type Formation
  - 1c Basalt, locally pillowed
  - 1d Basalt, pillowed and pyroxene-megacrystic

Map projection is Universal Transverse Mercator, zone 15, NAD83



### Symbols

#### Planar structures

- Bedding: tops unknown, upright, overturned
- Pillow: tops unknown, upright, overturned
- Foliation: generation unknown, 1st, 2nd
- Igneous layering
- Minor fold axial plane: generation unknown, 1st
- Shear zone
- Trench

#### Linear structures

- Fold axis, symmetrical: generation unknown, 1st
- Fold axis, generation unknown: asymmetrical S-shaped, Z-shaped
- L-fabric: mineral lineation
- L-fabric: clast elongation
- Axial trace of first generation anticline, overturned
- Axial trace of second generation anticline, upright
- Axial trace of first generation syncline, overturned

- Geological contact: approximate, assumed, inferred from aeromagnetic trends
- Limit of mapping
- Fault, inferred
- TANCO Mine
- Dumbarton Mine, inactive
- Maskwa Mine, inactive

- M mineralization: Au Gold, Py Pyrite, Pn Pyromorphite, CP Chalcopyrite, SH Sphalerite
- G Gossan
- E Epitaxial alteration
- Ch-Hb alteration
- Silicic alteration
- M Magnetic anomaly
- Provincial road
- Gravel road
- Track or trail
- Powerline

### NOTES

- Contacts of the Bird River Sill are based on Mealin (2006) and Cerny et al. (1981).
- The Eaglenest Lake Formation does not occur within the mapped area and is not included in this legend.

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### Geology by:

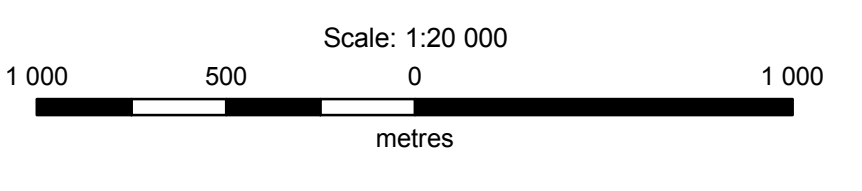
#### H.P. Gilbert and P.D. Kremer

Cartography by: Mark Timcoe and M.E. McFarlane  
 Published by: Manitoba Science, Technology, Energy and Mines  
 Manitoba Geological Survey, 2008

This map is a provisional summary of work carried out during the summer field season and is produced directly from the geologist's manuscript. It is not to be regarded as a final interpretation of the geology of the area.

This map supersedes Preliminary Map PMAP2007-5.

**SUGGESTED REFERENCE**  
 Gilbert, H.P. and Kremer, P.D.: 2006. Geology of the east part of the Bird River area, southeastern Manitoba (part of NTS 52L5), Manitoba Science, Technology, Energy and Mines, Manitoba Geological Survey, Preliminary Map PMAP2008-5, scale 1:20 000.



- (1) Baardsgaard and Cerny, 1993.
- (2) Gilbert et al., 2008.
- (3) Wang, 1993.
- (4) Gilbert, 2006.
- (5) Gilbert, unpublished data, 2007.

