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GEOLOGIC REPORT NO. 1

MAC CLAIMS, DEASE LAKE AREA, B.C.

104 I Mac Claims, Dease Lake

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MAC CLAIMS, DEASE LAKE AREA, B.C.

M. A. ROED GEOLOGICAL EXPLORATIONS LTD.

EXPLORATION - CONSULTING - RESEARCH

212 Barry Building

10128 - 103 Street

Edmonton, Alberta, Canada

Dated: October 6, 1967

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INTRODUCTION

General Remarks

This report summarizes a geologic investigation of the Mac 1 to 4 claims located (Figure 1) approximately 24 miles east of the south end of Dease Lake (Cry Lake Map Sheet 104I). The investigation was carried out by the author on September 17 to 19, 1967, inclusive, at the request of Mr. Maurice Shugarman, Edmonton, Alberta.

Physiography and Access

This property is located at an elevation of about 5000 feet A.S.L. on the western slopes of a 6000 foot peak (Plate 1). Much of the ground is bare of trees but thick stands of light balsams occur in patches (Plate 5). A small lake in the western part of the property would provide adequate water supplies for drilling and human consumption (Plate 1). Topography is gently rolling since the area has been heavily glaciated by northerly moving mountain glaciers.

A winter road comes to within seven miles of the property. This road starts from Dease Lake and runs eastward to the Little Eagle River and extends about four miles down Little Eagle River. A small lake, sufficient for landing a Cessna 180 under proper wind conditions, is located 2 miles to the south of the property.

Mining History

The copper-pyrrhotite showing was discovered by Merl Martin, prospector, Watson Lake, on September 28, 1958. Some trenching and minor prospecting was carried on up until 1962 and then the claims were allowed to lapse.

Mac No.1 to No.4 were staked by K. Willison, prospector, Watson Lake, on October 17, 1966, and an additional 16 claims, Mac No.9 to 24 were staked by Mr. Willison on July 21, 1967, at which time some geochemical soil samples were taken.

The claims of immediate interest are listed below and are shown in Figure 2.

Name of Claim	Claim Tag Number
Mac No.1	711143
Mac No.2	711144
Mac No.3	711145
Mac No.4	711146

GEOLOGY

Previous Work

The area has been mapped on a scale of one inch to four miles by Gabrielse and others (G.S.C. Map 29-1962 and G.S.C. Map 9 - 1957). The property was examined by Mr. W. Plumb, geologist, Cassiar Asbestos Corporation, in 1962.

General Geology

The property is located to the northeast of a major easterly trending fault which separates Mesozoic rocks on the south from older Paleozoic rocks on the north at the southern margin of the Cassiar Mountains, and forms part of the Atlin Horst (Gabrielse and Wheeler, 1961). Regionally the property occurs at the northern end of an extensive ultramafic igneous pluton (peridotite) which has been intruded into Devonian-Mississippian quartzite, limestone, and gneisses, which are steeply folded, but it is not known whether the intrusive is Mesozoic or Paleozoic in age. Both the ultramafic rocks and the sedimentary and metamorphic rocks have been intruded by a large granodiorite pluton of the Cassiar Batholith (G.S.C. Map 29 - 1962).

Detailed Geology of Mac 1-4 Claims

Methods of Study

The area was mapped by a pace and compass traverse every 400 feet across a north-south baseline 2400 feet long

(Figure 1). Lithology samples were collected of all different rock types encountered and a preliminary field identification was made; the samples are presently in storage.

The mineralized zone was sampled every three feet in a channel 36 feet long (Figure 3 and Table 1) and submitted to Chemical and Geological Laboratories Ltd., Edmonton, Alberta, for assaying.

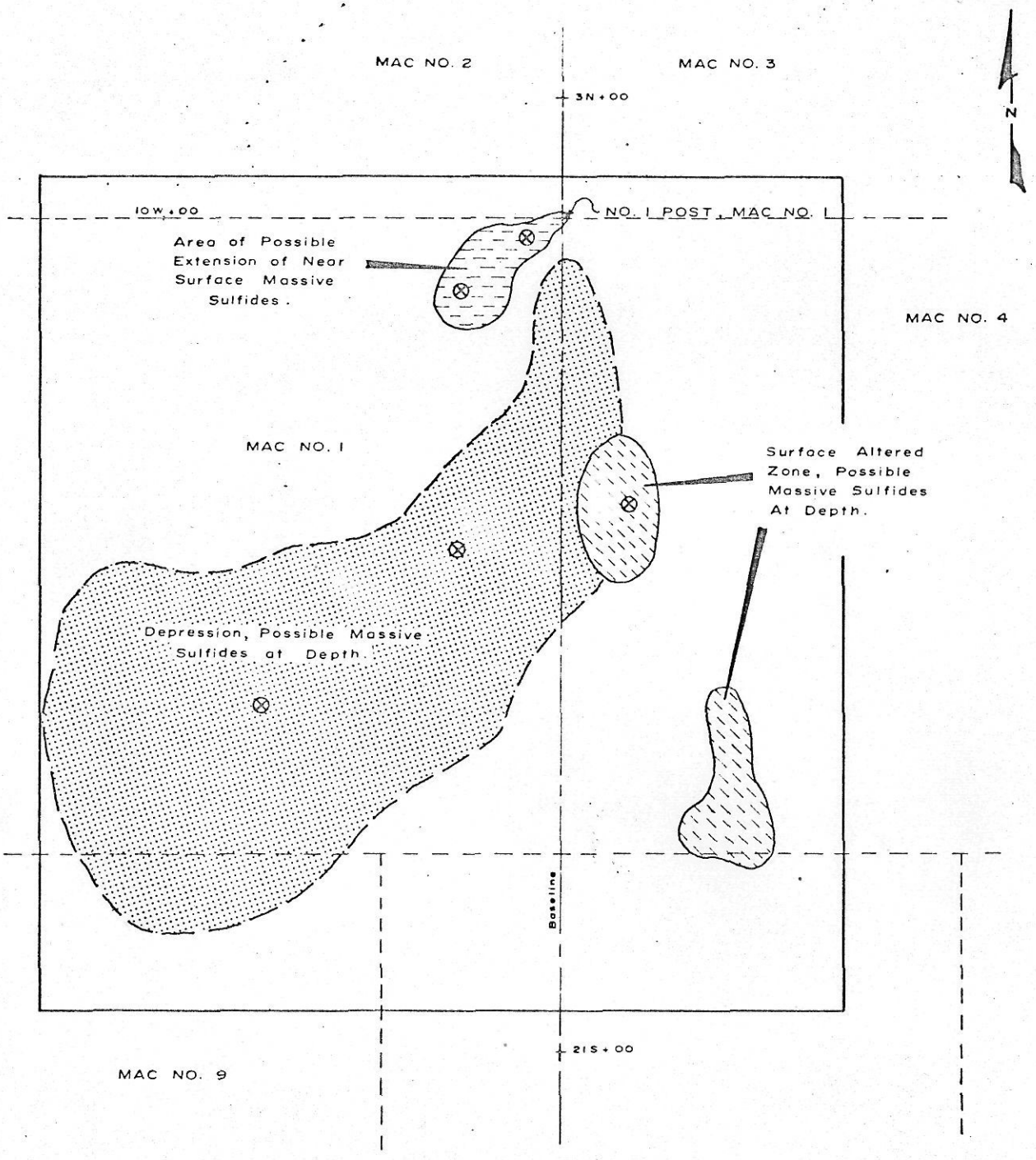
Geology

The preliminary geologic map (Figure 1) indicates that the showing of massive sulfides (chalcopyrite, pyrrhotite and pyrite) is located between the contacts of granodiorite (?Cassiar Batholith) to the north, steeply dipping Devonian-Mississippian (?) marble to the east, and anorthosite to the west (?) and south. Contacts between these deposits have not been observed directly except where the anorthosite has intruded the marble. At these localities (Figure 1) the contact zone is characterized by a talcosic mineral with some light green copper staining (?malachite).

Mineralized Zone

The showing is approximately 30 feet in diameter (Plate 3) and consists of a small dome composed mainly of pyrrhotite, chalcopyrite, pyrite and minor quartz and barite (Table 1 and Plate 4). The outcrop is located on the side of a slight knoll, immediately to the east of a swamp (Figure 1). The surface of the showing is highly gossanized making it impossible to obtain unweathered representative samples by mere blasting (approximately 15 cu.yd. of material was removed) (Plate 5) during the present investigation. The following assay values (calculated from Table 1) are therefore considered minimum for the showing; a detailed cross-section across the trench is given in Figure 3.

		% Cu	% Ni	% Fe
A.	Average across 33 feet	.73	.03	40.2
	Range across 33 feet	.03 to 1.33	.02 to .04	13.6 to 50.2
B.	Average across middle 27 feet	1.0	.02	49.0
	Range across middle 27 feet	.37 to 1.89	.02 to .03	38.8 to 50.2



NOTE:
Overlay onto figure 1.

LEGEND

- Area of E.M. or magnetic survey.
- ⊗ – Suggested shallow drill holes.
- First priority area.
- Second priority area.
- Third priority area.
- Claim boundary, Approximate.

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FIGURE 2

EXPLORATION GUIDE MAP (FUTURE)

Scale: 1 Inch = 400 Feet

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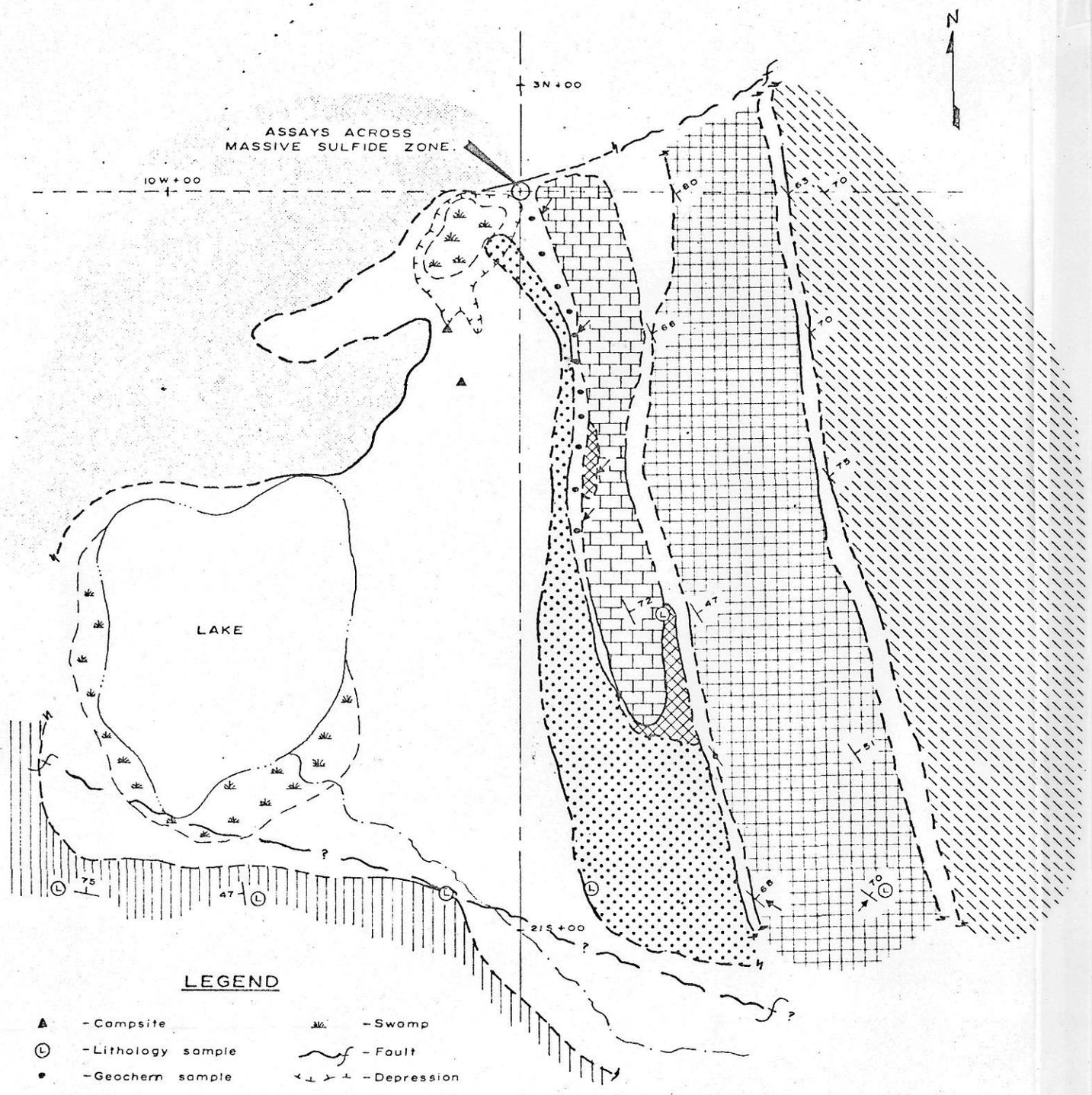

LEGEND

- Campsite
- Lithology sample
- Geochem sample
- Showing
- Marble
- Metaquartzite, thin bedded
- Anorthosite
- Gneiss
- Granite
- Mineralized zone (see figure 3)
- Area of scattered outcrops, partly covered with till and vegatation. (approximate, definite).
- Metaquartzite, purple and green.
- Strike and dip symbol, bedding and/or gneissosity.
- Swamp
- Fault
- Depression
- Highly altered zone

Scale: 1" = 400'

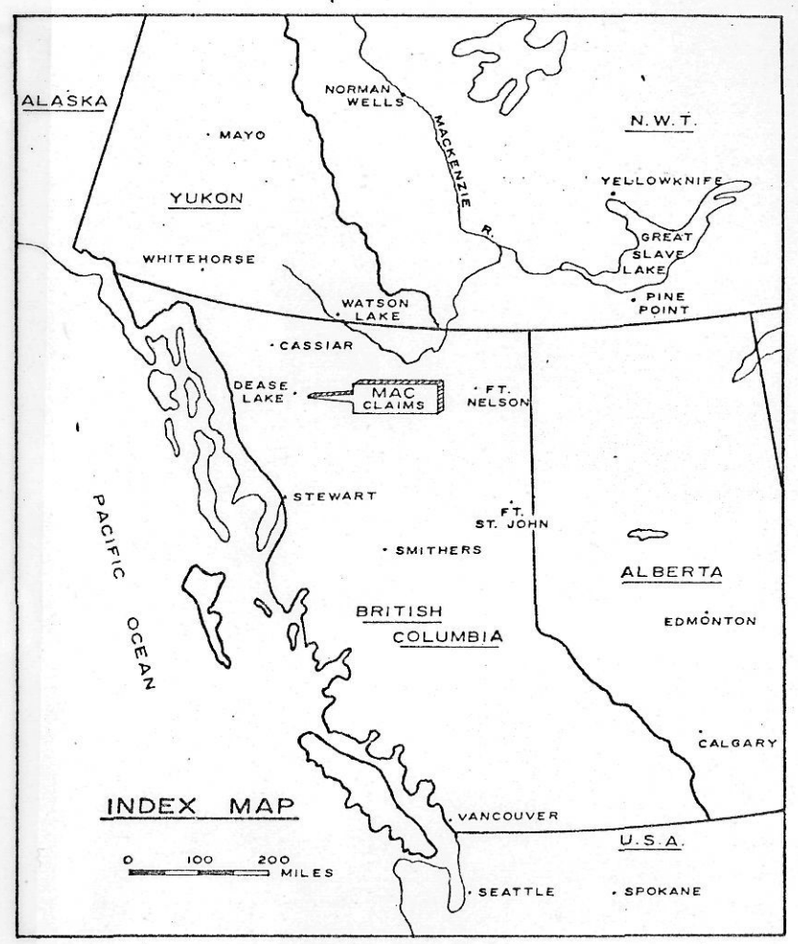

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FIGURE 1

PRELIMINARY GEOLOGIC MAP
MAC CLAIMS, DEASE LAKE AREA, B.C.

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As expected the lowest copper content is in the most weathered zone and the highest in the least weathered part of the rock. In the hardest rock and least weathered 1.89% Cu was recovered which from field evidence is the most representative assay of the relatively unweathered core of the deposit - the highest iron content was also obtained from this sample.

The depression which occurs just to the west of the property (Figure 1) may be significant because it may represent an area of eroded or leached near-surface sulfides. Massive sulfides often succomb to the effects of erosion by groundwater, surface water and glacial scour. Depressions such as this one are therefore highly suspect especially adjacent to a massive sulfide deposit such as the one on the Mac claims.

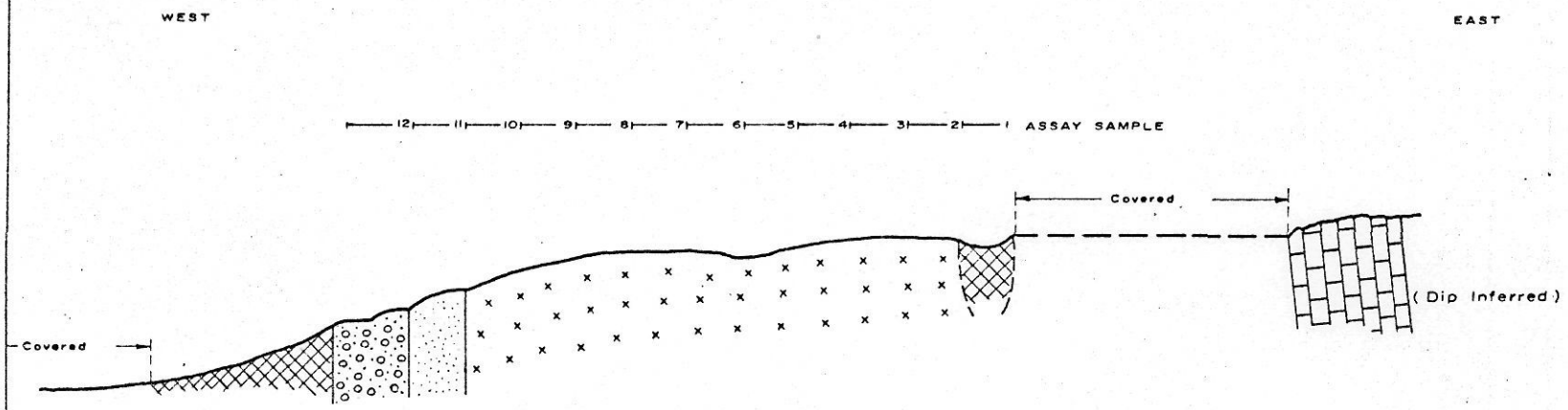
Similar Deposits

The marble (metamorphosed limestone) that occurs on the property has a distinctive bluish light gray colour (Plate 2 and 6) similar to the Quatsino limestone (Triassic age) of the west coast area. From a study of the iron deposits of British Columbia (Eastwood, 1966. p.330) it is known that magnetite and pyrrhotite iron deposits are associated with this kind of limestone, granite and volcanics, which in the author's opinion is analogous to the geologic setting on the Mac claims, with the important addition of copper on the present property. Most of the deposits described by Eastwood are replacement deposits, which is believed to be the origin of the massive sulfides on the Mac claims.

Much more research could be carried out on comparison to other deposits but this is better postponed until further work on the property has been done.

Geochemical Soil Samples

Mr. Willison collected soil samples (glacial till) along the contact zone of the marble and anorthosite as shown in Figure 1. Con West Exploration Co. analyzed the samples for total copper. The results of 12 samples give a range of 23 to 500 ppm copper with an average of approximately 100 ppm. Although the average value is high (but



Scale:

0 Horizontal 10 FEET

Vertical Scale - Diagrammatic.

LEGEND

- Deeply weathered and gossanized zone.
- Sulfides, massive; pyrrhotite, chalcoporite pyrite in gangue of barite and quartz.
- Marble, coarse crystalline, light gray, (unmineralized).
- Quartzite, hard, very fine grained, medium gray (unmineralized).
- Sandstone, pebbly, gossanized, fine to very coarse grained.
- 3 - Assay sample number.

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FIGURE 3

CROSS-SECTION OF MINERALIZED ZONE

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Table 1: Description of Trench and Assay Results
(See Figures 1 and 2)

* Assay Results % Cu	% Ni	% Fe	No.	Interval (Feet)	Lithologic Description
.03	.04	13.6	1	14.9-17.9	Quartz, and limonite; honeycombe structure - 30% pores (cavities); badly weathered; moderate brown, trace of pyrite.
.71	.02	49.6	2	17.9-20.9	Massive sulfides, medium to coarse crystalline, prrholite, pyrite, quartz, chalcopyrite and minor bornite and limonite, dusky red; some pieces with barites between crystals of pyrrhotite; weathered.
.97	.03	46.8	3	20.9-23.9	Massive sulfides, medium to coarse crystalline; pyrrhotite, pyrite, chalcopyrite, quartz (mainly euhedral crystals and as intercrystalline cement, iron stained (?) barite, slightly talcosic; moderate brown, weathered.
.98	.03	38.8	4	23.9-26.9	As for 20.9-23.9
.39	.03	39.2	5	26.9-29.9	As for 20.9-23.9 but not as badly weathered.
.55	.02	48.3	6	29.9-32.9	Massive sulfides, medium to very coarse crystalline; pyrrhotite, pyrite, chalcopyrite, quartz (as euhedral crystals and intergranular crystalline cement) barite ?, bornite, iron stained talcosic mineral (alteration product); dusky brown; slightly weathered.
.82	.02	43.7	7	32.9-35.9	As for 29.9-32.9 but slightly more weathered.
1.89	.03	50.2	8	35.9-38.9	As for 29.9-32.9
1.33	.02	49.3	9	38.9-41.9	As for 29.9-32.9 but slightly more weathered.
.37	.03	40.4	10	41.9-44.9	As for 29.9-32.9
.05	.04	22.8	11	44.9-51.9	Interbedded gray quartzite and pebbly (?)sandstone; sandstone is highly weathered and units are gossanized containing 30% pores; both units are altered making identification difficult.

*Assayed by Chemical and Geological Laboratories Ltd., Edmonton

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background values have not been established), the only significant conclusion is that geochemical prospecting would very likely yield important results upon future exploration of the property.

CONCLUSIONS

1. The massive sulfide at the showing (chalcopyrite, pyrrhotite, pyrite) averages 1% copper, .02% nickel and 49% iron across 27 feet.

2. The sulfides are probably of hydrothermal origin and have replaced the sedimentary and/or metasedimentary host rock.

3. There is a good possibility that the sulfides continue with depth in a similar structural position between the granodiorite on the north and the steeply dipping marble and associated rocks on the south.

4. Metal values would be higher below the zone of oxidation so that assays are of minimum value.

5. The depression containing a swamp just to the west of the showing may have originated as a result of surface leaching or dissolving of sulfides and/or gouging by glacial scour, which would mean that the swamp marks the site of near-surface massive sulfides. The same concept can be applied to the area underlain by the small lake (Figures 1 and 2).

6. Altered zones at the contact of the marble and anorthosite may mark the site of mineralized zones at depth.

7. The property is primarly a copper prospect but if an iron market developed in this part of the country, and if sufficient tonnage was available, the iron content of the present showing would warrant further exploration.

RECOMMENDATIONS

1. I recommend a ground electromagnetic (EM) survey and/or a magnetic survey to detect the presence of near-surface massive sulfides in the areas outlined in Figure 2. Failing results of these techniques a gravity survey should be undertaken.

2. I recommend several shallow test-holes possibly with a Winky drill to test for the occurrence of massive sulfides within 100 feet of the surface at the showing and in five other locations as shown in Figure 2.

3. Exploration should proceed in accordance to priority as outlined on Figure 2.

ESTIMATED COST

Electromagnetic and/or Magnetic Survey	$ 5,000
Preliminary Exploratory Drilling	$10,000
Assays and Office Costs	$ 1,000
Helicopter and Fixed Wing	$ 9,000
Other Transportation	$ 2,000
Camp Costs	$ 2,000
Geological Costs	$ 3,000
Contingencies	$ 3,500
Total	$35,500

SHERRITT GORDON MINES LIMITED

Copper Ore Sample left with Mr. T. W. Benz, October 6, 1967

The spectrographic analysis and wet chemical analysis of the sample of copper ore you left with Mr. T. W. Benz on October 6 are as follows: -

Spectrographic Analysis (in %)

Ag	.005	Li	<.01
Al	.01	Mg	.05
As	<.01	Mn	.01
B	x	Mo	x
Ba	x	Ni	.01
Be	x	Pb	.01
Bi	x	Sb	x
Ca	.02	Si	.03
Cd	x	Sn	x
Co	.01	Te	.005
Cr	.002	Ti	x
Cu	M	V	x
Fe	M	Zn	.05
Ge	x	Zr	x
Hg	x		

Chemical Analysis (in %)

Cu	1.7
Fe	52.04
$S_{(T)}$	37.36

x = <.001
M = >.1

PROFESSIONAL QUALIFICATIONS

1. I, Murray A. Roed, reside at 10620 Rowland Road, Edmonton, Alberta.

2. I have a B.A. (1959) and a M.A. (1961) in Geology from the University of Saskatchewan, Saskatoon. I am presently completing a Ph.D. in Geology at the University of Alberta, Edmonton.

3. I am a Professional Geologist registered with the Alberta Association of Professional Engineers.

4. M. A. Roed Geological Explorations Ltd., was registered in the Province of Alberta on May 4, 1966.

5. I possess experience in the following fields of geology: Surficial and glacial geology; groundwater geology, geomorphology; structural and stratigraphic geology; photogeology; geophysics; subsurface drilling in coal, mining and petroleum exploration, and in engineering geology investigations; economic geology; paleontology.

6. I have worked in south and central Alberta, Saskatchewan, Vancouver Island, northern British Columbia, Rocky Mountains and Foothills, Mackenzie Mountains, Franklin Mountains, Richardson Mountains, Old Crow Mountains, Keele Range, Eagle Plain and Mackenzie River Valley.

7. I belong to the following professional societies: Alberta Association of Professional Engineers; Association of Engineering Geologists; Canadian Institute of Mining and Metallurgy; Geological Society of America; Edmonton Geological Society; Association of Professional Engineers of Saskatchewan.

8. I have no material interest in this property, contemplated or otherwise.

Within the scope of this study, all information contained within this report is believed to be accurate.

Respectfully submitted,

M. A. ROED GEOLOGICAL EXPLORATIONS LTD.

Per: Murray A. Roed

Murray A. Roed, P. Geol.

REFERENCES

Gabrielse and Others, 1962. Cry Lake: Geol. Survey, Canada, Map 29 - 1962.

Gabrielse, H. and Wheeler, J.O., 1961. Tectonic Framework of Southern Yukon and Northwestern British Columbia: Geol. Survey, Canada Paper 60-24.

Eastwood, G.E.P., 1966. Iron Deposits of British Columbia; in Tectonic History and Mineral Deposits of the Western Cordillera: Canadian Institute of Mining and Metallurgy, Special Volume No.8, p.329 to 334.