REPORT ON
TURAM AND RONKA ELECTROMAGNETIC SURVEYS
IN THE
HAGGART CREEK AREA, YUKON TERRITORY

for

RIO PLATA MINES LIMITED

by

HUNTING SURVEY CORPORATION LIMITED
Toronto, Ontario

September, 1962.

INTRODUCTION

Between August 13th. and 26th., 1962, Hunting Survey Corporation Limited carried out Turam Electromagnetic and Ronka Horizontal Loop Electromagnetic surveys on a group of claims held by Rio Plata Mines Limited. This claims group is located in the Mayo Mining district, Yukon Territory.

The surveys were carried out by Mr. W. J. Scott and Mr. A. Skeoch of Hunting Survey Corporation Limited, the helpers were provided by the client.

A total of approximately 11 line miles was surveyed using an A. B. E. M. type 1182 Turam electromagnetic prospecting unit. This instrument uses two horizontal search coils, separated by 100 feet, to record the distortions in an electromagnetic field generated by an alternating current which passes through a long grounded cable. The quantities measured are (a) the ratio of the field strength at each coil and (b) the phase difference of the field between the coils. The grounded cable was laid out along a base line and readings were taken along picketed cross lines perpendicular to the base line. Readings were plotted at the centre of the 100-foot spread.

A total of approximately 7. 4 miles was surveyed using Ronka Mark IV horizontal loop electromagnetic equipment. This unit consists of two horizontal coils, separated in this survey by 300 feet of cable, measuring in-phase and out-of-phase components of the secondary electromagnetic field in percentages of the primary field. The instrument operates at a frequency of 876 cycles per second. Readings were plotted at the centre of the 300-foot spread.

The plotting was done in the field and a preliminary interpretation was provided for the client. The data were checked and replotted at the Toronto office of Hunting Survey Corporation Limited and a final interpretation was carried out.

GEOLOGICAL SETTING

As the area is covered by overburden, varying in depth from 20 feet at the top of the hills to about 30 feet in the valleys, there are few outcrops to be seen. However the area is believed to be underlain by Precambrian formations consisting of quartzites, micaceous quartzites and probably graphitic phyllites. The strike of the formations varies from N25°W with a dip of 30° to the east at the south end of Base Line 1 to N54°W with a northerly dip on Base Line 3.

The mineralization when found in these formations usually occurs in veins which strike E-W to N45°E and dip to the north. Mineralization consists mainly of pyrite, arsenopyrite, jamesonite and galena. Traces of silver have been found in a gorge running along Haggart Creek and in a shear zone located near Base Line 3.

SURVEY RESULTS

The survey was divided into three different areas. Base Line 1, Base Line 2 and Base Line 3, with approximately 13 miles, 1.26 miles and 1.78 miles of survey respectively. Except for approximately 4.7 miles of line on Base Line 1, which were surveyed with the Ronka horizontal loop E.M. unit, the survey was carried out using the Turam electromagnetic unit. The map showing the location of the three base lines, in the pocket at the rear of this report, was taken from an air-photo mosaic of the area.

A number of anomalies were obtained over all three survey areas but for the greater part these anomalies are of weak to very weak intensity. However, previous work carried out in the general area has only given weak intensity anomalies over known veins. It is therefore believed that although weak, the anomalies can still be considered of significance and that further exploration should be guided by these anomalies.

Base Line 1

The major part of the survey is contained within the area of Base Line 1. A number of anomalies, most of them weak, have been observed in this area. Alternate lines on the north side of the base line were traversed with the Ronka E.M. equipment; the results of this portion of the survey are shown on a separate map. In order to obtain depth penetration with the Ronka unit, a coil separation of 300 feet was used. A large number of anomalous conditions indicated by the Ronka survey are due to the rugged topography. By careful study of the results these zones have, we believe, been eliminated.

The anomalies indicated by the Turam survey appear to outline various trends. In most cases an east-west to east-northeast strike has been interpreted as the most likely direction of the anomalous trends. However in some cases a north-south direction is possible. Previous work in the general area has indicated that the east-west direction could very well represent the trends of mineralization. The north-south direction could represent cross faults which could likewise be mineralized.

The anomalies outlined vary in intensity between medium and weak and in many cases they interfere with each other, resulting in a complex pattern. It is, therefore, difficult to obtain the exact shape of the anomaly and exact location of its peak. The location of the various conductors is therefore not exact. It is estimated that a variation of up to 50 feet to either side of the indicated conductor is possible. Similarly it is difficult to obtain an accurate estimate of the depth of the conductor.

Some of the major anomalous trends seem to form a more or less continuous system throughout the survey area, particularly on the south side of the Base Line. To the north side the lines have not been extended far enough to follow all the trends located on Lines 2 to 8. However, a very weak trend is indicated through the central portion between Lines 14 to 26, and another trend is indicated on the north side across Lines 46 and 48.

The Ronka E. M. survey was carried out over lines on the north side of the Base Line covering Lines 2, 4, 6, 8, 10 and the alternate lines. Due to the fact that the veins are narrow, the anomalies as indicated by the Ronka survey appear as very slight changes in the readings. The results are further complicated by

the fact that the rugged nature of the topography introduces spurious anomalous conditions. The trends indicated by the Ronka survey are of very weak intensity and not so marked as the Turam results.

Although the trends indicated are not very strong, it is recommended that further exploration be carried out to test these zones. From the geophysical survey it would appear that Trends 1, 5, 6, 12 and 13 are the promising ones. These trends are at least better defined than the others and contain stronger anomalies. It is therefore recommended to test these trends by trenching and stripping at the stronger portions of the zones. Then if surface indications are favourable, the zones should be further investigated by drilling.

Base Line 2

This survey was carried out in an area in which a shaft had previously been sunk to investigate for galena. However the actual location of the shaft is unknown. The area surveyed lies on the west-facing slopes of Haggart Creek.

Two anomalous trends could be interpreted in this area, both lying in a northeasterly direction. These trends are designated by numbers 1 and 2 on the accompanying map. Trend 1 is the stronger of the two, however, its location is somewhat uncertain as it is located at the end of the traverse lines and on some lines was not completely defined.

Stripping and trenching of the major trend in this area is recommended and if indications are favourable diamond drilling could follow. The depth to the body causing this anomaly is approximately 150 feet, this estimate is not exact as the anomaly was not completely defined.

Base Line 3

The survey from Base Line 3 comprised a small area on the lower portions of the west-facing slopes of Haggart Creek. A number of the survey lines crossed the creek. A small showing was found between Lines 2+00N and 4+00N.

The survey consisted of 9 lines averaging approximately 1,000 feet in length. A number of anomalies were observed. One clearly defined trend, designated number 1 on the accompanying map, could be interpreted extending across all lines and lying parallel to the Base Line. The depth to the body causing this anomaly is estimated to vary between 150 and 200 feet. No clear indication of dip was evident.

Three other weak trends are to be observed which parallel the main trend.

The main trend is worthy of further investigation, initially this should take the form of trenching and stripping. If surface indications are favourable, further exploration work in the form of diamond drilling would be justified. The drilling should be carried out to intersect the conductors at a depth of 150 to 200 feet. In some cases the anomalies interfere with each other resulting in a complex pattern which tends to obscure the actual location of each zone. The locations given, therefore, are subject to error as are the depth calculations.

SUMMARY AND RECOMMENDATIONS

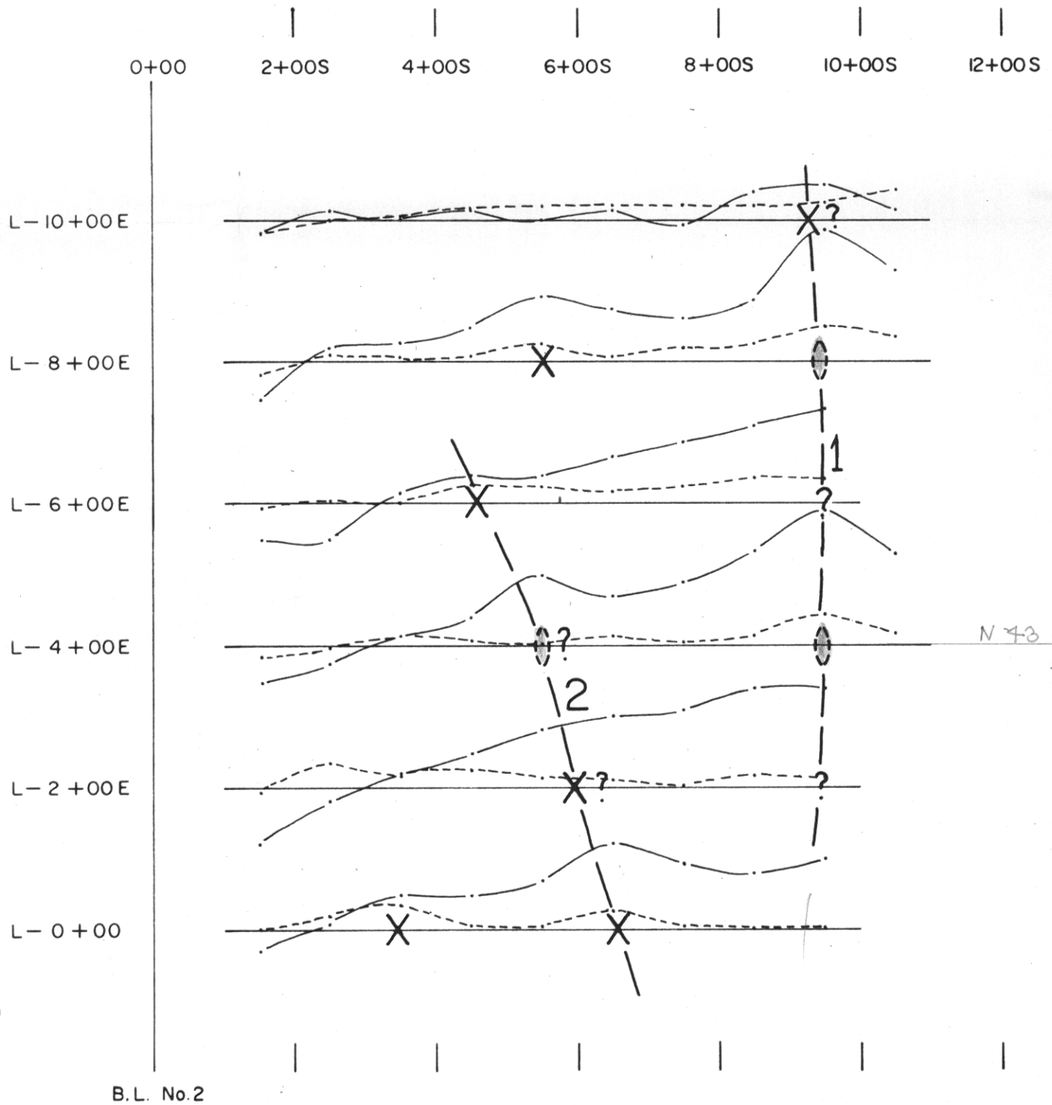
The surveys conducted in the Haggart Creek area detected a number of anomalies of weak to medium intensity. Measurements over known mineralization in the general area also resulted in very poor anomalies. It is therefore believed that some of the anomalies obtained in the survey area could be significant.

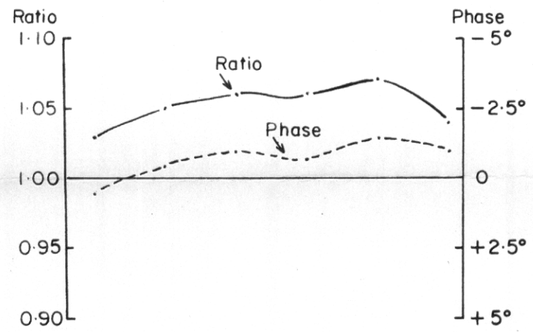
Previous work carried out in the immediate vicinity of the surveyed areas has shown the east-northeast striking trends to be the most important. These trends should be further investigated by stripping and trenching. If the results from the trenching are encouraging then, of course, a diamond drilling programme should be carried out.

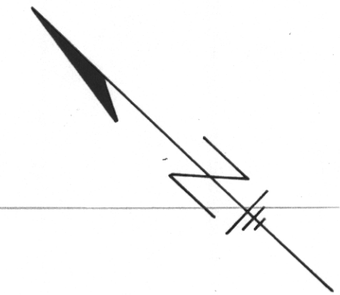
HUNTING SURVEY CORPORATION LIMITED

E B Nicholls

E. B. Nicholls,
Geophysicist.







LEGEND

- Weak to medium anomaly
- X — Very weak anomaly
- ? — Location of anomaly uncertain
- — — — Weak anomalous trend

RIO PLATA MINES

HAGGART CREEK AREA

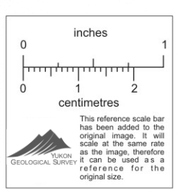
YUKON TERRITORY

TURAM ELECTRO-MAGNETIC SURVEY

TURAM PROFILES & INTERPRETATION

Scale: 1 inch = 200 feet

BASELINE NO. 2



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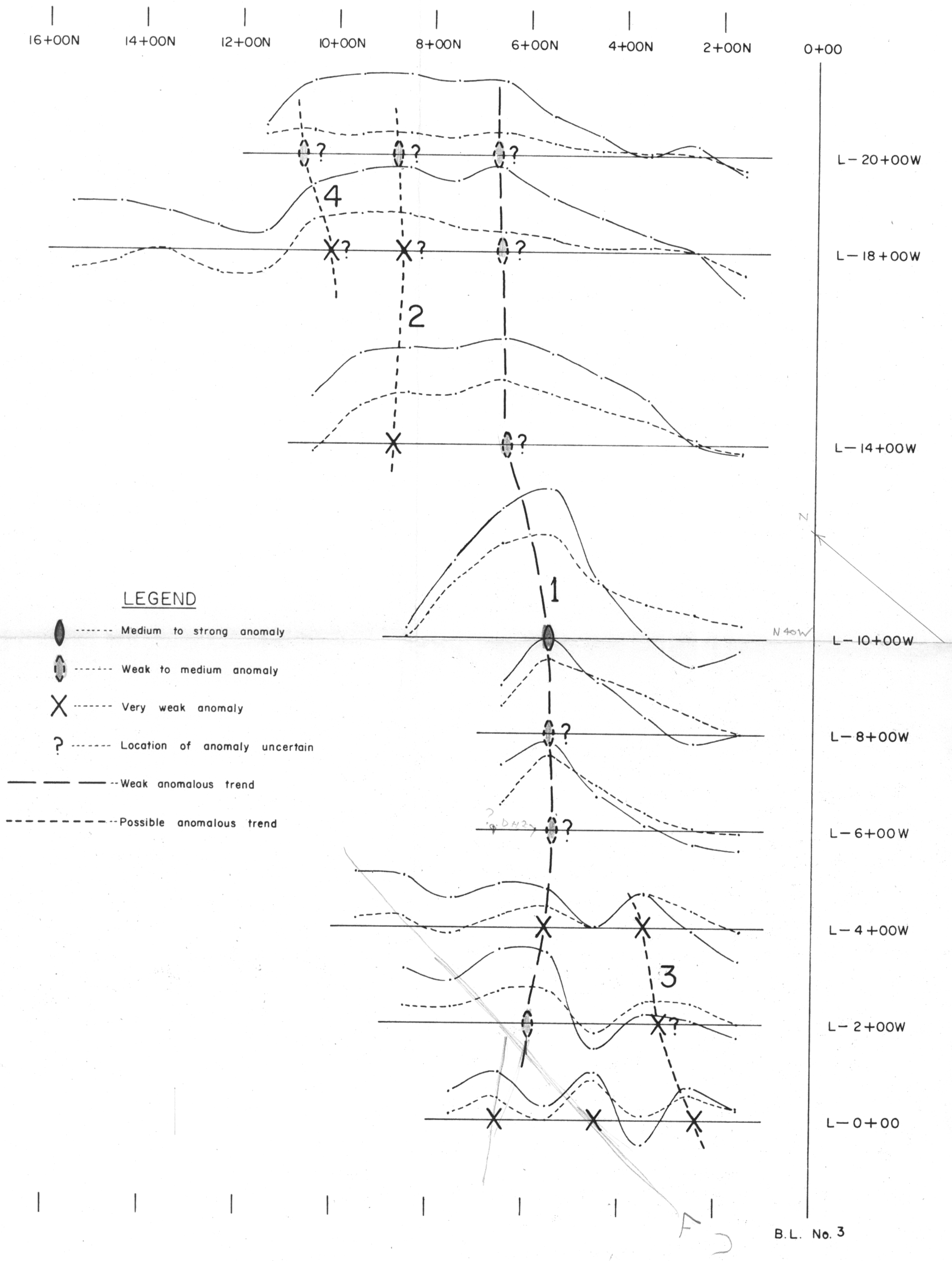

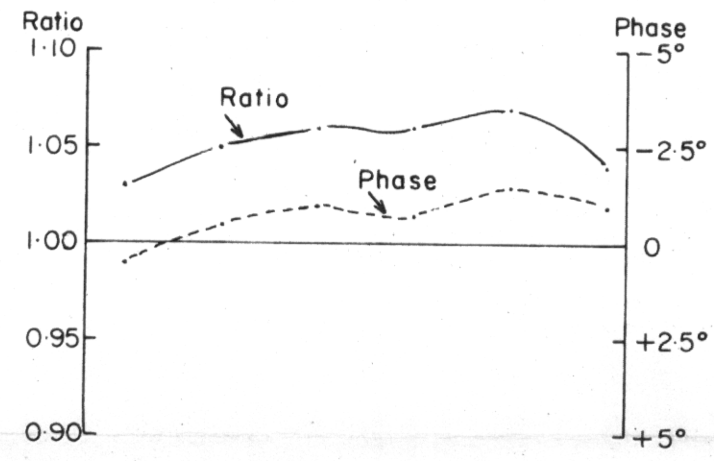

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HAGGART CREEK AREA
YUKON TERRITORY

TURAM ELECTRO-MAGNETIC SURVEY

TURAM PROFILES & INTERPRETATION

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BASELINE NO. 3

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PUP CREEK

BASELINE NO. 2

BASELINE NO. 1

BASELINE NO. 3

HAGGART CREEK

ROAD

MAYO, 57 miles

Position of Haggart Creek is doubtful because large-scale placer mining has been in progress since pictures were flown in 1947.

Note: This is a tracing from air-photos, at approximate scale of 1" = 600'.

inches
0 1
0 1 2
centimetres

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

YUKON GEOLOGICAL SURVEY

RIO PLATA MINES

TURAM E.M. SURVEY

GENERAL LOCATION MAP

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16+00N 14+00N 12+00N 10+00N 8+00N 6+00N 4+00N 2+00N 0+00 2+00S 4+00S 6+00S 8+00S 10+00S

L-48+00W L-48+00E

L-46+00W L-46+00E

L-44+00W

L-40+00W

L-36+00W

L-32+00W

L-28+00W

L-24+00W

L-20+00W

L-16+00W

L-14+00W L-14+00E

L-12+00W

L-10+00W L-10+00E

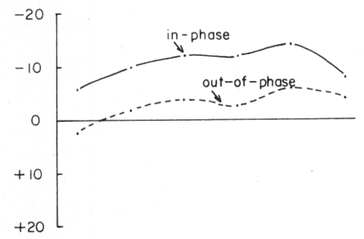
L-8+00W

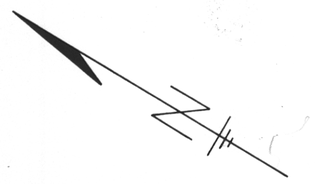
L-6+00W L-6+00E

L-4+00W

L-2+00W

26+00N 24+00N 22+00N 20+00N 18+00N 16+00N 14+00N 12+00N 10+00N 8+00N 6+00N 4+00N 2+00N 0+00 2+00S 4+00S



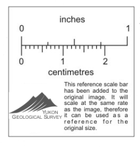


LEGEND

X ---- Very weak anomaly

? ---- Location of anomaly uncertain

---------- Possible anomalous trend



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HAGGART CREEK AREA

YUKON TERRITORY

RONKA ELECTRO-MAGNETIC SURVEY

RONKA PROFILES & INTERPRETATION

Scale: 1 inch = 200 feet

BASELINE NO. 1

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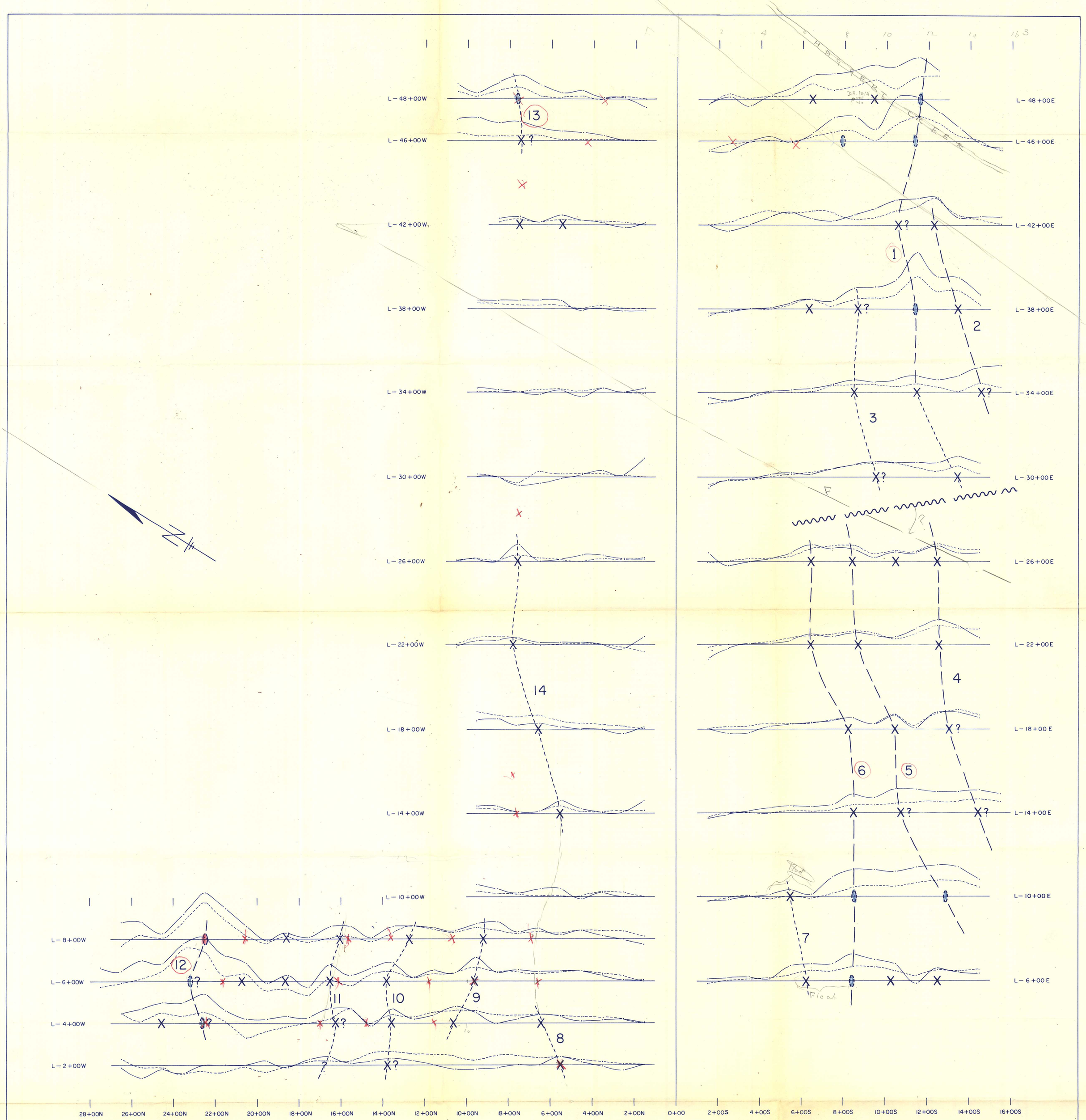

LEGEND

- Medium to strong anomaly
- Weak to medium anomaly
- X — Very weak anomaly
- ? — Location of anomaly uncertain
- Weak anomalous trend
- Possible anomalous trend
- Possible fault zone

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HAGGART CREEK AREA
YUKON TERRITORY
TURAM ELECTRO – MAGNETIC SURVEY
TURAM PROFILES &
INTERPRETATION
Scale: 1 inch = 200 feet
BASELINE NO. 1

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