

GEOLOGICAL, GEOPHYSICAL AND LINE CUTTING  
ASSESSMENT REPORT  
ON THE  
MF AND FM CLAIMS

CLAIM SHEET 105 D - 8

60° 22' N

134° 12' W

FOR

GORDON M<sup>C</sup>LEOD

*under  
for*

*by*  
G. MACDONALD  
PROFESSIONAL GEOLOGIST

DECEMBER 1, 1982  
WHITEHORSE, Y.T.

091412

This report has been examined by  
the Geological Evaluation Unit  
under Section 53 of the Yukon Quartz  
Mining Act and is allowed as  
representative work to the amount  
of \$ 700-\_\_\_\_\_.

*P. Watson*  
Regional Manager, Geological Services for Commissioner  
of Yukon Territory.

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## INTRODUCTION

The MF - FM group of claims are located  $60^{\circ}22'N$ ,  $134^{\circ}12'W$  on NTS map sheet 105D-8, approximately 3 miles west of Judas Creek campground on the Alaska Highway. The property is comprised of seven (7) full mineral claims as follows:

MF 1 - 4      YA 74221 - 24

FM 1 - 3      YA 74218 - 20

These claims are registered in the name of Gordon M<sup>C</sup>Leod of Whitehorse.

Access to the claims is by road from the Judas Creek campground on the Alaska Highway.

Work on the property during 1982 included a preliminary geological reconnaissance and a test magnetometer survey. Approximately 3 kilometers of grid lines were established to provide survey control. This program was designed to evaluate low-grade gold values detected ( by fire-assay methods ) in 1982 from samples of diamond drill core recovered in 1972.

A total of six (6) man-days was spent in 1982 completing this preliminary exploration phase, as follows:

June 8, 1982      G. Macdonald, R. Stack, G. M<sup>C</sup>Leod

November 4, 1982      G. Macdonald, R. Stack, G. M<sup>C</sup>Leod

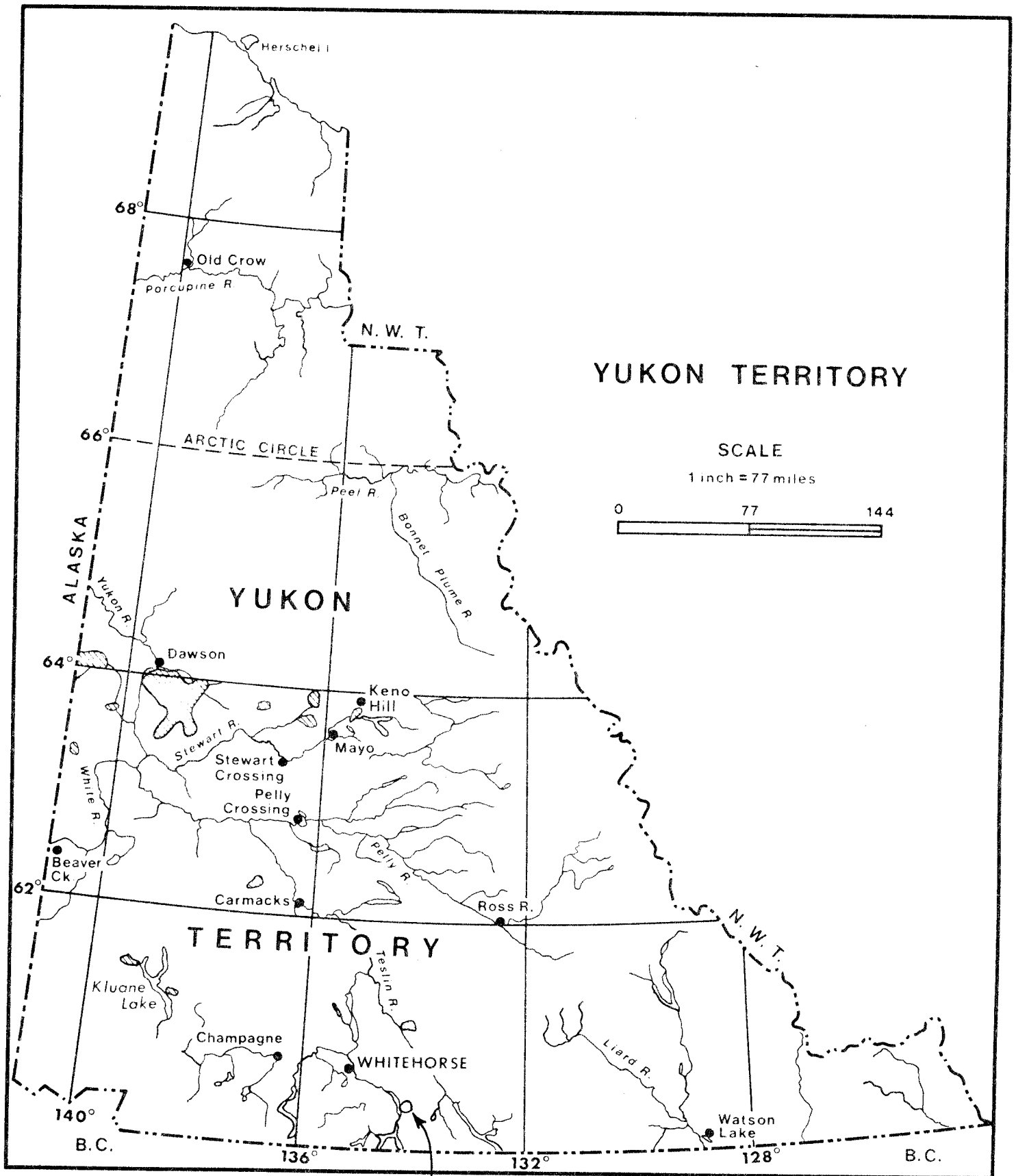


FIGURE 1  
LOCATION PLAN

## SUMMARY AND RECOMMENDATIONS

The MF and FM claim group covers stratigraphy which, geologically, is favorable to produce a gold-bearing environment.

Gold values, determined in 1982, at 0.046 and 0.058 OPT ( fire-assay ) appear related to a fault contact and alteration zone between metamorphosed volcanic rocks and sediments (grey-wackes ). This zone appears to have a magnetic signature.

Additional exploration work is warranted on the MF-FM property. Initially, the grid should be expanded to cover the whole prospect. A detailed magnetometer survey ( using a Proton Magnetometer) and an E-M survey (CEM) should be conducted. The Magnetometer survey would trace the favorable contact environment, the CEM survey would locate any sulphide-rich shear zones. These parameters are particularly significant on the MF-FM prospect because the intersection of mineralized cross-faults ( also possibly the site of porphyry dykes?) and favorable stratigraphy represents a geologically attractive target environment in which gold may have been concentrated.

A grid soil geochemical survey, and rock geochemical survey are recommended as effective exploration methods which should be conducted to further refine target areas.

The property should be geologically mapped in detail. An office petrographic study is suggested before any field work commences. This study would provide a better understanding of rock types, alteration intensities and parameters of gold deposition. Enough rock samples are presently available to conduct a petrographic study.

Finally, bulldozer trenching is recommended before diamond drilling commences to test favorable zones and select drill targets.

## GEOLOGICAL RECONNAISSANCE

The MF - FM claims group is underlain by Laberge series sedimentary rocks ( greywackes and quartzites ) and Taku group (?) volcanic rocks. Dykes intrude both rock types (?) and the entire stratigraphic package is structurally complicated by intense faulting.

The oldest rocks on the property are apparently the volcanic rock package. This lithology is characterized by a fragmental rock composed of fragments of pyroxene and chert (?) within a sheared ground mass. This entire unit has been intensely disrupted structurally by faulting, and occurs in fault-contact with the overlying greywackes.

A large ultramafic lense ( or several lenses ) occurs on the property, enclosed in the volcanic rocks. These intrusions are serpentized peridotite ( or dunite ) dyke or sill-like bodies near the base (?) of the volcanic assemblage. The bodies themselves are intensely sheared and slickensided internally with occasional brittle cross-fibre asbestos filling veinlets near zones of abundant serpentization. Minor magnetite and chromite are present as accessory minerals. Talc alteration is occasionally prevalent.

The Taku group volcanics are overlain on the MF-FM prospect by a fairly thick succession of sedimentary rocks. This lithology is characterized by greywackes, quartzites and cherts ( hornfels?) typical of the Laberge group of rocks.

The contact between Taku and Laberge series rocks is obscured, but is marked topographically by a small north-west trending depression. Attitudes of the various lithologies are difficult to interpret because of the intense faulting which has occurred, but the Laberge sediments seem to dip generally gently to the west while the volcanic package typically exhibits a moderate eastward dip. Therefore,

the contact between these units is probably a representation of a major fault zone.

A few hundreds of feet away from their contact with the volcanic rocks, the greywackes are relatively undeformed and unaltered. Here the rock is typically a dark grey clastic rock containing variable amounts of disseminated pyrite.

The volcanic lithology is intensely carbonatized near its base ( the locus of a major low-angle fault zone ). Here the rock is a resistant-weathering mariposite - fuchsite rock intensely veined with quartz and carbonate ( siderite, calcite ) vein swarms. Quartz and carbonate veinlets are commonly 1-2 cm wide and very discontinuous due to disruption by myriads of small internal faults. These veinlets may make up as much as 75% of the rock in places. The alteration zone is up to 100 meters wide and probably exceeds 2500 meters in length. It is disrupted by numerous large steep angle (?) cross-faults with a right-lateral displacement of several tens of meters. See Table 1 for a tabulation of local geology.

TABLE 1TABLE OF FORMATIONSUnit

Porphyry Dykes	Rhyolite porphyry dykes (?) or granite porphyry dykes
Laberge series	Sedimentary rocks; greywackes, arkose, cherts or quartzites
"Mariposite" unit	Massive carbonitized, alteration zone, silicified, rusty and green-weathering, resistant cliff forming, lithology
Volcanic series (Taku group)	Fragmental volcanic rock, intensely sheared, includes sills(?) of ultramafic rocks

The mariposite lithology is mineralized with finely disseminated pyrite ( to 10% in places ), arsenopyrite ( less than 1% ), pyrrhotite ( less than 1% ) and very occasionally, chalcopyrite, and chromite.

Gold, as assayed from the old diamond drill core, is apparently present some where between the mariposite unit and the volcanic-serpentine rocks above (?) it in a rock type not seen in outcrop on the property. This zone is probably a recessive - weathering rock unit reflected on the property as a north-west trending depression present at the base of the resistant-weathering alteration zone. See Table 2 for a list of assays.

A geological summary is provided as a plan in this report ( see Figure 3, Geological Plan ).

TABLE 2TYPICAL ASSAYS

<u>Rock Type</u>	<u>Assay (Au) O.P.T.</u>	<u>Number of Assays</u>
Mariposite unit	0.001 - 0.002	6
Serpentinized Ultramafic	0.01	2
Pyritized greywacke	0.01	1
Fractured volcanic (?)	0.05 - 0.06	3
Dyke	Tr	1

## MAGNETOMETER SURVEY

A brief magnetometer survey was conducted to determine if there is a magnetic signature to the gold occurrence at the MF-FM prospect. One-half man day was used to monitor approximately 1 kilometer of grid. G. Macdonald was the operator.

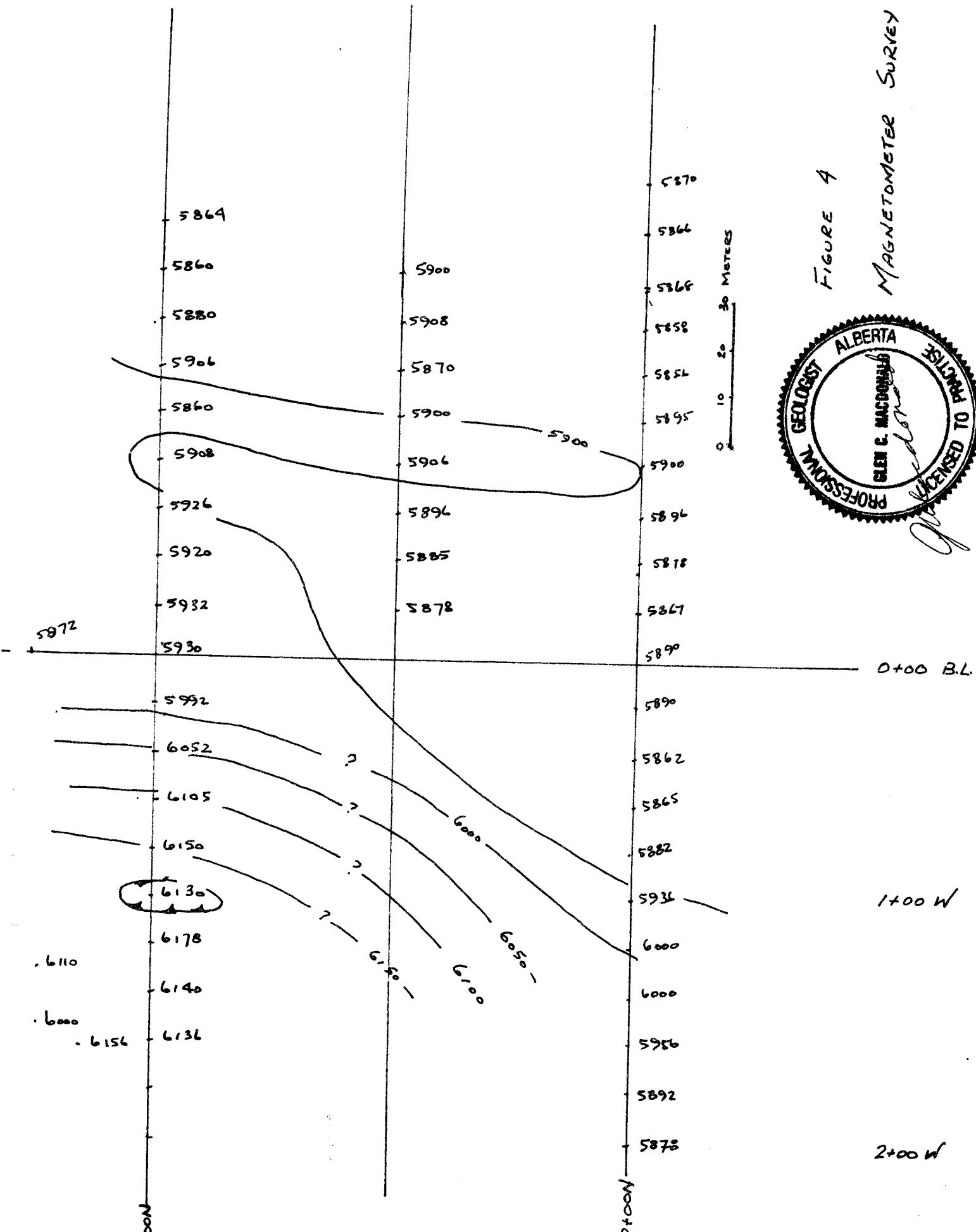
The instrument used was a Geometrics fluxgate magnetometer. The procedure followed to survey the grid was as follows. At each sample station the instrument was leveled and adjusted to a "null" position on the meter. The reading, in "gammas", was then obtained from a four-digit meter and recorded. At base stations check readings were recorded to correct final results for variation.

Results are presented on two plans. Figure 4 is a plan map of the magnetometer survey and Figure 5 is a profile of the magnetic response along Section 2+00N.

From the limited test survey two significant observations are apparent. Along section 0+00N, run across an area of only minor volcanic and altered rock, no local magnetic features appear. Along line 2+00N, run across an area of intense alteration and complex volcanic-serpentine stratigraphy, definite magnetic response defines the overburden covered contact area - the magnetic profile drops rapidly by approximately 150 gammas over 30 meters. This area corresponds to the portion of the 1972 diamond drill core, which assayed an average of 0.05 O.P.T. Au. Therefore, if indeed gold mineralization is located on the flanks of ultramafic bodies, as suggested by the combination of the magnetometer profile and the 1972 diamond drill hole, then the favorable environment should be traceable by an extensive magnetometer survey.

MAGNETOMETER SURVEY

FIGURE 4



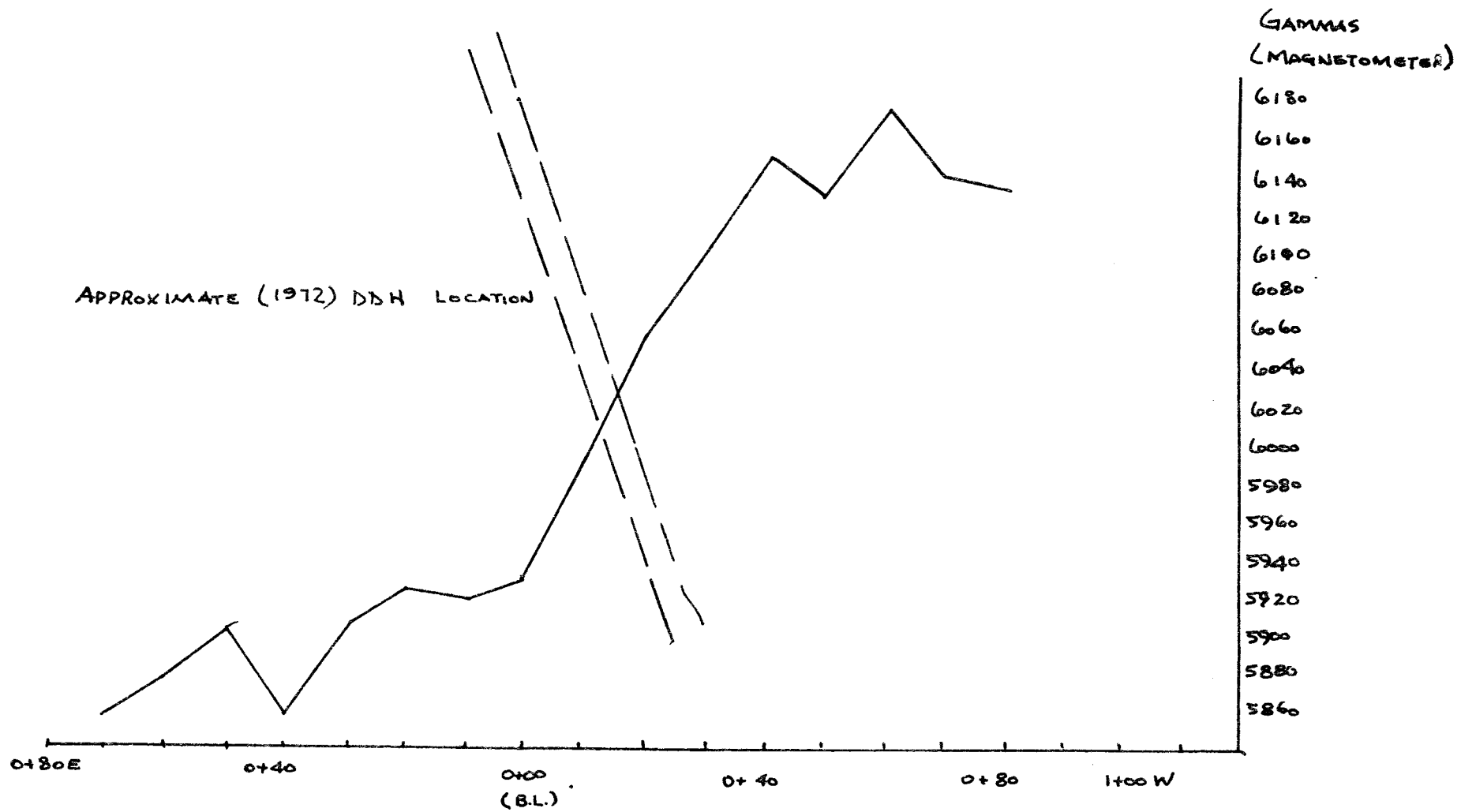


FIGURE 5 MAGNETIC PROFILE

SCALES AS NOTED

G.M. 1982

## CONCLUSIONS

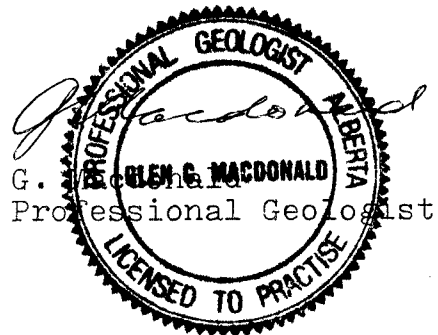
A preliminary investigation in 1982 on the mineral potential of the MF-FM claims group suggests that the property covers stratigraphy which is geologically permissive to produce gold bearing zones. Assays of 0.05 OPT Au in old drill core indicate that gold is present in part of a volcanic complex where the host rock was densely fractured and underwent alteration ( as envelopes bordering fractures ) to talc. A very large alteration zone of quartz-carbonate - mariposite ( fuchsite ) rock indicates that thermal activity was wide spread on the property. Additional exploration work is warranted on the MF-FM prospect to investigate the potential of the property to develop large tonnages of low grade gold ore or smaller tonnages of higher grade material.



APPENDIX

I, Glen Colin Macdonald do hereby certify that:

- 1) I am a Consulting Geologist, with address 4 Hyland Crescent, Whitehorse, Y.T.
- 2) I am registered as a Professional Geologist by the Alberta Professional Engineers, Geologists and Geophysicists Association ( "APEGGA" ).
- 3) I am a member in good standing of the Canadian Institute of Mining and Metallurgy.
- 4) I am a graduate of the University of British Columbia with degrees in Economics ( B.A. ) and Geology ( B. Sc. ).
- 5) I have practiced my profession continuously since 1973.



APPENDIX 2

STATEMENT OF COSTS

a) Wages:	No. of days:	5
	Rate per day:	\$100.00
	Dates:	
	Total Wages:	\$500.00
b) Transportation:	No. of days:	2
	Rate per day:	50.00
	Date:	
	Total Transportation:	100.00
c) Assaying:	No. of Assays:	13
	Cost per Assay:	12.50
	Total Assays:	162.50
d) Cost of Report Preparation:	Author:	
	Drafting:	20.00
	Typing:	20.00
	Total Report:	40.00
e) Instrument Rental:	Type of Instrument:	Magmetometer
	No. of Days:	1
	Rate per Day:	50.00
	Total Rental:	50.00
	Total Cost	<u>\$802.50</u>



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MFA  
YA 7A222  
MF 2  
MF 3  
MF 1

FM 2  
YA 7A219

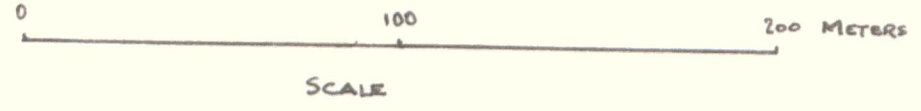
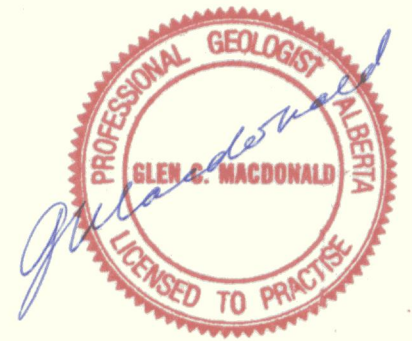
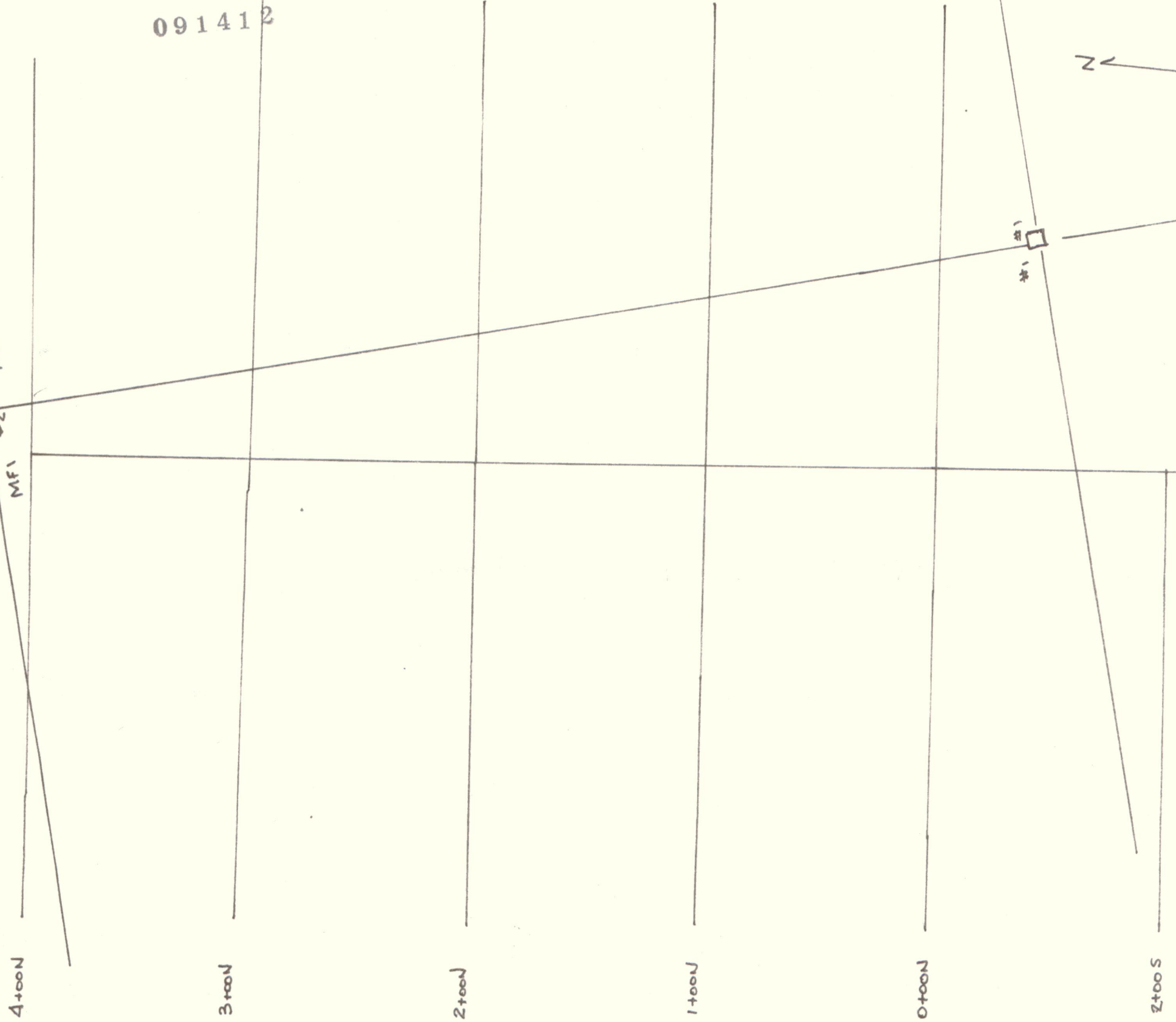


FIG 2 GRID PLAN



4+00S ——— 2+00W

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GREYWACKE  
- PYRITIZED, FAULTED

QUARTZ-CARBONATE

MARIPOSITE

60°

80°

PORPHYRY  
DYKE (?)

VOLCANIC  
PERIDOTITE

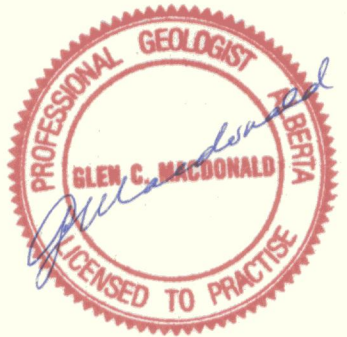
PYRITIZED, FAULTED  
GREYWACKE

0 100 METERS  
SCALE

2+00W

FIGURE 3: GEOLOGY PLAN

- - - - (PRESUMED) CONTACT, OUTCROP TRACE
- ~ ~ ? FAULT
- )" ( SWAMP
- - - - STREAM
- 1972 DRILL HOLE (APPX)
- - - - CIRCA 1900 ADIT
- ↑ FOLIATION STRIKE, DIP
- ⊞ CLAIM POSTS



4+00 N

0+00 N

