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Mineral Deposit Series Report No. 18

# **Mineral Deposits and Occurrences in the Bissett Area, NTS 52M/4**

By P. Theyer  
Winnipeg, 1994

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Energy and Mines

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## MAP

MDS Map 18: Mineral deposits and occurrences in the Bissett (NTS 52M/4) area, Manitoba . . . . .	in pocket
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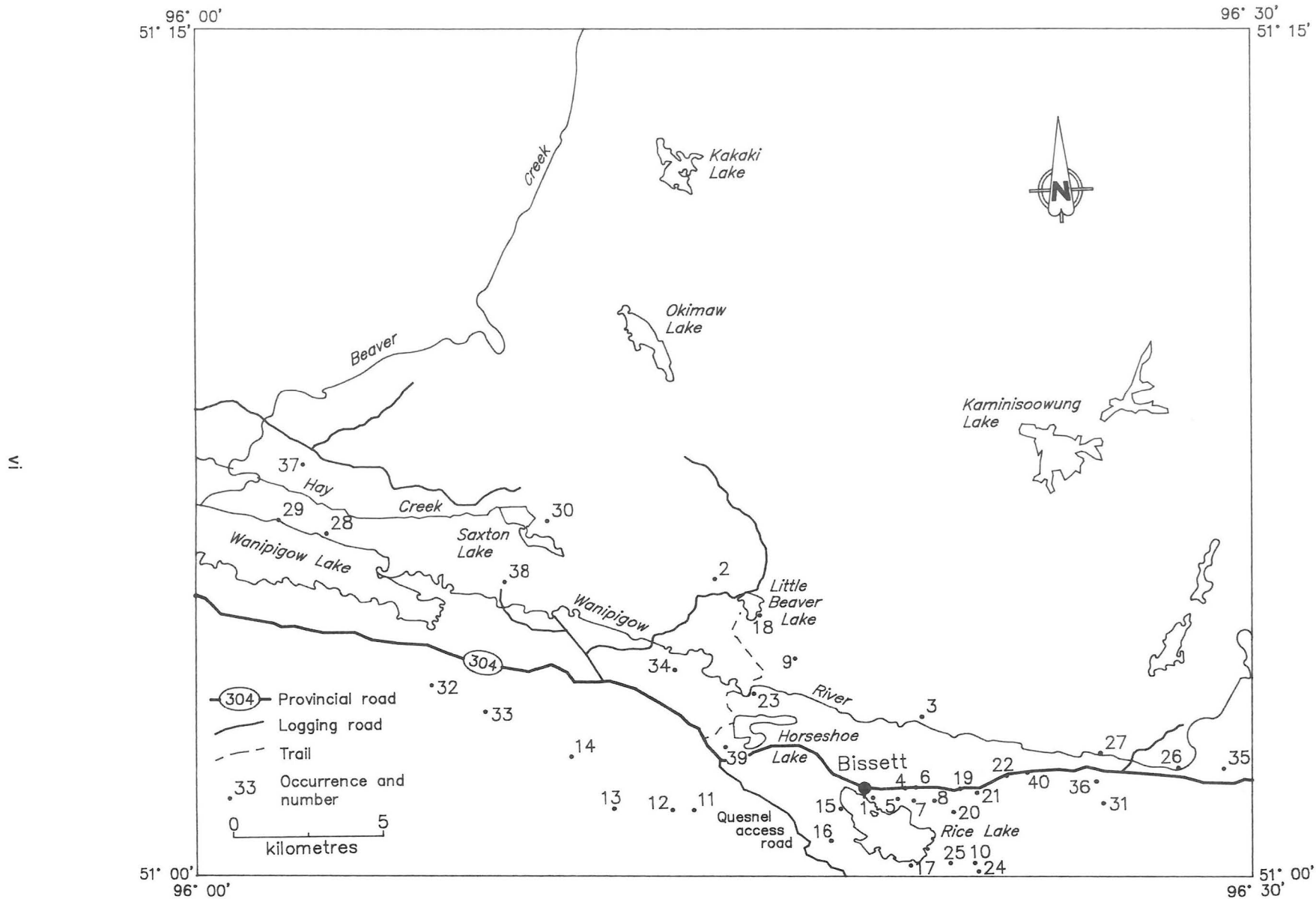


Figure 1: Location of mineral deposits and occurrences (NTS 52M/4).

## INTRODUCTION

This report and accompanying map are part of a Mineral Deposit Series presenting a uniformly organized and up-to-date collation and analysis of information on mineral occurrences in the Province of Manitoba. The series is intended: (1) to provide explorationists with a geoscientific data base that can be used in mineral exploration; and (2) to provide a technical data base for other government users in resource evaluations, formulation of mineral and land use policies and the initiation of regional development programs.

## METHODOLOGY

The documentation program was initiated in the main mining districts of the province under the 1984-1989 Canada-Manitoba Mineral Development Agreement. Under this project mineral deposit geologists of the Geological Services Branch have attempted to inspect and evaluate each known mineral occurrence. These site visits ranged from a preliminary half day or less search of an area for old workings, to extensive geological mapping of selected occurrences for a week or more. In addition, for each occurrence the geologists have attempted to synthesize available data from published and unpublished sources. The Manitoba Mineral Inventory Card Index and the cancelled Assessment Files have been used extensively in the preparation of the report. Mineral occurrences represented by cancelled assessment file compilation are identified as such under the heading 'Name'. Information for all other occurrences was acquired primarily by field examination supplemented by cancelled assessment file compilation.

### Deposit versus Occurrence

Throughout this report mineralization is referred to as a deposit if tonnage and grade figures are known; all other mineralization is referred to as an occurrence.

### Massive Sulphide versus Solid Sulphide

The use of 'massive sulphide' in the geological literature is confusing in that it is not always clear whether the authors are referring to a 'massive sulphide deposit' (cf. Sangster, 1972) or a section of sulphide-rich rock. In this publication 'massive sulphide' will be used in reference to a deposit type, *i.e.*, a volcanogenic massive sulphide deposit type, rather than the nature of the mineralization. A volcanogenic or sedimentogenic massive sulphide deposit can contain a sulphide lense that locally contains as little as 10% sulphide minerals by volume. The alteration zones that are an integral part of many massive sulphide deposits rarely contain more than 50% sulphide minerals. Consequently, the use of 'solid sulphide' for 75%-100% and 'near solid sulphide' for 50%-75% sulphide minerals is adopted in place of the commonly used term 'massive' to describe the textural aspects of a sulphide mineralization.

## FORMAT OF MINERAL DEPOSIT MAPS

### Location:

One of the incentives spurring the mineral deposit documentation was the absence of accurate location maps for known mineral occurrences. Inaccurate land bases have previously resulted in failure to find old workings, surveys conducted in wrong areas, and even cancellation of intended surveys by explorationists. Consequently, considerable field time has been spent in establishing occurrence locations and attempts have been made to display exact locations both on the map and in the accompanying report.

The location number of the map is a unique reference number that will be used both in the report and the geologists' unpublished data base. Where the volume of occurrence/deposit data within a 1:50 000 NTS map sheet is large enough to be more efficiently presented by dividing the map sheet in half or into quadrants (cf. Map MDS87-1, NTS 63K/13 SE), reference numbers will be consecutive only within the individual map sheet.

### Deposit Types:

In order to maintain a mineral deposit classification, which will be useful to both explorationists and metallogeneticists, a simplified descriptive classification was selected. This classification is based on the use of common deposit types for the classification of both deposits and occurrences. The classification of mineralization is based on the premise that the mineral explorationist requires information on metals and types of mineralization in an area as well as on the economic deposits (past, present and future producers).

All deposits and occurrences are classified according to the Deposit Type classification in Table 1.

The deposit type displayed on the map represents the mineralization with the greatest economic potential, for example, a disseminated narrow chalcopyrite layer is emphasized rather than a much thicker solid pyrite-graphite layer.

### Mineralization:

A symbol is used to denote the percentage and/or type of mineralization present. At some localities more than one type of mineralization is present. The type of mineralization displayed in the symbol represents the mineralization with the greatest economic potential as indicated by the deposit type symbol. It should be noted that in the context of this report a "sulphide facies iron formation" is equivalent to a "sulphide stratum". For a discussion of sulphide stratum the reader is referred to Gale *et al.* (1980).

### Host Rocks:

In general, this description refers to the immediately underlying and overlying rock types. When several rock types are present in an extensive zone of mineralization, the most common rock types are indicated.

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**TABLE 1: MINERAL DEPOSIT TYPES****STRATABOUND MASSIVE SULPHIDE TYPE DEPOSITS**

- a) Volcanic rock associated
- b) Sedimentary rock associated
- c) Alteration zone associated with a or b

**CHEMICAL SEDIMENT TYPE DEPOSITS**

- a) Sulphide facies iron formation
- b) Oxide facies iron formation
- c) Carbonate facies iron formation
- d) Silicate facies iron formation
- e) Other chemical sediments

**VEIN TYPE DEPOSITS**

- a) Single vein
- b) Multiple veins or lenses
- c) Stockwork

**MAGMATOGENIC TYPE DEPOSITS ASSOCIATED WITH MAFIC/ULTRAMAFIC ROCKS**

- a) Disseminated
- b) Layered
- c) Net textured
- d) Podiform

**DEPOSITS WITH PORPHYRY AFFINITIES****PEGMATITE TYPE DEPOSITS****CLASTIC SEDIMENT TYPE DEPOSITS****REPLACEMENT TYPE DEPOSIT****DISSEMINATED MINERALIZATION - NOT CLASSIFIED**

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**Elements:**

This description allows for a maximum of three metals present in increasing order of abundance by volume. The precious and base metals are indicated in preference to elements such as iron and carbon.

In some cases it has been more efficient on the map and in the report to make reference to an area of mineralization rather than individual deposits or occurrences. All mineralization in the area delineated by a dotted line on the map is referenced in the report under the location number within that area.

**FORMAT OF MINERAL DEPOSIT REPORTS****Location:**

Each deposit or occurrence description contains a unique deposit reference number, deposit or claim name where applicable, UTM coordinates, general area description, the reference number of the airphoto on which the deposit can be located and a brief description of method(s) of access.

**Exploration Summary:**

This section provides a summary of the extent of exploration. Information for this section was compiled from Mineral Inventory Cards, cancelled Assessment Files, and maps and files from the Mining Recording Office.

**Geological Setting:**

In this section the general geology of a deposit or occurrence is described. The information levels of the descriptions vary considerably and depend largely upon the extent of geological mapping during the documentation project. For further details the reader should consult the references cited.

**Mineralization:**

A detailed description of the mineralogy, host rocks and mineralization-related alteration provide the readers with the opportunity to make their own evaluation of the significance of a mineral occurrence or deposit.

**Geochemical Data:**

Most geochemical data included in this report are summarized from assays listed in drill logs submitted to fulfill assessment requirements. In addition, samples collected for geochemical analysis from site visits are described in this section.

**Classification:**

In this section the geologist may indicate the reasons for the classification appearing on the Mineral Deposit Map. For those localities containing more than one deposit type, the deposit types not shown on the map are documented here.

**References:**

These include both published and unpublished sources. For published and assessment report information the reader should obtain desired material directly from the source. The mineral deposit geologists will endeavor to supply copies of unpublished material on a deposit by deposit basis. References listed at the end of each occurrence description may also include sources of additional information not directly cited in the text.

**ABBREVIATIONS**

The following abbreviations are used throughout the occurrence descriptions:

AEM	airborne electromagnetic
A.F.	assessment file(s)
AFMAG	audio frequency magnetic
CB	claim block
c.g.	coarse grained
DDH	diamond-drill hole(s)
EM	electromagnetic
f.g.	fine grained
g/t	grams per tonne
HLEM	horizontal loop electromagnetic
IP	induced polarization
MAG	magnetic
MDS	Mineral Deposit Series
m.g.	medium grained
P.R.	Provincial Road
tr.	trace
VLEM	vertical loop electromagnetic
VLF-EM	very low frequency electromagnetic

py	pyrite
po	pyrrhotite
cp	chalcopyrite
sp	sphalerite
apy	arsenopyrite

#### ACKNOWLEDGMENTS

The author acknowledges the assistance of K. Dahlin and T. Rittaler in the map compilation. B. Lenton drafted the figures using Autocad programs. M. Timcoe revised the figures and identified and expunged most of the author's drawing errors. The balance of these errors were identified and dealt with by B. Lenton. E. Truman supervised drafting the map that accompanies this report. R.H. Schmidtke and P.W. Stewart assisted in field

examinations of most of the occurrences. G.H. Gale and W.D. McRitchie provided technical review; D.A. Baldwin edited the manuscript. K.J. Ferreira provided technical advice and with consummate diplomatic and organizational skills guided this work to its final completion.

NOTE: This mineral deposit report and the accompanying map are intended to be active documents that can be updated as new information becomes available. Although revisions of the publication are anticipated, any additional unpublished information may be obtained by contacting the author or the Director, Geological Services Branch.



## GEOLOGY OF NTS AREA 52M/4

The geological base for mineral deposit map sheet 52M/4 is compiled from several geological maps:

1. Geology of the San Antonio Mine area, Rice Lake, geological map, 1:5 000 scale by D.E. Ames (1988).
2. Wanipigow River area, geological map, 1:31 680 scale by J.F. Davies (1950).
3. Geology of the Wanipigow-Winnipeg Rivers region SE. Manitoba, geological map, 1:253 440 scale by W.D. McRitchie (1971).
4. Rice Lake-Gold Lake area (map sheets 5,6,7 and 8), geological maps, 1:6 000 scale by C.H. Stockwell (1938).
5. Geology of the Wanipigow River-Manigotagan River region, geological compilation map, 1:63 360 scale by W. Weber (1971).

The map area is underlain by supracrustal and intrusive rocks of the Archean Superior Structural Province of southeast Manitoba. The east-southeast-trending Rice Lake greenstone belt is separated from the Manigotagan Gneissic Belt, a suite of paragneiss, schist, tonalite and monzonite south of the greenstone belt, by the northwest-striking Manigotagan Fault. On the north and east, the Rice Lake greenstone belt is separated from the Wanipigow River Plutonic Complex and the Wallace Lake greenstone belt by the east-southeast-striking Wanipigow Fault.

The supracrustal rocks in the Rice Lake greenstone belt comprise the dominantly volcanic Rice Lake Group and the overlying sedimentary San Antonio Formation. The suite of supracrustal rocks is intruded by quartz diorite plutons, gabbroic and diabasic sills and dykes, and ultramafic plugs.

The lower part of the Rice Lake Group is subdivided into the Bidou Lake and the Gem Lake subgroups composed of volcanic and derived sedimentary rocks (Campbell, 1971; Weber, 1971). The Bidou Lake subgroup comprises the The Narrows Formation of dacite-rhyodacite pyroclastic rocks (Weber, 1971). Both subgroups are disconformably overlain by sedimentary rocks of the Edmunds Lake Formation, which is the youngest formation of the Rice Lake Group (Campbell, 1971).

The Rice Lake Group is unconformably overlain by the San Antonio Formation (Stockwell, 1938; Weber, 1969; McRitchie, 1971), thought to be a complex of sub-aerial alluvial fan deposits (Weber, 1969).

The Wanipigow River Plutonic Complex comprises quartz dioritic, dioritic and gneissic rocks. The Wanipigow River Plutonic Complex is separated from the Rice Lake greenstone belt by the Wanipigow Fault, a major shear zone along which a 16 km dextral displacement has been determined (McRitchie, 1969). The contact between this intrusive complex and the greenstone belt is generally concordant, but locally it is transgressive and characterized by an intense foliation. The

Rice Lake greenstone belt supracrustal rocks were intruded by oval to elongate quartz dioritic to dioritic plutons. East of Rice Lake the intrusion is called the Ross River Pluton; west of Rice Lake it is called quartz diorite, and granodiorite south of Wanipigow Lake (McRitchie, 1971). Ultramafic intrusions occur as discontinuous serpentinized lenses within the Wanipigow River Plutonic Complex (Scoates, 1971; Weber, 1971).

Six periods of deformation, including three stages of folding and later fracturing can be distinguished in the Rice Lake greenstone belt (McRitchie and Weber, 1971; Weber, 1971). Lithologic units are generally steeply inclined to vertically dipping.

Recent regional airborne geophysical surveys include a gradiometer and total field survey at 1:50 000 scale (Geological Survey of Canada, Maps C41394G and C21394G, 1988) and an Airborne Gamma Ray Spectrometer Survey at 1:250 000 scale, flown in 1992 by the Geological Survey of Canada (unpublished). An overview of geophysical surveys that have been carried out in the Rice Lake greenstone belt is contained in Hosain *et al.* (1993).

Mineral deposits and occurrences located within the area are generally structurally controlled auriferous quartz-carbonate veins that postdate the last major period of folding and tend to be associated with steeply dipping, brittle to ductile planar shear zones related to regional faults. Alteration commonly includes intense and pervasive carbonatization, which implies a long period of interaction between host rock and carbon dioxide-bearing hydrothermal fluids. According to Poulson *et al.* (1989), auriferous quartz veins appear to be hosted predominantly by epiclastic rocks, gabbroic rocks and minor banded iron formation that occupy the stratigraphic transition from basalt to porphyritic dacite.

Stephenson (1971) suggested that the reason for the preferential occurrence of productive quartz veins in mafic rocks is due to a higher chemical reactivity of mafic minerals with mineral-bearing volatiles. In addition, the structurally competent mafic rocks are thought to have reacted with brittle failure to tectonic stresses, creating effective pathways for mineralizing fluids.

Many mineral occurrences in quartz veins have small tonnage and are characterized by widely fluctuating, erratically distributed, locally extremely high gold concentrations. The most important gold deposit in the NTS 52M/4 area is the San Antonio Mine (Location 1), which from 1932 to 1968 produced 37 320.4 kg Au. Gold associated with sulphides is contained in quartz veins and quartz stockworks hosted by a mafic rock unit.

The Poundmaker Mine (Location 2) exploited sulphide-bearing quartz veins contained in shear zones within hornblende-quartz diorite of the Wanipigow River Plutonic Complex.



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## MINERAL DEPOSITS AND OCCURRENCES: BISSETT AREA (NTS 52M/4)

### LOCATION: 1

NAME: San Antonio Mine

UTM: 5655564N/312143E

ACCESS: The San Antonio Mine is located at the edge of the town of Bissett and can be accessed by road.

AREA: Bissett (Fig. 1-1)

AIRPHOTO: A24713-52

### EXPLORATION SUMMARY:

A detailed exploration history of the deposit is given in Mineral Inventory Card 52M/4 Au3. An anecdotal account of the history and personalities involved in the development and mining of this property is contained in **Golden Memories of Bissett** (Minton, 1982).

Gold was found in the Rice Lake area by D. Twoheart in 1911. The Gabrielle claim (part of the San Antonio Mine property) was staked by A. Desautels and assigned to E.A. Pelletier in 1911. A shaft was sunk (Gabrielle shaft) and a hammer mill was erected in 1912. The San Antonio property was then optioned by J.D. Perrin in 1922. The Wanipigow Syndicate began sinking two shafts in 1927. A 13 hole (1350 m) drilling program to define and intersect the western extension of the host rock of the San Antonio Mine was completed in 1936 (A.F. 91993). Shaft sinking was completed in 1960, with a fourth winze at 1546 m depth. The San Antonio Mine produced ore uninterruptedly from 1932 until closure in 1968.

A combined AEM and MAG survey was flown by Geoterrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677).

In 1980, Cassiar Mining Corporation and New Forty-Four Mines Ltd. entered into a joint agreement to evaluate and possibly re-open the mine. The study confirmed ore reserves of 725 680 tonnes with an average tenor of 6.51 g/t Au. Mining commenced in 1982, but was suspended in the following year. Lathwell Resources undertook a mining feasibility study of the 26th and 32th level in 1983. San Antonio Resources, a consortium of Inco Ltd., Quest Resources and private investors, optioned the property from 1985 until 1987. Underground drilling and a feasibility study defined a "mineral resource" of 13 063 kg Au (The Northern Miner, September 1, 1986). Rea Gold Corporation purchased the property from Cassiar Mining Corporation in 1989. A pre-feasibility study to revive the mine was announced to the media in 1993 (The Globe and Mail, September 21, 1993). The property is part of Production Lease 37, which expires in 2017.

### GEOLOGICAL SETTING:

The area of the occurrence and its surroundings were mapped by Stockwell (1938a) at 1:6 000, Davies (1950) at 1:31 680, Weber (1971) at 1:63 360, Poulson

*et al.* (1986) at 1:10 000, and Ames (1988) at 1:5 000. Deposit descriptions are contained in Reid (1931), DeHuff (1940) and Gibson and Stockwell (1948). Starting in 1983, several investigations centred on particular aspects of the mine: 1) composition of the host rock and location of gold (Theyer, 1983); 2) alteration in the vicinity of quartz veins (Fedikow, 1983); 3) fluid inclusions (Strong and Gale, 1985); and 4) lithology and lithogeochemistry (Whiting and Sinclair, 1986).

In 1984, the GSC initiated a study of gold mineralization centred on the San Antonio Mine. Topics investigated were lithology and wall rock alteration (Ames, 1988) and structure (Lau, 1988). The results of independent studies dealing with the lithology and lithogeochemistry of the San Antonio Mine were presented by Whiting and Sinclair (1986) and by Whiting (1989).

The San Antonio Mine area is underlain by andesite, basalt, feldspar porphyry dykes and plagioclase-phyric tuff breccia of The Narrows Formation (Fig. 1-1; Weber, 1971; Theyer, 1983; Ames, 1988). The gold-bearing quartz veins are almost exclusively confined to a sill-like body of dark green to grey rock that, according to Stockwell (1938, p. 41), "may be termed metadiabase or, simply, diabase". More recently, Theyer (1983) observed the sill's variable composition and rock textures both on surface and underground (Fig. 1-2, 1-3, 1-4), and proposed that the sill may be an inhomogeneous body containing mafic to felsic tuffs. Theyer (1983) named the sill San Antonio Mine ("SAM") unit and identified similar rocks on the eastern shore of Rice Lake. Based on petrographic and petrochemical examinations of samples from mine exposures, Whiting and Sinclair (1986) and Whiting (1989) identified basaltic flows interlayered with thin (<10 cm) layers of chloritized cherty mudstone in the SAM unit. Ames (1988), however, concluded that the SAM unit is a multi-layered intrusive gabbroic sill, based on the results of a detailed study of surface and underground exposures. This conclusion rests primarily on granophyric textures identified in a part of the sill described as "granophyric leucogabbro". Unequivocal evidence to support either Theyer's (1983) or Ames's (1988) interpretation is not available at present, since granophyric textures are not partial to intrusive rocks alone; in fact, they are not uncommon in thick felsic to mafic extrusive ignimbrites (Smith, 1960, 1980; Cox *et al.*, 1979), and thus, are not incontrovertible proof of the intrusive nature of the rock

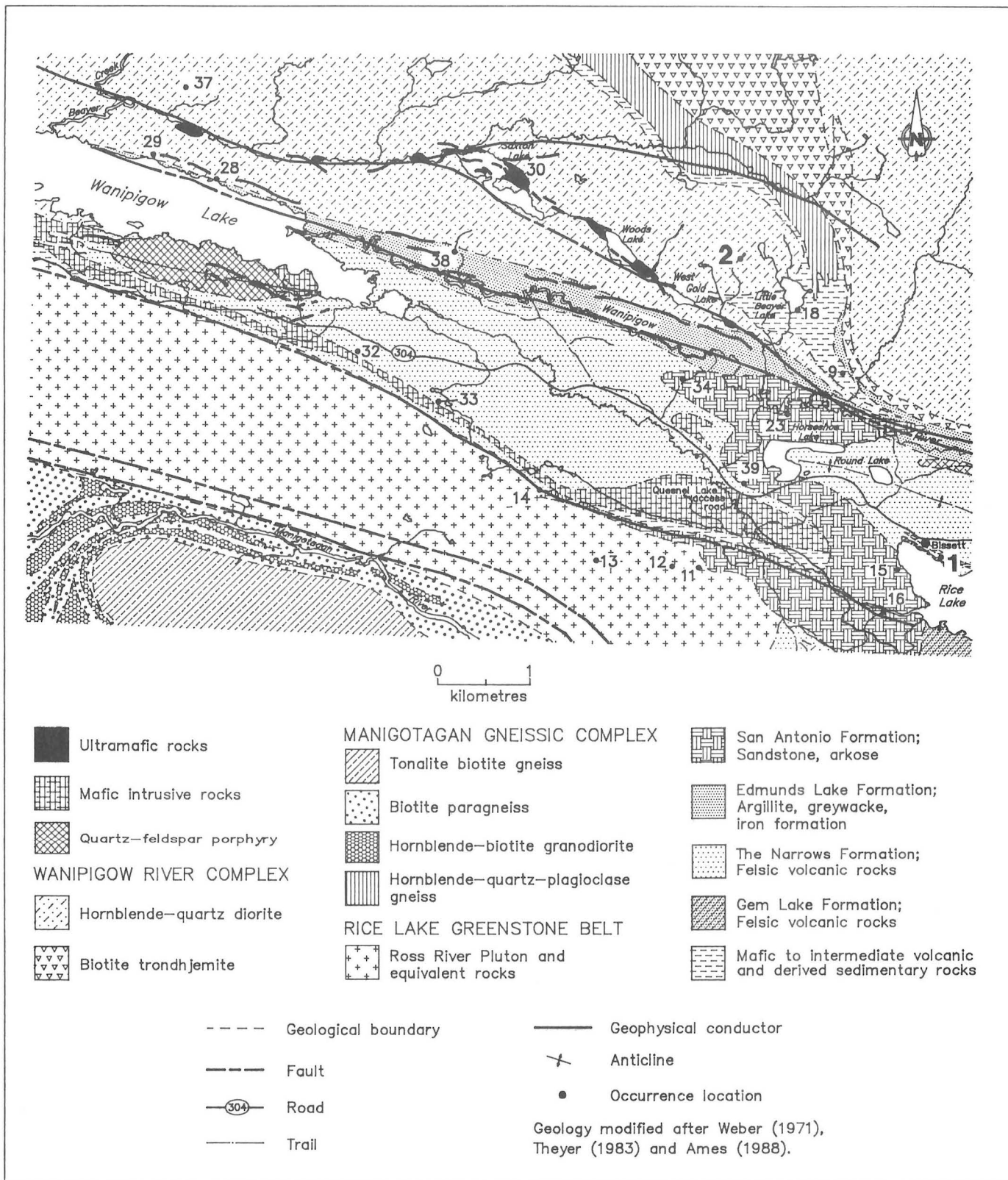


Figure 1-1: Geological setting of occurrences 1 (San Antonio Mine) and 2 (Poundmaker).

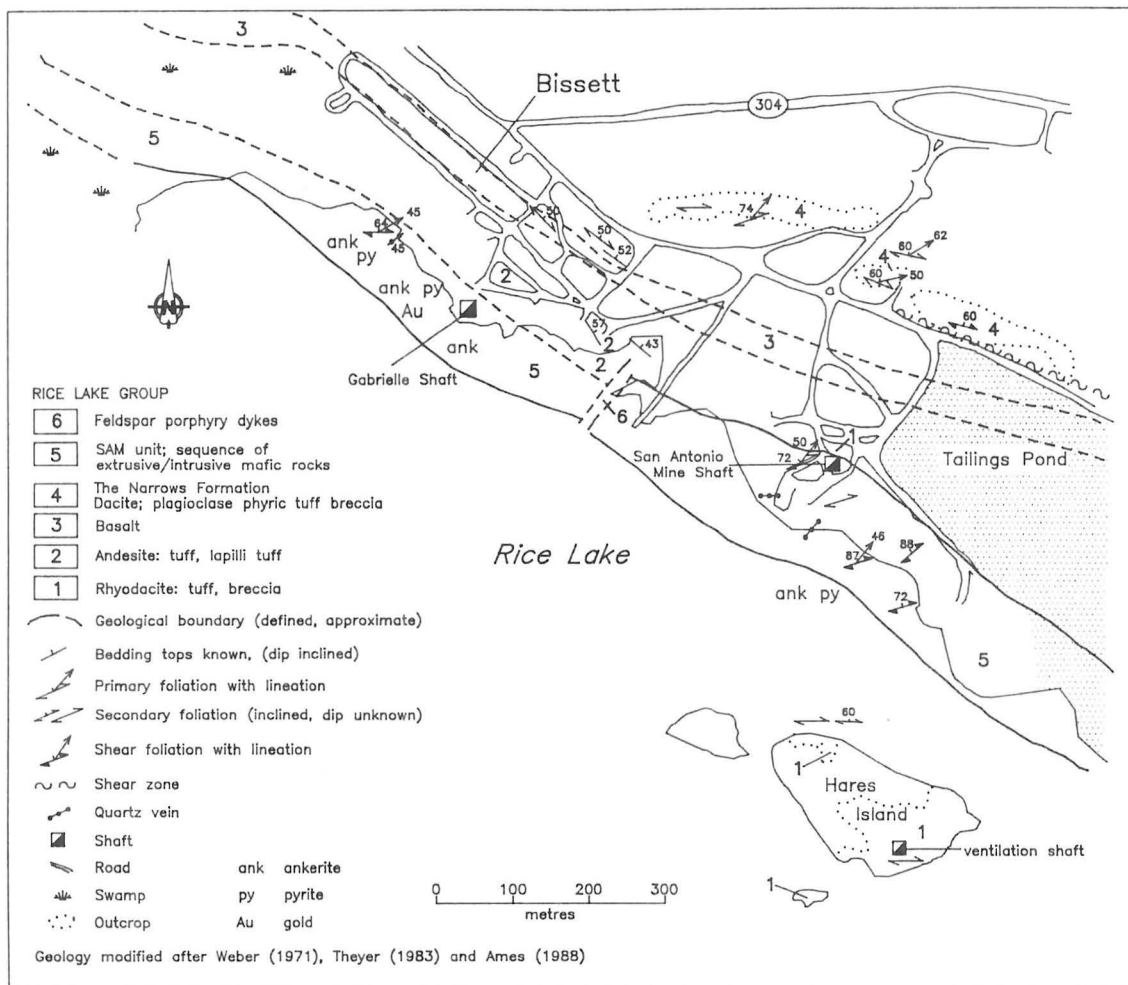


Figure 1-2: Detailed geology at occurrence 1 (San Antonio Mine).

that hosts them. Nor, on the other hand, are abrupt lithologic changes, crossbedding and erosion channels conclusive proof of the volcanic nature of a rock sequence.

Five successively younger fracture sets have been recognized within the SAM unit (Lau, 1988), two of which host Au-bearing quartz veins (Fig. 1-3):

1. elongated, lense-shaped, steeply-dipping, intensely fractured zones ("stockwork" or "38-type" veins; mine nomenclature) are typically confined to the SAM unit in an *en echelon* array and may attain 10 m thickness. According to Lau (1988), these fractures are interpreted to be brittle shear zones formed in two stages, an initial sinistral reverse movement followed by a dextral reverse movement.
2. pinched and swelled quartz veins  $\leq 1$  m thick ("16-type" veins; mine nomenclature) strike northeast, dip to the northwest and occupy central fractures in sinistral reverse ductile shear zones.

#### MINERALIZATION:

Quartz veins are mineralized with pyrite, minor chalcopyrite, sphalerite and galena, and contain ankerite, albite, chlorite, calcite, tourmaline and K-feldspar as gangue minerals. A typical specimen of banded gold-bearing pyrite ore is characterized by fine grained pyrite bands that range from less than 1 mm to several millimetre thickness. Individual pyrite bands may be continuous and subparallel for several metres length. Gold occurs either interstitially or as fine grained blebs in close association with pyrite and tellurides (petzite and tellurbismuth) (Stephenson, 1971, 1972).

Strong and Gale (1985) studied fluid inclusions in quartz from stockworks and veins and determined that most filling temperatures ranged from 200° to 250°C.

Davies (1963) described four zones of alteration that range from intensely altered ankerite-sericite-carbonate-quartz wall rock to ankeritized, calcitized and zoisitized host rock with increasing distance from the quartz-bearing zones. This alteration pattern was suc-



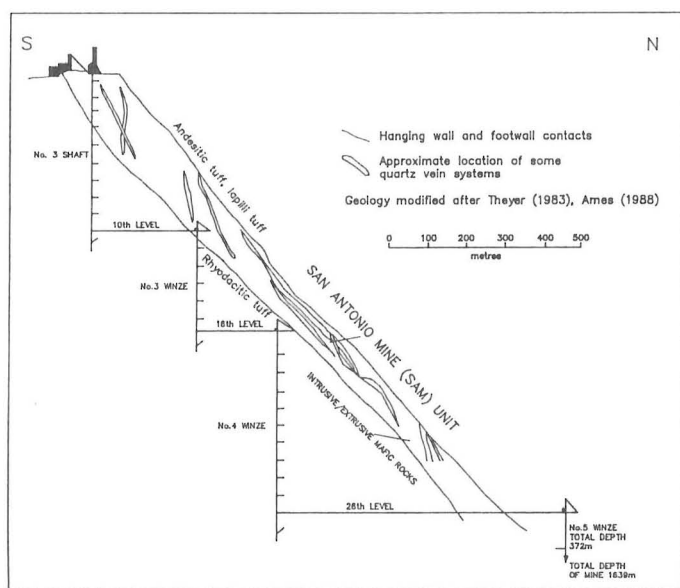


Figure 1-3: Schematic section of the San Antonio Mine.

cessfully used to find quartz veins during development of the mine.

Ames (1988) described systematic variations of alteration minerals at varying distances to gold-bearing structures and determined that the gold-associated alteration of the host rock postdated regional metamorphism. Alteration involved addition of CO<sub>2</sub>, S and K from a hydrothermal fluid. Local occurrences of albite and tourmaline attest to localized addition of Na and B. Crystallization of pyrite, the mineral most directly associated with gold, occurred late in the alteration sequence, after the formation of muscovite and ankerite. Gibson and Stockwell (1948) observed that wall rock alteration of the northeasterly-striking quartz veins is much weaker than wall rock alteration surrounding the stockwork veins.

#### GEOCHEMICAL DATA:

Ore reserves after closure of the mine were estimated at 186 490 tonnes grading 8.23 g/t Au (Canadian Mines Handbook, 1967-68). A feasibility study undertaken in 1980 by Cassiar Mining Corporation and New Forty-Four Mines determined the existence of "mineable reserves" of 725 680 tonnes with an average grade of 6.51 g/t Au. Actual millhead grade was 4.8 g/t Au in the period 1982-83. Sampling and assaying of the 97 stockwork vein in 1983 proved an average of 9.26 g/t Au over 3.45 m average thickness.

Drilling by Lathwell Resources Ltd. in 1984 resulted in ore reserve estimates, between the 24 and 36 levels, of 1 203 161 tonnes averaging 7.89 g/t Au.

#### CLASSIFICATION:

Vein type deposit; multiple veins and lenses.

#### REFERENCES:

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Mineral Inventory Card 52M/4 Au3; Manitoba Energy and Mines, Geological Services Branch.

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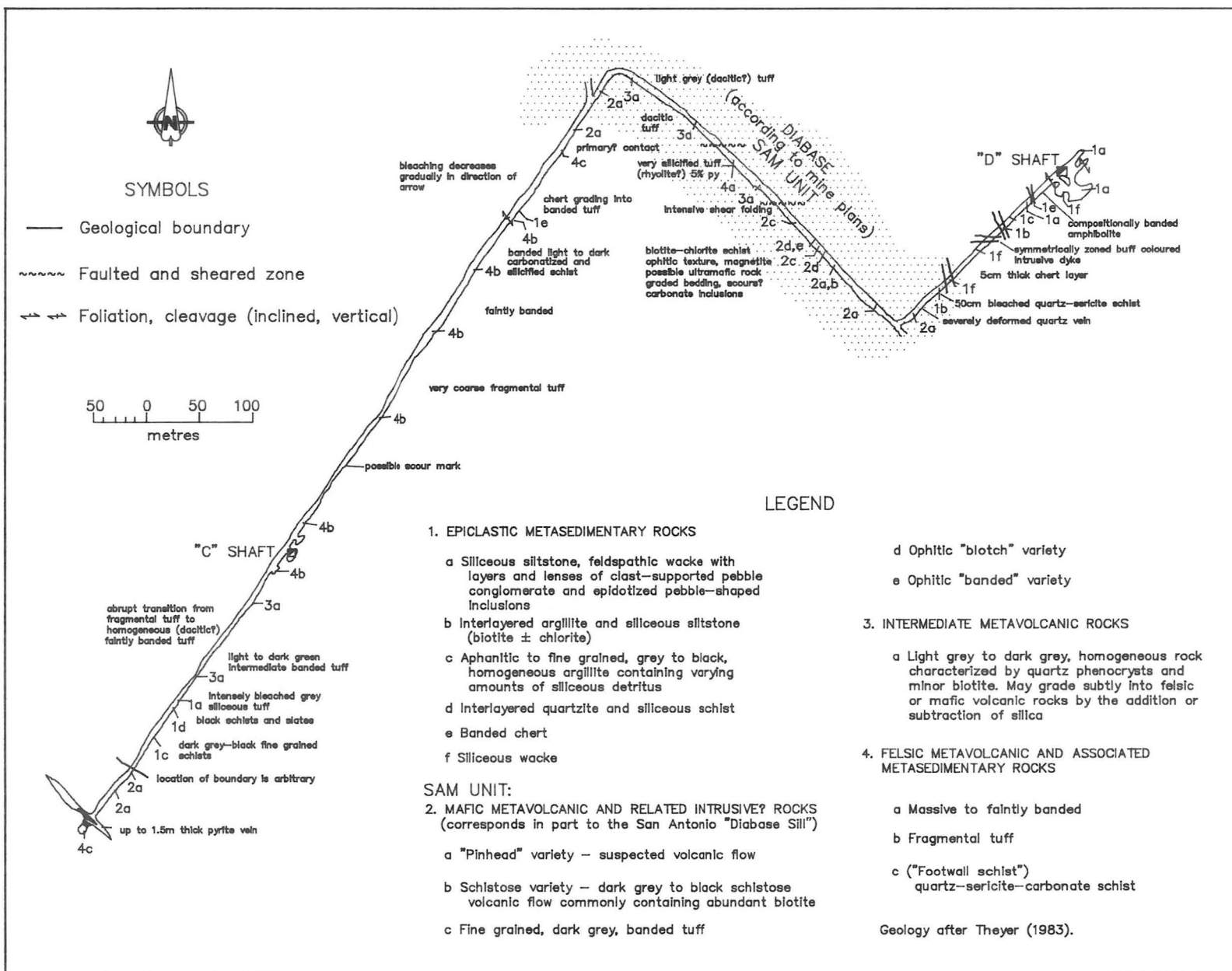


Figure 1-4: Geology of the 26th mine level, San Antonio Mine.

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## LOCATION: 2

NAME: Poundmaker (Selkirk, Luleo) Mine

UTM: 5662954N/307136E

ACCESS: a) Via a logging road that crosses the Wanipigow River at Government Landing; or  
b) Via a trail that branches northward from P.R. 304 to Little Beaver Lake (Fig. 1-1).  
(The use of an ATV on this trail is recommended).

## EXPLORATION SUMMARY:

A detailed exploration history of the deposit is given in Mineral Inventory Card 52M/4 Au4.

The area was staked in 1915 and probably optioned by the Bellevue Mining Company in 1917. A stamp mill was erected and a 26 m deep shaft was excavated in 1919. American Development Company Ltd., a subsidiary of Selkirk Gold Mining Incorporated, optioned the property in 1921, deepened the shaft to 110 m and refurbished the mill. According to Davies (1949), the ore tenor in the upper two levels averaged 33 g/t Au in 1923; however, mine closure due to exhaustion of ore was recommended in 1925 (Poundmaker Gold Mine, Mining Engineering Files).

Selkirk (Canadian) Mines Ltd. purchased the mine assets and conducted EM surveys and a diamond drill program in 1927 and 1928. The diamond drilling (4790 m) intersected a 7.6 m long section that contained 30% copper and zinc sulphides. Poundmaker Gold Mines Ltd. purchased the property in 1934, conducted rock sampling and upgraded the mill to a 90 tons/day processing capability. An experimental AEM (INPUT) survey, under contract to the Geological Survey of Canada (A.F. 91543) was performed over the area in 1968. A combined AEM and MAG survey was flown by Geoterrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). In 1980 Calverley Prospecting Ltd. recovered 0.9 kg Au out of 15.8 tonnes of muck shipped to Hudson Bay Mining and Smelting Ltd. for refining. The property was re-evaluated in 1981 and 1982. In 1983 San Antonio Joint Venture Ltd. sampled the muck pile at the Poundmaker Mine (A.F. 92582). The mine site and trenches were sampled by Manitoba Energy and Mines in 1987. Two rubble-filled shafts and 32 subparallel trenches are present at this location.

The 12 largest of a group of 32 trenches from south to north are:

Trench #1 (3x2x0.5 m), filled with rubble and earth;

Trench #2 (13x1x0.5 m), filled with earth;

Trench #3 (10x2x1 m), filled with earth;

Trench #4 (10x1x1 m), cut in felsic chloritized rock, is partially filled with rubble;

Trench #5 (6x1x1 m), largely filled with rubble. Exposures of an approximately 1 m thick white sugary quartz vein are present in the northeastern corner;

AREA: Northwest of Bissett (Fig. 1-1).

AIRPHOTO: A24713-190

Trench #6 (10x1x1 m), partially covered with rubble and overburden, exhibits several 5 to 10 cm thick discontinuous quartz veins, that contain numerous wall rock inclusions;

Trench #7 (6x1x1 m), partially filled with rubble;

Trench #8 (17x1.5x1.5 m), partially filled with rubble and earth, exhibits walls that consist of chlorite-sericite schist and quartz pebbles. The rocks are barren of sulphide minerals;

Trench #9 (20x2x0.5 m), virtually filled with rubble and overburden, exhibits a 2 m thick quartz vein in the northwestern end;

Trench #10 (20x2x2 m), exhibits several 20 to 50 cm thick veins of sugary white quartz with abundant ankerite lenses hosted in chlorite schist;

Trench #11 (25x2x1 m), virtually filled with rubble and overburden, exhibits chlorite schist; and

Trench #12 (17x1x0.5 m), cut in sheared granite to granodiorite, altered to chlorite-sericite schist. A 1.5 m thick, milky white quartz vein occurs in the centre of the trench.

The area is registered as a patented claim and will remain in good standing until default of payment of Mining Claim Taxes.

## GEOLOGICAL SETTING:

The area, underlain by hornblende-quartz diorite (Fig. 1-1), is foliated and sheared. The rocks adjacent to the shears are generally altered to chlorite-sericite schist. A total of 32 subparallel trenches were excavated across an approximately 0.6 km long and 10 m thick, northwesterly-striking shear zone, that contains discontinuous quartz veins and lenses.

According to Stephenson (1972), the sulphide-bearing quartz vein at the Poundmaker Mine is 6 m thick and can be traced for approximately 92 m along strike. The vein quartz is white to translucent, has a sugary texture and locally contains inclusions of chloritized wall rock and ankerite.

Wright (1932) reported that the gold-bearing quartz is hosted by a schist and exposed underground for a distance of at least 400 m. The main quartz body near the shaft is lense-shaped and measures approximately 130 m by 15 m. Three smaller quartz lenses occur in the vicinity.

## MINERALIZATION:

Quartz rubble in trenches #5, #6, #8 and #10 contains approximately 0.5% to 1% disseminated pyrite and pyrrhotite. Chlorite-sericite schist in the walls of trench #12 contains approximately 1% pyrite.

Stephenson (1972) described polished sections of samples from the muck pile adjacent to the shaft: pyrite, the most common mineral, is associated with chalcopyrite. The association of trace quantities of gold in or adjacent to pyrite was interpreted to indicate contemporaneous gold and pyrite mineralization. Quartz veins exposed near the shaft exhibit malachite and azurite staining.

## GEOCHEMICAL DATA:

Grab samples from the muck pile at the Poundmaker Mine collected by staff of San Antonio Joint Venture Ltd. in 1983 assayed 20.2, 16.1, 5.2, 9.2, 1.9, and 0.9 g/t Au. A grab sample of granodiorite rubble, collected in the vicinity of the shaft, contained 8 ppb of gold. Quartz rubble with traces of pyrite contained 1.6 g/t gold (Schmidtke, 1984). Analytical results of the samples collected in 1984 were reported in Stewart (1985).

Two grab samples of vuggy quartz with 0.5 to 1% pyrite from two small unnumbered trenches contained 24 and 4 ppb gold.

Grab samples of quartz rubble with  $\leq 1\%$  disseminated pyrite, collected from separate trenches, contained 1 ppb, 1 ppb and 4 ppb Au, respectively.

The gold content and nature of several rock samples collected from the trenches is recorded in Table 2-1.

**Table 2-1: Gold analyses; Poundmaker Mine**

Sample	Host rock	Sulphide (%)	Au (ppb)
2 m chip	granodiorite	1	1
1 m chip	quartz-bearing granodiorite	tr.	4
grab	ankeritic granodiorite	nil	205
grab	quartz ankerite	nil	158
grab	quartz rubble	1	24
grab	quartz rubble	tr.	4
grab	quartz rubble	1	1
grab	vein quartz	1	1
grab	vein quartz	1	4

## CLASSIFICATION:

Vein type deposit; multiple veins and lenses.

## REFERENCES:

- Ames, D.E.  
1988: Stratigraphy and alteration of gabbroic rocks near the San Antonio gold mine, in the Rice Lake area, southeastern Manitoba; Carleton University, M.Sc. Thesis (unpublished), 202p.
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- Schmidtke, R. H.  
1984: Mineral deposit documentation in the Bissett area; in Manitoba Energy and Mines, Mineral Resources, Report of Field Activities, 1984, p. 92-99.
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1971: Geology of the Wanipigow River-Manigotagan River region; in Geology and geophysics of the Rice Lake region, southeastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.
- Wright, J.F.  
1932: Geology and mineral deposits of a part of southeastern Manitoba; Geological Survey of Canada, Memoir 169, 150p.

**LOCATION: 3****NAME:** Vanson**UTM:** 5658166N/313879E**ACCESS:** Via a logging road starting east of Round Lake.**AREA:** 3 km northeast of Bissett (Fig. 3-1).**AIRPHOTO:** A24713-54**EXPLORATION SUMMARY:**

A detailed exploration history of the deposit is given in Mineral Inventory Card 52M/4 Au12.

The property was first staked in 1924 and a shaft was sunk in 1926. Vanson Gold Mines Ltd. optioned the property in 1932 and installed a mill in 1933. Vanson Manitoba Gold Mines Ltd. acquired control of the property in 1934 and sunk a four-level shaft with drifts on each level (A.F. 91133). Underground diamond drilling proved minor amounts of high grade gold mineralization. "Some" gold was reportedly produced at that time (Vanson Manitoba Mines Ltd., Corporation Files). Mining ceased in 1935 and the claims lapsed in 1953. An experimental AEM (INPUT) survey, under contract to the Geological Survey of Canada (A.F. 91543), was conducted in 1968. A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). Esso Resources Canada Ltd. investigated and sampled the property in 1981 (W. Conley Jr. pers. comm., 1985). The area is currently staked and in good standing until April 1998.

**GEOLOGICAL SETTING:**

The area is underlain by Edmunds Lake Formation sedimentary rocks (Fig. 3-1; Weber, 1971) that include fine grained, white to beige sedimentary rocks inter-layered with greenish silty rocks that contain garnet porphyroblasts and layers of rusty pyrite-bearing sedimentary rock. The interpreted primary layering is concordant to a pervasive west-striking foliation (Fig. 3-2). Quartz occurs in irregularly-shaped pods and discontinuous lenses. Fuchsite-rich rock layers,  $\leq 1$  cm thick occur in places.

**MINERALIZATION:**

Foliated sedimentary rocks located near the shaft contain  $\leq 5\%$  disseminated pyrite in 1 to 2 cm thick layers.

**GEOCHEMICAL DATA:**

Geochemical analyses of samples collected in 1984 are presented in Table 3-1.

**Table 3-1: Gold analyses of rock samples from occurrence 3 (Vanson).**

Sample type	Length (m)	Au (ppb)	Rock type
chip	1.5	23	schist
chip	1.5	23	schist
grab	-	23	sedimentary rock
grab	-	23	sedimentary rock
grab	-	12	sedimentary rock
grab	-	62	quartz

**CLASSIFICATION:**

Vein type deposit; multiple veins and lenses.

**REFERENCES:**

Ames, D.E.

1988: Stratigraphy and alteration of gabbroic rocks near the San Antonio gold mine, in the Rice Lake area, southeastern Manitoba; Carleton University, M.Sc. Thesis (unpublished), 202p.

Assessment Files 91133, 91543, 91677, 91681; Manitoba Energy and Mines, Mines Branch.

Corporation Files, Vanson Manitoba Mines Ltd.; Manitoba Energy and Mines, Mines Branch.

Mineral Inventory Card 52M/4 Au12; Manitoba Energy and Mines, Geological Services Branch.

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1983: Geology of gold environments in the Bissett/Wallace Lake portion of the Rice Lake greenstone belt; in Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities, 1983, p. 101-106.

Weber, W.

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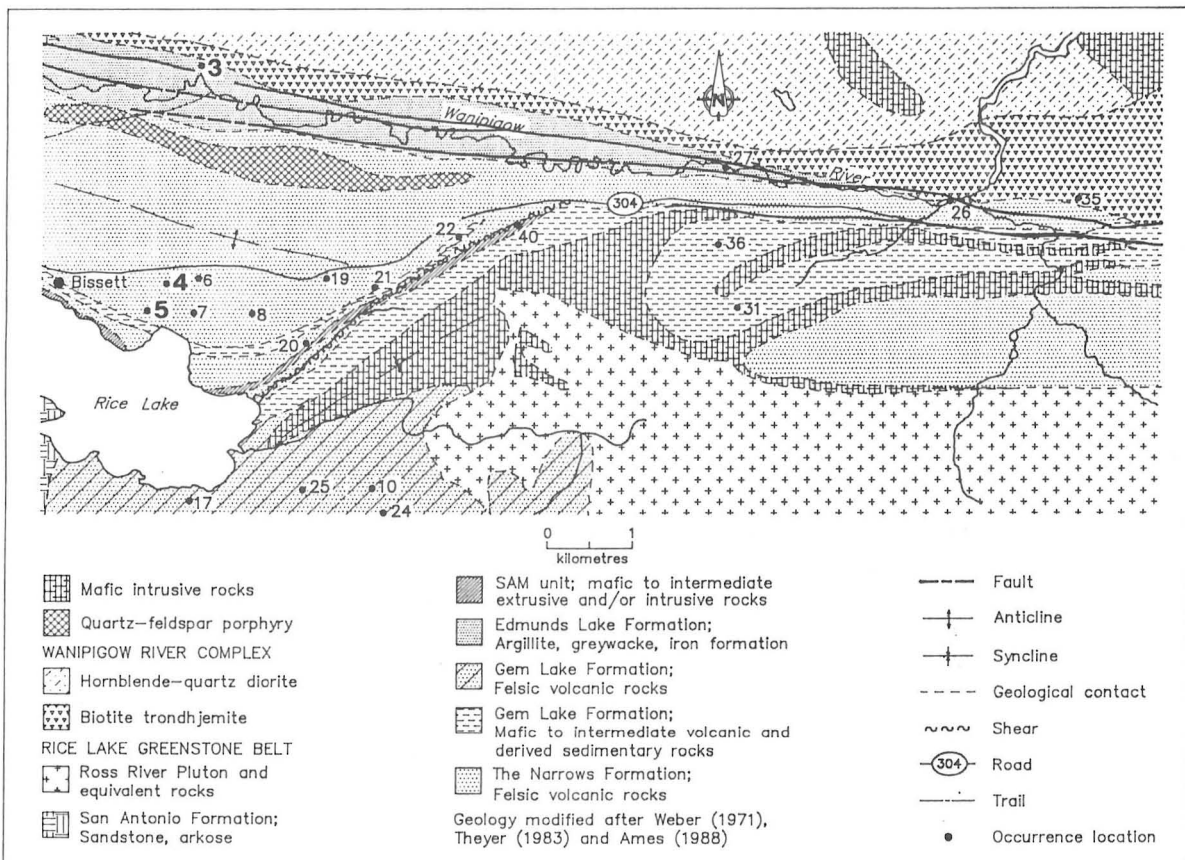


Figure 3-1: Geological setting of occurrences 3 (Vanson), 4 (Gold Cup) and 5 (Big Four).

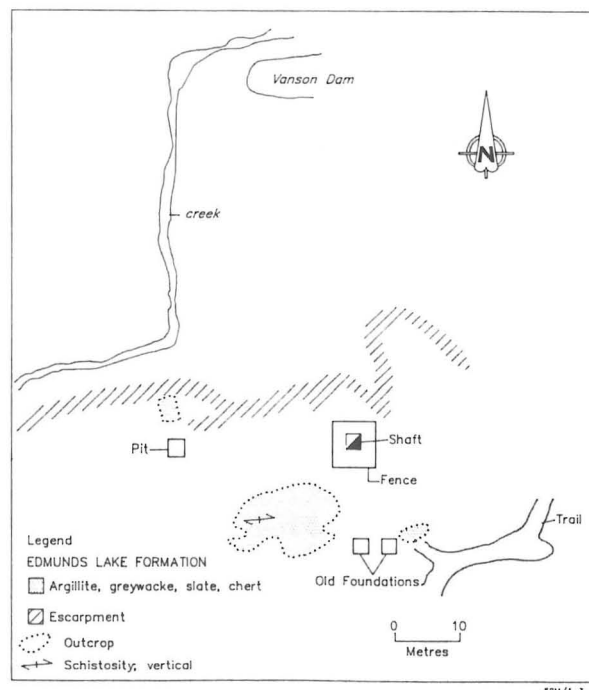


Figure 3-2: Location of shaft and outcrops at occurrence 3 (Vanson).

**LOCATION: 4**

**NAME:** Gold Cup (Wingold Group)

**UTM:** 5655837N/313233E

**ACCESS:** Travel approximately 1 km east of Bissett on P.R. 304 and then traverse approximately 30 m south.

**EXPLORATION SUMMARY:**

A detailed exploration history of the deposit is given in Mineral Inventory Card 52M/4 Au15. The Gold Cup is part of the Wingold group of properties (Stockwell, 1938), staked between 1913 and 1915. A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). An 18 m deep shaft was sunk on this site (Wingold Mines Corporation Files). A pit (5x3x2 m), filled with rubble and broken timber, was observed by the author on this site in 1986.

The property is part of Production Lease 37, which expires in 2017.

**GEOLOGICAL SETTING:**

The area is underlain by tuff, lapilli tuff and phyllites of The Narrows Formation (Fig. 3-1; Weber, 1971).

The pit (shaft) is in a sheared, feldspar phenocryst-rich, light grey, silicified rock that on surface contains a quartz ankerite vein that is at least 60 cm thick. Abundant scattered quartz-ankerite rubble indicates that quartz veins were probably intersected in the shaft.

**MINERALIZATION:**

Quartz-ankerite rubble contains approximately 0.5% disseminated pyrite.

**GEOCHEMICAL DATA:**

Quartz-ankerite rubble with traces of pyrite assayed 2 g/t Au. A grab sample of sheared silicified tuff that contains trace pyrite assayed trace Au.

**AREA:** Approximately 1 km east of Bissett (Fig. 3-1).

**AIRPHOTO:** A24713-53

**CLASSIFICATION:**

Vein type deposit; multiple veins and lenses.

**REFERENCES:**

Ames, D.E.

1988: Stratigraphy and alteration of gabbroic rocks near the San Antonio gold mine, in the Rice Lake area, southeastern Manitoba; Carleton University, M.Sc. Thesis (unpublished), 202p.

Assessment File 91677, 91681; Manitoba Energy and Mines, Mines Branch.

Corporation Files, Wingold Mines Limited; Manitoba Energy and Mines, Mines Branch.

Mineral Inventory Card 52M/4 Au15; Manitoba Energy and Mines, Geological Services Branch.

Stockwell, C.H.

1938: Rice Lake - Gold Lake area, southeastern Manitoba; Geological Survey of Canada, Memoir 210, 79p.

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**LOCATION: 5**

**NAME:** Big Four (Wingold Group)

**UTM:** 5655498N/312963E

**ACCESS:** Travel approximately 0.5 km east of Bissett on P.R. 304 and then traverse approximately 0.5 km south.

**EXPLORATION SUMMARY:**

A detailed exploration history of the deposit is given in Mineral Inventory Card 52M/4 Au15. This occurrence is part of a group of claims first staked between 1913 and 1915. A shaft exceeding 31 m depth was sunk in 1914 (Wingold Mines Limited, Corporation File; Stockwell, 1938). The shaft is located on a claim that was patented in 1924.

A combined AEM and MAG survey was flown by Geoterrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). The property is part of Production Lease 37, which expires in 2017.

**GEOLOGICAL SETTING:**

The area is underlain by silicified feldspar phyric felsic volcanic rocks of The Narrows Formation (Fig. 3-1; Weber, 1971).

**MINERALIZATION:**

Outcrops in the vicinity of the shaft are barren of sulphide mineralization. Rubble found adjacent to the shaft comprises felsic volcanic rock and minor quartz that contain  $\leq 0.5\%$  disseminated pyrite.

**GEOCHEMICAL DATA:**

A grab sample of the rubble contained  $\leq 0.5\%$  pyrite and assayed nil Au.

**CLASSIFICATION:**

Vein type deposit; multiple veins and lenses.

**AREA:** 0.8 km east of Bissett (Fig. 3-1).

**AIRPHOTO:** A24713-53

**REFERENCES:**

Ames, D.E.

1988: Stratigraphy and alteration of gabbroic rocks near the San Antonio gold mine, in the Rice Lake area, southeastern Manitoba; Carleton University, M.Sc. Thesis (unpublished), 202p.

Assessment File 91677, 91681; Manitoba Energy and Mines, Mines Branch.

Corporation Files, Wingold Mines Limited; Manitoba Energy and Mines, Mines Branch.

Mineral Inventory Card 52M/4 Au15; Manitoba Energy and Mines, Geological Services Branch.

Stockwell, C.H.

1938: Rice Lake - Gold Lake area, southeastern Manitoba; Geological Survey of Canada, Memoir 210, 79p.

Theyer, P.

1983: Geology of gold environments in the Bissett/Wallace Lake portion of the Rice Lake greenstone belt; in Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities, 1983, p.101-106.

Weber, W.

1971: Geology of the Wanipigow River-Manigotagan River region; In Geology and geophysics of the Rice Lake region, southeastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.



## LOCATION: 6

NAME: Gold Field (Wingold Group)

UTM: 5655849N/313593E

ACCESS: Travel approximately 1.5 km east of Bissett on P.R. 304 and then traverse approximately 0.2 km south.

## EXPLORATION SUMMARY:

A detailed exploration history of the deposit is given in Mineral Inventory Card 52M/4 Au15. The Gold Field property is part of the Wingold Group of deposits (Stockwell, 1938a). An inclined shaft was sunk and a stamp mill erected in the years from 1913 to 1915. Under the direction of Wingold Mines Ltd., and prior to 1935, the shaft was deepened to 91 m and levels were established at 50 m and 83 m depth. Three horizontal holes of unspecified length were drilled from the 83 m level (Wingold Mines Ltd. Corporation Files). A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). Minor quartz-carbonate rubble occurs adjacent to the shaft at location 6 (Schmidtke, 1984).

Zone 1 consists of a trench (2x1x2 m) and two smaller pits that are filled with overburden. It occurs 0.2 km east of the Gold Field shaft and was recorded as "location 16" by Stockwell (1938b). The property is part of Production Lease 37, which expires in 2017.

## GEOLOGICAL SETTING:

The area that encompasses the shaft and Zone 1 is underlain by silicified, foliated, light grey, feldspar phyric crystal tuff of The Narrows Formation (Fig. 6-1; Weber, 1971). Fine grained mafic rocks occur approximately 15 m north of the shaft. A 0.5 to 1 m thick north-west-striking shear, located in the vicinity of the shaft, hosts discontinuous cherty quartz veins with tourmaline-coated fracture planes.

## MINERALIZATION:

Quartz-carbonate rubble that occurs near the shaft contains  $\leq 1\%$  pyrite. Stephenson (1972) described quartz-tourmaline-pyrite and quartz-ankerite intergrowths in polished quartz vein samples from this occurrence.

## GEOCHEMICAL DATA:

A grab sample of quartz-carbonate rubble with approximately 1% pyrite contained 300 ppb Au. A grab sample of feldspar phyric rubble, collected from the vicinity of the shaft, contained trace Au.

A grab sample of quartz rubble and a grab sample of the host rock at Zone 1 contained nil Au.

## CLASSIFICATION:

Vein type deposit; multiple veins and lenses.

AREA: 1.5 km east of Bissett (Fig. 6-1).

AIRPHOTO: A24713-53

## REFERENCES:

Ames, D.E.

1988: Stratigraphy and alteration of gabbroic rocks near the San Antonio gold mine, in the Rice Lake area, southeastern Manitoba; Carleton University, M.Sc. Thesis (unpublished), 202p.

Assessment File 91677, 91681; Manitoba Energy and Mines, Mines Branch.

Corporation Files, Wingold Mines Limited; Manitoba Energy and Mines, Mines Branch.

Mineral Inventory Card 52M/4 Au15; Manitoba Energy and Mines, Geological Services Branch.

Schmidtke, R.H.

1984: Mineral deposit documentation in the Bissett area; in Manitoba Energy and Mines, Energy and Mineral Resources, Report of Field Activities, 1984, p. 92-99.

Stephenson, J.F.

1972: Gold deposits of the Rice Lake-Beresford Lake area, southeastern Manitoba; University of Manitoba, Ph.D. Thesis (unpublished), 294p.

Stockwell, C.H.

1938a: Rice Lake - Gold Lake area, southeastern Manitoba; Geological Survey of Canada, Memoir 210, 79p.

Stockwell, C.H.

1938b: Rice Lake - Gold Lake area, southeastern Manitoba; Geological Survey of Canada, Map 464A, 1:6 000.

Theyer, P.

1983: Geology of gold environments in the Bissett/Wallace Lake portion of the Rice Lake greenstone belt; in Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities, 1983, p. 101-106.

Weber, W.

1971: Geology of the Wanipigow River-Manigotagan River region; in Geology and geophysics of the Rice Lake region, southeastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.

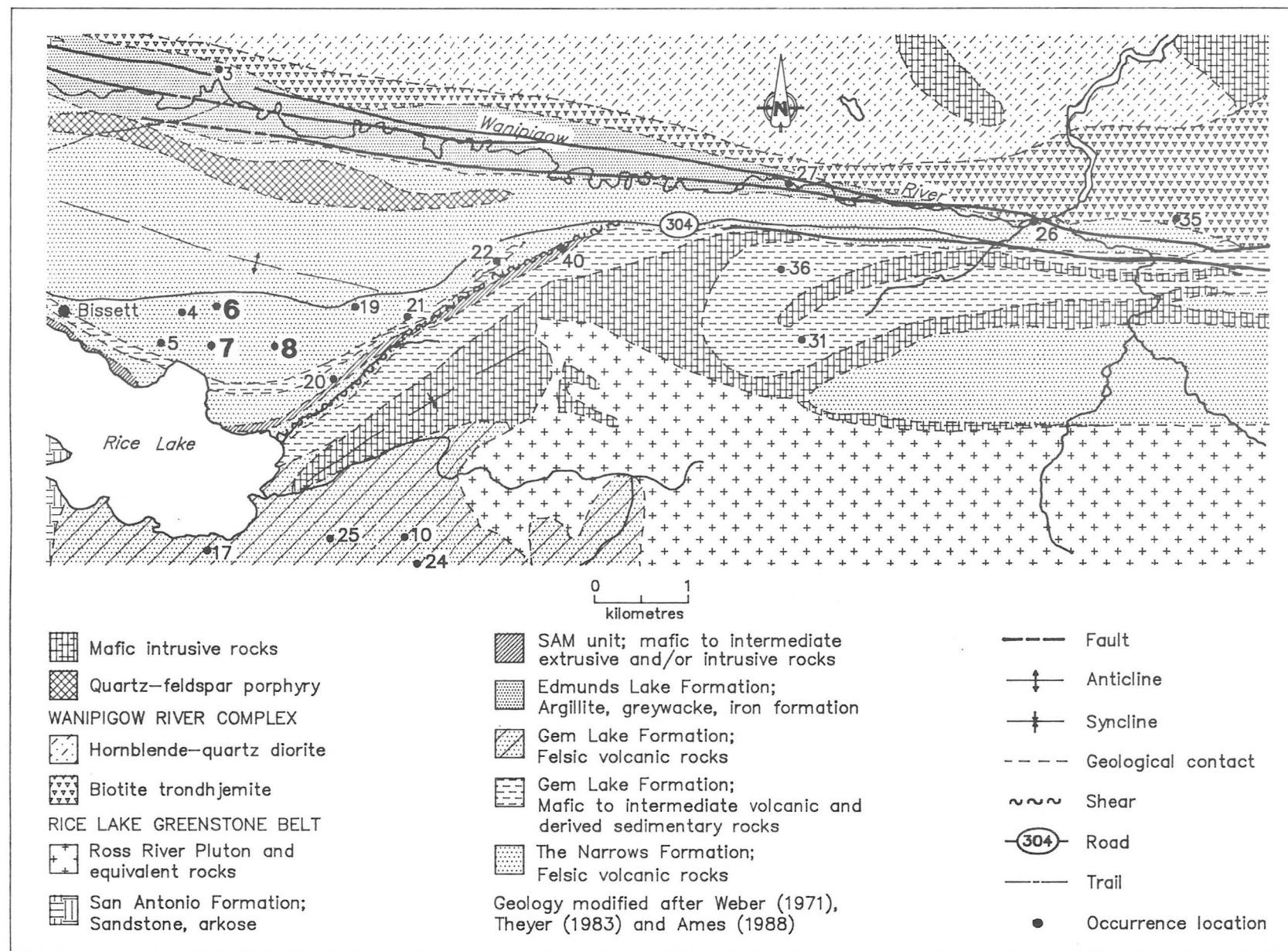


Figure 6-1: Geological setting of occurrences 6 (Gold Field), 7 (Gold Standard) and 8 (Emperor).



#### LOCATION: 7

NAME: Gold Standard (Wingold Group)

UTM: 5655423N/313507E

ACCESS: Travel approximately 1.5 km east of Bissett on P.R. 304 and then traverse approximately 0.6 km south.

#### EXPLORATION SUMMARY:

A complete review of the deposit history is contained in Mineral Inventory Card 52M/4 Au15. The Gold Standard property is part of the Wingold Group of deposits (Stockwell, 1938).

A 30.5 m deep shaft was sunk on this property between 1913 and 1915 (6th Annual Report on Mines and Minerals). A combined AEM and MAG survey was flown by Geoterrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677).

An approximately 5x5 m water-filled pit (probably the remains of a former shaft) and a trench at a location approximately 30 m south of the pit were observed by the author in 1986.

The property is part of Production Lease 37, which expires in 2017.

#### GEOLOGICAL SETTING:

The area of the shaft is underlain by silicified, foliated, light grey feldspar phyric crystal tuff of The Narrows Formation (Fig. 6-1; Weber, 1971).

An east-striking shear zone that contains an approximately 30 to 40 cm thick, white, rusty weathering quartz vein with abundant chloritized inclusions is exposed in the trench.

#### MINERALIZATION:

The vein quartz contains erratically distributed pyrite crystals.

#### GEOCHEMICAL DATA:

A grab sample of vein quartz with traces of pyrite contained 5.8 g/t Au. Two grab samples of the feldspar phyric host rock contained nil Au.

AREA: 1.5 km east of Bissett (Fig. 6-1).

AIRPHOTO: A24713-53

#### CLASSIFICATION:

Vein type deposit; single vein.

#### REFERENCES:

Annual Report on Mines and Minerals; 6th, Manitoba Mines Branch, p.57.

Ames, D.E.

1988: Stratigraphy and alteration of gabbroic rocks near the San Antonio gold mine, in the Rice Lake area, southeastern Manitoba; Carleton University, M.Sc Thesis (unpublished), 202p.

Assessment File 91677, 91681; Manitoba Energy and Mines, Mines Branch.

Mineral Inventory Card 52M/4 Au15; Manitoba Energy and Mines, Geological Services Branch.

Stockwell, C.H.

1938: Rice Lake - Gold Lake area, southeastern Manitoba; Geological Survey of Canada, Memoir 210, 79p.

Theyer, P.

1983: Geology of gold environments in the Bissett/Wallace Lake portion of the Rice Lake greenstone belt; In Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities, 1983, p. 101-106.

Weber, W.

1971: Geology of the Wanipigow River-Manigotagan River region; In Geology and geophysics of the Rice Lake region, southeastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.

**LOCATION: 8**

**NAME:** Emperor (Wingold Group)

**UTM:** 5655387N/314178E

**ACCESS:** Travel approximately 1.5 km east of Bissett on P.R. 304 and then traverse approximately 0.5 km south.

**EXPLORATION SUMMARY:**

A complete review of the deposit history is contained in Mineral Inventory Card 52M/4 Au15. The Emperor property is part of the Wingold Group of deposits (Stockwell, 1938). A 12 m deep shaft was sunk on this site (Corporation Files, Wingold Mines Ltd.). A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677).

A 3x2x2 m pit and quartz-ankerite rubble was located at this site by the author in 1986.

The property is part of Production Lease 37, which expires in 2017.

**GEOLOGICAL SETTING:**

The area in the vicinity of the shaft is underlain by silicified, foliated, light grey, feldspar phyric crystal tuff of The Narrows Formation (Fig. 6-1; Weber, 1971). Stockwell (1938) mapped this rock as porphyritic andesite.

**MINERALIZATION:**

Traces of pyrite were noted in the quartz-ankerite rubble.

**GEOCHEMICAL DATA:**

A grab sample of quartz-ankerite rubble contained nil Au.

**CLASSIFICATION:**

Vein type deposit. Probably a single vein.

**AREA:** 1.5 km east of Bissett (Fig. 6-1).

**AIRPHOTO:** A24713-53; A24711-96

**REFERENCES:**

Ames, D.E.

1988: Stratigraphy and alteration of gabbroic rocks near the San Antonio gold mine, in the Rice Lake area, southeastern Manitoba; Carleton University, M.Sc. Thesis (unpublished), 202p.

Assessment File 91677, 91681; Manitoba Energy and Mines, Mines Branch.

Corporation Files, Wingold Mines Ltd.; Manitoba Energy and Mines, Mines Branch.

Mineral Inventory Card 52M/4 Au15; Manitoba Energy and Mines, Geological Services Branch.

Stockwell, C.H.

1938: Rice Lake - Gold Lake area, southeastern Manitoba; Geological Survey of Canada, Memoir 210, 79p.

Theyer, P.

1983: Geology of gold environments in the Bissett/Wallace Lake portion of the Rice Lake greenstone belt; In Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities, 1983, p. 101-106.

Weber, W.

1971: Geology of the Wanipigow River-Manigotagan River region; In Geology and geophysics of the Rice Lake region, southeastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.

## LOCATION: 9

NAME: Luana

UTM: 5660232N/309725E

ACCESS: Travel 2.5 km north on a tractor trail branching off P.R. 304, approximately 0.75 km west of the Quesnel Lake access road.

## EXPLORATION SUMMARY:

A complete review of the deposit history is contained in Mineral Inventory Card 52M/4 Au13.

The property was first staked in 1912. Trenching and sampling were undertaken by unidentified parties in 1924 (A.F. 91135), and later an 8 m deep pit was sunk. A trench (29x2x1 m) was observed in this area in 1985.

An experimental AEM (INPUT) survey, under contract to the Geological Survey of Canada (A.F. 91543) was conducted in 1968. A combined AEM and MAG survey was flown by Geoterrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). A MAG and VLF-EM survey was conducted in 1982. Geological mapping, rock and soil sampling and VLF-EM surveys were undertaken in 1984 by Silver Sceptre Resources Ltd. on a property located approximately 1.2 km southeast of occurrence 9 (Zone 1)(Fig. 9-2). Nine trenches were observed in Zone 1, but their exact locations were not recorded (A.F. 92713). The area is currently staked and in good standing until April 1994.

## GEOLOGICAL SETTING:

Occurrence 9 and Zone 1 are underlain by sedimentary rocks of the Edmunds Lake Formation (Weber, 1971) and interlayered felsic and mafic volcanic rocks. Northwest-striking shears host discontinuous 1 to 2 cm thick vuggy quartz ribbons and lenses. An approximately 300 m long, intermittently exposed quartz vein, occurs at occurrence 9. Granitic rocks of the Wanipigow River Plutonic Complex outcrop approximately 300 m north of occurrence 9 (Stephenson, 1971).

## MINERALIZATION:

Traces of disseminated pyrite occur in minor quartz veins and in the host rock. Several, west-striking shears,  $\leq 300$  m long and 0.5 to 2 m thick, locally hosting carbonatized, pyrite-bearing quartz stringers, occur at Zone 1 (A.F. 92713).

AREA: 5 km northwest of Bissett (Fig. 9-1).

AIRPHOTO: A24713-189; -190

## GEOCHEMICAL DATA:

A grab sample of rubble from the vicinity of the trench at occurrence 9, which included weakly-mineralized felsic schist and quartz contained 8 ppb Au.

Four grab samples consisting of pyrite-bearing quartz and volcanic host rock collected from shear zones within the Zone 1 area, which contained  $<100$  ppb Au. A fifth sample contained 411 ppb Au. Seventy-four A and B horizon soil samples had a mean concentration of 3.7 ppb Au; there was one sample with an anomalous concentration of 25 ppb Au (A.F. 92713).

## CLASSIFICATION:

Vein type deposit; multiple veins and lenses.

## REFERENCES:

Assessment Files 91135, 91543, 91677, 91681, 92713; Manitoba Energy and Mines, Mines Branch.

Mineral Inventory Card 52M/4 Au13; Manitoba Energy and Mines, Geological Services Branch.

Stephenson, J.F.

1971: Gold deposits of the Rice Lake-Beresford Lake greenstone belt, southeastern Manitoba; In *Geology and geophysics of the Rice Lake region, southeastern Manitoba* (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, p. 337-374.

Weber, W.

1971: Geology of the Wanipigow River-Manigotagan River region; In *Geology and geophysics of the Rice Lake region, southeastern Manitoba* (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.

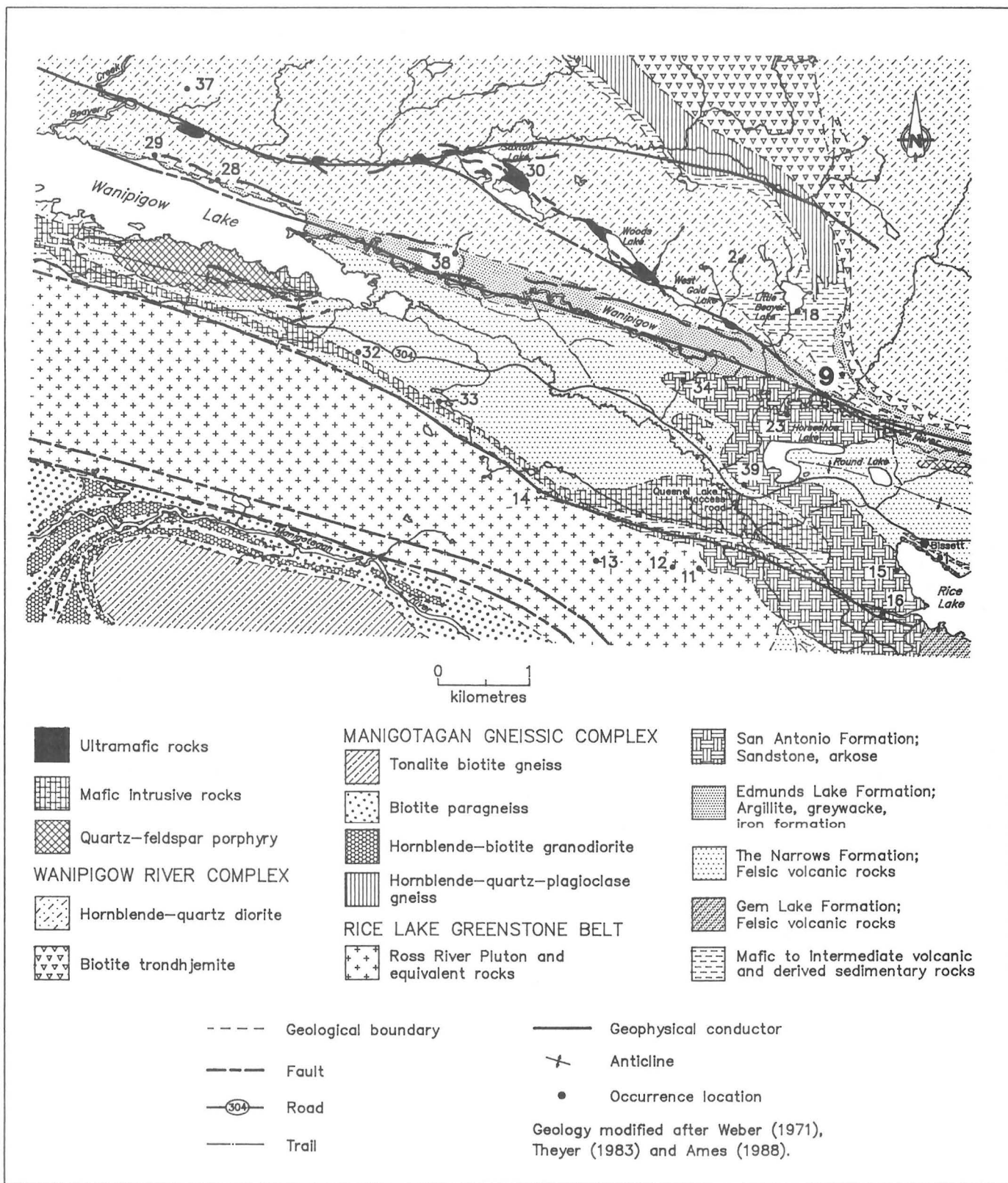


Figure 9-1: Location map of occurrence 9 (Luana).

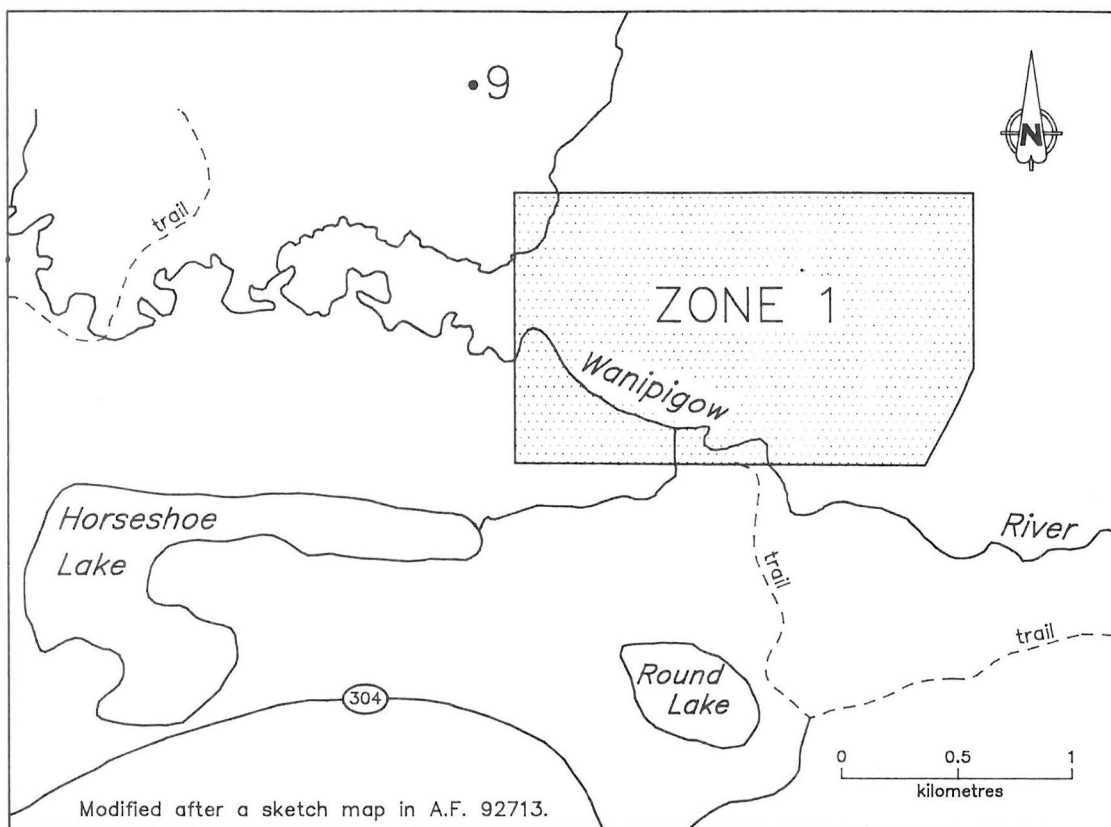


Figure 9-2: Location map of occurrence 9 (Luana) and Zone 1.

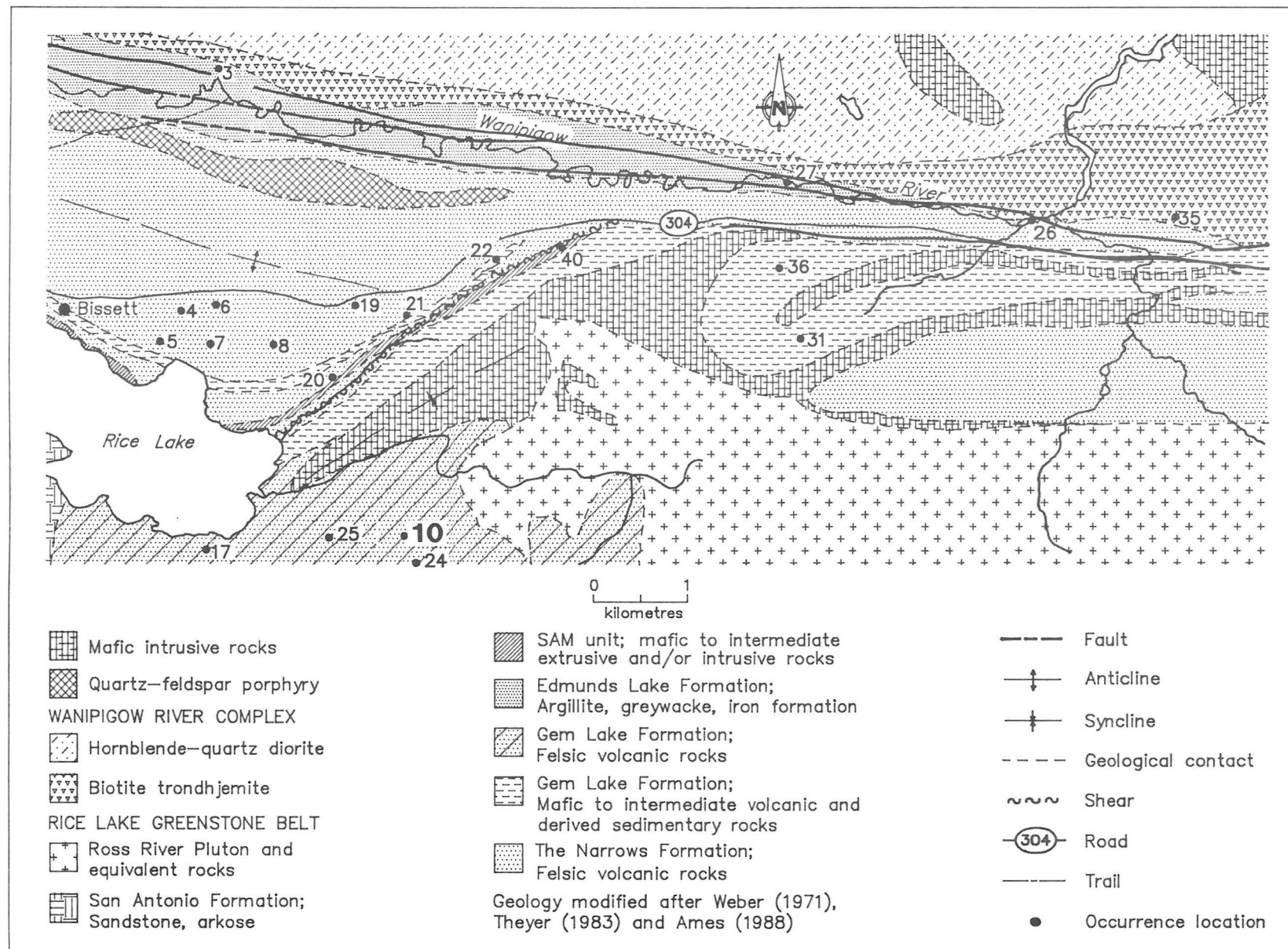


Figure 10-1: Geological setting of occurrence 10 (Independence).



## LOCATION: 10

NAME: Independence (Rita No. 1)

UTM: 5653288N/315454E

ACCESS: a) via aircraft to Gold Lake and traverse; or  
b) via boat on Rice Lake and traverse.

## EXPLORATION SUMMARY:

A complete review of the deposit history is contained in Mineral Inventory Card 52M/4 Au2.

This area, first staked in 1934, was investigated by means of pits, trenches and a 9 m shaft on behalf of Rice Lake Gold Mines Ltd. A 15 hole drilling program (unknown total length) intersected a quartz vein at depths that range from 15 to 46 m (Corporation Files, Rice Lake Gold Mines). The occurrence was described by Stockwell (1938). Exploration continued in 1964 with a 24 hole drill program (795.6 m) conducted for Brabar Mines Ltd. (A.F. 91136, 91137). A combined AEM and MAG survey was flown by Geoterrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). The ground was restaked by Scope Resources Ltd. in 1972, and in 1973, a 5 hole (86 m) drilling program was completed (A.F. 92307). In 1983, Taiga Consultants Ltd. investigated the area using MAG, VLF-EM and soil geochemistry (A.F. 92628). The area is currently staked and in good standing until June 1994.

## GEOLOGICAL SETTING:

The area is underlain by felsic volcanic rocks of the Gem Lake Formation, which includes massive, layered and brecciated rhyolite and dacite that have been intruded by felsic and mafic dykes (Fig. 10-1; Weber, 1971). A northeast-striking shear zone that can be traced for approximately 670 m along strike contains an array of  $\leq 2$  m thick, discontinuous quartz-ankerite ribbons and lenses impregnated with minor fuchsite (Fig. 10-2).

## MINERALIZATION:

Trace to 5% pyrite occurs in some of the quartz-ankerite ribbons and lenses. Visible gold, reportedly occurring in these rocks (A.F. 92307), was not observed during field investigations. Stephenson (1972) described two polished sections that exhibited highly strained quartz mineralized with coarse- and fine-grained pyrite and patches of interstitial chalcopyrite.

## GEOCHEMICAL DATA:

Gold analyses that range from 690 ppb to 26.4 g/t were obtained from core drilled in 1973 (A.F. 92307).

AREA: 4.5 km southeast of Bissett (Fig. 10-1).

AIRPHOTO: A24711-98

Two grab samples of rhyolitic breccia with pyrite-bearing quartz stringers contained 316 ppb Au and trace Au. A grab sample of a quartz lense with 1% pyrite and minor ankerite contained 41 ppb Au. Two samples of quartz rubble from the vicinity of the shaft and from a trench contained 14.5 g/t and 26.4 g/t Au (Schmidtke, 1984; Stewart, 1985).

## CLASSIFICATION:

Vein type deposit; multiple veins and lenses.

## REFERENCES:

Ames, D.E.

1988: Stratigraphy and alteration of gabbroic rocks near the San Antonio gold mine, in the Rice Lake area, southeastern Manitoba; Carleton University, M.Sc. Thesis (unpublished), 202p.

Assessment Files 91136, 91137, 91677, 91681, 92307, 92628; Manitoba Energy and Mines, Mines Branch.

Corporation Files, Rice Lake Gold Mines; Manitoba Energy and Mines, Mines Branch.

Mineral Inventory Card 52M/4 Au2; Manitoba Energy and Mines, Geological Services Branch.

Schmidtke, R.H.

1984: Mineral deposit documentation in the Bissett area; In Manitoba Energy and Mines, Energy and Mineral Resources, Report of Field Activities, 1984, p. 92-99.

Stephenson, J.F.

1972: Gold deposits of the Rice Lake-Beresford Lake area, southeastern Manitoba; University of Manitoba, Ph.D. Thesis (unpublished), 294p.

Stewart, P.W.

1985: Mineral occurrence documentation in the Rice Lake greenstone belt; In Manitoba Energy and Mines, Geological Services, Mines Branch, Report of Field Activities, 1985, p. 133-147.

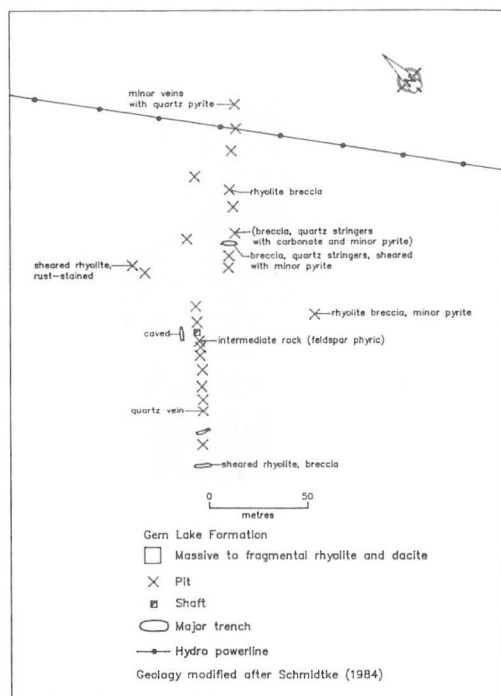


Figure 10-2: Detailed geology at occurrence 10 (Independence).

Stockwell, C.H.

1938: Rice Lake - Gold Lake area, southeastern Manitoba; Geological Survey of Canada, Memoir 210, 79p.

Theyer, P.

1983: Geology of gold environments in the Bissett/Wallace Lake portion of the Rice Lake greenstone belt; In Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities, 1983, p. 101-106.

Weber, W.

1971: Geology of the Wanipigow River-Manigotagan River region; in Geology and geophysics of the Rice Lake region, southeastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.



## LOCATION: 11

NAME: Apex

UTM: 5655368N/306177E

ACCESS: 1.5 km west on a trail off the Quesnel Lake access road (Fig. 11-1).

## EXPLORATION SUMMARY:

A shaft was sunk on this occurrence in the 1930's (A.F. 92583). A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). A preliminary geological investigation was undertaken for Brinco Mining Ltd. in 1983 (A.F. 92583). Two trenches (1x15x0.5 m; 1.5x6x0.5 m) and remnants of a log cabin, but no shaft, were observed at this site by the author in 1986. The area is currently staked and in good standing until November 1994.

## GEOLOGICAL SETTING:

The occurrence is underlain by granodiorite and quartz diorite of the plutonic complex south of Wanipigow Lake (Weber, 1971). An approximately 450 m long southwest (236°) -striking shear zone hosts a discontinuous, ≤95 cm thick quartz vein that pinches and swells along strike. Thin (1 cm) quartz veins, hosted by rust-stained quartz diorite, are exposed in the two trenches.

## MINERALIZATION:

The commonly rust-stained vein quartz contained ≤3% pyrite.

## GEOCHEMICAL DATA:

Erratically distributed gold in concentrations as high as 47 g/t were encountered in "selected hand samples" (A.F. 92583). Three grab samples of vein quartz

AREA: 6 km west of Bissett (Fig. 11-1).

AIRPHOTO: A24713-186

rubble containing 1 to 3% disseminated pyrite returned 1.0, 1.0 and 27.7 g/t Au (Schmidtke, 1984; data published in Stewart, 1985).

## CLASSIFICATION:

Vein type deposit; multiple veins and lenses.

## REFERENCES:

Assessment File 91677, 91681, 92583; Manitoba Energy and Mines, Mines Branch.

Schmidtke, R.H.

1984: Mineral deposit documentation in the Bissett area; In Manitoba Energy and Mines, Energy and Mineral Resources, Report of Field Activities, 1984, p. 92-99.

Stewart, P.W.

1985: Mineral occurrence documentation in the Rice Lake greenstone belt; In Manitoba Energy and Mines, Geological Services, Mines Branch, Report of Field Activities, 1985, p. 133-147.

Weber, W.

1971: Geology of the Wanipigow River-Manigotagan River region; In Geology and geophysics of the Rice Lake region, south-eastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.

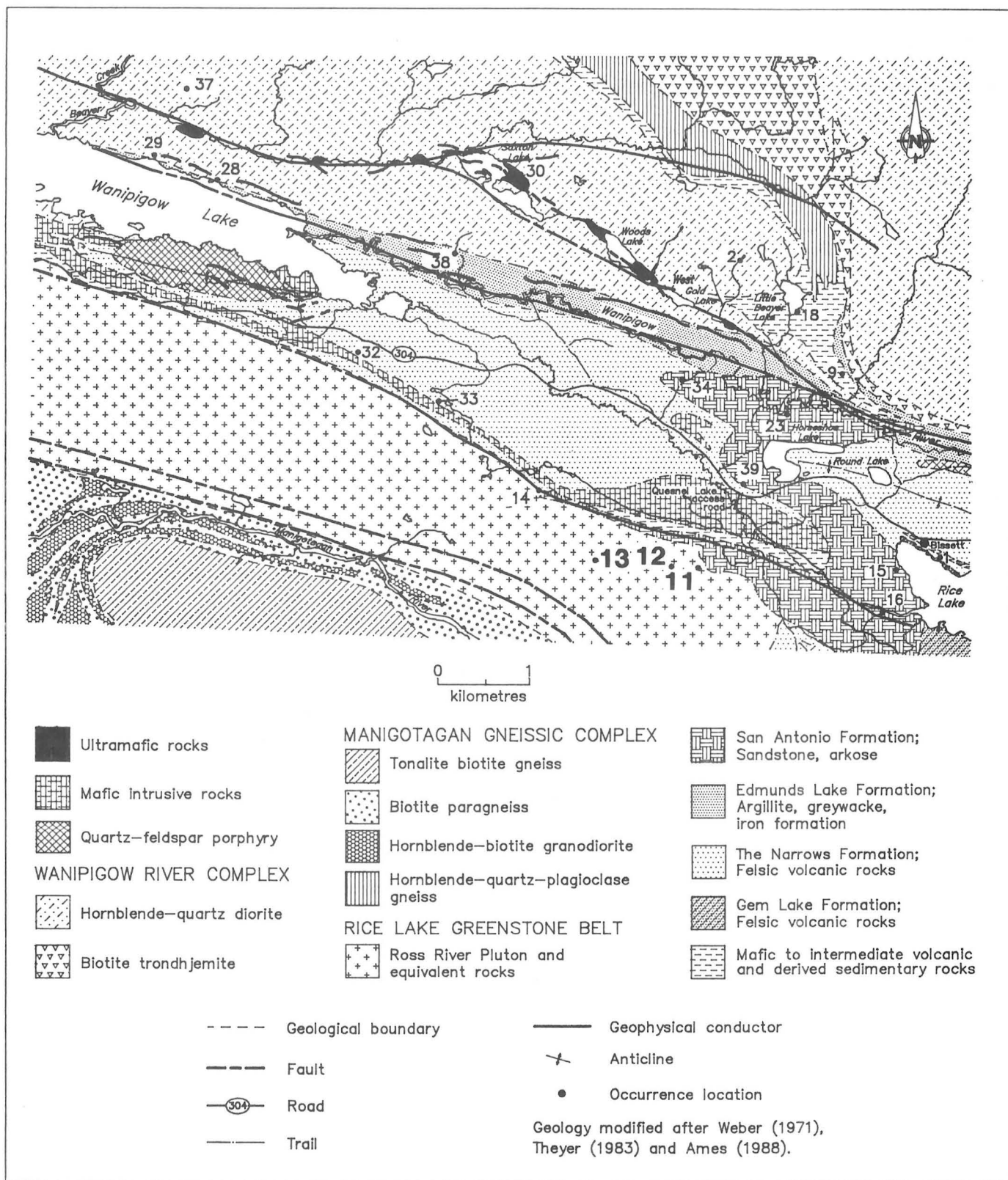


Figure 11-1: Geological setting of occurrences 11 (Apex), 12 (Splay) and 13 (Eva).

**LOCATION: 12**

**NAME:** Splay

**UTM:** 5655394N/305490E

**ACCESS:** Travel approximately 2 km south on the Quesnel Lake access road from its intersection with P.R. 304 and then approximately 2 km west on a trail (Fig. 11-1).

**AREA:** Approximately 6.5 km west of Bissett (Fig. 11-1).

**AIRPHOTO:** A24713-186

**EXPLORATION SUMMARY:**

Scattered quartz rubble is interpreted as evidence of blasting, but pits and/or trenches were not found in this area during field examinations. A combined AEM and MAG survey was flown by Geoterrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). A preliminary geological investigation was undertaken for Brinco Mining Ltd. in 1983 (A.F. 92583). The area is currently staked and in good standing until November 1994.

**GEOLOGICAL SETTING:**

The area is underlain by granodiorite and quartz diorite of the complex south of Wanipigow Lake (Weber, 1971). A discontinuously exposed, approximately 32 m long, 070°-striking, sugary white to grey and rust-stained quartz vein occurs in a shear zone.

**MINERALIZATION:**

The quartz vein contains ≤1% pyrite. Erratically distributed trace pyrite occurs in the granodiorite adjacent to the quartz vein.

**GEOCHEMICAL DATA:**

Three chip samples collected from the quartz vein contained trace Au (A.F. 92583). Two chip samples collected by staff of Manitoba Energy and Mines from the quartz vein contained trace Au (Schmidtke, 1984).

**CLASSIFICATION:**

Vein type deposit; single vein.

**REFERENCES:**

Assessment File 91677, 91681, 92583; Manitoba Energy and Mines, Mines Branch.

Schmidtke, R.H.

1984: Mineral deposit documentation in the Bissett area; In Manitoba Energy and Mines, Energy and Mineral Resources, Report of Field Activities, 1984, p. 92-99.

Weber, W.

1971: Geology of the Wanipigow River-Manigotagan River region; In Geology and geophysics of the Rice Lake region, south-eastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.

## LOCATION: 13

NAME: Eva

UTM: 5655507N/303578E

ACCESS: 4 km west on a trail off the Quesnel Lake access road.

## EXPLORATION SUMMARY:

A complete review of the deposit history is contained in Mineral Inventory Card 52M/4 Au8.

The property was first staked in 1919. The Great West Gold Mining Company Ltd. acquired the occurrence in 1921 and sunk a shaft to 18 m depth. Surface exploration included drilling 13 holes in 1950 and 22 holes in 1981-82 (A.F. 92583). A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). San Antonio Joint Venture Ltd. delineated 16000 tonnes of rock grading 6.17 g/t Au. These figures, based on their 1981-82 drill program, were noted to have "a low expansion potential" (A.F. 92583).

A rubble-filled shaft (4x4x3 m) was observed at this site in 1987. The area is currently staked and in good standing until January 2001.

Approximately 1 km north of this occurrence there is a quartz vein (Zone 1, a.k.a. Nelson vein, Wynne vein) that is discontinuously exposed over 116 m. A 25 m long trench has been excavated along this vein (A.F. 92583, 92968, 92969, 92979).

## GEOLOGICAL SETTING:

The area is underlain by granodiorite and quartz diorite of the complex south of Wanipigow Lake (Fig. 11-1; Weber, 1971). An east-striking shear, which transects the plutonic rocks, contains a discontinuously exposed, 300 m long quartz vein that has an average thickness of 1 m. Possible extensions of this vein are covered by overburden. The quartz vein is milky white to smoky grey and contains fragments of country rock. Tourmaline occurs in lenses and ribbons. An approximately 30 m long and 1 m thick quartz vein, containing carbonate and minor tourmaline, is exposed in a trench (30x2x1 m) approximately 80 m east of the Eva shaft.

## MINERALIZATION:

Less than 2% pyrite occurs in vugs within the vein quartz. Trace disseminated pyrite is concentrated in tourmaline-rich bands. The quartz vein contains trace pyrite and malachite stains (Schmidtke, 1984).

AREA: 8.5 km West of Bissett (Fig. 11-1).

AIRPHOTO: A24729-137

## GEOCHEMICAL DATA:

A grab sample of pyrite-bearing vein quartz from the shaft contained 210 ppb Au. A grab sample of vein quartz rubble contained 600 ppb Au.

Nondescript rock samples, presumably collected from Zone 1 (Wynne vein), reportedly assayed: 136.4, 29.8, 88.1, 0.3, 63.0, 3.0, 10.6, 21.2, 14.0, 10.2, 0.3, and 19.8 g/t Au (A.F. 92980).

## CLASSIFICATION:

Vein type deposit; single quartz vein.

Zone 1 is also a vein type deposit; single quartz vein.

## REFERENCES:

Assessment Files 91677, 91681, 92583, 92968, 92969, 92979, 92980; Manitoba Energy and Mines, Mines Branch.

Mineral Inventory Card 52M/4 Au8; Manitoba Energy and Mines, Geological Services Branch.

Schmidtke, R.H.

1984: Mineral deposit documentation in the Bissett area; In Manitoba Energy and Mines, Energy and Mineral Resources, Report of Field Activities, 1984, p. 92-99.

Weber, W.

1971: Geology of the Wanipigow River-Manigotagan River region; In Geology and geophysics of the Rice Lake region, south-eastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.

## LOCATION: 14

NAME: Thorenson (Bard)

UTM: 5657265N/302210E

ACCESS: Traverse 6 km west on an ill-defined path off the Quesnel Lake access road.

## EXPLORATION SUMMARY:

A complete review of the deposit history is contained in Mineral Inventory Card 52M/4 Au1.

The occurrence was first staked in 1934 and a mill was erected on the site of the main (Thorenson) quartz vein. The claim was cancelled in 1936 and restaked in 1958. A geophysical (MAG and EM) survey undertaken by Brabar Mines Ltd. in 1963 (A.F. 91142) was followed by 1:2 400 scale geological mapping, and diamond drilling programs (3 ddh, 688.5 m) (A.F. 91143, 91141). A combined AEM and MAG survey was flown by Geoterrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). Brinco Ltd. conducted a geological compilation, 1: 16 373 scale reconnaissance geological survey and rock sampling program in 1983 (A.F. 92583). The area is currently open for staking.

## GEOLOGICAL SETTING:

The occurrence is underlain by granodioritic to quartz dioritic plutonic rocks and it occurs near the contact between the plutonic rocks and the volcanic rocks of The Narrows Formation (Fig. 14-1; Weber, 1971). Faults strike northwest and southeast. Joints most commonly strike east-southeast, and less commonly north-east and north-northwest. The quartz veins are irregular in both length and thickness. According to a geological consultant's report, short (3 to 6 m) quartz veins in the pluton should be discounted as uneconomic (A.F. 91143).

The northeast-striking Thorenson quartz vein, contained in an approximately 6 m thick, intensely sheared zone, is approximately 35 m long and ranges from 25 to 35 cm thickness. The quartz of the Thorenson vein is white to milky white and, in places, contains black (tourmaline?) ribbons and minor ankerite and sericite.

Drillholes by Brabar Mines Ltd. intersected the following rock types.

**DDH 1:** 245 m granodiorite and granite that contained quartz sections.

**DDH 2:** 213 m granodiorite, granite and minor quartz.

**DDH 3:** 230 m andesite and tuffaceous rocks.

AREA: 10 km west of Bissett (Fig. 14-1).

AIRPHOTO: A24729-89

## MINERALIZATION:

In the Thorenson vein, 0.5 to 2% pyrite occurs as disseminations, and is concentrated in randomly distributed vugs and veins. Malachite stains are also present.

DDH 2 intersected "some regional pyrite". The other two drillholes intersected rocks barren of mineralization (A.F. 91141).

## GEOCHEMICAL DATA:

Six grab samples collected in 1963 for Brabar Mines Ltd., from the ore bin and from well mineralized areas of the Thorenson vein contained 3.4 g/t, 4.4 g/t, 11.6 g/t, 7.1 g/t, 5.8 g/t and 0.3 g/t Au (A.F. 91143).

Three chip samples collected from vein material in 1983 on behalf of Brinco Mining Ltd. contained traces of Au (A.F. 92583).

Two grab samples of mineralized quartz and a sample of granodiorite, collected for Manitoba Energy and Mines, contained 7.2 g/t, 23.4 g/t and 22 ppb Au, respectively (Schmidtke, 1984). Two grab samples of pyrite-bearing quartz from the Thorenson vein contained 8.2 g/t and 19 ppb Au, respectively.

## CLASSIFICATION:

Vein type deposit; single vein.

## REFERENCES:

Assessment Files 91141, 91142, 91143, 91677, 91681, 92583; Manitoba Energy and Mines, Mines Branch.

Mineral Inventory Card 52M/4 Au1; Manitoba Energy and Mines, Geological Services Branch.

Schmidtke, R.H.

1984: Mineral deposit documentation in the Bissett area; in Manitoba Energy and Mines, Energy and Mineral Resources, Report of Field Activities, 1984, p. 92-99.



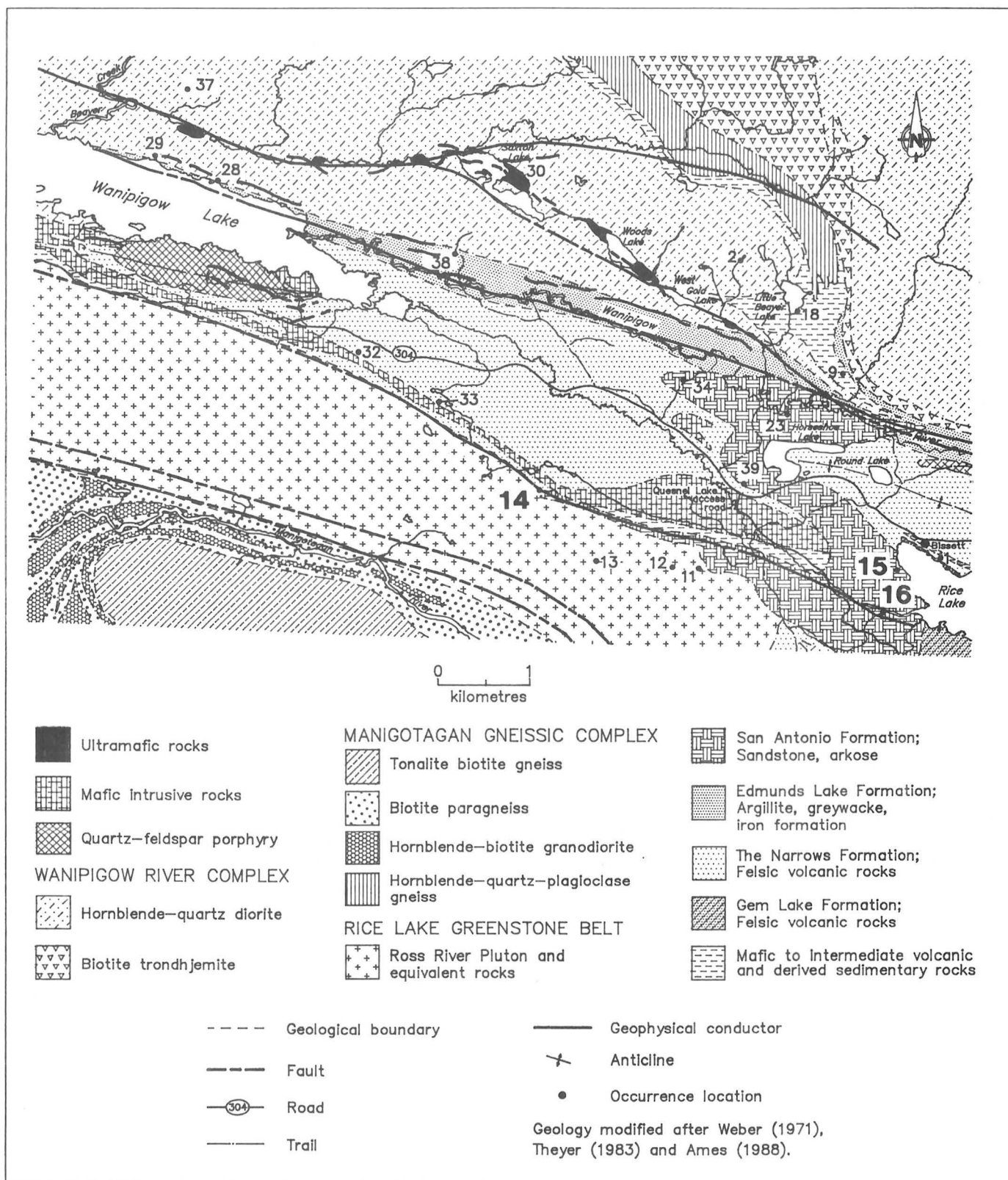


Figure 14-1: Geological setting of occurrences 14 (Thorenson), 15 and 16 (Little Three).

**LOCATION: 15**

**NAME: OK #9**

**UTM: 5655235N/311071E**

**ACCESS: Via boat on Rice Lake.**

**EXPLORATION SUMMARY:**

This occurrence was recorded by Stockwell (1938).

Evidence of prospecting activities (stripped outcrop, shallow, vaguely discernible trench and rubble) was observed in 1984. A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677).

The area is currently staked and in good standing until January 1994.

**GEOLOGICAL SETTING:**

The area is underlain by San Antonio Formation quartz wacke and quartzite (Fig. 14-1; Weber, 1971).

**MINERALIZATION:**

Traces of pyrite and a few rust stains occur in quartz wacke at occurrence 15.

**GEOCHEMICAL DATA:**

Three grab samples of pyrite-bearing quartz wacke and vein quartz from the rubble from occurrence 15 contained nil Au.

**AREA: Western Rice Lake (Fig. 14-1).**

**AIRPHOTO: A24713-90**

**CLASSIFICATION:**

Vein type deposit; multiple veins and lenses.

**REFERENCES:**

Assessment Files 91677, 91681; Manitoba Energy and Mines, Mines Branch.

Stockwell, C.H.

1938: Rice Lake - Gold Lake area, southeastern Manitoba; Geological Survey of Canada, Map 458 A, 1:6000.

Weber, W.

1971: Geology of the Wanipigow River-Manigotagan River region; in Geology and geophysics of the Rice Lake region, southeastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.



**LOCATION: 16**

**NAME:** Little Three

**UTM:** 5654191N/310725E

**ACCESS:** Via the Quesnel Lake access road and a trail.

**EXPLORATION SUMMARY:**

The occurrence was recorded by Stockwell (1938). A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). Three trenches (1x2x0.5 m; 1x2.5x0.5 m; 2x2x0.5 m) were observed at this site in 1984. The area is currently staked and in good standing until August 1995.

**GEOLOGICAL SETTING:**

The area is underlain by San Antonio Formation quartz wacke and quartzite (Fig. 14-1; Weber, 1971) that contain thin (2-3 cm), discontinuous, milky-white quartz veins.

**MINERALIZATION:**

Pyrite (0.5% to 1%) occurs within the quartz veins.

**GEOCHEMICAL DATA:**

Two grab samples of mineralized vein quartz collected from rubble contained nil Au (Schmidtke, 1984).

**CLASSIFICATION:**

Vein type deposit; multiple veins and lenses.

**AREA:** Southwest of Rice Lake (Fig. 14-1).

**AIRPHOTO:** A24713-90

**REFERENCES:**

Assessment Files 91677, 91681; Manitoba Energy and Mines, Mines Branch.

Schmidtke, R.H.

1984: Mineral deposit documentation in the Bissett area; In Manitoba Energy and Mines, Energy and Mineral Resources, Report of Field Activities, 1984, p. 92-99.

Stockwell, C.H.

1938: Rice Lake - Gold Lake area, southeastern Manitoba; Geological Survey of Canada, Map 458A, 1:6000.

Weber, W.

1971: Geology of the Wanipigow River-Manigotagan River region; In Geology and geophysics of the Rice Lake region, southeastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.

**LOCATION: 17**

**NAME:** Trail

**UTM:** 5653281N/313328E

**ACCESS:** Via Rice Lake and traverse approximately 0.1 km south.

**EXPLORATION SUMMARY:**

A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). A trench (7x3x0.5 m) and rubble were observed on this site by Schmidtke (1984). The area is currently staked and in good standing until January 1996.

**GEOLOGICAL SETTING:**

The area is underlain by sheared felsic volcanic rocks of the Gem Lake Formation (Fig. 17-1; Weber, 1971). Ankerite and thin (0.5 cm) quartz veins are abundant.

**MINERALIZATION:**

Traces of pyrite were observed in the sheared rocks at this location.

**GEOCHEMICAL DATA:**

A grab sample of sheared, carbonatized rubble contained 10 ppb Au.

**CLASSIFICATION:**

Disseminated mineralization-not classified.

**AREA:** South of Rice Lake (Fig. 17-1).

**AIRPHOTO:** A24713-51

**REFERENCES:**

Ames, D.E.

1988: Stratigraphy and alteration of gabbroic rocks near the San Antonio gold mine, in the Rice Lake area, southeastern Manitoba; Carleton University, M.Sc. Thesis (unpublished), 202p.

Assessment Files 91677, 91681; Manitoba Energy and Mines, Mines Branch.

Schmidtke, R.H.

1984: Mineral deposit documentation in the Bissett area; In Manitoba Energy and Mines, Energy and Mineral Resources, Report of Field Activities, 1984, p. 92-99.

Theyer, P.

1983: Geology of gold environments in the Bissett/Wallace Lake portion of the Rice Lake greenstone belt; In Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities, 1983, p. 101-106.

Weber, W.

1971: Geology of the Wanipigow River-Manigotagan River region; In Geology and geophysics of the Rice Lake region, southeastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.

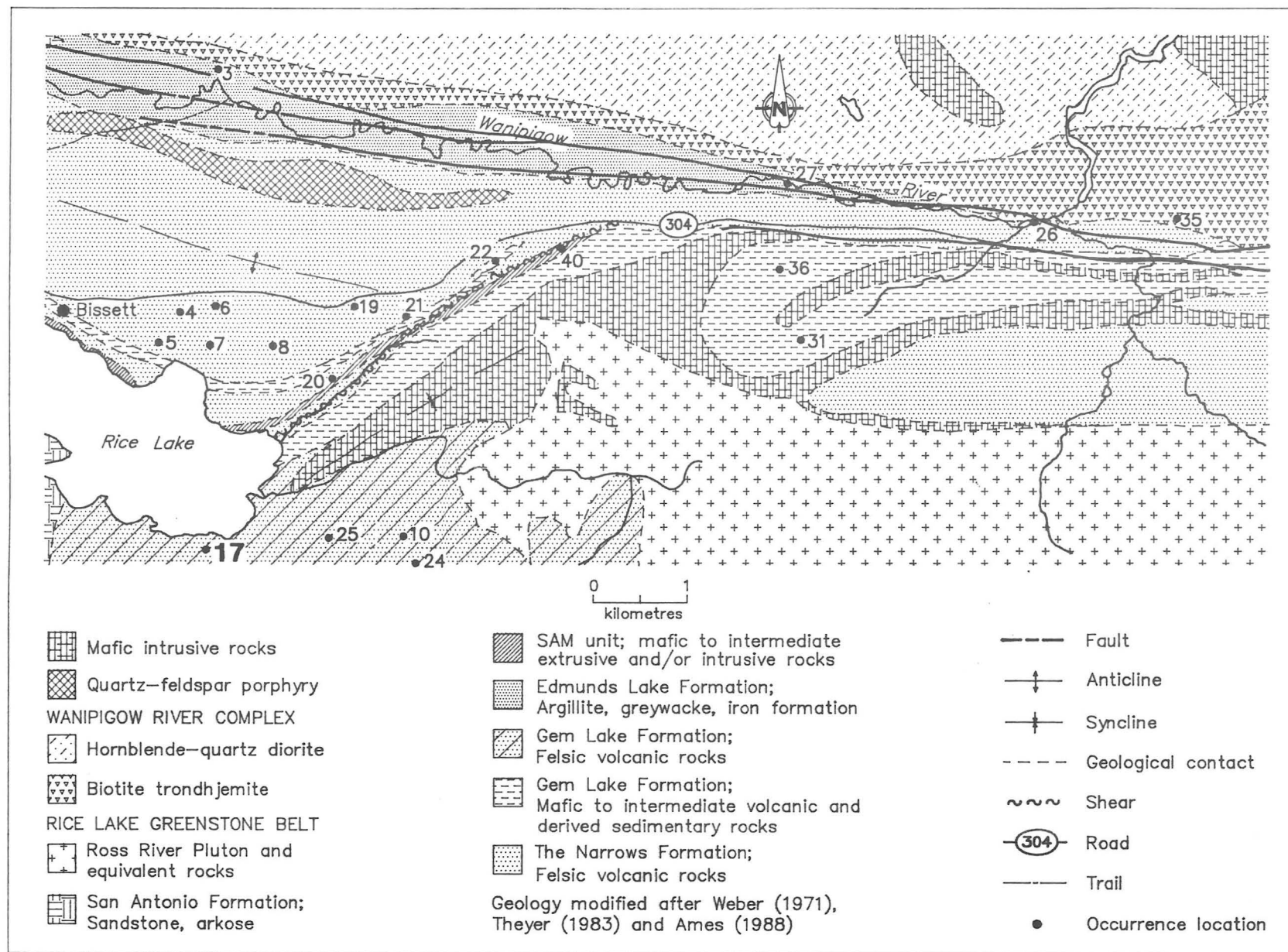


Figure 17-1: Geological setting of occurrence 17 (Trail).

LOCATION: 18

NAME: Sink

UTM: 5661708N/308613E

ACCESS: Via a trail from P.R. 304 near Horseshoe Lake.

#### EXPLORATION SUMMARY:

Drillholes by Selkirk (Canadian) Mines Ltd. in the vicinity of Beaver Lake in 1928 intersected sphalerite and chalcopyrite layers (newspaper clipping, unknown source, dated Nov. 3, 1928).

An experimental AEM (INPUT) survey, under contract to the Geological Survey of Canada (A.F. 91543) was conducted in 1968. A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). A semi-submerged trench (6x2x2 m) and some rubble were observed on this site (Schmidtke, 1984). The area is currently staked and in good standing until July 1994.

#### GEOLOGICAL SETTING:

The area is underlain by mafic to intermediate volcanic and derived sedimentary rocks (Fig. 18-1). The trench is cut in massive, light grey, aphanitic to fine grained sheared sedimentary rocks that host a quartz vein  $\leq 5$  cm thick.

#### MINERALIZATION:

Several mm- to cm-thick layers of sphalerite,  $\leq 1\%$  disseminated pyrite and trace chalcopyrite were noted in the walls of the trench and in the adjacent rubble.

AREA: Southeast shore of Little Beaver Lake (Fig. 18-1).

AIRPHOTO: A24713-190

Sphalerite and chalcopyrite layers were intersected east and west of Beaver Lake (news clipping, unknown source, dated Nov. 3, 1928, Manitoba Energy and Mines, Mines Branch).

#### GEOCHEMICAL DATA:

A grab sample, from the rubble at the trench, of rusty, light grey, silicified, epidotized rock mineralized with 0.5% pyrite, trace sphalerite and trace chalcopyrite, contained 240 ppb Au.

#### CLASSIFICATION:

Vein type deposit; single vein.

#### REFERENCES:

Assessment Files 91543, 91677, 91681; Manitoba Energy and Mines, Mines Branch.

Schmidtke, R.H.

1984: Mineral deposit documentation in the Bissett area; in Manitoba Energy and Mines, Energy and Mineral Resources, Report of Field Activities, 1984, p. 92-99.

Weber, W.

1971: Geology of the Wanipigow River-Manigotagan River region; in Geology and geophysics of the Rice Lake region, south-eastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.

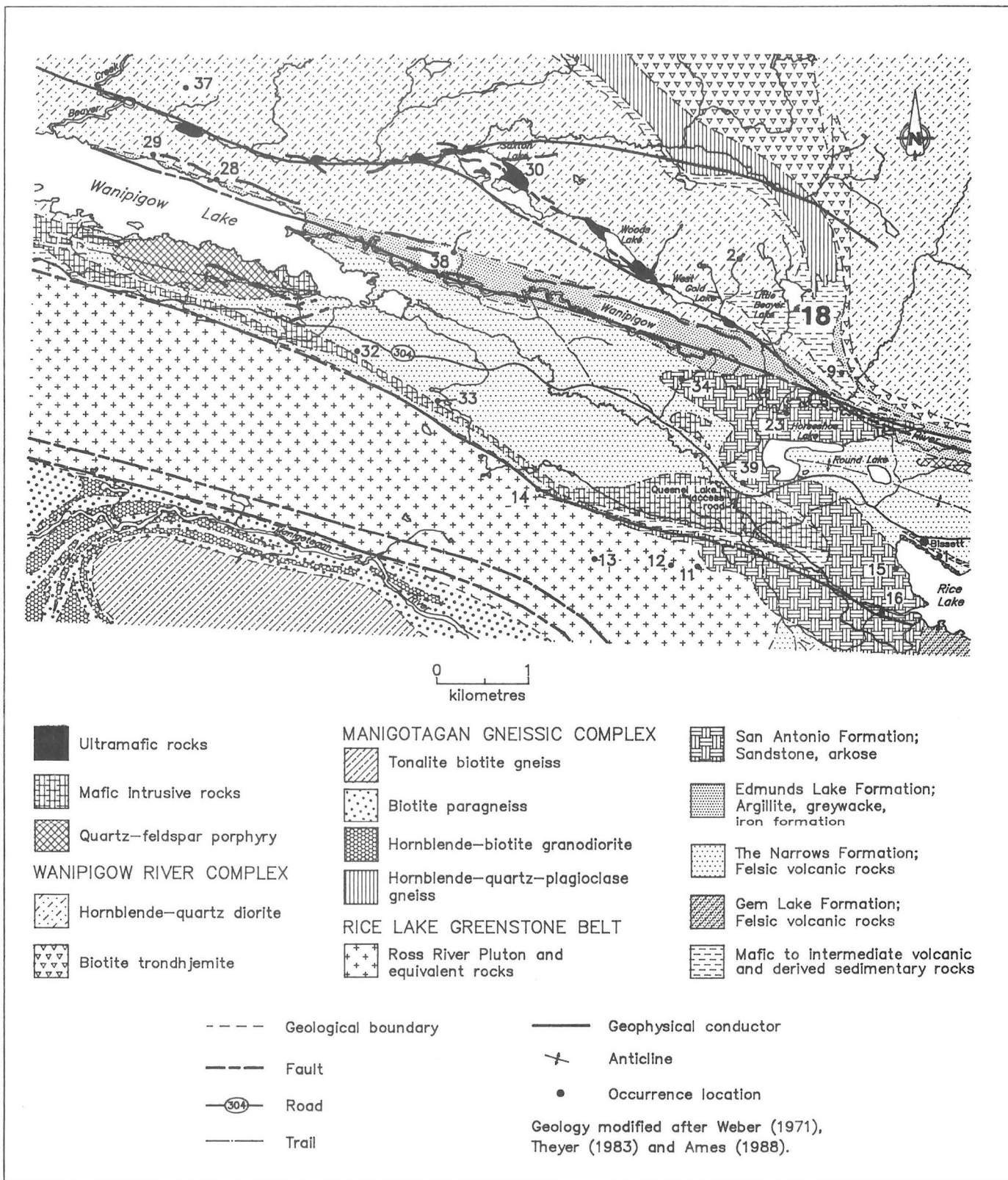


Figure 18-1: Geological setting of occurrence 18 (Sink).

LOCATION: 19

NAME: BTT

UTM: 5655745N/315043E

ACCESS: Travel approximately 3 km east of Bissett on P.R. 304 and then traverse approximately 100 m south through bush.

#### EXPLORATION SUMMARY:

A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). A rubble-filled pit (4x2x0.5 m) was located on this site (Schmidtke, 1984). Abundant quartz rubble at the pit's edge indicates that a quartz vein was intersected in the pit. The area is staked and in good standing until March, 1995.

#### GEOLOGICAL SETTING:

The area is underlain by felsic volcanic and tuffaceous rocks of The Narrows Formation (Fig. 19-1; Weber, 1971). Detailed geological investigations disclosed the existence of interspersed lenses and rafts of mafic rocks. The trench is cut across the contact of feldspar phyric, fragmental, sheared rocks and intermediate to mafic rocks.

#### MINERALIZATION:

The quartz rubble contains traces of pyrite.

#### GEOCHEMICAL DATA:

One grab sample each of vein quartz and of the host rock, collected from the rubble adjacent to the pit, contained nil Au.

AREA: 3 km east of Bissett (Fig. 19-1).

AIRPHOTO: A24711-96

#### CLASSIFICATION:

Vein type deposit; single vein.

#### REFERENCES:

Ames, D.E.

1988: Stratigraphy and alteration of gabbroic rocks near the San Antonio gold mine, in the Rice Lake area, southeastern Manitoba; Carleton University, M.Sc. Thesis (unpublished), 202p.

Assessment Files 91677, 91681; Manitoba Energy and Mines, Mines Branch.

Theyer, P.

1983: Geology of gold environments in the Bissett/Wallace Lake portion of the Rice Lake greenstone belt; in Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities, 1983, p. 101-106.

Weber, W.

1971: Geology of the Wanipigow River-Manigotagan River region; in Geology and geophysics of the Rice Lake region, southeastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.



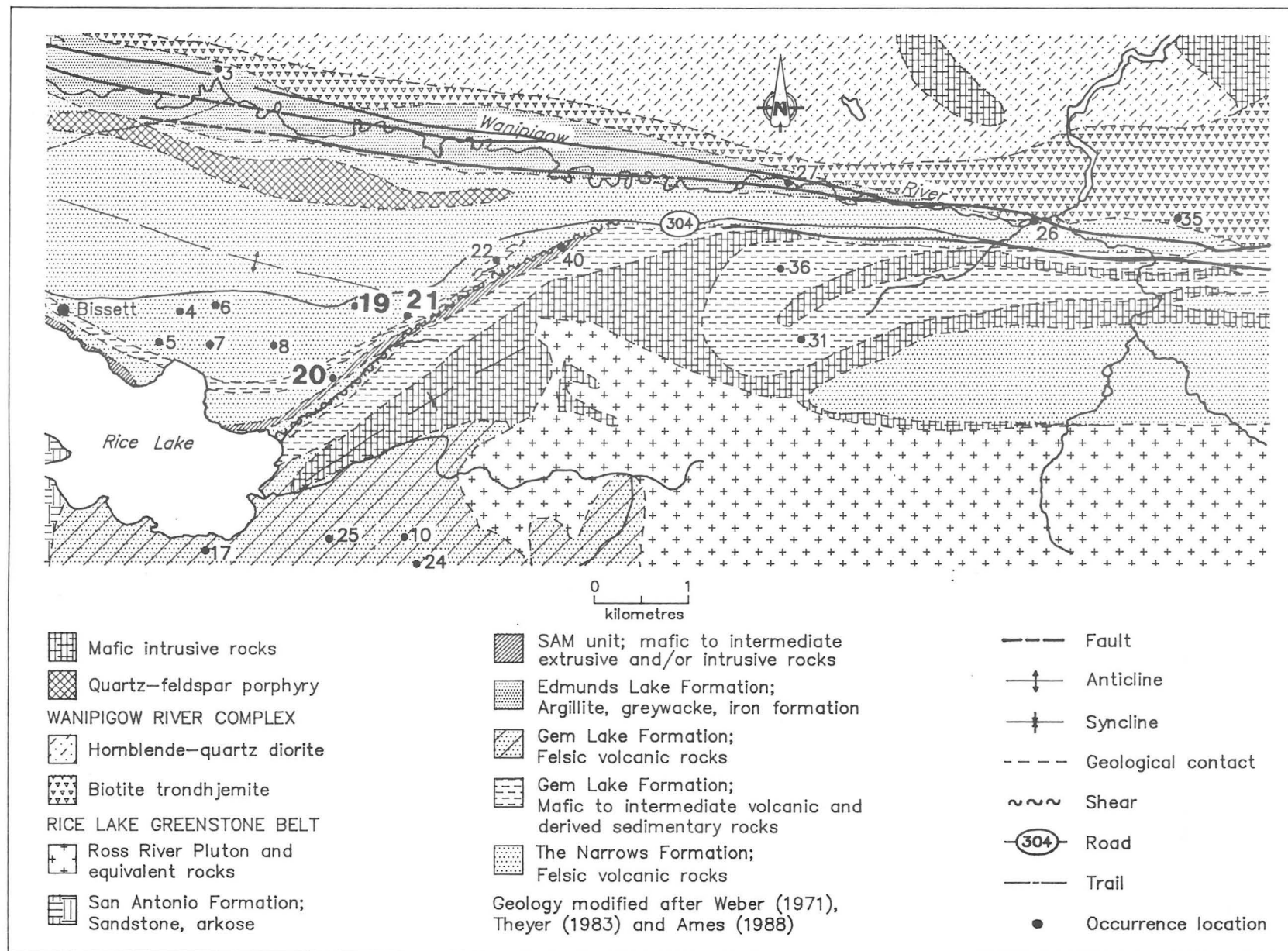


Figure 19-1: Geological setting of occurrences 19 (BTT), 20 and 21.



## LOCATION: 20

NAME: Normandy 18

UTM: 5655001N/314799E

ACCESS: Travel approximately 3 km east of Bissett on P.R. 304 and then traverse 0.7 km south through bush.

## EXPLORATION SUMMARY:

Stockwell (1938) recorded this occurrence as "location 18". A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). Two pits (1.5x1.5x5 m; 2x2x1.5 m) were located at this site (Schmidtke, 1984).

The area is currently staked and in good standing until March, 1995.

## GEOLOGICAL SETTING:

The area is underlain by fragmental rhyolite to rhyodacite of The Narrows Formation. The rocks are altered to quartz-sericite schist in the vicinity of a 210°-striking shear zone (Fig. 19-1; Weber, 1971). The shear contains a quartz vein that tapers from 2 m in the eastern pit to 50 cm in thickness in the western pit.

## MINERALIZATION:

The vein quartz contains traces of pyrite. The felsic fragmental rocks are in contact with a pyrite- and magnetite-rich mafic rock unit that outcrops a few metres north of the pits.

## GEOCHEMICAL DATA:

A composite grab sample of vein quartz from the two pits contained nil Au. A grab sample of the felsic host rock contained trace Au. A grab sample of the pyrite- and magnetite-rich rock north of the pits contained nil Au.

## CLASSIFICATION:

Vein type deposit; single vein.

AREA: 3 km east of Bissett (Fig. 19-1).

AIRPHOTO: A24711-96

## REFERENCES:

Ames, D.E.

1988: Stratigraphy and alteration of gabbroic rocks near the San Antonio gold mine, in the Rice Lake area, southeastern Manitoba; Carleton University, M.Sc. Thesis (unpublished), 202p.

Assessment Files 91677, 91681; Manitoba Energy and Mines, Mines Branch.

Schmidtke, R.H.

1984: Mineral deposit documentation in the Bissett area; In Manitoba Energy and Mines, Energy and Mineral Resources, Report of Field Activities, 1984, p. 92-99.

Stockwell, C.H.

1938: Rice Lake - Gold Lake area, southeastern Manitoba; Geological Survey of Canada, Map 463A, 1:6000.

Theyer, P.

1983: Geology of gold environments in the Bissett/Wallace Lake portion of the Rice Lake greenstone belt; In Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities, 1983, p. 101-106.

Weber, W.

1971: Geology of the Wanipigow River-Manigotagan River region; In Geology and geophysics of the Rice Lake region, southeastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.

**LOCATION: 21**

**NAME:**

**UTM:** 5655599N/315601E

**ACCESS:** Travel approximately 3.3 km east of Bissett on P.R. 304 and then traverse 0.4 km south through bush.

**EXPLORATION SUMMARY:**

Stockwell (1938) recorded this occurrence as "location 19". A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). A trench (7x3x2 m) was observed at this site (Schmidtke, 1984).

The area is currently staked and in good standing until November 1995.

**GEOLOGICAL SETTING:**

The area is underlain by felsic volcanic and tuffaceous rocks of The Narrows Formation (Fig. 19-1; Weber, 1971). Locally these rocks contain quartz veins and stringers.

**MINERALIZATION:**

Less than 2% pyrite occurs in quartz veins. Quartz rubble near the trench is stained with malachite.

**GEOCHEMICAL DATA:**

Six grab samples were collected from the host rock, quartz veins, quartz stringers and rubble; they all contained nil Au.

**CLASSIFICATION:**

Vein type deposit; multiple veins and lenses.

**AREA:** 3.4 km east of Bissett (Fig. 19-1).

**AIRPHOTO:** A24711-96

**REFERENCES:**

Ames, D.E.

1988: Stratigraphy and alteration of gabbroic rocks near the San Antonio gold mine, in the Rice Lake area, southeastern Manitoba; Carleton University, M.Sc. Thesis (unpublished), 202p.

Assessment Files 91677, 91681; Manitoba Energy and Mines, Mines Branch.

Schmidtke, R.H.

1984: Mineral deposit documentation in the Bissett area; in Manitoba Energy and Mines, Energy and Mineral Resources, Report of Field Activities, 1984, p. 92-99.

Stockwell, C.H.

1938: Rice Lake - Gold Lake area, southeastern Manitoba; Geological Survey of Canada Map 463A, 1:6000.

Theyer, P.

1983: Geology of gold environments in the Bissett/Wallace Lake portion of the Rice Lake greenstone belt; in Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities, 1983, p. 101-106.

Weber, W.

1971: Geology of the Wanipigow River-Manigotagan River region; in Geology and geophysics of the Rice Lake region, southeastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.

**LOCATION: 22**

**NAME:**

**UTM:** 5656122N/316599E

**ACCESS:** Travel approximately 5 km east of Bissett on P.R. 304 and then traverse south through bush.

**EXPLORATION SUMMARY:**

Stockwell (1938) recorded this occurrence as "location 20".

Two diamond-drill holes (197 m total length; no logs nor assays results included) were drilled by J. Duval in the vicinity of occurrence 20 in 1947 (A.F. 91134). A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). A pit (1x1x1 m), excavated to expose a quartz vein, was observed by Schmidtke (1984).

The area is currently staked and in good standing until July, 1996.

**GEOLOGICAL SETTING:**

The area is underlain by pillowed basalt of the Gem Lake Formation (Fig. 22-1; Weber, 1971). Locally there are cm-thick quartz ribbons.

**MINERALIZATION:**

Less than 2% disseminated pyrite occurs in the basalt and the quartz veins exposed in the pit.

**GEOCHEMICAL DATA:**

A grab sample of vein quartz, exposed in the pit, contained 1% disseminated pyrite and returned an analysis of 19 ppb Au. A grab sample of pyrite-bearing basalt, collected 10 m south of the pit, contained trace Au.

**CLASSIFICATION:**

Vein type deposit; multiple veins and lenses.

**AREA:** 5 km east of Bissett (Fig. 22-1).

**AIRPHOTO:** A24711-96

**REFERENCES:**

Ames, D.E.

1988: Stratigraphy and alteration of gabbroic rocks near the San Antonio gold mine, in the Rice Lake area, southeastern Manitoba; Carleton University, M.Sc. Thesis (unpublished), 202p.

Assessment Files 91134, 91677, 91681; Manitoba Energy and Mines, Mines Branch.

Schmidtke, R.H.

1984: Mineral deposit documentation in the Bissett area; In Manitoba Energy and Mines, Energy and Mineral Resources, Report of Field Activities, 1984, p. 92-99.

Stockwell, C.H.

1938: Rice Lake - Gold Lake area, southeastern Manitoba; Geological Survey of Canada, Map 463A, 1:6000.

Theyer, P.

1983: Geology of gold environments in the Bissett/Wallace Lake portion of the Rice Lake greenstone belt; In Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities, 1983, p. 101-106.

Weber, W.

1971: Geology of the Wanipigow River-Manigotagan River region; In Geology and geophysics of the Rice Lake region, southeastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.

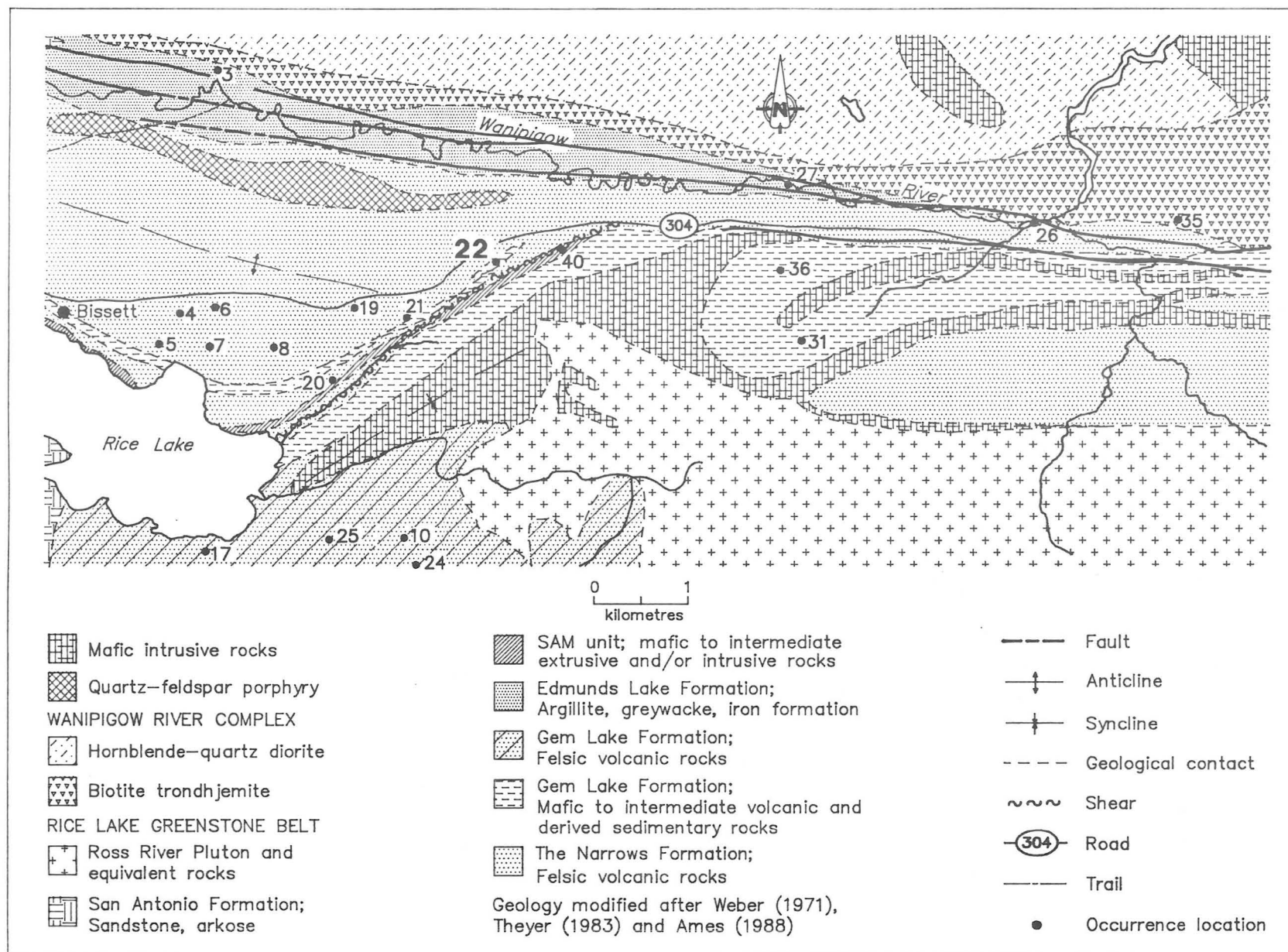


Figure 22-1: Geological setting of occurrence 22.

LOCATION: 23

NAME:

UTM: 5659127N/308301E

ACCESS: Via a tractor trail from P.R. 304 (Fig. 23-1).

#### EXPLORATION SUMMARY:

Three diamond-drill holes (logs not available) were drilled in the vicinity of Horseshoe Lake on behalf of Central Manitoba Mines Ltd. in 1946 (A.F. 91131). Three additional holes (310 m) were drilled in 1952 (A.F. 91127). An experimental AEM (INPUT) survey, under contract to the Geological Survey of Canada (A.F. 91543), was conducted over the area in 1968. A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). A MAG and VLF-EM survey was undertaken over the area in 1982 on behalf of Augusta Gold Mines (A.F. 92493). Schmidtke (1984) observed several trenches excavated to assess the economic potential of an east-trending quartz vein. The area is currently staked and in good standing until April 1994.

#### GEOLOGICAL SETTING:

The area is underlain by quartzite, quartz sandstone, quartz wacke of the San Antonio Formation and felsic volcanic rocks of The Narrows Formation (Fig. 23-1; Weber, 1971).

An east-striking anastomosing quartz vein that ranges from 20 to 50 cm thickness, was traced over a strike length of 30 m. The host rock is a chloritized, schistose felsic rock. The western end of the vein is covered by overburden and the eastern end disappears under the Wanipigow River.

DDH 1 intersected 125 m of iron formation and schist.

DDH 2 intersected 185 m of chlorite schist, mica schist and iron formation (A.F. 91131).

#### MINERALIZATION:

The quartz vein is mineralized with trace to minor amounts of large ( $\leq 3$  mm) euhedral pyrite crystals. The host rock, in the vicinity of the quartz veins, contains trace pyrite.

#### GEOCHEMICAL DATA:

A grab sample of the quartz vein contained 270 ppb Au. A grab sample of pyrite-bearing sandstone from the San Antonio Formation, in the vicinity of the quartz veins, contained 100 ppb Au.

#### CLASSIFICATION:

Vein type deposit; single vein.

AREA: North of Horseshoe Lake.

AIRPHOTO: A24713-189

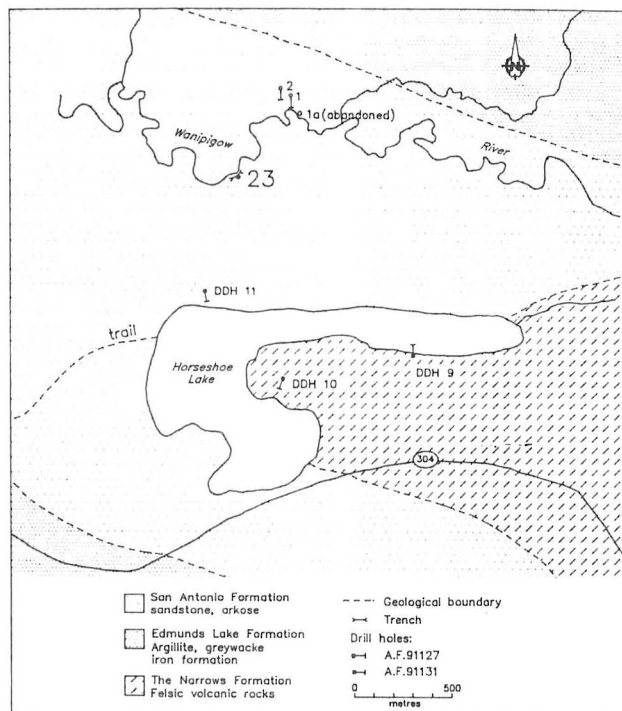


Figure 23-1: Geological setting and drillhole locations at occurrence 23.

#### REFERENCES:

Assessment Files 91127, 91131, 91543, 91677, 91681, 92493; Manitoba Energy and Mines, Mines Branch.

Schmidtke, R.H.

1984: Mineral deposit documentation in the Bissett area; In Manitoba Energy and Mines, Energy and Mineral Resources, Report of Field Activities, 1984, p. 92-99.

Weber, W.

1971: Geology of the Wanipigow River-Manitotagan River region; In Geology and geophysics of the Rice Lake region, south-eastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.

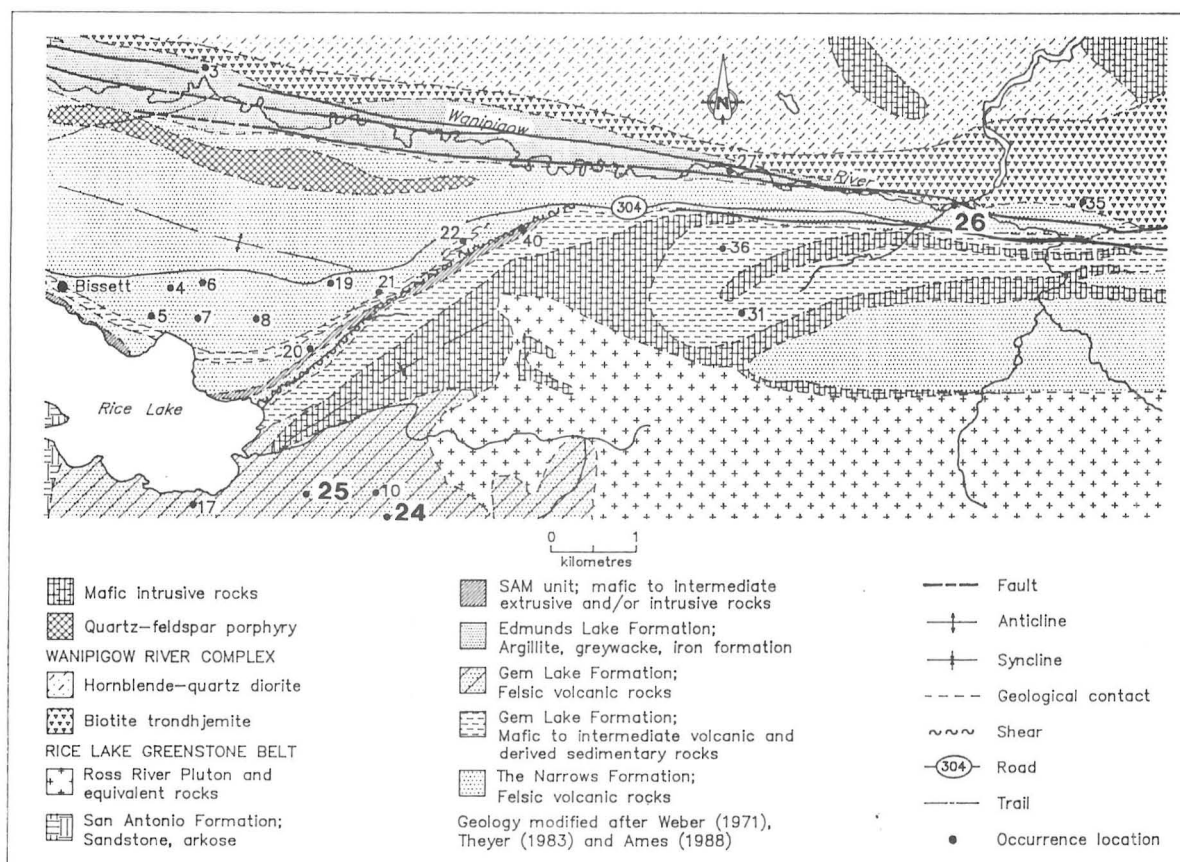


Figure 24-1: Geological setting of occurrences 24, 25 (Otter) and 26.

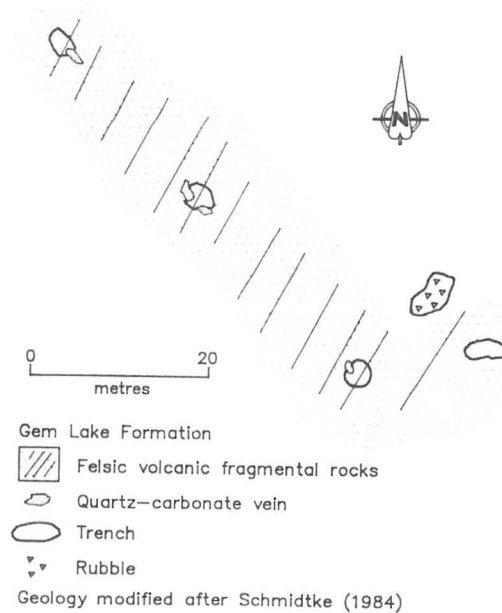


Figure 24-2: Detailed geology at occurrence 24.



LOCATION: 24

NAME:

UTM: 5653005N/315558E

ACCESS: From Rice Lake and traverse.

AREA: 4.5 km southeast of Rice Lake (Fig. 24-1).

AIRPHOTO: A24711-96

#### EXPLORATION SUMMARY:

Stockwell (1938) recorded this occurrence as the #11 zone of Rice Lake Gold Mines, Ltd. A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). Four trenches (3x2x1 m, 2x2x1 m, 1x1x1 m and 4x2x0.5 m) were observed at this site (Fig. 24-2) (Schmidtke, 1984). The area is currently staked and in good standing until January 1993.

#### GEOLOGICAL SETTING:

The area is underlain by felsic volcanic fragmental rocks of the Gem Lake Formation (Fig. 24-1; Weber, 1971). A 10 to 40 cm-thick, northwest-striking, milky white quartz-carbonate vein, exposed in the rims of the trenches (Fig. 24-2), occurs in sheared felsic rocks. An approximately 50 cm thick envelope of quartz-sericite schist occurs on both sides of the quartz-carbonate vein.

#### MINERALIZATION:

Approximately 1% disseminated pyrite is erratically distributed in the quartz-carbonate vein.

#### GEOCHEMICAL DATA:

A grab sample of vein quartz contained trace Au. Two grab samples of the host rock with traces of sulphides contained nil Au.

#### CLASSIFICATION:

Vein type deposit; single quartz vein.

#### REFERENCES:

Ames, D.E.

1988: Stratigraphy and alteration of gabbroic rocks near the San Antonio gold mine, in the Rice Lake area, southeastern Manitoba; Carleton University, M.Sc. Thesis (unpublished), 202p.

Assessment Files 91677, 91681; Manitoba Energy and Mines, Mines Branch.

Schmidtke, R.H.

1984: Mineral deposit documentation in the Bissett area; In Manitoba Energy and Mines, Energy and Mineral Resources, Report of Field Activities, 1984, p. 92-99.

Stockwell, C.H.

1938: Rice Lake - Gold Lake area, southeastern Manitoba; Geological Survey of Canada, Map 460A, 1:6000.

Theyer, P.

1983: Geology of gold environments in the Bissett/Wallace Lake portion of the Rice Lake greenstone belt; In Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities, 1983, p. 101-106.

Weber, W.

1971: Geology of the Wanipigow River-Manigotagan River region; In Geology and geophysics of the Rice Lake region, southeastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.



**LOCATION: 25**

**NAME:** Otter

**UTM:** 5653314N/314631E

**ACCESS:** Via Rice Lake and traverse.

**AREA:** 0.75 km east of Rice Lake (Fig. 24-1).

**AIRPHOTO:** A24713-51

**EXPLORATION SUMMARY:**

A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). A shallow trench (2x1x0.5 m) and rubble were observed on this site (Schmidtke, 1984). The area is currently staked and in good standing until January 1995.

**GEOLOGICAL SETTING:**

The area is underlain by fragmental felsic volcanic rocks of the Gem Lake Formation (Fig. 24-1; Weber, 1971).

The rocks exposed in, and in the vicinity of, the trench are intensely carbonatized.

**MINERALIZATION:**

The rocks within and adjacent to the trench contain approximately 1% pyrite and are characterized by abundant rusty patches.

**GEOCHEMICAL DATA:**

A grab sample of pyrite-bearing, rust-stained rubble from the trench contained 4 ppb Au.

**CLASSIFICATION:**

Disseminated mineralization - not classified.

**REFERENCES:**

Ames, D.E.

- 1988: Stratigraphy and alteration of gabbroic rocks near the San Antonio gold mine, in the Rice Lake area, southeastern Manitoba; Carleton University, M.Sc. Thesis (unpublished), 202p.

Assessment Files 91677, 91681; Manitoba Energy and Mines, Mines Branch.

Schmidtke, R.H.

- 1984: Mineral deposit documentation in the Bissett area; In Manitoba Energy and Mines, Energy and Mineral Resources, Report of Field Activities, 1984, p. 92-99.

Theyer, P.

- 1983: Geology of gold environments in the Bissett/Wallace Lake portion of the Rice Lake greenstone belt; In Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities, 1983, p. 101-106.

Weber, W.

- 1971: Geology of the Wanipigow River-Manigotagan River region; In Geology and geophysics of the Rice Lake region, southeastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.

## LOCATION: 26

### NAME:

UTM: 5656169N/322282E

ACCESS: Travel approximately 10 km east of Bissett via P.R. 304 to the Birch Falls campground. The occurrence is located approximately 100 m west of the campground.

### EXPLORATION SUMMARY:

A combined AEM and MAG survey was flown by Geoterrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). Two trenches (9x1x0.5 m, 1x1x0.5 m) were observed on this site (Schmidtke, 1984). The area is currently staked and in good standing until May 1994.

### GEOLOGICAL SETTING:

The area of the occurrence is underlain by felsic volcanic rocks of The Narrows Formation (Fig. 24-1; Weber, 1971). Several east-trending, discontinuous, cm thick quartz veins and stringers are exposed in a trench (Fig. 26-1).

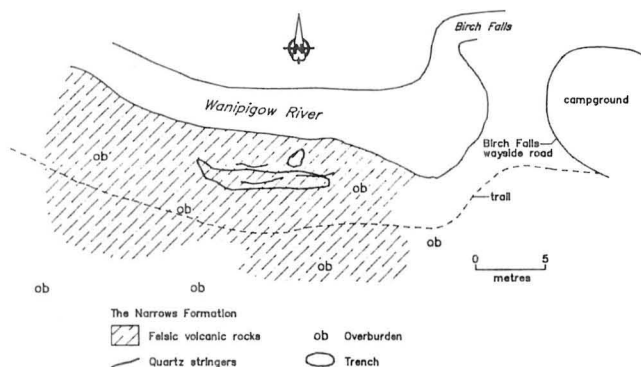


Figure 26-1: Detailed geology at occurrence 26.

### MINERALIZATION:

Quartz veins contain  $\leq 2\%$  pyrite as disseminations and in vugs. The host rock is barren of sulphide minerals.

AREA: 10 km east of Bissett (Fig. 24-1).

AIRPHOTO: A24712-231

### GEOCHEMICAL DATA:

A grab sample of pyrite-bearing rubble from the trench contained 4 ppb Au.

### CLASSIFICATION:

Vein type deposit; multiple veins and lenses.

### REFERENCES:

Ames, D.E.

1988: Stratigraphy and alteration of gabbroic rocks near the San Antonio gold mine, in the Rice Lake area, southeastern Manitoba; Carleton University, M.Sc. Thesis (unpublished), 202p.

Assessment Files 91677, 91681; Manitoba Energy and Mines, Mines Branch.

Schmidtke, R.H.

1984: Mineral deposit documentation in the Bissett area; In Manitoba Energy and Mines, Energy and Mineral Resources, Report of Field Activities, 1984, p. 92-99.

Theyer, P.

1983: Geology of gold environments in the Bissett/Wallace Lake portion of the Rice Lake greenstone belt; In Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities, 1983, p. 101-106.

Weber, W.

1971: Geology of the Wanipigow River-Manigotagan River region; In Geology and geophysics of the Rice Lake region, southeastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.

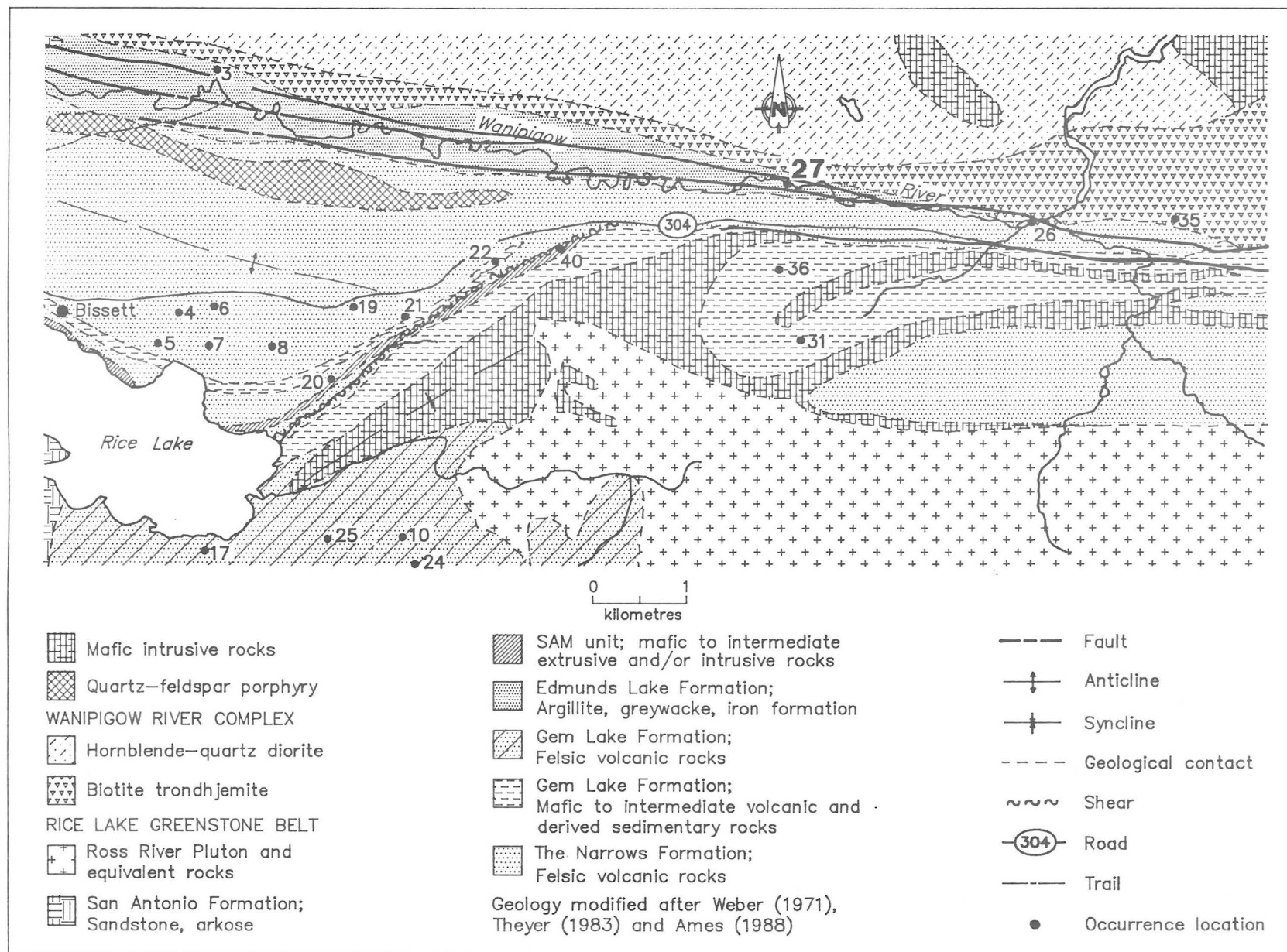


Figure 27-1: Geological setting of occurrence 27 (Brott).

**LOCATION: 27**

**NAME:** Brott

**UTM:** 5656754N/319716E

**ACCESS:** Travel approximately 8 km east of Bissett on P.R. 304, and then traverse 0.5 km north along an abandoned logging road.

**EXPLORATION SUMMARY:**

An experimental AEM (INPUT) survey, under contract to the Geological Survey of Canada (A.F. 91543) was conducted in 1968. A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). This occurrence is on a partially flooded, erosion resistant ridge in the bed of the Wanipigow River (Stewart, 1985). The area is currently staked and in good standing until May 1994.

**GEOLOGICAL SETTING:**

The area is underlain by greywacke, argillite and cherty rocks of the Edmunds Lake Formation (Fig. 27-1; Weber, 1971). Locally, the rocks that have been intensely silicified form an erosion resistant ridge in the bed of the Wanipigow River. Fragmental textures and  $\leq 1$  cm thick, discontinuous quartz veins are present on the ridge.

**MINERALIZATION:**

Several fine grained mm-thick silicified layers contain  $\leq 3\%$  disseminated pyrite.

**GEOCHEMICAL DATA:**

A 1.5 m chip sample of fine grained silicified wacke contained 108 ppb Au. A 1.5 m chip sample of dark grey silicified tuff (northernmost exposure) con-

AREA: 8 km east of Bissett (Fig. 27-1).

AIRPHOTO: A24711-56

tained 805 ppb Au. A 1 m chip sample of a pyrite-rich silicified layer exposed near the south bank of the river contained 62 ppb Au (Stewart, 1985).

**CLASSIFICATION:**

Disseminated mineralization; not classified.

**REFERENCES:**

Ames, D.E.

1988: Stratigraphy and alteration of gabbroic rocks near the San Antonio gold mine, in the Rice Lake area, southeastern Manitoba; Carleton University, M.Sc. Thesis (unpublished), 202p.

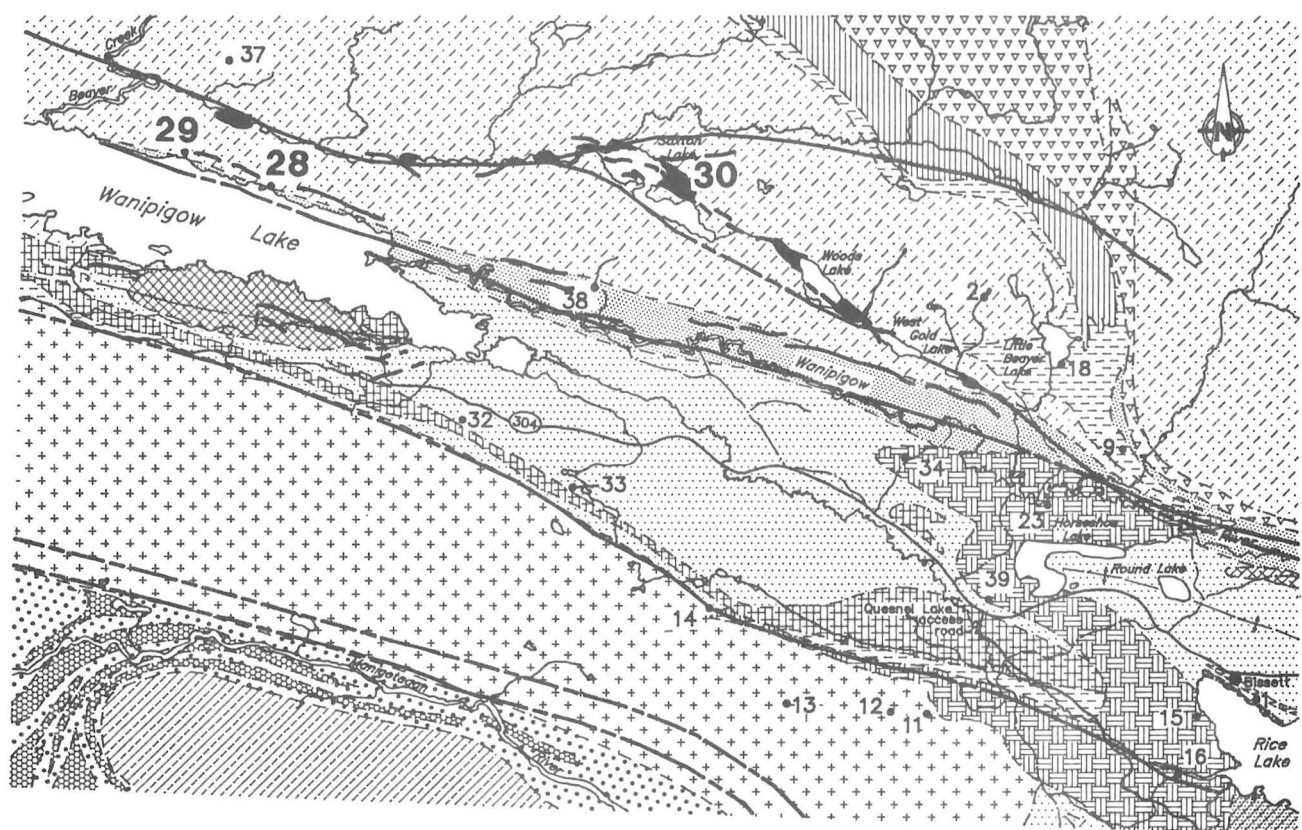
Assessment Files 91543, 91677, 91681; Manitoba Energy and Mines, Mines Branch.

Stewart, P.W.

1985: Mineral occurrence documentation in the Rice Lake greenstone belt; In Manitoba Energy and Mines, Geological Services, Mines Branch, Report of Field Activities, 1985, p. 133-147.

Theyer, P.

1983: Geology of gold environments in the Bissett/Wallace Lake portion of the Rice Lake greenstone belt; In Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities, 1983, p. 101-106.



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kilometres

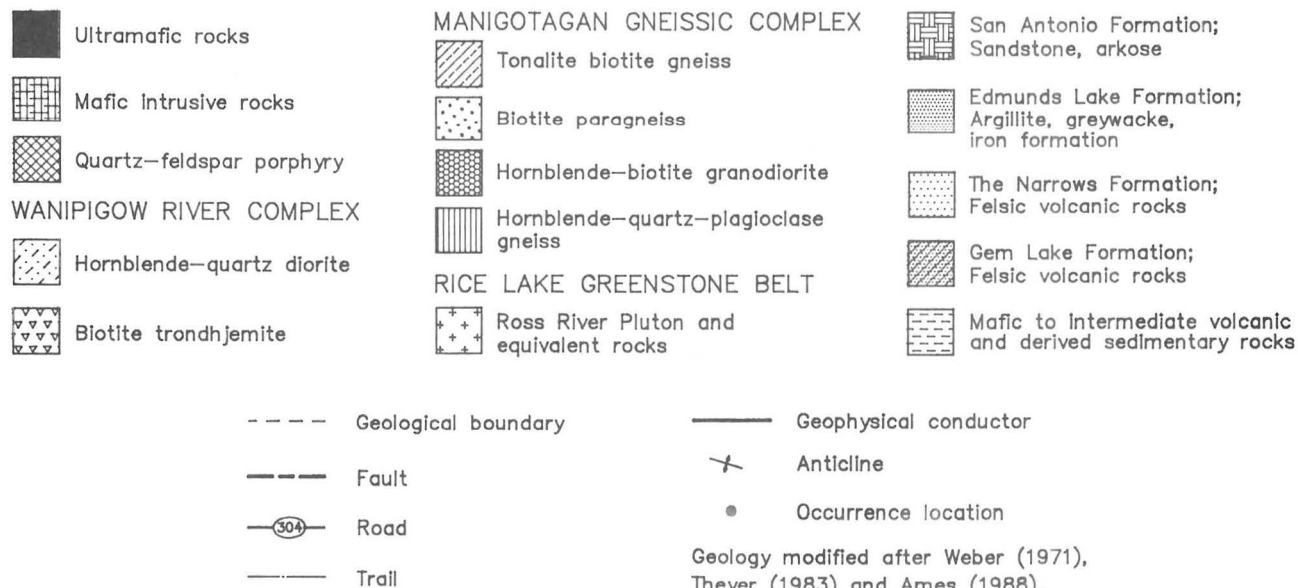


Figure 28-1: Geological setting of occurrences 28 (Grand Central Mine), 29 and 30 (Clinton).

**LOCATION: 28**

**NAME:** Grand Central

**UTM:** 5664917N/294223E

**ACCESS:** By boat via Wanipigow Lake.

**EXPLORATION SUMMARY:**

A complete review of the deposit history is contained in Mineral Inventory Card 52M/4 Au9. The property was staked in 1928 and assigned to Grand Central Gold Mines Ltd. in 1929. The Walsh Brothers optioned the property in 1932 and had a 33 m shaft sunk and a stamp mill erected. Two hundred and seventy-two tonnes of rock were milled and treated, but operations were suspended in the same year (Mines Branch, unpubl. company files). An experimental AEM (INPUT) survey, under contract to the Geological Survey of Canada (A.F. 91543), was conducted in 1968. A combined AEM and MAG survey was flown over the area by Geoterrex Ltd. in 1970 (A.F. 91681). An AEM survey was conducted over the area by the Canadian Nickel Company Ltd. in 1964 (A.F. 91645). An airborne radiometric survey was flown over the area by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). The muck pile and the quartz vein adjacent to the shaft were sampled in 1982 by HRND Mining & Milling (A.F. 92945). In 1986 an assessment of the gold mineralization potential of the area was prepared on behalf of Augusta Gold Mines Ltd. (A.F. 92939). The property changed hands repeatedly in the following years and was sporadically explored. The area is currently staked and in good standing until June 1994.

**GEOLOGICAL SETTING:**

The area is underlain by igneous rocks of the Wanipigow River Plutonic Complex and sedimentary rocks of the Edmunds Lake Formation (Fig. 28-1; Weber, 1971). A 1 m thick east-striking shear zone in the granodiorite hosts a 30 to 40 cm thick quartz vein that contains abundant chlorite and ankerite.

**AREA:** North shore of Wanipigow Lake (Fig. 28-1).

**AIRPHOTO:** A24731-89

**MINERALIZATION:**

The vein quartz contains approximately 0.5% pyrite in vugs.

**GEOCHEMICAL DATA:**

A total of 930 g Au was recovered from 272 tonnes rock (3.4 g/t Au) (Mines Branch, unpubl. company files). A grab sample from the muck pile contained 5.4 g/t Au, and a chip sample of the quartz vein adjacent to the shaft contained 40.4 g/t Au, according to a report filed by HRND Mining (A.F. 92945).

A grab sample of pyrite-rich vein quartz collected by staff of the Geological Services Branch in 1987 contained 1 g/t Au.

**CLASSIFICATION:**

Vein type deposit; single vein.

**REFERENCES:**

Assessment Files 91543, 91645, 91677, 91681, 92939, 92945; Manitoba Energy and Mines, Mines Branch.

Mineral Inventory Card 52M/4 Au9; Manitoba Energy and Mines, Geological Services Branch.

Weber, W.

1971: Geology of the Wanipigow River-Manitotagan River region; In Geology and geophysics of the Rice Lake region, south-eastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.



LOCATION: 29

NAME:

UTM: 5665419N/292617E

ACCESS: By boat via Wanipigow Lake.

AREA: North shore of Wanipigow Lake (Fig. 28-1).

AIRPHOTO: A24731-90

#### EXPLORATION SUMMARY:

An AEM survey was conducted over the area by the Canadian Nickel Company Ltd. in 1964 (A.F. 91645). An experimental AEM (INPUT) survey, under contract to the Geological Survey of Canada (A.F. 91543), was conducted in 1968. A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). A trench (3x1x0.5 m) was observed by Schmidtke (1984). In 1986 an assessment of the gold mineralization potential of the area was prepared on behalf of Augusta Gold Mines Ltd. (A.F. 92939). The area is currently open for staking.

#### GEOLOGICAL SETTING:

The area is underlain by igneous rocks of the Wanipigow River Plutonic Complex and sedimentary rocks (Fig. 28-1; Weber, 1971). An approximately 3 m thick magnetite-rich rock layer (oxide facies iron formation) that includes an approximately 30 cm thick chert layer occurs approximately 10 m south of the contact with a granodiorite.

#### MINERALIZATION:

The cherty rock layer contains trace to minor disseminated pyrite.

#### GEOCHEMICAL DATA:

One grab sample each from the iron formation and the cherty rock contained nil Au.

#### CLASSIFICATION:

Chemical sediment type deposit; oxide facies iron formation.

#### REFERENCES:

Assessment Files 91543, 91645, 91677, 91681, 92939; Manitoba Energy and Mines, Mines Branch.

Schmidtke, R.H.

1984: Mineral deposit documentation in the Bissett area; In Manitoba Energy and Mines, Energy and Mineral Resources, Report of Field Activities, 1984, p. 92-99.



**LOCATION: 30****NAME:** Clinton**UTM:** 5665057N/301731E**ACCESS:** Via float plane or an abandoned logging road to Saxton Lake.**EXPLORATION SUMMARY:**

A complete review of the deposit history is contained in Mineral Inventory Card 52M/4 Au5.

The property was first staked in 1915 and title was transferred to Clinton Gold Mines Ltd. In 1928 prospecting and sampling programs were followed by shaft sinking (35 m depth) and some drifting at the 31 m level. An experimental AEM (INPUT) survey, under contract to the Geological Survey of Canada (A.F. 91543) was conducted in 1968. A combined AEM and MAG survey was flown over the area by Geotrex Ltd. in 1970 (A.F. 91681). An AEM survey was conducted over the area by the Canadian Nickel Company Ltd. in 1964 and 1965 (A.F. 91645, 91649). AFMAG, HLEM, VLEM and soil- and rock-geochemical surveys of the ultramafic rocks in search of Ni mineralization were carried out by J. Donner for Gunnex Mines in 1967 (A.F. 91140). An EM survey was carried out over the area by V. D. Colcleugh in 1970 (A.F. 91139). An airborne radiometric survey was flown over the area by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). Reopening of trenches and an adit, followed by rock sampling was undertaken in 1975 by V.D. Colcleugh to study the mineral potential of a quartz vein (A.F. 92422). Overburden and rock trenching was undertaken by V.D. Colcleugh in 1978 and 1979 (A.F. 92531, A.F. 92537). A geological compilation followed by a MAG and VLF-EM investigation was completed by J.W. Campbell in 1986 (A.F. 92861, A.F. 92862). Rock samples were collected by HRND Mining in 1982 and 1985 (A.F. 92864, A.F. 92863).

The area is currently open for staking.

**GEOLOGICAL SETTING:**

The area is underlain by a sheared plug of serpentinized ultramafic rock that is one of a series of ultramafic bodies emplaced in granodiorite of the Wanipigow River Plutonic Complex along the trace of a major east-striking fault (Fig. 28-1; Scoates, 1971; Weber, 1971). The ultramafic rocks are tightly folded and contain metre-sized xenoliths of granodiorite and a finely layered grey sedimentary-looking rock. A 310° - striking shear contains a sugary white massive quartz vein ≤1 m thick and numerous subparallel, discontinuous and anastomosing quartz ribbons and lenses. Most of the quartz includes ankerite lenses and chloritized mafic to ultramafic rock fragments.

**AREA:** Saxton Lake (Fig. 28-1)**AIRPHOTO:** A24727-24**MINERALIZATION:**

The vein quartz is barren of sulphide minerals, with exception of rust stains that are probably caused by oxidized pyrite. Trace millerite reportedly occurs in rock samples of the ultramafic host rock (A.F. 91140).

**GEOCHEMICAL DATA:**

Samples collected by HRND Mining in 1982 yielded trace Au in a chip sample and nil Au in a grab sample from the muck pile (A.F. 92864). Additional rock samples collected from the trenches by HRND Mining in 1985 yielded 16.1 g/t Au and 2.7 g/t Au (A.F. 92863). Most assay results and sample locations are recorded on Figure 30-1.

**CLASSIFICATION:**

Vein type deposit; multiple veins and lenses.

**REFERENCES:**

Assessment Files 91139, 91140, 91543, 91645, 91649, 91677, 91681, 92422, 92531, 92537, 92861, 92862, 92863, 92864; Manitoba Energy and Mines, Mines Branch.

Mineral Inventory Card 52M/4 Au5; Manitoba Energy and Mines, Geological Services Branch.

Scoates, R.F.J.

1971: Ultramafic rocks of the Rice Lake greenstone belt; In *Geology and geophysics of the Rice Lake region, southeastern Manitoba* (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, p. 189-202.

Weber, W.

1971: *Geology of the Wanipigow River-Manigotagan River region*; In *Geology and geophysics of the Rice Lake region, southeastern Manitoba* (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.

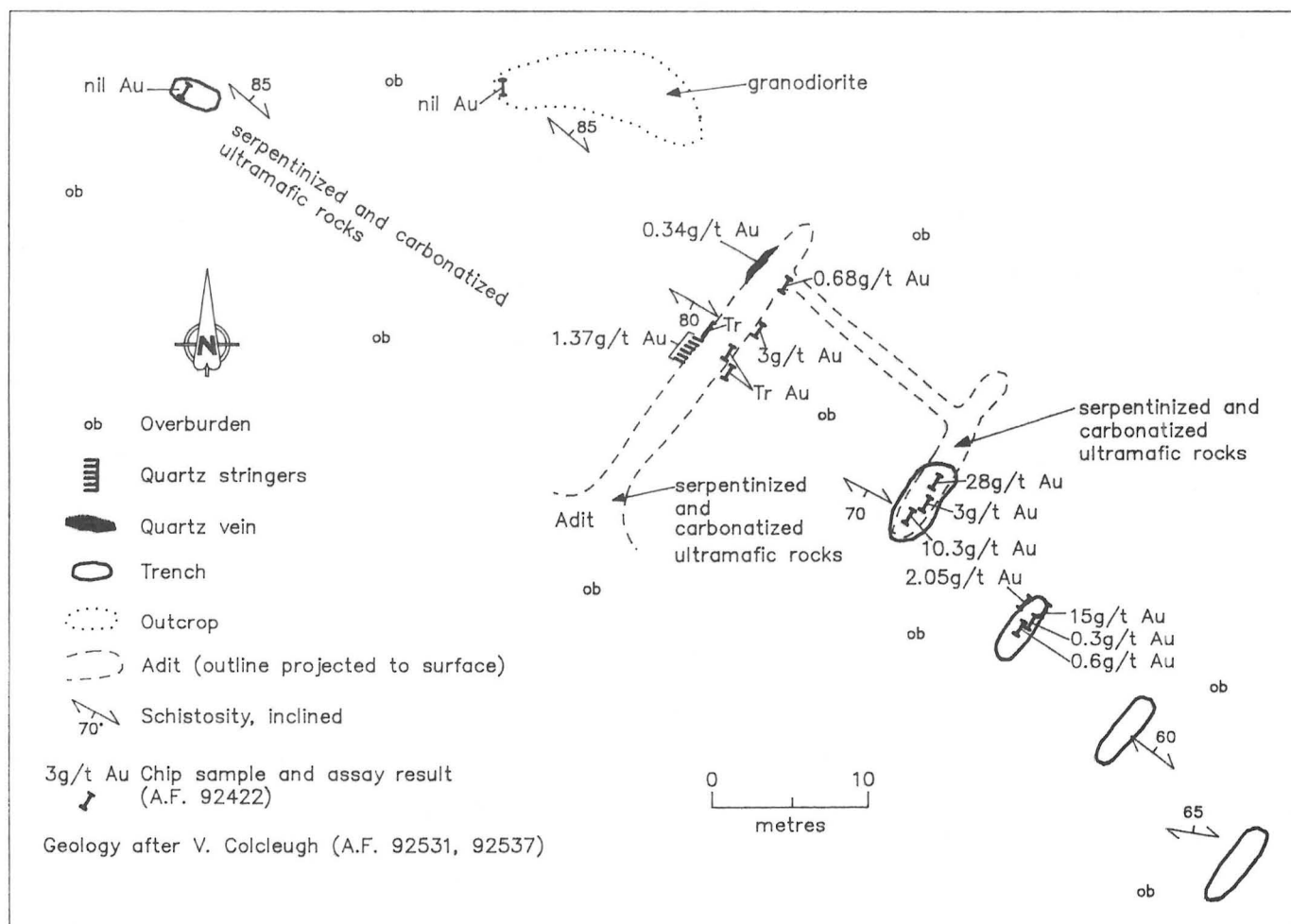


Figure 30-1: Location of trenches, adit and rock samples at occurrence 30 (Clinton).

**LOCATION: 31****NAME: F Group****UTM: 5655104N/319766E****ACCESS: Travel via P.R. 304 approximately 8 km east of Bissett, and then traverse 1 km south.****AREA: Approximately 8 km east of Bissett.****AIRPHOTO: A24711-55****EXPLORATION SUMMARY:**

A complete review of the deposit history is contained in Mineral Inventory Card 52M/4 Au11. The property was staked in 1933. Trenching was initiated in 1945 and proceeded until 1947, and 1:240 scale geological mapping was carried out. At least 27 holes totalling 410 m were drilled before 1948 on behalf of Gold Pan Mines Ltd. (Mineral Inventory Card 52M/4 Au11). A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). Exploration continued in 1983 with line cutting, an HLEM and IP survey and diamond drilling (Mineral Inventory Card 52M/4 Au11). The area is currently staked and in good standing until October, 1994.

**GEOLOGICAL SETTING:**

The area is underlain by mafic to intermediate rocks of the Gem Lake Formation (Fig. 31-1; Weber, 1971). The volcanic rocks are characterized by zones of intense silicification and pyritization and are intruded by feldspar phyric rocks (Fig. 31-2; Schmidtke, 1984). Some of the massive mafic rocks are characterized by several metres wide zones of coarse crystalline feldspar-amphibole aggregates, which impart a distinctive "gabbroic" texture to these rocks. The volcanic rock suite is intruded by massive quartz-feldspar porphyry and feldspar porphyry dykes and stocks (Schmidtke, 1984).

**MINERALIZATION:**

Trenches are concentrated in areas of the volcanic rock suite characterized by abundant rust stains due to oxidized pyrite and by a thorough silicification. Some of the rubble from the trenches contains  $\leq 10\%$  pyrite and approximately 1% chalcopyrite. Visible gold, reported to occur in a quartz vein (A.F. 91130), was not observed during a 1984 field examination.

**GEOCHEMICAL DATA:**

Grab samples from a mineralized zone ranged from 1 to 53.1 g/t Au. Grab samples of quartz veins ranged from 5.5 to 53.1 g/t Au. Assay results from three approximately 1 m long channel samples, collected from three trenches ranged from 14.4 to 22.4 g/t Au.

Twenty-three drill core analyses ranged from 1.3 to 29.5 g/t Au, but most of the analyses were less than 6 g/t Au (A.F. 91130).

Sixteen grab samples collected by Manitoba Energy and Mines staff from mineralized trenches and outcrops contained trace and/or nil Au, with the exception of sample 6, which contained 1.02 g/t Au.

**CLASSIFICATION:**

Vein type deposit; multiple veins and lenses.

**REFERENCES:**

Ames, D.E.

1988: Stratigraphy and alteration of gabbroic rocks near the San Antonio gold mine, in the Rice Lake area, southeastern Manitoba; Carleton University, M.Sc. Thesis (unpublished), 202p.

Assessment Files 91130, 91677, 91681; Manitoba Energy and Mines, Mines Branch.

Mineral Inventory Card 52M/4 Au11; Manitoba Energy and Mines, Geological Services Branch.

Schmidtke, R.H.

1984: Mineral deposit documentation in the Bissett area; In Manitoba Energy and Mines, Energy and Mineral Resources, Report of Field Activities, 1984, p. 92-99.

Theyer, P.

1983: Geology of gold environments in the Bissett/Wallace Lake portion of the Rice Lake greenstone belt; In Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities, 1983, p. 101-106.

Weber, W.

1971: Geology of the Wanipigow River-Manigotagan River region; In Geology and geophysics of the Rice Lake region, southeastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.

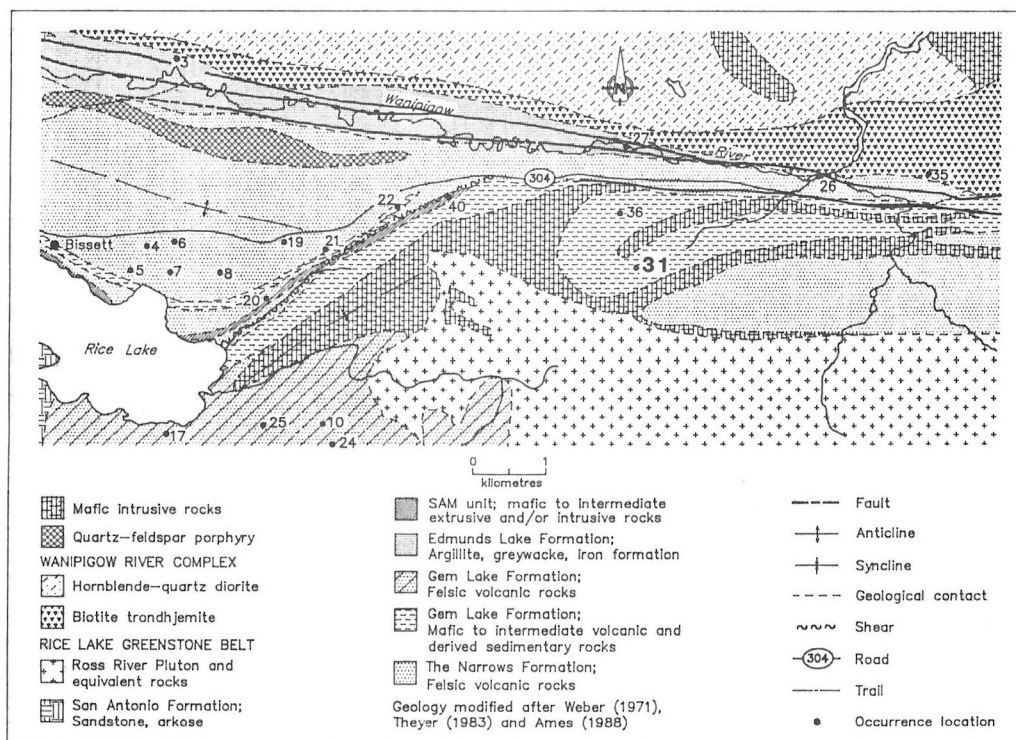


Figure 31-1: Geological setting of occurrence 31 (F Group).

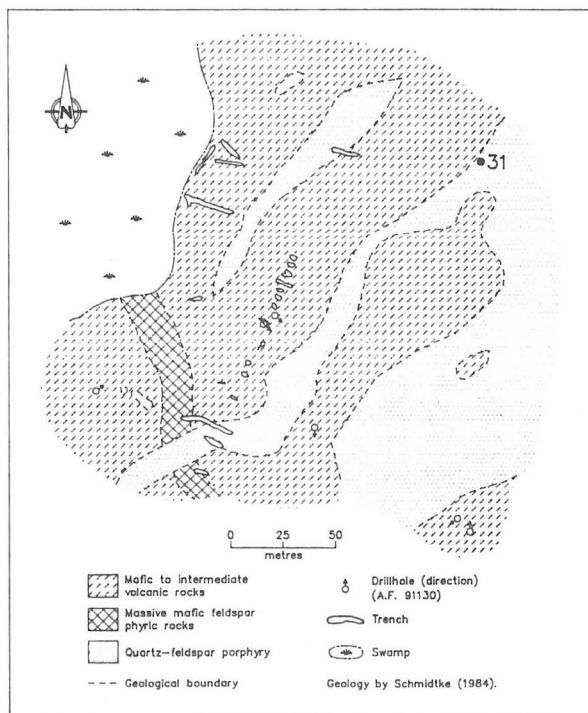


Figure 31-2: Detailed geology and drillhole locations at occurrence 31 (F Group).

## LOCATION: 32

NAME: Eleanor

UTM: 5659940N/297653E

ACCESS: Travel via P.R. 304 approximately 22 km west of Bissett, and then traverse 0.75 km south along a well marked trail.

## EXPLORATION SUMMARY:

A complete review of the deposit history is contained in Mineral Inventory Card 52M/4 Au16. Outcrop stripping and test pitting were undertaken in 1937 by Abbott Mines Ltd. (Manitoba Mines Branch, 1938). Based on the results of a bulk sample a decision to sink a shaft was made in 1939 (Manitoba Mines Branch, 1940). A combined AEM and MAG survey was flown over the area by Geoterrex Ltd. in 1970 (A.F. 91681), and an AEM survey was conducted by the Canadian Nickel Company Ltd. in 1964 and 1965 (A.F. 91645, 91649), and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). Esso Minerals Canada channel sampled a quartz vein in 1978 (A.F. 92625).

## GEOLOGICAL SETTING:

The area is underlain by granodiorite equivalent to the Ross River Pluton (Fig. 32-1) that is transected by a 130°-striking shear. The shear is characterized by a 2 to 8 m thick schistose rock layer traced over 215 m along strike. Lense-shaped quartz bodies that range from 50 to 100 cm thick and from one to several metres long, are distributed randomly (Fig. 32-2). Light to dark grey and cherty vein quartz is randomly interspersed with zones of granular, sugary quartz, commonly stained with iron oxide (A.F. 92625).

## MINERALIZATION:

Coarse grained pyrite accompanied by trace sphalerite and galena occur in randomly distributed, mm- to-cm sized knots and pockets, within the sheared quartz veins.

AREA: 22 km west of Bissett.

AIRPHOTO: A24727-21

## GEOCHEMICAL DATA:

"Erratic but occasionally high grade (gold) mineralization" was present in a 30 m long channel sample. An average grade of 6.5 g/t Au was determined for 1.5 m of the 30 m total length (A.F. 92625).

## CLASSIFICATION:

Vein type deposit; multiple veins or lenses.

## REFERENCES:

Assessment File 91645, 91649, 91677, 91681, 92625; Manitoba Energy and Mines, Mines Branch.

### Manitoba Mines Branch

1938: Abbott Mines Ltd.; In Tenth Annual Report on Mines and Minerals; Manitoba Department of Mines and Natural Resources, p. 37.

### Manitoba Mines Branch

1940: Abbott Mines Ltd.; In Tenth Annual Report on Mines and Minerals; Manitoba Department of Mines and Natural Resources, p. 30.

Mineral Inventory Card 52M/4 Au16; Manitoba Energy and Mines, Geological Services Branch.

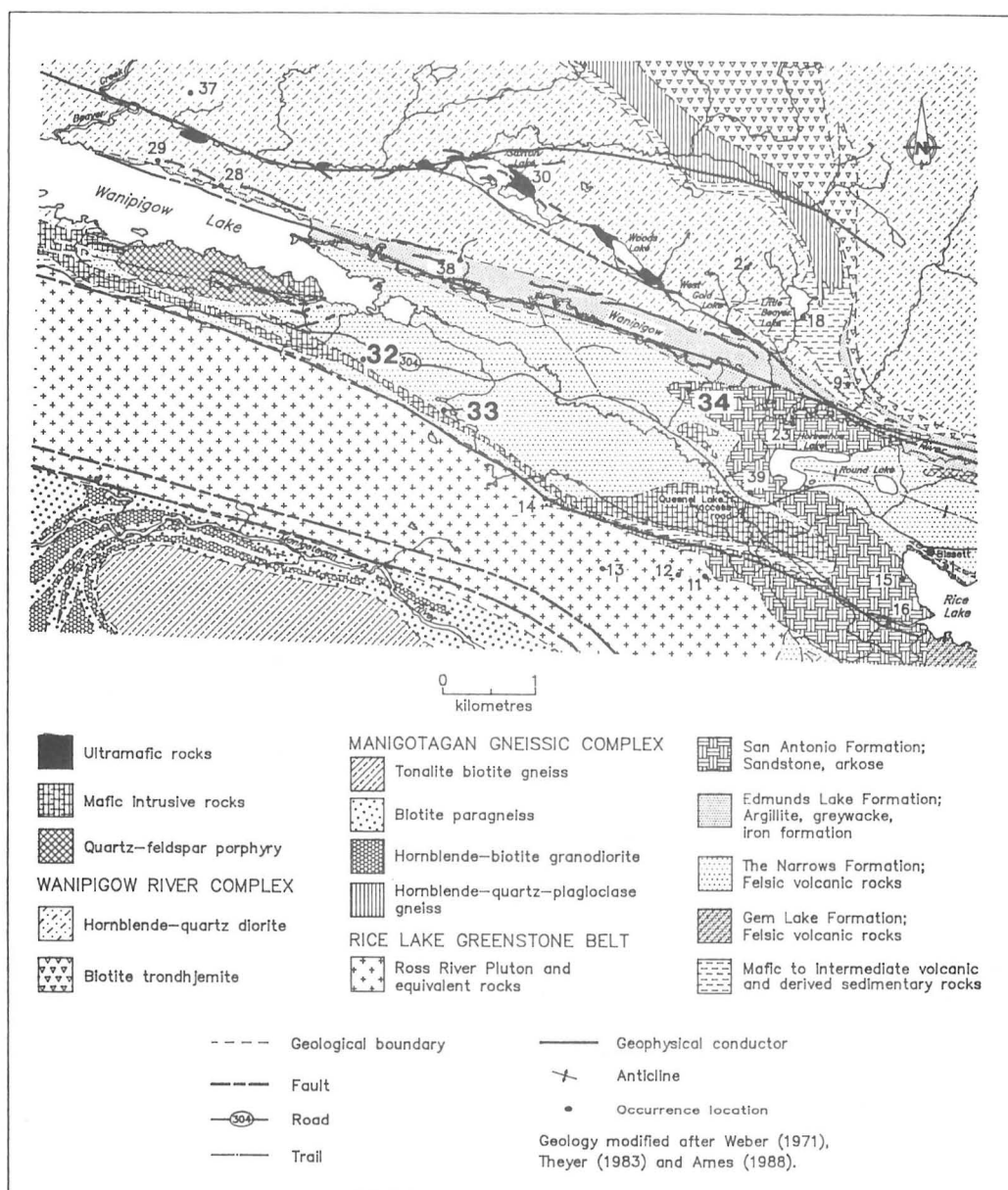


Figure 32-1: Geological setting of occurrences 32 (Eleanor), 33 (Iron Horse East and Iron Horse West) and 34.



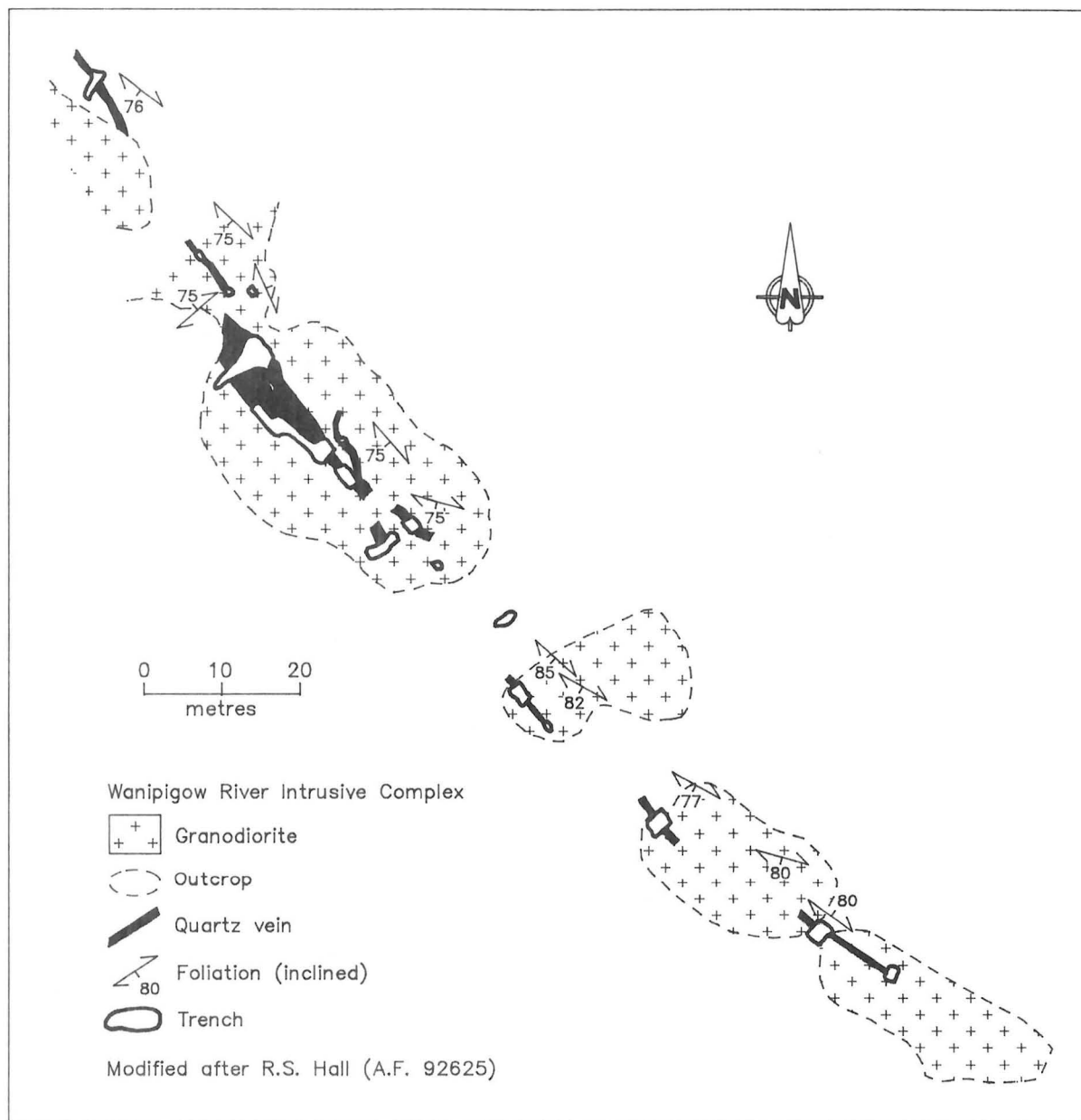


Figure 32-2: Detailed geology and location of pits at occurrence 32 (Eleanor).

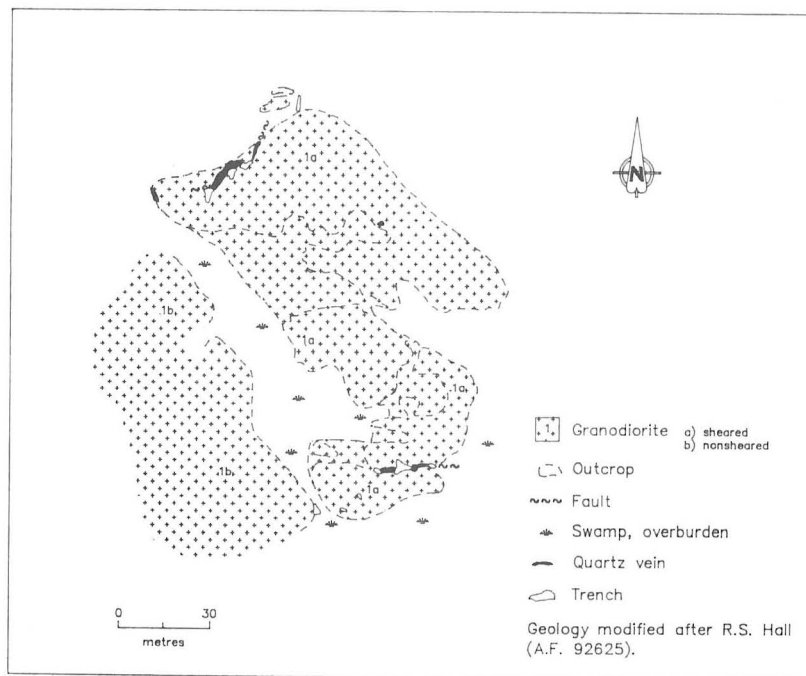


Figure 33-1: Geology and location of trenches at occurrence 33 (Iron Horse West).

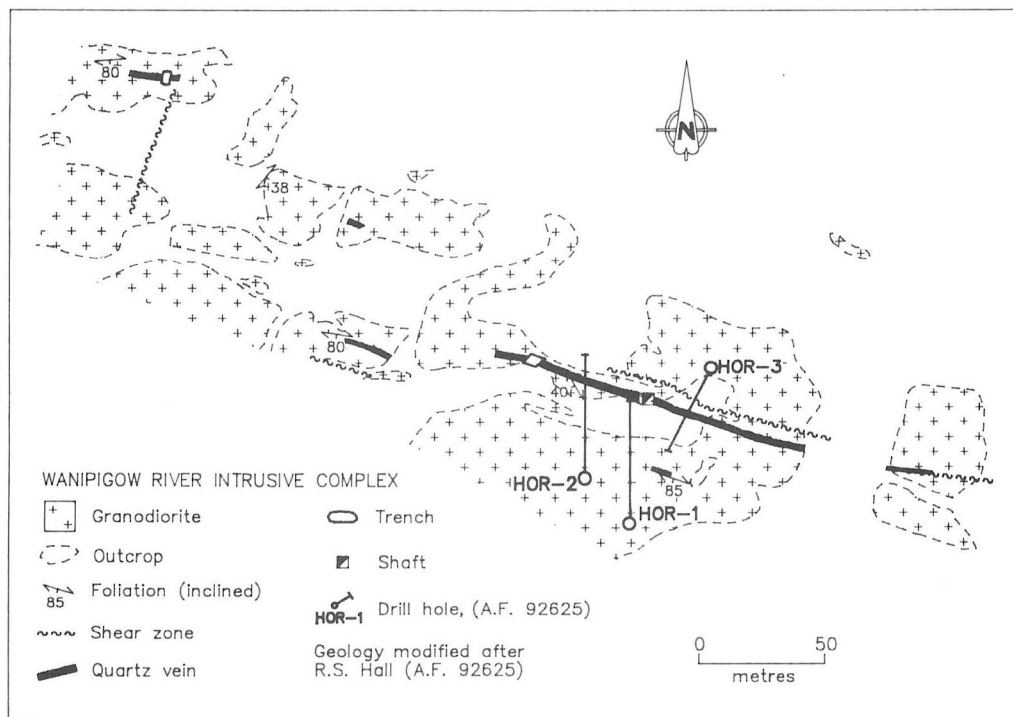


Figure 33-2: Geology and drillhole location plan at occurrence 33 (Iron Horse East).

## LOCATION: 33

**NAME:** Iron Horse (East and West)

**UTM:** 5658400N/299610E

**ACCESS:** Travel via P.R. 304 approximately 20 km west of Bissett, then traverse 1 km south on a trail. This trail forks into two branches approximately 400 m south of P.R. 304; the western branch leads to the Iron Horse West quartz vein, whereas the eastern branch leads to the Iron Horse East quartz vein.

## EXPLORATION SUMMARY:

Outcrop stripping, trenching and drilling of at least three holes took place prior to 1946 (Memo, J.C. Gibson to C.F. Caswell, San Antonio Mines Ltd.). A combined AEM and MAG survey was flown over the area by Geotrex Ltd. in 1970 (A.F. 91681), and an AEM survey was conducted by the Canadian Nickel Company Ltd. in 1964 and 1965 (A.F. 91645, 91649), and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). Esso Minerals Canada conducted regional 1:15 840 scale geological mapping and 1:600 scale geological mapping of individual quartz-bearing faults. Quartz veins were channel sampled with a rock saw and a three hole drilling program (198 m) was undertaken on the Iron Horse veins in 1979 (A.F. 92625). The area is currently open for staking.

## GEOLOGICAL SETTING:

The area is underlain by granodiorite equivalent to the Ross River Pluton (Fig. 32-1; Weber, 1971). Locally the intrusion is sheared and faulted. Several faults contain quartz and minor sulphides, but only two of these were investigated in detail. The western fault (Iron Horse West) contains narrow, discontinuous, sugary textured quartz lenses, that attain lengths to 6 m and thicknesses to 3 m (Fig. 33-1). The eastern fault is approximately 200 m long and hosts a 122 m long continuous quartz vein, with 30 cm average thickness (Iron Horse East) (Fig. 33-2).

## MINERALIZATION:

Vein quartz in the Iron Horse East vein includes  $\leq 3\%$  coarse grained pyrite in clusters and minor malachite stains.

Drillholes intersected the following rocks on the Iron Horse East occurrence:

**DDH Hor-1** (81.3 m long) intersected 10 cm of white, unmineralized vein quartz from 77.8 m to 77.9 m. The remainder of the core consists of foliated granite with disseminated pyrite and minor quartz veins.

**DDH Hor-2** (72.2 m long) intersected 3 cm vein quartz from 47.18 m to 47.21 m that contains amphibole and disseminated pyrite. A second quartz vein that contains "abundant" large pyrite grains was intersected between

**AREA:** Approximately 20 km west of Bissett (Fig. 32-1).

**AIRPHOTO:** A24727-21

47.8 m and 48.1 m depth. The remainder of the core consists of foliated granite with disseminated pyrite and minor quartz veins.

**DDH Hor-3** (44.8 m long) intersected: 6 cm thick quartz vein containing trace pyrite at 1.5 m depth; a 15 cm thick quartz vein with minor pyrite at 1.8 m depth; a 3 cm thick iron-stained quartz vein at 15 m depth; and a 9 cm thick quartz vein at 29.7 m depth that contains pyrite along fractures (A.F. 92625).

Less than 5% coarse grained disseminated pyrite and traces of chalcopyrite were noted in vein quartz of the Iron Horse West occurrence hosted by granodiorite (A.F. 92625).

## GEOCHEMICAL DATA:

Three samples from DDH Hor-1 contained 8 ppb, 340 ppb, and 2 g/t Au; twenty-two samples contained nil Au.

Four samples from DDH Hor-2 contained 68 ppb Au; fourteen additional samples contained nil Au.

Six of forty-two samples from DDH Hor-3 contained 68 ppb, one sample contained 6.8 g/t, and thirty-five samples contained nil Au (A.F. 92625).

A grab sample of mineralized vein quartz of the Iron Horse West vein, collected by Manitoba Energy and Mines in 1986, contained 3.2 g/t Au.

## CLASSIFICATION:

Vein type deposit; multiple veins and lenses.

## REFERENCES:

Assessment File 91645, 91649, 91677, 91681, 92625; Manitoba Energy and Mines, Mines Branch.

Weber, W.

1971: Geology of the Wanipigow River-Manigotagan River region; In Geology and geophysics of the Rice Lake region, south-eastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.

LOCATION: 34

NAME:

UTM: 5660001N/305741E

ACCESS: Travel via P.R. 304 approximately 9 km west of Bissett to a wayside parking access road.

#### EXPLORATION SUMMARY:

An experimental AEM (INPUT) survey, under contract to the Geological Survey of Canada (A.F. 91543), was conducted in 1968. A combined AEM and MAG survey was flown by Geoterrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). Eleven pits were excavated and sampled in 1981 by Peak Enterprises Ltd. (A.F. 92486). The area is currently staked and in good standing until October 1993.

#### GEOLOGICAL SETTING:

The area is underlain by sheared sedimentary rocks. Four several hundred metres long and  $\leq 3$  m thick west-striking quartz veins are intermittently exposed (A.F. 92486). Pit H (Fig. 34-1) appears to correlate with the location of the "Outlook shaft" recorded on claim map 52M/4 SW (Manitoba Energy and Mines, Recording Office).

#### MINERALIZATION:

Vein quartz exposed in pit F (Fig. 34-1) contained unquantified amounts of galena ("up to one foot solid galena", A.F. 92486).

#### GEOCHEMICAL DATA:

Ten out of sixteen grab samples contained nil to trace Au, four contained  $\leq 1.7$  g/t Au, and two samples contained 3.8 and 4.8 g/t Au, respectively.

A sample from pit F contained 5.3% Pb.

#### CLASSIFICATION:

Vein type deposit; multiple veins and lenses.

AREA: 9 km west of Bissett (Fig. 32-1).

AIRPHOTO: A24729-133

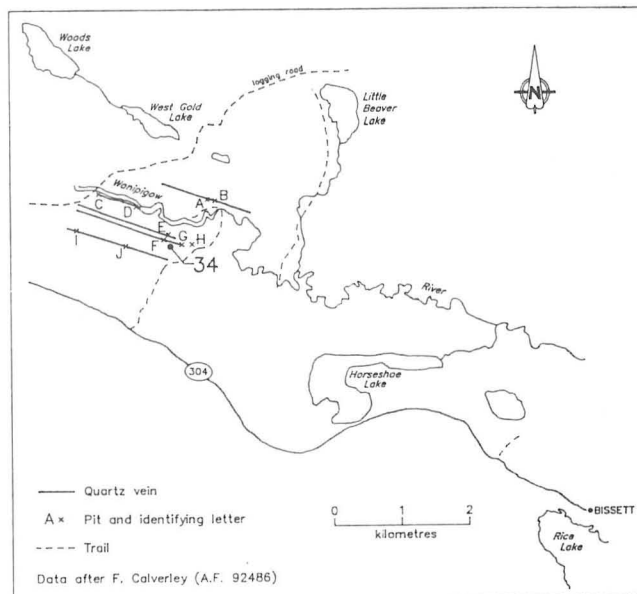


Figure 34-1: Plan of quartz veins and pits at occurrence 34.

#### REFERENCES:

Assessment Files 91543, 91677, 91681, 92486; Manitoba Energy and Mines, Mines Branch.

Weber, W.

1971: Geology of the Wanipigow River-Manigotagan River region; In Geology and geophysics of the Rice Lake region, south-eastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.

**LOCATION: 35**

**NAME:**

UTM: 5660001N/305741E

**ACCESS:** Travel via P.R. 304 approximately 1 km east of the Birch Falls camp ground and then traverse 0.2 km north along an abandoned logging road.

**EXPLORATION SUMMARY:**

A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). Outcrop stripping and rock sampling programs were undertaken by H. Steinleitner in 1982 (A.F. 92603). The area is currently staked and in good standing until June 1994.

**GEOLOGICAL SETTING:**

The area is underlain by felsic volcanic rocks of The Narrows Formation (Fig. 35-1; Weber, 1971).

**MINERALIZATION:**

"Heavy concentration of chalcopyrite" was observed in a felsic tuff outcrop (A.F. 92603).

**GEOCHEMICAL DATA:**

A grab sample of "tuff" assayed 3.4 g/t Au, 6.8 g/t Ag and 1% Ni (A.F. 92603).

**CLASSIFICATION:**

Disseminated mineralization - not classified.

**AREA:** Approximately 12 km east of Bissett (Fig. 35-1).

**AIRPHOTO:** A24712-191

**REFERENCES:**

Ames, D.E.

1988: Stratigraphy and alteration of gabbroic rocks near the San Antonio gold mine, in the Rice Lake area, southeastern Manitoba; Carleton University, M.Sc. Thesis (unpublished), 202p.

Assessment Files 91677, 91681, 92603; Manitoba Energy and Mines, Mines Branch.

Theyer, P.

1983: Geology of gold environments in the Bissett/Wallace Lake portion of the Rice Lake greenstone belt; In Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities, 1983, p. 101-106.

Weber, W.

1971: Geology of the Wanipigow River-Manigotagan River region; In Geology and geophysics of the Rice Lake region, southeastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.

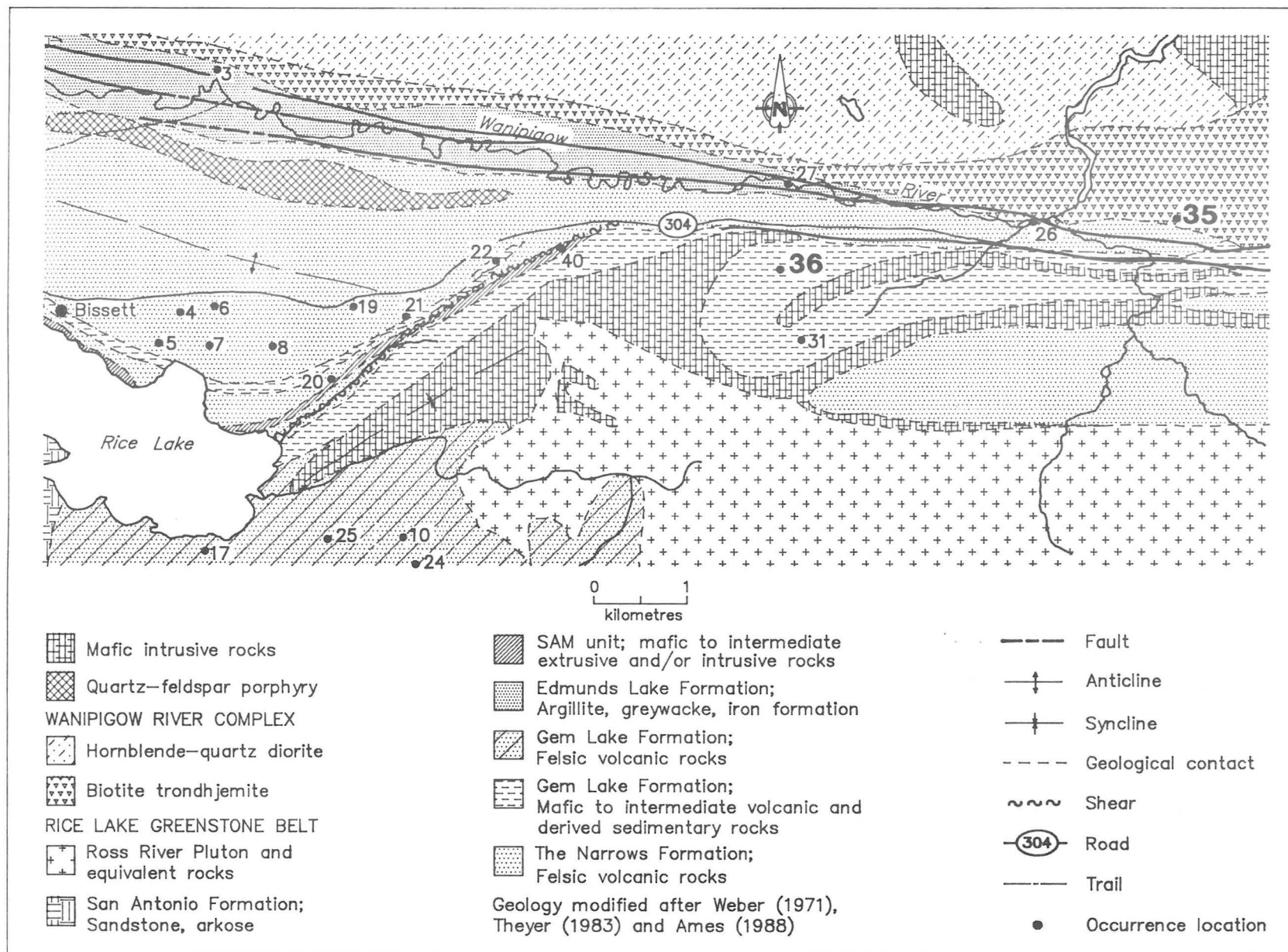


Figure 35-1: Geological setting of occurrences 35 and 36.



## LOCATION: 36

NAME: (A.F. Mineralization intersected by diamond drilling).  
UTM: 5655836N/319573E

ACCESS: Traverse 0.3 km south from P.R. 304 at a point located approximately 3 km west of the Birch Falls access road.

## EXPLORATION SUMMARY:

Seven x-ray holes (192 m) were drilled in 1949 by F. Calverley (A.F. 91128). A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). Manitoba Mineral Resources Ltd. conducted an airborne EM survey (A.F. 91692), an HLEM survey (A.F. 92094) and drilled two diamond-drill holes totalling 97.5 m (A.F. 92094). The area is currently staked and in good standing until October 1994.

## GEOLOGICAL SETTING:

The area is underlain by mafic to intermediate volcanic and derived sedimentary rocks (Fig. 35-1; Weber, 1971).

The seven holes drilled in 1949 intersected porphyritic andesite and sedimentary rocks (Fig. 36-1; A.F. 91128). Two drillholes by Manitoba Mineral Resources Ltd. intersected felsic to mafic volcanic rocks and sedimentary rocks.

**DDH I-1** intersected rhyolite that contains graphitic layers and cherty shale.

**DDH I-21** intersected porphyritic dacite and a 0.3 m thick altered dacite layer that contains 20% quartz and 10% calcite veins (A.F. 92094).

## MINERALIZATION:

Holes drilled by Manitoba Mineral Resources Ltd. intersected the following mineralization:

**DDH I-1** intersected graphitic beds and narrow, randomly oriented pyrite stringers at 16.7 m depth and a 0.3 m thick layer with 10% pyrrhotite at 46 m depth.

**DDH I-21** intersected 0.3 m altered dacite mineralized with 10% pyrite at 34.1 m depth (A.F. 92094).

No mineralization was intersected in the seven drillholes drilled in 1949 (A.F. 91128).

## GEOCHEMICAL DATA:

None available.

## CLASSIFICATION:

Disseminated mineralization - not classified.

AREA: Approximately 7 km east of Bissett (Fig. 35-1).  
AIRPHOTO: A24711-55

## REFERENCES:

Ames, D.E.

1988: Stratigraphy and alteration of gabbroic rocks near the San Antonio gold mine, in the Rice Lake area, southeastern Manitoba; Carleton University, M.Sc. Thesis (unpublished), 202p.

Assessment Files 91128, 91677, 91681, 91692, 92094; Manitoba Energy and Mines, Mines Branch.

Theyer, P.

1983: Geology of gold environments in the Bissett/Wallace Lake portion of the Rice Lake greenstone belt; In Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities, 1983, p. 101-106.

Weber, W.

1971: Geology of the Wanipigow River-Manitogan River region; In Geology and geophysics of the Rice Lake region, southeastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360.

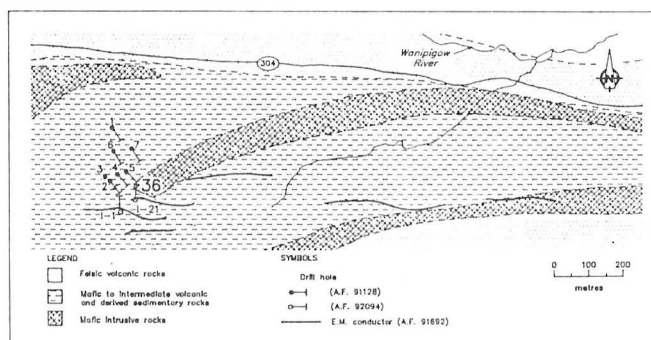
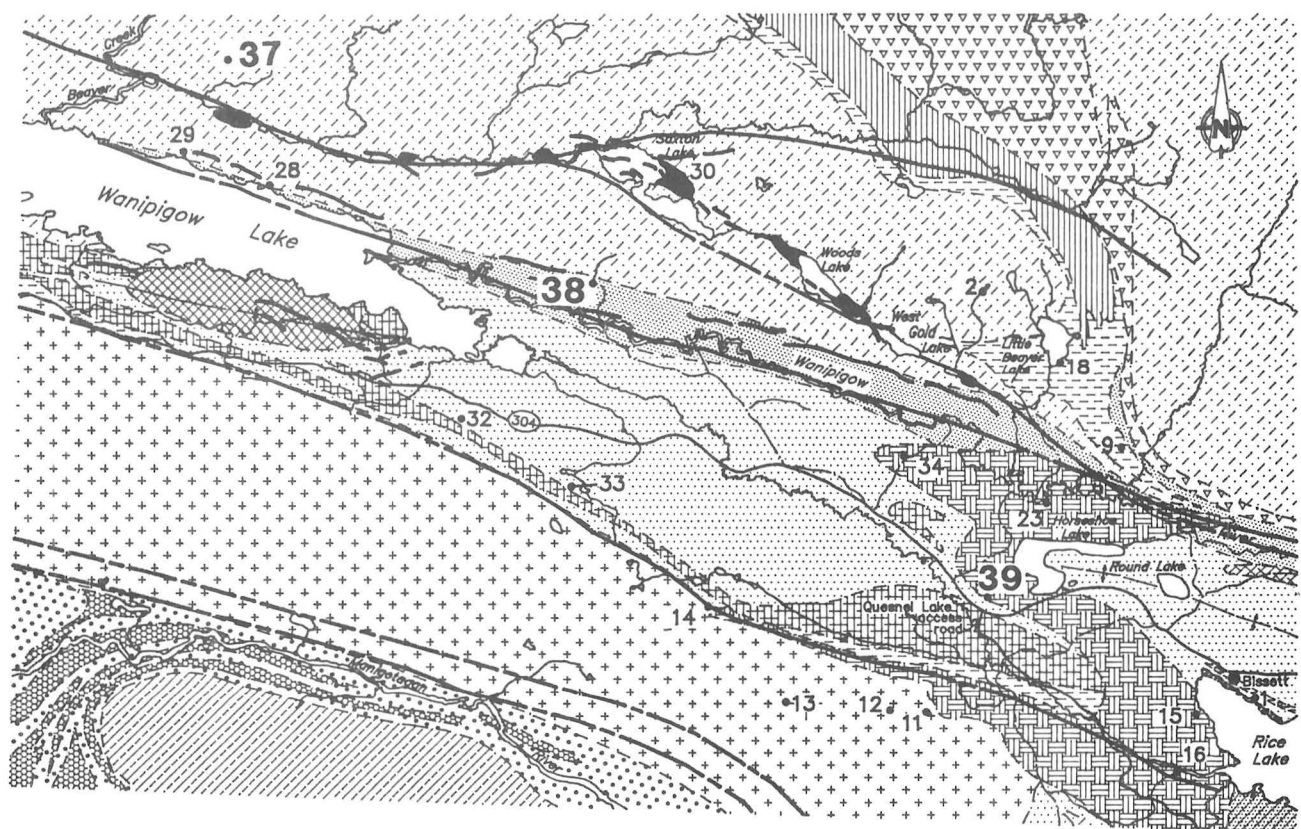


Figure 36-1: Geology and drill hole locations at occurrence 36.



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kilometres

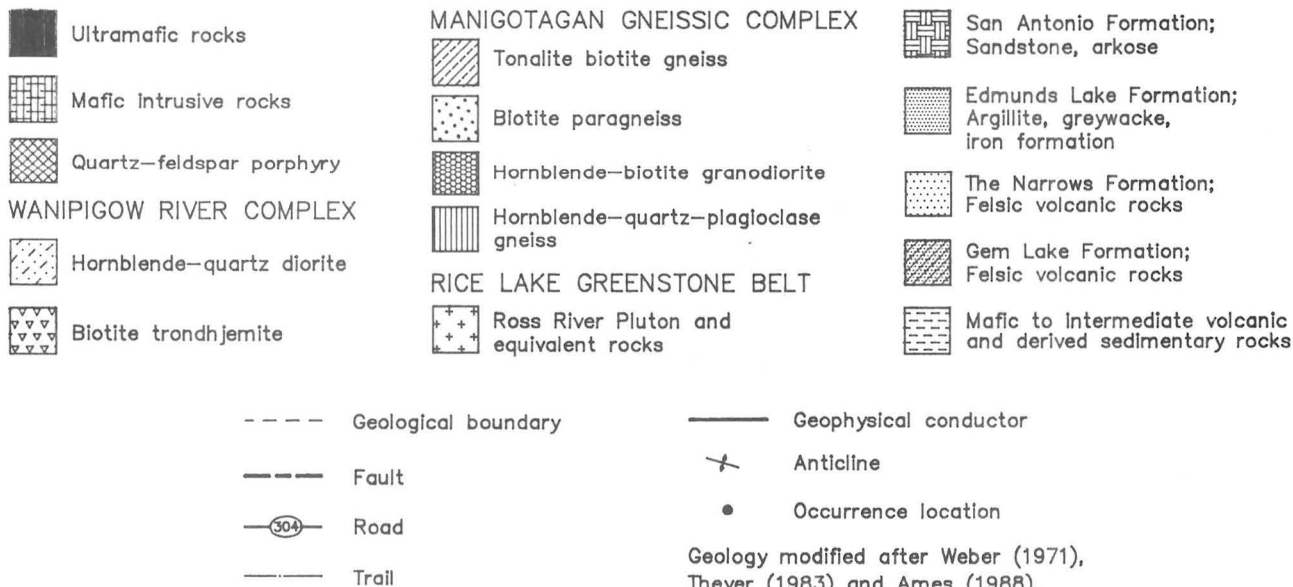


Figure 37-1: Geological setting of occurrences 37 (Huronian), 38 and 39.

**LOCATION: 37****NAME:** Huronic**UTM:** 5667217N/293519E**ACCESS:** Traverse north from the Abitibi logging road system (Fig. 37-1).**EXPLORATION SUMMARY:**

The exploration history for this occurrence is detailed in Mineral Inventory Card 52M/4 Au6. The occurrence was first staked in 1920. Huronic Mines Ltd. excavated seventeen pits (only sixteen pits were identified in 1983), sunk a 5.5 m shaft and drilled an unspecified number of holes between 1928 and 1940 (Mineral Inventory Card 52M/4 Au6). An experimental AEM (INPUT) survey, under contract to the Geological Survey of Canada (A.F. 91543) was conducted in 1968. A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681), and an AEM survey was conducted by the Canadian Nickel Company Ltd. in 1964 (A.F. 91645). An airborne radiometric survey was flown over the area by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). All trenches were resampled in 1983 (A.F. 92661) and the geology of the area around the trenches was mapped at 1:2400 scale in 1986 (A.F. 92841) for Noranda Exploration Company Ltd. The area is currently staked and in good standing until August 1993.

Zone 1, located approximately 1 km west of occurrence 37, consists of nine trenches in quartz diorite and granodiorite sampled in 1983 (Fig. 37-2)(A.F. 92926).

**GEOLOGICAL SETTING:**

The area is underlain by hornblende-quartz diorite of the Wanipigow River Plutonic Complex.

Occurrence 37 is a northeast-striking 1 to 2.4 m thick shear zone, characterized by ankerite and chlorite schist. A 61 m long, 0.6 m thick quartz vein and numerous parallel, thin and discontinuous quartz veins and stringers are present in the shear zone. In addition, several poorly exposed shear zones, characterized by metre-thick zones of carbonatized and chloritized granodiorite, contain quartz blebs, veinlets and stringers.

**AREA:** Approximately 3 km north of Wanipigow Lake.**AIRPHOTO:** A24731-87**MINERALIZATION:**

"Some evidence of chalcopyrite was noted; erratic(ally) disseminated pyrite with traces of chalcopyrite; fair but erratic pyrite mineralization" (A.F. 92661).

Gold occurs within an approximately 50 m long central section of the main quartz vein; north and south of this section, the vein reportedly contains little or no gold (A.F. 92841).

**GEOCHEMICAL DATA:**

A grab sample of quartz "well mineralized with chalcopyrite" contained 34.2 g/t Au (A.F. 92841). One of three grab samples of vein quartz contained 0.3 g/t Au, whereas two additional samples assayed trace and nil Au. A grab sample from a pit contained nil Au (A.F. 92661). Chemical analyses of six rock samples from zone 1, yielded 16.5 g/t, 7.5 g/t, 0.34 g/t, tr and nil gold. (A.F. 92926).

**CLASSIFICATION:**

Vein type deposit; multiple veins and lenses.

**REFERENCES:**

Assessment Files 91543, 91645, 91677, 91681, 92661, 92841, 92926; Manitoba Energy and Mines, Mines Branch.

Mineral Inventory Card 52M/4 Au6; Manitoba Energy and Mines, Geological Services Branch.

Weber, W.

1971: Geology of the Wanipigow River-Manitotagan River region; in Geology and geophysics of the Rice Lake region, south-eastern Manitoba (W.D. McRitchie and W. Weber, eds.); Manitoba Mines and Natural Resources, Mines Branch, Publication 71-1, Geological Map 71-1/4, 1:63 360

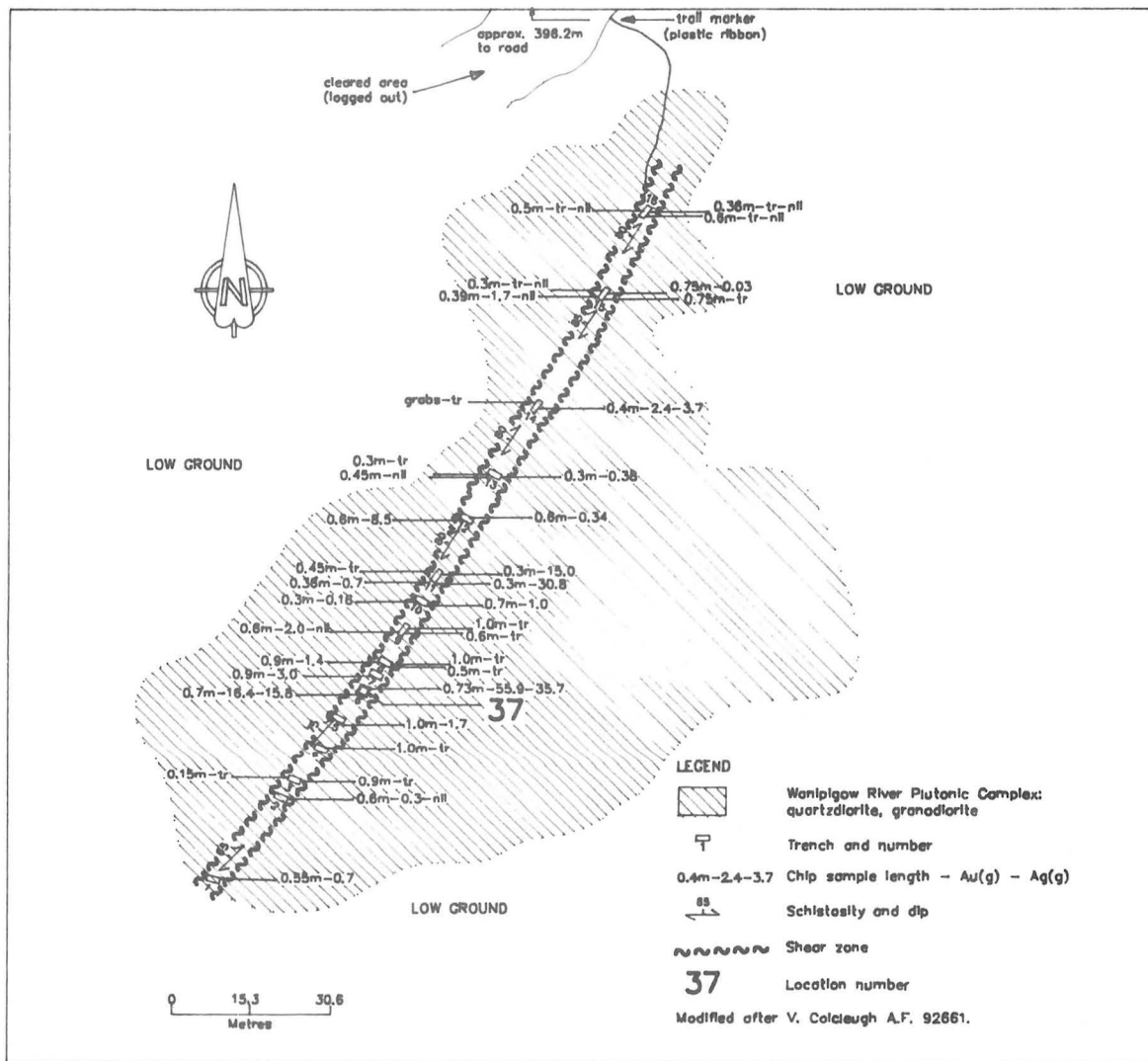


Figure 37-2: Location of pits at occurrence 37 (Huronian).

**LOCATION: 38**

**NAME:** (A.F. Mineralization intersected by diamond drilling).  
**UTM:** 5663114N/300132E  
**ACCESS:** Via Wanipigow Lake and traverse.

**EXPLORATION SUMMARY:**

An experimental AEM (INPUT) survey, under contract to the Geological Survey of Canada (A.F. 91543) was conducted in 1968. A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). Manitoba Mineral Resources Ltd. conducted HLEM surveys and drilled 17 holes (917 m total length) in 1973 and 1974 on the "Gun" group of claims (A.F. 92093). In 1986 an assessment of the gold mineralization potential of the area was prepared on behalf of Augusta Gold Mines Ltd. (A.F. 92939). The area is currently open for staking.

**GEOLOGICAL SETTING:**

The area is underlain by Edmunds Lake Formation sedimentary rocks including greywacke, argillite, oxide facies iron formation, conglomerate and sandstone (Fig. 38-1; Weber, 1971). The following summarizes the results of the drill program conducted in 1973 and 1974 (A.F. 92093).

- DDH G-1** intersected 48 m of greywacke and siltstone;
- DDH G-3** intersected 74 m of granite, oxide facies iron formation, siltstone, conglomerate and quartzite;
- DDH G-4** intersected 32 m of quartzite and oxide facies iron formation underlain by intermediate volcanic rocks;
- DDH G-5** intersected 55 m of carbonatized siltstone and quartzite;
- DDH G-6** intersected 46 m of diorite and oxide facies iron formation interlayered with siltstone and graphitic siltstone;
- DDH G-7** intersected 39 m of oxide facies iron formation interlayered with felsic to mafic volcanic flow rocks;
- DDH G-8** intersected 54 m of greywacke and siltstone interlayered with oxide facies iron formation;
- DDH G-9** intersected 32 m of oxide facies iron formation and graphitic schist hosted by a sequence of felsic to intermediate volcanic rocks;
- DDH G-10** intersected 43 m of porphyritic diorite, underlain by oxide facies iron formation, quartzite, siltstone and graphitic schist;
- DDH G-11** intersected 120 m of granodiorite, granitic gneiss and metasedimentary rocks;
- DDH G-12** intersected 56 m of granitic gneiss and metasedimentary rocks;
- DDH G-13** intersected 64 m of granodiorite and metasedimentary rocks;

**AREA:** East of Wanipigow Lake (Fig. 37-1).

**AIRPHOTO:** A24727-124, A24727-22, A24729-133.

**DDH G-14** intersected 61 m of granitic gneiss and metasedimentary rocks;

**DDH G-15** intersected 57 m of metasedimentary rocks;

**DDH G-16** intersected 8 m of diorite;

**DDH G-16A** intersected 64 m of diorite and metasedimentary rocks; and,

**DDH G-17** intersected 51 m of quartz-feldspar porphyry and metasedimentary rocks.

**MINERALIZATION:**

The following is a summary of the most important mineralized DDH intersections cut in the 1973 and 1974 drilling program (A.F. 92093):

**DDH G-1** intersected a 7 m section with  $\leq 20\%$  pyrite in sedimentary rocks;

**DDH G-3** intersected a 1 m section with  $\leq 30\%$  pyrite in oxide facies iron formation and a 0.6 m section of conglomerate with a pyrite matrix;

**DDH G-4** intersected a 4.5 m section with  $\leq 20\%$  pyrite and 5% graphite in "fragmented" quartzite, and a 4.5 m section of oxide facies iron formation with "minor pyrite in places";

**DDH G-6** intersected a 30 m section with  $\leq 30\%$  pyrite and  $\leq 40\%$  graphite in oxide facies iron formation and siltstones;

**DDH G-7** intersected 1 m and 5 m long sections with  $\leq 10\%$  pyrite in oxide facies iron formation and "fragmented" rhyolite;

**DDH G-8** intersected a 6 m section with  $\leq 30\%$  pyrite and a 12 m section with  $\leq 20\%$  pyrite, 10% pyrrhotite and trace chalcopyrite in siltstone interbedded with oxide facies iron formation;

**DDH G-9** intersected a 5 m section with  $\leq 30\%$  pyrite and 30% pyrrhotite in graphitic schist and oxide facies iron formation;

**DDH G-10** intersected a 7 m section with  $\leq 10\%$  pyrite and 10% pyrrhotite in interbedded quartzite and siltstone;

**DDH G-11** intersected a 24 m section with  $\leq 5\%$  pyrite and 5% pyrrhotite in siliceous altered siltstone;

**DDH G-12** intersected a 12 m section with  $\leq 10\%$  pyrite and trace chalcopyrite in fine grained slightly banded metasedimentary rocks;

**DDH G-13** intersected a 1 m section with  $\leq 10\%$  pyrite in metasedimentary rocks;

**DDH G-14** intersected a 1 m section with  $\leq 8\%$  pyrite in metasedimentary rocks;



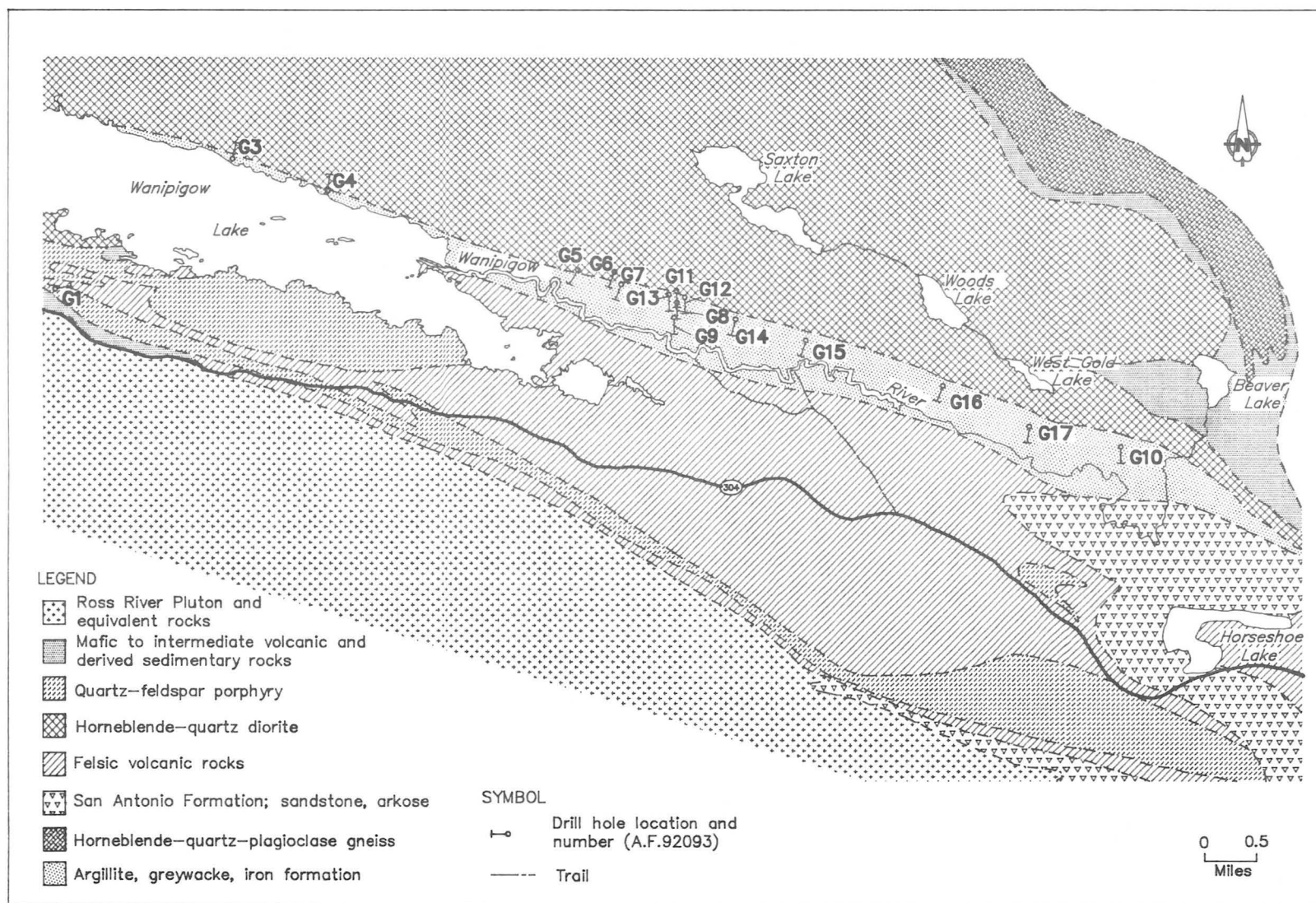


Figure 38-1: Geology and drillhole locations at occurrence 38.



**DDH G-15** intersected a 2 m section with  $\leq 15\%$  pyrite, 8% pyrrhotite and 60% graphite in grey-black quartz sericite schist;

**DDH G-16A** intersected a 8 m section of oxide facies iron formation containing 4% pyrite, pyrrhotite and trace chalcopyrite; and,

**DDH G-17** intersected three 1 to 4 m sections with  $\leq 5\%$  pyrite and pyrrhotite in oxide facies iron formation.

#### **GEOCHEMICAL DATA:**

Sixty-nine drill core samples, were analyzed for Au and Cu. Six samples contained between 4.11 g/t, 3.06 g/t, 2.05 g/t, and 1.37 g/t and two samples contained 0.34 g/t Au; the remaining sixty-three samples contained trace or nil Au. Copper concentrations ranged from trace to 0.48%.

#### **CLASSIFICATION:**

Chemical sediment type deposit; oxide facies iron formation interlayered with graphitic siltstone.

#### **REFERENCES:**

Assessment Files 91543, 91677, 91681, 92093, 92939; Manitoba Energy and Mines, Mines Branch.

LOCATION: 39

NAME:

UTM: 5657407N/307286E

ACCESS: Via P.R. 304 to Horseshoe Lake.

AREA: Horseshoe Lake (Fig. 37-1).

AIRPHOTO: A24713-187

#### EXPLORATION SUMMARY:

An experimental AEM (INPUT) survey was conducted under contract to the Geological Survey of Canada (A.F. 91543) over the area in 1968. The area was examined in 1969 by Dome Exploration (Canada) Ltd. for its potential to contain economic concentrations of uranium. Airborne and ground radiometric surveys outlined radioactive anomalies located west and south of Horseshoe Lake. The anomalous areas were mapped at 1:4 800, trenched, sampled and 5 holes (529 m) were drilled (A.F. 91129, 92536). The stratigraphy, sedimentology and structure of the San Antonio Formation was studied by Dome Exploration (Canada) Ltd. in 1970 (A.F. 91126, 92536) to gain an understanding of the stratigraphic controls affecting the uranium mineralization. A combined AEM and MAG survey was flown by Geotrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). The Union Oil Company of Canada Ltd. signed an option agreement with Dome Exploration (Canada) Ltd. and undertook 1:4 800 geological mapping, soil-, rock-, water- and lake bottom silt geochemical surveys and radiometric surveys in 1978 (A.F. 92788). This work was followed with an I.P. survey and a 5 hole (662 m) drilling program in 1979 (A.F. 92742). The area is currently staked and in good standing until October 1993.

#### GEOLOGICAL SETTING:

The area is underlain by detrital rocks of the San Antonio Formation, which include pebbly arkose, arenite to subgreywacke, and arkoses with pebbles of volcanic rocks, quartz, quartz diorite and chert (Fig. 39-1; A.F. 92536). Beds can be recognized using thin pebbly layers as markers, but top directions were not recognized. The San Antonio Formation was interpreted as an alluvial fan deposit characterized by a north to south facies change from pebbly arkose to subgreywacke (A.F. 92788).

#### MINERALIZATION:

The San Antonio Formation is the host to radioactive elements in the Bissett area. Uranium mineralization in the form of uranophane and pitchblende, preferentially associated with pebbly arkose, is widespread.

The sources of radioactivity on surface appear to be related to various multidirectional fracture systems and several northwest-trending fault zones. Uranium mineralization is associated with fractures and faults distributed along the western margin of the San Antonio Formation. An apparent spatial relationship between

uranium mineralization and a discontinuous conglomeratic layer near the base of the San Antonio Formation is interpreted as evidence that uranium may have been initially concentrated as a heavy mineral placer either with, or adjacent to, the conglomerate member of the San Antonio Formation (A.F. 92788).

Concentrations of radioactive compounds at the surface are related to fractures that are parallel or at a low angle to bedding. Major occurrences of high level radioactivity were found to be related to slickensided quartz-filled faults. Anomalous radioactivity was also found in extension and shear fractures of diverse orientation.

Locally, fractures are coated with limonite and bound by oxidized pink-grey zones, extending for several centimetres into grey-greenish, pyritic, detrital rocks. Uranophane is rarely observed on weathered surfaces, but is common along fractures in freshly blasted rock; this suggests that surficial water played a role in mobilization of radioactive minerals (A.F. 92788).

Dome Exploration (Canada) Ltd. recognized six zones of anomalous radioactivity in the area west of Horseshoe Lake.

##### Site #1 (Fig. 39-1)

Radioactivity in this area is primarily associated with east-northeast-striking, steeply dipping extension fractures.

Minor radioactive anomalies were also detected in several additional fractures.

##### Site #2 (Fig. 39-1)

This zone consists of a radioactive anomaly associated with rocks adjacent to a 15 m long fracture.

##### Site #3 (Fig. 39-1)

This is the areally largest (35 x 20 m) occurrence of radioactive compounds observed in the Bissett area. Radioactivity is associated with a quartz-carbonate-filled fault that truncates bedding at a low angle. DDH 15-2 was drilled under the northwest end of this site.

##### Site #4 (Fig. 39-1)

This zone of high radioactivity is associated with a quartz-carbonate-filled strike-slip fault that strikes 100° azimuth. Radioactivity levels tend to increase in the wall rocks up to 50 cm from the fault. This fracture was investigated by DDH 15-5.

##### Site #5 (Fig. 39-1)

Anomalous radioactivity levels are highest in a fine grained dark grey sandstone in the vicinity of a conglomerate bed. The intensity of the radioactivity is highest of all showings in the Bissett area.

DDH 15-3 was drilled to test this radioactive anomaly at a depth of 20 m.

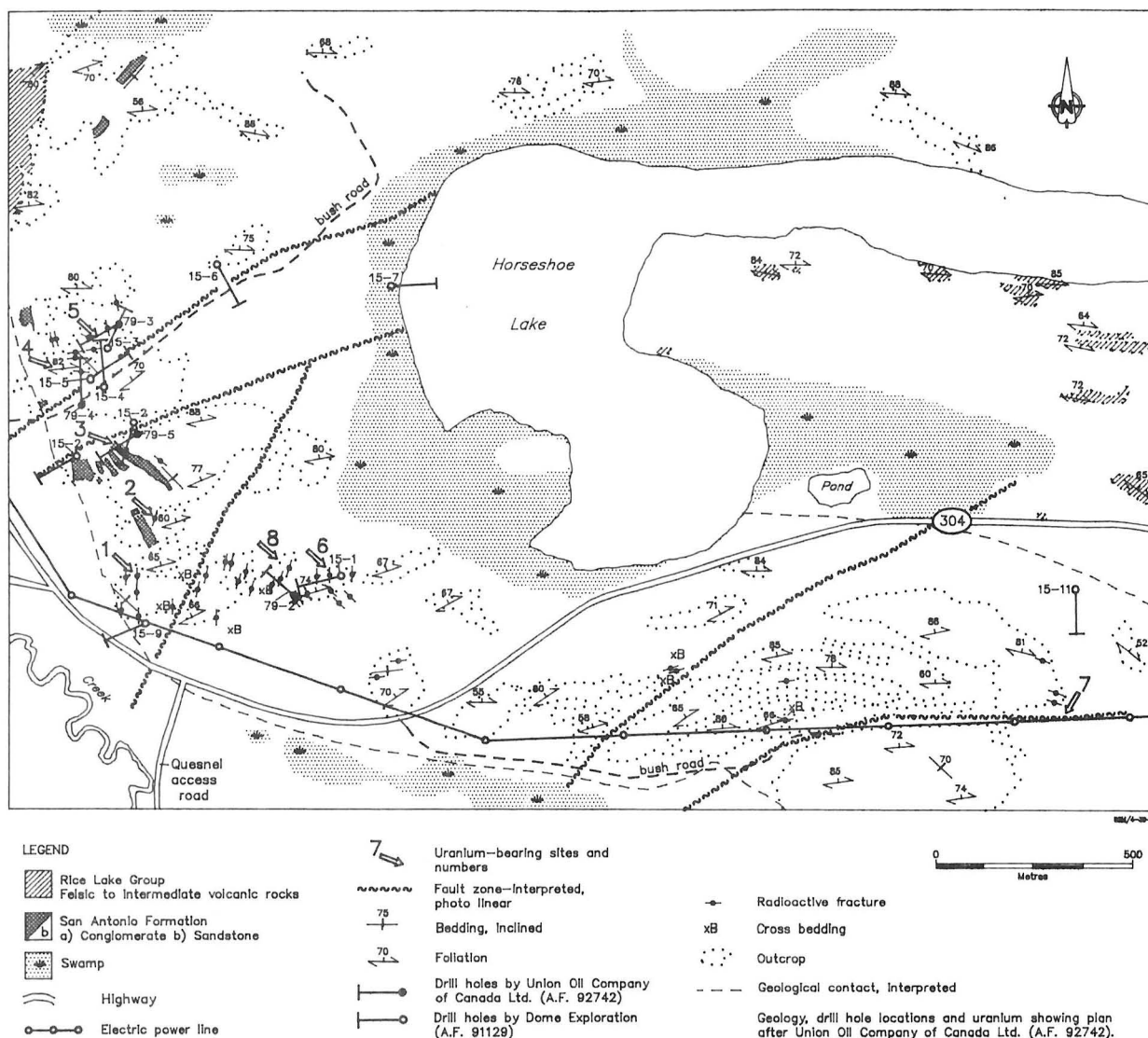


Figure 39-1: Detailed geology and drillhole locations at occurrence 39.

#### Site #6 (Fig. 39-1)

Radioactivity is associated with numerous extension fractures oriented approximately normal to the foliation and at a low angle or approximately parallel to the bedding. Some radioactivity is associated with 2-3 mm wide bands of pyrite occurring at an angle to foliation, which may represent primary heavy mineral concentrations along the bedding plane.

#### Site #7 (Fig. 39-1)

This area located south of Horseshoe Lake consists of numerous small fractures, some coated with limonite and uranophane, in a 150 x 80 m area. The highest degrees of radioactivity were observed in rocks containing

2 to 3 mm thick black bands, effectively colouring the radioactive rock darker than the less radioactive.

#### GEOCHEMICAL DATA:

Grab samples collected in 1969 for Dome Exploration (Canada) Ltd. contain  $\leq 0.45\%$   $U_3O_8$  and trace  $ThO_2$ . Chip samples from selected radioactive anomalies contained from 0.01% to 0.40%  $U_3O_8$  over short intervals.

Some drillholes by Dome Exploration (Canada) Ltd. investigated the previously mentioned radioactive anomalies:

**DDH 15-2**, under the northwest end of site #3, intersected 1.5 m and 2.5 m long zones that contain 0.02%  $U_3O_8$  and two 2.5 m long zones that contain 0.1%  $U_3O_8$ ;

**DDH 15-5**, drilled in the area of site #4 intersected 7.5 m of continuous uranium mineralization that included a 4.5 m intersection averaging 0.05%  $U_3O_8$ ;

**DDH 15-4** intersected 3.5 m containing slightly more than 0.01%  $U_3O_8$ ;

**DDH 15-3**, drilled to test site #5, intersected a 1.5 m zone containing 0.01%  $U_3O_8$ . (A.F. 91129, 92788).

Drillholes by the Union Oil Company of Canada Ltd. intersected several intervals with elevated uranium contents. The highest uranium concentrations are from DDH 79-2, which contained 0.07%  $U_3O_8$  over 2.59 m, 0.042%  $U_3O_8$  over 1.52 m, 0.052%  $U_3O_8$  over 1.28 m and several other short intersections of lower grade. DDH 79-1 intersected rocks that contain 0.037%  $U_3O_8$  over 1.06 m and several additional, less significant anomalous zones (A.F. 92742).

The uranium in these rocks is extractable by leaching with hot nitric acid, which indicates that little of the uranium is contained in refractory oxide minerals (A.F. 92788).

#### CLASSIFICATION:

Chemical sediment type deposit; other chemical sediments. According to staff of Dome Exploration (Canada) Ltd., the uranium originally concentrated in a placer type deposit and was subsequently redistributed throughout the pebbly arkose by tectonism and fluid migration. Groundwater may have also played a role in the final uranium distribution (A.F. 92536).

#### REFERENCES:

Assessment Files 91126, 91129, 91543, 91677, 91681, 92536, 92742, 92788; Manitoba Energy and Mines, Mines Branch.

## LOCATION: 40

NAME: Sannorm

UTM: 5656205N/317297E

ACCESS: Travel approximately 5.5 km east of Bissett on P.R. 304. An approximately 0.2 km long access road branching off to the south leads to the mine site (Fig. 40-1).

## EXPLORATION SUMMARY:

The exploration history for this occurrence is detailed in Mineral Inventory Card 52M/4 Au14. Gold was discovered on this property by B. Thordarson in 1912 (Corporation File, Normandy Gold Mines Ltd.). A trench program and the drilling of 7 holes (920 m) were undertaken by Normandy Mines Ltd. in 1934 (Stockwell, 1938). The property remained dormant until a MAG survey was undertaken in 1945 by Sannorm Mines Ltd. A 37 hole diamond drilling program (6100 m) was completed in 1946. The opening of an inclined prospecting ramp was proposed by the consulting geologist (Corporation File, Sannorm Mines Ltd.). Surface facilities were built and a shaft was sunk to a depth of 7 m in 1947. Activities ceased in 1948, due to the scarcity of fuel to power a diesel generator (The Northern Miner, Nov. 27, 1947). Exploration drilling resumed in 1949 and 11 holes (1197 m) were drilled (Corporation File, Sannorm Mines Ltd.). A combined AEM and MAG survey was flown by Geoterrex Ltd. in 1970 (A.F. 91681) and an airborne radiometric survey was flown by Geophysical Engineering and Surveys Ltd. in 1971 (A.F. 91677). Wynne Gold Mines Ltd. acquired the ground in 1974 and drilled 5 holes (919 m) in 1974, 4 holes (437 m) in 1978 and 4 holes (437 m) in 1979 (Mineral Inventory Card 52M/4 Au14).

The property was optioned by Orenda Resources Ltd. and Dragon Energy Corporation in 1985. These companies conducted linecutting and mapping (1:2500 scale), relogged core and conducted MAG and IP surveys. A 7 hole (546 m) drill program was undertaken in 1986. A 10 hole (854 m) drill program and a VLF-EM survey were carried out in 1987. An 8 hole (914 m) drill program was carried out on the property in 1988. A 12 hole (1308 m) drill program was carried out in 1988 and 1989 on behalf of Bakra Resources Ltd. (H. Wynne, unpubl. data).

The area is currently staked and in good standing until July 1996.

## GEOLOGICAL SETTING:

Large-scale mapping of the area determined that the underlying rocks belong to the Gem Lake Formation (Weber, 1971).

The rocks underlying this occurrence were described as pillowed basalt, arkose with minor conglomerate layers, sericite schist and wacke with numerous quartz veinlets, metadiabase sill, and felsic extrusive

rocks by J.F. Wright (Corporation File, Sannorm Mines Ltd.).

AREA: Approximately 5.5 km east of Bissett (Fig. 40-1).

AIRPHOTO: A24711-95

rocks by J.F. Wright (Corporation File, Sannorm Mines Ltd.).

The geology map presented as Fig. 40-2 (after D. Busch, unpublished) is based on outcrop information and drillhole interpretation. Discrepancies between the geology as depicted on the Figure 40-2 and that described by Wright are due to divergent interpretations of lithologies.

The shaft of the Sannorm occurrence is collared in sheared, chloritized and sericitized felsic volcanic rocks and arkose. These rocks are adjoined to the south by a poorly exposed layer of massive mafic volcanic and gabbroic rocks. This layer is from 50 to 100 m thick, dips steeply north near surface and flattens to an approximately 50° dip below 150 m depth. Stockwell (1938), Wright (1949, Corporation File, Sannorm Mines Ltd.), Davies (1950), Theyer (1983) and Ames (1988) suggested that this mafic rock unit may be equivalent to the host rocks of the San Antonio mine, i.e., the SAM Unit (Theyer, 1983).

A 3 to 10 m thick, intensely sheared and altered rock layer at the stratigraphic base of the SAM unit can be subdivided into three discrete zones, characterized by varying degrees of alteration and mineralization:

- a) carbonate-chlorite-quartz zone which consists of distinctly and regularly banded, 50% carbonate-rich, 40% chlorite-biotite-rich- and 10% silicic bands;
- b) Fe-carbonate-quartz-calcite-pyrite zone with an intensely sheared, faintly banded sequence that consists of 45% Fe-carbonate, 30% quartz, 10% calcite and from 1 to 7% disseminated to wispy pyrite; and
- c) Fe-carbonate-quartz-calcite-hematite-pyrite zone characterized by a pervasive reddish colour of the rocks (H. Wynne, unpubl. data).

The San Antonio Mine unit (SAM unit) consists of a 50 to 100 m thick sheared mafic rock unit characterized by the presence of leucoxene. Results of recent drilling programs (1986 to 1989) suggest a stratigraphy that includes from south to north: mafic volcanic, massive, pillowed, aphanitic and brecciated flow rocks stratigraphically overlain by a unit of intermediate tuff breccia capped by a several metres thick unit of sericite schist with approximately 10% quartz clasts. The sericite schist is thought to be derived from sheared felsic pyroclastic rocks. The sericite schist is overlain by the SAM unit, which is overlain by a several metres-thick layer of argillite and lapilli tuff. The rocks north of this sequence consist of a more than 500 m thick unit of feldspar phyric ash flows (H. Wynne, unpubl. data).

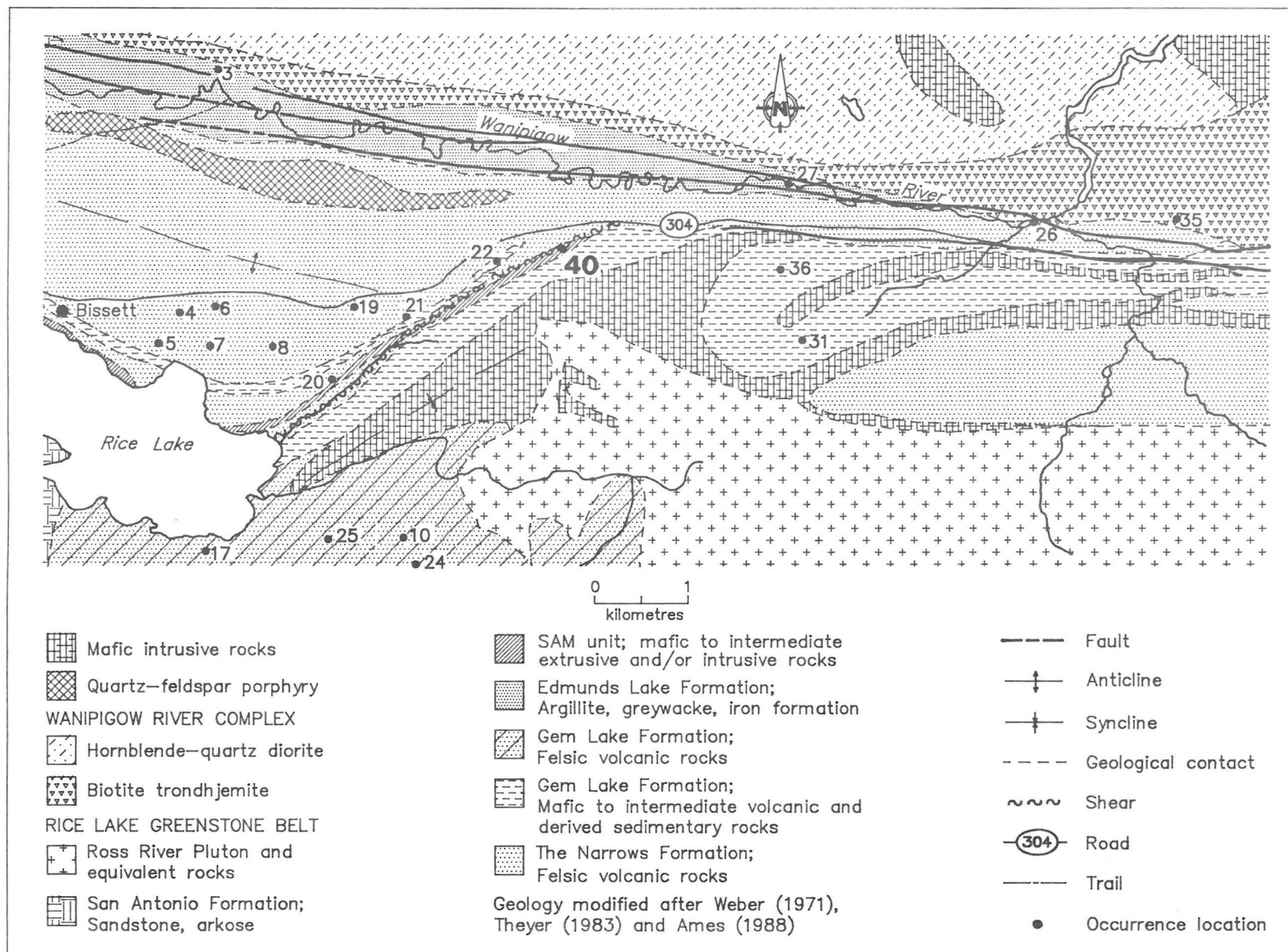


Figure 40-1: Geological setting of occurrence 40 (Sannorm).



Two shear zones dominate the structure in the area of the occurrence. The San Antonio shear, which trends roughly parallel to Provincial Road 304, ranges from 15 to 35 m wide and is located within felsic pyroclastic rocks at the northern part of the occurrence. The Normandy Creek shear zone, is a  $\leq 250$  m wide array of subparallel to parallel shears that underlies the Normandy Creek valley. In the vicinity of the occurrence the Normandy shear zone is split into a north- and a south-bounding shear. The south-bounding shear zone intersects and follows roughly the stratigraphic base of the SAM unit.

#### MINERALIZATION:

Quartz-impregnated shear zones that contain minor discontinuous quartz veins with minor disseminated pyrite occur in the vicinity of the shaft collar.

Gold is reportedly concentrated in quartz veinlets within sheared zones of the sericite schist and wacke layer (Corporation File, Sannorm Mines Ltd.).

Pyrite and gold occur in the "sheared tuffaceous sediment", which is intensely sheared and altered, at the base of the mafic dyke (SAM unit) (H. Wynne, unpubl. data).

#### GEOCHEMICAL DATA:

A mineralized zone that averages 9.87 g/t gold over a true width of 1.37 m and a strike length of 183 m was announced in 1947 (The Northern Miner, Nov. 27, 1947).

Gold concentrations in drill core, quoted in a report to the directors by J.F. Wright, consulting geologist of Sannorm Mines, include concentrations that range from 0.68 g/t to 26.39 g/t Au (Corporation File, Sannorm Mines Ltd.).

A grab sample of silicified feldspar phyrlic rocks collected from the muck pile in the vicinity of the shaft assayed nil Au (Stewart, 1985).

Highlights of recent drilling programs (1985-1989) are:

**DDH SN-87-01** intersected 0.7 m of "gold-bearing material" containing 10.9 g/t Au.

**DDH SN-87-02** intersected "gold-bearing material" (no analyses given).

**DDH SN-87-03** intersected 1.8 m altered rock with  $\leq 230$  ppb Au.

**DDH SN-87-04** intersected 2 m weakly altered rock at the base of the SAM unit containing 1 g/t Au.

**DDH SN-87-05** intersected 9.8 m altered rock at the base of the SAM unit containing 0.4 m mineralized with 2.33 g/t Au.

**DDH SN-87-06** intersected 0.2 m altered rock containing 5.31 g/t gold.

**DDH SN-87-10** intersected a 20 m sericite schist layer in felsic tuff. Sections mineralized with disseminated pyrite contain  $\leq 0.71$  g/t Au over 0.5 m core. (H. Wynne, unpubl. data)

#### CLASSIFICATION:

Vein type deposit; multiple veins and lenses.

#### REFERENCES:

Ames, D.E.

1988: Stratigraphy and alteration of gabbroic rocks near the San Antonio gold mine, in the Rice Lake area, southeastern Manitoba; Carleton University, M.Sc. Thesis (unpublished), 202p.

Assessment Files 91677, 91681; Manitoba Energy and Mines, Mines Branch.

Corporation Files, Normandy Gold Mines Ltd., Sannorm Mines Ltd.; Manitoba Energy and Mines, Mines Branch.

Davies, J.F.,

1950: Geology of the Wanipigow River area; Manitoba Mines and Natural Resources, Mines Branch, Publication 49-3, 21p.

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Stewart, P.W.

1985: Mineral occurrence documentation in the Rice Lake greenstone belt; In Manitoba Energy and Mines, Geological Services, Mines Branch, Report of Field Activities, 1985, p. 133-147.

Stockwell, C.H.

1938: Rice Lake - Gold Lake area, southeastern Manitoba; Geological Survey of Canada, Memoir 210, 79p.

Theyer, P.

1983: Geology of gold environments in the Bissett/Wallace Lake portion of the Rice Lake greenstone belt; In Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities, 1983, p. 101-106.

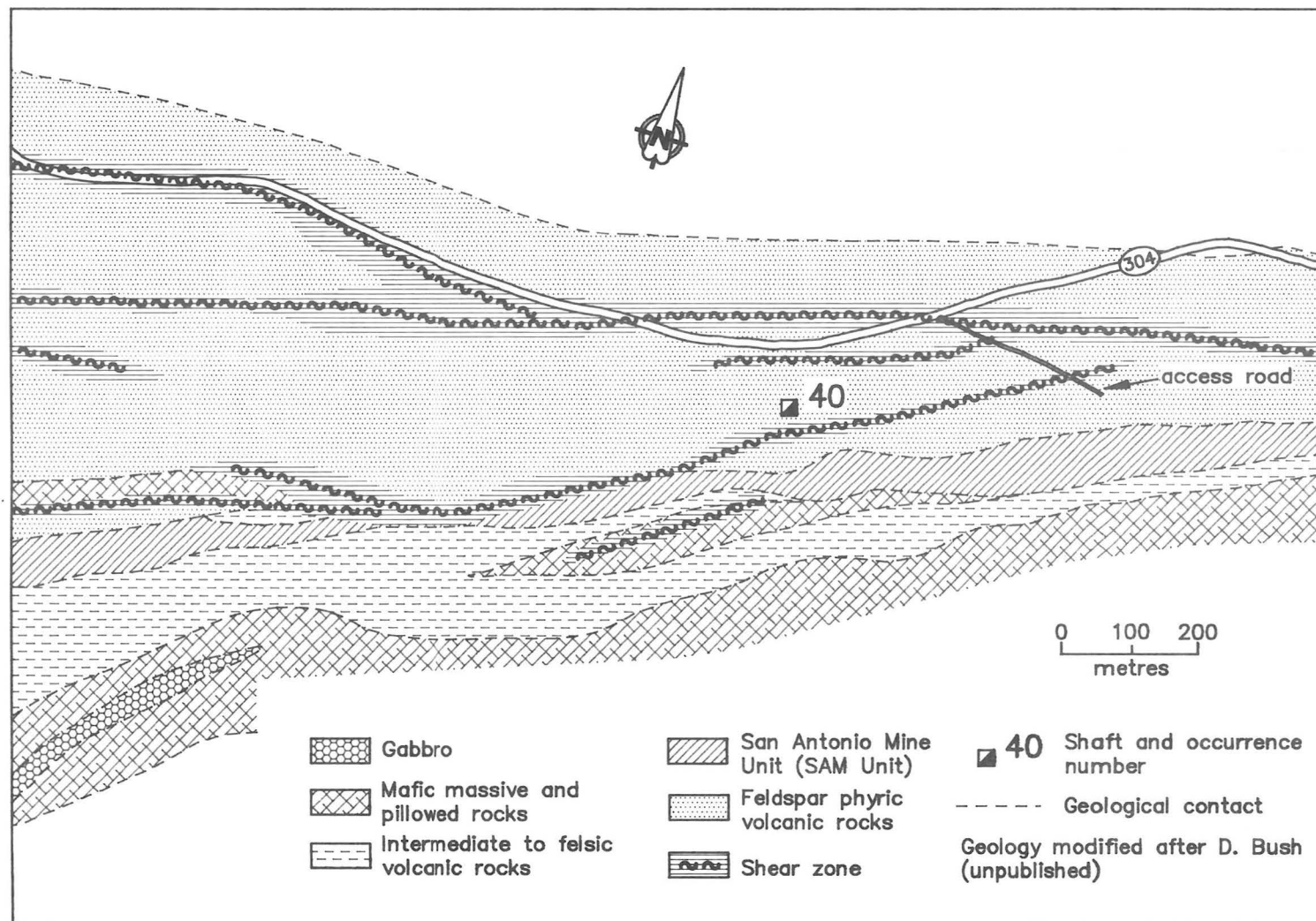


Figure 40-2: Detailed geology at occurrence 40 (Sannorm).

**APPENDIX A:**  
**Occurrence locations recorded on airphotos**  
**(Locations 34, 35, 36, 37 are not recorded because their exact position is unknown)**

