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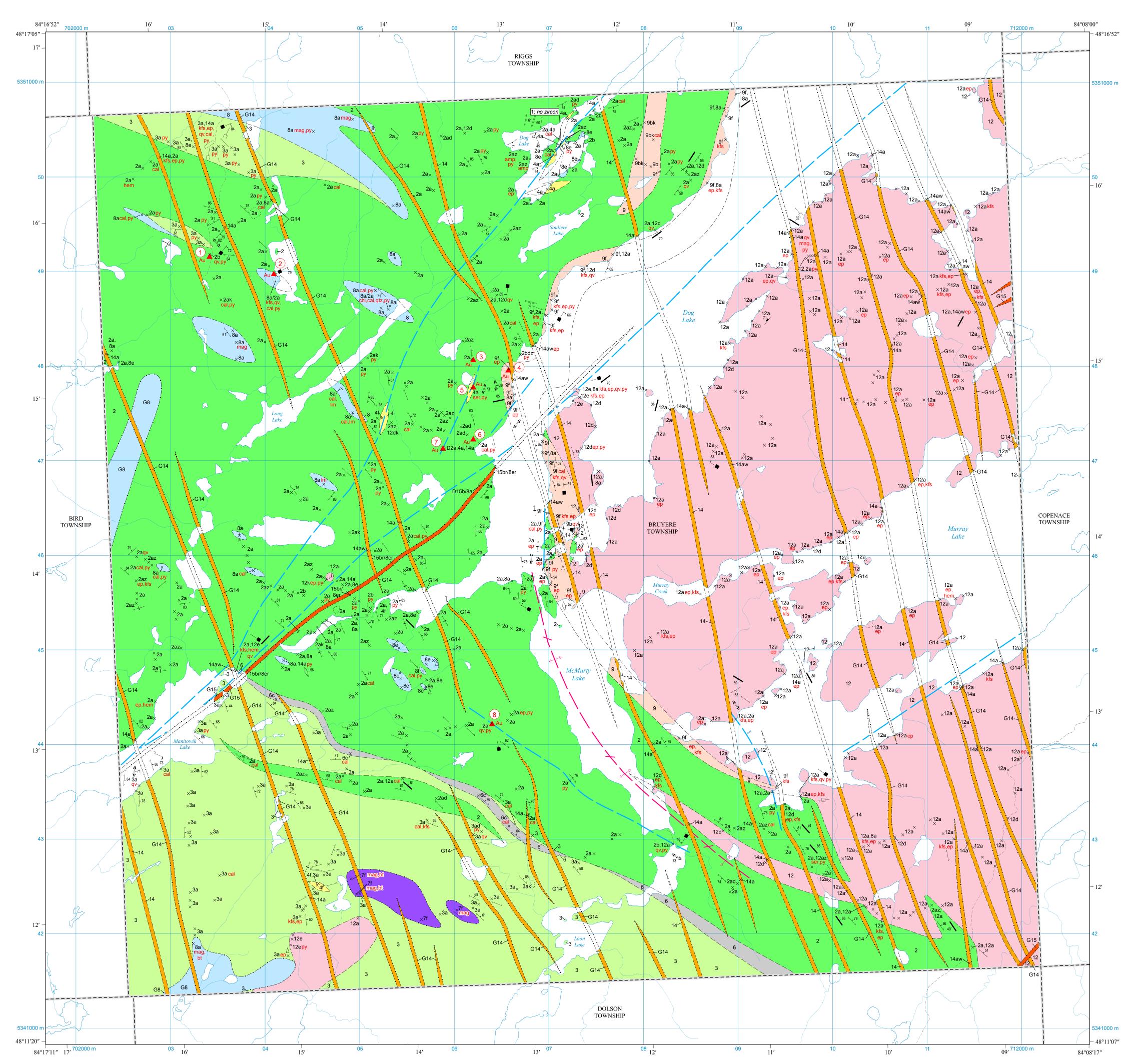
It is recommended that reference to the Content be made in the following form:

Walker, J. 2018. Precambrian geology of Bruyere Township, Michipicoten greenstone belt; Ontario Geological Survey, Preliminary Map P.3820, scale 1:20 000.

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## **SYMBOLS** Ductile shear; unknown

Mineral occurrence

Mineral occurrence

(number corresponds with "Occurrences" list)

...limonite

.....pyrite

... guartz

....quartz vein ...sericite

...magnetite

with commodity

| 10 | displacement, unknown generation (trend only, Area of outcrop inclined) (observed) Igneous contact; Geological contact // 10 unsubdivided (trend (interpreted) only, inclined)

Igneous contact; dike / / 10 / (trend only, inclined, interpreted from geophysical data (trend only) Joint (inclined) Fault; unknown generation (interpreted) Fold; antiform,

Vein; shear type, unknown generation unknown generation (trend only) (trend only, interpreted) Vein; extensional, Foliation; unknown unknown generation  $\nearrow_{10}\nearrow$  generation (trend only, inclined, vertical) Diamond-drill hole collar location

(inclined) Stretching lineation; unknown generation Axial plane of fold;

LEGEND abcde

PLEISTOCENE AND RECENT

16 Mafic Intrusive Rocks<sup>f</sup> (Pukaskwa dike swarm)

15r Corona texture on pyroxene

14w Plagioclase phenocryst

Mafic Intrusive Rocks<sup>f</sup> (Biscotasing dike swarm)

Mafic Intrusive Rocks<sup>f</sup> (Matachewan dike swarm)

15b Leucogabbro, northeast-trending dikes

14a Gabbro, north-northwest-trending dikes

INTRUSIVE CONTACT

12 Intermediate to Felsic Intrusive Rocks (2679±5 Ma<sup>g</sup> to

Foliated to massive, biotite, medium-grained tonalite,

UNCONFORMABLE CONTACT

Unconsolidated sandy till, glaciofluvial sand and gravel

**PHANEROZOIC** 

CENOZOIC

PRECAMBRIAN

PROTEROZOIC

ARCHEAN

NEOARCHEAN

13 Felsic Intrusive Rocks

2684.5±2.7 Ma<sup>g</sup>):

12a Granite 12d Granodiorite 12e Tonalite

12z Pegmatitic

9b Quartz diorite

■ 8a Gabbro

8e Diorite

8f Quartz diorite

Pyroxenite

6 Clastic Metasedimentary Rocks

9k Feldspar phenocryst

locally granodioritic to granitic

12k Quartz feldspar porphyry

Intermediate to Felsic Intrusive Rocks

Intermediate to Felsic Intrusive Rocks

Intermediate to Felsic Intrusive Rocks

Intermediate to Mafic Intrusive Rocks

INTRUSIVE CONTACT

Intermediate to Felsic Metavolcanic Rocks

8r Corona texture on pyroxene

**Ultramafic Intrusive Rocks** 

6c Siltstone and/or mudstone

Felsic Metavolcanic Rocks 4a Massive flows
4f Tuff

3a Massive flows

3d Vesicular flows

2b Pillowed flows

2d Vesicular flows

2z Coarse grained

where the protolith is established.

are present on this map.

"Sources of Information".

and Heaman (1997).

Zone 16\*)

the first rock code is preferred by the author.

2k Plagioclase phyric

3k Feldspar phenocryst

Mafic Metavolcanic Rocks 2a Massive flows

Ultramafic Metavolcanic Rocks

<sup>a</sup> This legend is based only on field investigations and is subject to

change based on geochronological or geochemical data. All

Precambrian rocks have been subjected to regional metamorphism;

many non-metamorphic terms are used for the sake of brevity and

<sup>b</sup> This legend corresponds as closely as possible with legends used on

<sup>c</sup> The letter "D" preceding a code refers to data compiled from drill hole

e Rock codes designated with "/" (e.g., 8a/2a) indicate that the observed

f Proterozoic dike swarms and their ages are based on Osmani (1991)

g Geochronological ages for the Ash Lake pluton are based on

\* Note: sample location outside the map area.

outcrop displays characteristics that belong to either rock type, but

- Turek et al. (1996): 2679±5 Ma (717954E 5355611N, Zone 16\*);

- Frarey and Krogh (1986): 2684.5±2.7 Ma (717270E 5347190N,

adjacent maps (e.g., Walker and Robichaud 2018). Not all map units

**Chemical Metasedimentary Rocks** 

PALEOPROTEROZOIC

(circa 2150 Ma)

(2473 to 2454 Ma)

QUATERNARY

S-asymmetry, unknown [,\[ \left(\frac{11: no zircon}{\text{zircon}} \right] Geochronology sample generation (trend only) Axial plane of fold; Z-asymmetry, unknown generation (inclined) Fracture; unknown

location. I (number corresponds with Table 1) Administrative displacement, unknown generation (vertical)

# **ABBREVIATIONS**

.chlorite ..epidote ..hematite

<sup>a</sup> Abbreviations indicate mineralization or observed mineralogy. Abbreviations may be used on the map or in the legend.

## **CREDITS**

Geological mapping by J. Walker and assistants during the summer of 2017.

Preparation of geophysical imagery by D.R.B. Rainsford. Digital drafting and preparation of GIS product by S.A. Evers and

Cartographic production by R. Corcoran. Editing by M.G. Easton.

Corresponding digital data for this map area are available from the following Ontario Geological Survey publication:

Walker, J. 2018. Geological and geochemical data from Bruyere Township, Michipicoten greenstone belt; Ontario Geological Survey, Miscellaneous Release—Data 360.

Every possible effort has been made to ensure the accuracy of the information presented on this map; however, the Ontario Ministry of Northern Development and Mines does not assume liability for errors that may occur. Users should verify critical information.

Information from this publication may be quoted if credit is given. It is

Preliminary Map P.3820, scale 1:20 000.

records listed under "Sources of Information". recommended that reference to this map be made in the following form. <sup>d</sup> The letter "G" preceding a code refers to data interpreted from Walker, J. 2018. Precambrian geology of Bruyere Township, aeromagnetic geophysical surveys listed under Michipicoten greenstone belt; Ontario Geological Survey,

## OCCURRENCES<sup>a</sup>

Number <sup>b</sup>	Occurrence	Commodity	Best Historic Value	Host Units
1	MDI00000001302 New Dimension Resources DDH MC-13-19	Au	15.391 g/t Au	Quartz veins in mafic metavolcanic rocks
	This study (assay, sample 17JW426)		0.583 oz/t Au <sup>c</sup>	Quartz veins in altered pillowed mafic metavolcanic rocks
2	MDI42C08SW00188 Consolidated Lundmark No.1 showing	Au	0.54 oz/t Au	Subparallel quartz-carbonate veins within mafic metavolcanic rocks
3	MDI42C08SE00092 North Vein	Au	2.38 oz/t Au	Shear zone located at the contact between vesiculated mafic metavolcanic rocks and gabbro
4	MDI42C08SE00093 Millar–Reed No.1 vein	Au	2.66 oz/t Au	Quartz vein within gabbro near the margin of a granodiorite intrusion
5	MDI42C01NE00002 Millar–Reed property	Au	1.44 oz/t Au	Shear zone cutting through zones of vesiculated mafic metavolcanic rocks and gabbro
6	White (1984) (see also MDI42C01NE00002) Kingswood DDH K-1-84	Au	0.818 oz/t Au	Well silicified zone with abundant quartz, 5–10% very fine-grained sulphides as disseminations and fine bands
7	White (1984) (see also MDI42C01NE00002) Kingswood DDH K-4-84	Au	2.61 g/t Au	Sericite-quartz fault breccia
8	This study (assay, sample 17JW138)	Au	482.9 ppb Au <sup>d</sup>	Quartz veins in deformed mafic metavolcanic rocks

Source: Ontario Geological Survey (2017), unless otherwise indicated.

"Number" indicates the occurrence location on the map. Discrepancies may occur in the location of the MDI points. Users should verify critical locations.

<sup>c</sup> Assay value is based on gravimetric fire assay analysis performed during 2018 at the Geoscience Laboratories, Ontario Geological Survey, Sudbury. For complete analysis, see Walker (2018). <sup>d</sup> Assay value is based on analysis by lead fire-assay quantified by inductively coupled plasma mass spectrometry performed during 2018 at the Geoscience Laboratories, Ontario Geological Survey, Sudbury. For complete analysis, see Walker (2018).

Abbreviations: MDI, Mineral Deposit Inventory; g/t, gram per tonne; ppb, parts per billion; oz, ounces; oz/t, ounce per ton.

Table 1. Geochronological result for a sample collected in Bruyere Township. 707128 5350337 Felsic metavolcanic rock no zircon This study <sup>a</sup> "Number" indicates the location on the map. <sup>b</sup> Locations provided as UTM co-ordinates in North American Datum 1983 (NAD83), Zone 16.

Ontario Geological Survey

MAP P.3820

PRECAMBRIAN GEOLOGY

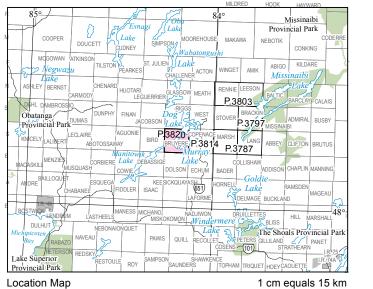
# BRUYERE TOWNSHIP,

MICHIPICOTEN GREENSTONE BELT

Scale 1:20 000 NTS References: 42 C/1, 8

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Digital base map information derived from the Land Information Ontario Warehouse, Land Information Ontario, Ministry of Natural Resources and Forestry, scale 1:20 000, with modifications by staff of the Ministry of Northern Development and Mines.

SOURCES OF INFORMATION

Mapping conducted using UTM co-ordinates in North American Datum 1983 (NAD83), Zone 16.

Compiled geology, geochronology and geophysical interpretation

Assessment files, Resident Geologist's office, Sault Ste. Marie. Occurrences information *modified from* the Mineral Deposit Inventory (Ontario Geological Survey 2017).

Frarey, M.J. and Krogh, T.E. 1986. U-Pb zircon ages of late internal plutons of the Abitibi and eastern Wawa subprovinces. Ontario and Quebec; in Current Research, Part A, Geological Survey of Canada, Paper 86-1A, p.43-48.

Heaman, L.M. 1997. Global mafic magmatism at 2.45 Ga: Remnants of an ancient large igneous province?; Geology, v.25, p.299-302. Ontario Geological Survey 2002a. Ontario airborne geophysical surveys, magnetic data, grid data, Geosoft® format, Kapuskasing–

1040b—Revised. Ontario Geological Survey 2002b. Ontario airborne geophysical surveys, magnetic data, profile data, Geosoft® format, Kapuskasing-Chapleau area; Ontario Geological Survey, Geophysical Data Set

Chapleau area; Ontario Geological Survey, Geophysical Data Set

1040d—Revised. Ontario Geological Survey 2003a. Ontario airborne geophysical surveys, magnetic and electromagnetic data, grid and profile data,

Geosoft® format, Wawa area; Ontario Geological Survey, Geophysical Data Set 1009b.

Ontario Geological Survey 2003b. Single master gravity and aeromagnetic data for Ontario, Geosoft® format; Ontario Geological Survey, Geophysical Data Set 1036.

Ontario Geological Survey 2011. Ontario airborne geophysical surveys, magnetic and electromagnetic data, grid and profile data (ASCII and Geosoft® formats) and vector data, Magpie River–Missinaibi Lake area—Purchased data; Ontario Geological Survey, Geophysical Data

Ontario Geological Survey 2017. Mineral Deposit Inventory; Ontario Geological Survey, Mineral Deposit Inventory (February 2017 update), online database.

Osmani, I.A. 1991. Proterozoic mafic dike swarms in the Superior Province of Ontario; Chapter 17 in Geology of Ontario, Ontario Geological Survey, Special Volume 4, Part 1, p.661-681. Turek, A., Heather, K.B., Sage, R.P. and Van Schmus, W.R. 1996.

U/Pb zircon ages for the Missanabie–Renabie area and their relation to the rest of the Michipicoten greenstone belt, Superior Province, Ontario, Canada; Precambrian Research, v.76, p.191-211. Walker, J. and Robichaud, L. 2018. Precambrian geology of Copenace

Township, Michipicoten greenstone belt; Ontario Geological Survey, Preliminary Map P.3814, scale 1:20 000. White, M.V.W. 1984. Report of 1984 diamond drilling program on

Kingswood Explorations Limited Dog Lake property in Bruyere Township; unpublished report, Sault Ste. Marie Resident Geologist's office, assessment file AFRI# 42C08SE0026, 73p.

Geology is not tied to survey lines.

Magnetic declination, for centre of map area, is approximately

Metric conversion factor 1 foot = 0.3048 m.

Users of OGS products are encouraged to contact those Aboriginal communities whose traditional territories may be located in the mineral exploration area to discuss their project.