

COMINCO LTD.

CANADIAN EXPLORATION

NTS 105G8

**MAGNETIC, ELECTROMAGNETIC,
AND GRAVITY SURVEYS
ON 1-20 CLAIMS,
YB47740 - 759
PELLY MOUNTAIN PROJECT,
YUKON TERRITORY
- ASSESSMENT REPORT -**

WORK PERIOD: JULY 22 - 29, 1997

August 26, 1998

R.W. HOLROYD

This report has been examined by
the Geological Evaluation Unit
under Section 53 (4) Yukon Quartz
Mining Act and is allowed as
representation work in the amount
of \$ 4000.00.

M. B. L.
Regional Manager, Exploration and
Geological Services for Commissioner
of Yukon Territory.

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**1997 ASSESSMENT REPORT
ON 1-20 CLAIMS, YUKON TERRITORY**

SUMMARY

The ON 1-20 claims are located about 10 kms northeast of Cominco's KZK VHMS deposit and approximately 120 kms southeast of Ross River, YT.

The rocks underlying this part of southeastern Yukon have been assigned to 2 terranes: the Yukon-Tanana Terrane and the Slide Mountain Terrane. The YTT consists primarily of a layered sequence of metamorphosed rocks comprising a "*lower unit*" of pre-Devonian quartzite, pelitic schist and minor marble, a late Devonian to mid-Mississippian "*middle unit*" comprising carbonaceous phyllite and schist with interbanded mafic and, locally significant, felsic metavolcanics, and an "*upper unit*" of Pennsylvanian marbles and quartzite. Volcanism within the "*middle unit*" was accompanied by the intrusion of 2-3, late Devonian to Mississippian, mafic to felsic metaplutonic suites. Mixed felsic volcanics and carbonaceous phyllites of the "*middle unit*" are host to the 2 known VHMS deposits in the district, the KZK and Wolverine deposits.

The ON 1-20 claim area is underlain by "*middle unit*" felsic metavolcanics and carbonaceous phyllite and schist with interbanded mafic metavolcanics.

A brief program, involving linecutting and ground geophysical surveys were carried out on the claims in 1997 to cover airborne EM/Mag features in this favourable stratigraphy. No responses indicative of significant massive sulphide accumulations were indicated. No further work is recommended.

LOCATION AND ACCESS

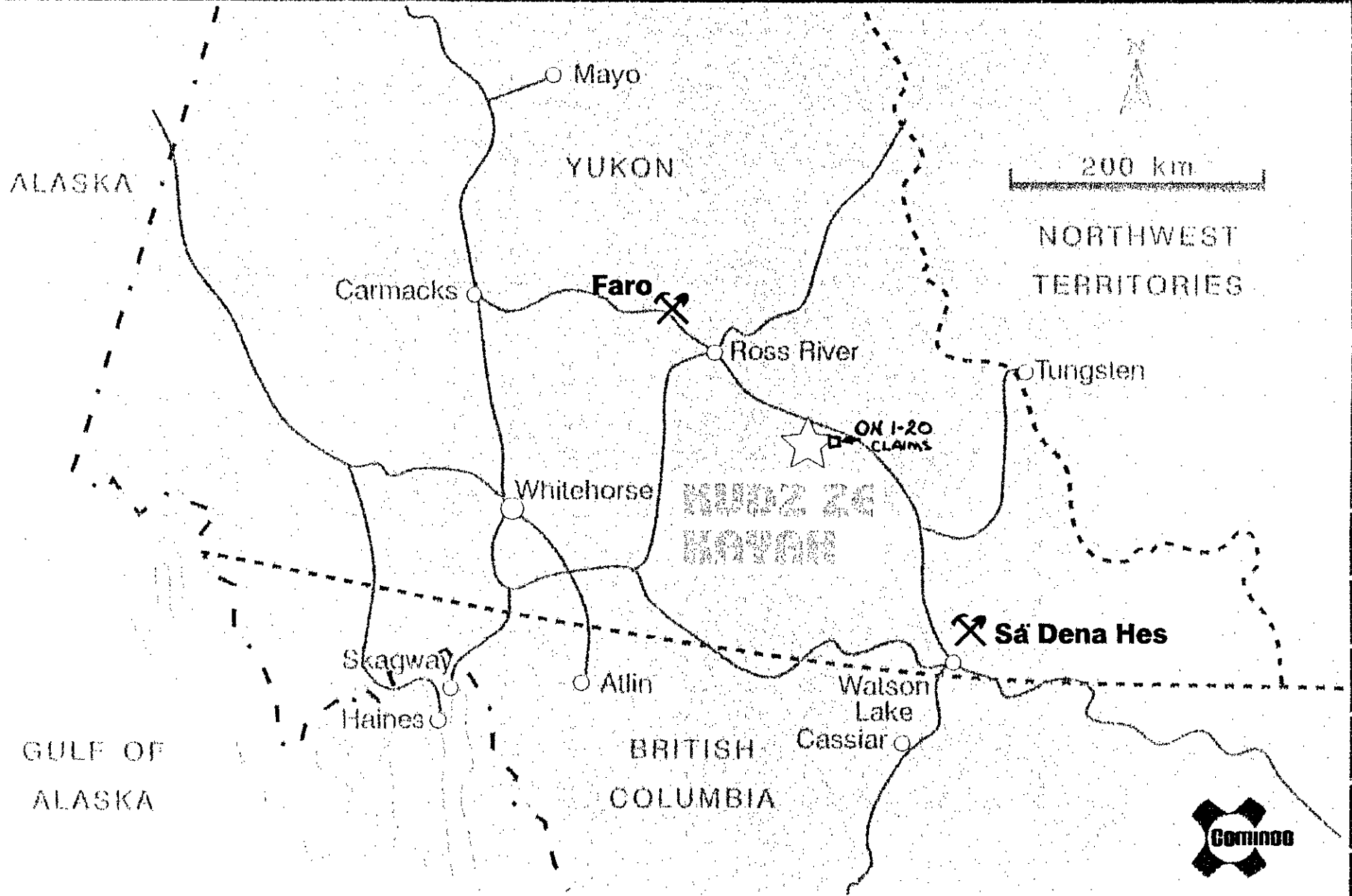
The ON 1-20 claims are located about 10 kms northeast of Cominco's Kudz Ze Kayah VHMS Deposit and approximately 120 kms southeast of Ross River. The gravel, all-weather Robert Campbell Highway provides access to within 35 kms of the claims. Direct access is by helicopter.

PROPERTY AND OWNERSHIP

The ON 1-20 claims are 100% owned by Cominco Ltd.

GEOPHYSICAL SURVEYS

On July 22nd and 29th, 1997 a Cominco Ltd. crew completed ground geophysical surveys on the eastern portion of the On 1-20 claim block. The crew, which consisted of



D. Hall, geophysicist, D. Bryce, geophysical technician, and J. Allardyce, assistant, was based out of Cominco's KZK exploration camp approximately 10 km to the southwest. Survey grid locations were chosen through review of earlier airborne EMMAG surveys, where elevated magnetics with associated conductivity were identified in an area of ground cover. A brief ground-based geophysics program consisted of magnetic coverage on 200 m spaced lines, with one line also receiving HLEM and gravity coverage.

A 600 metre wide magnetic feature which is 200-400 nT in amplitude was outlined in the grid area, and the Horizontal loop electromagnetic (HLEM) survey along Line 9100E showed conductivity along the northern edge of the magnetic feature.

The HLEM survey was carried out with a reference cable of 100 metres then resurveyed with a 150 metre cable to test the conductor at a greater depth. Results of the HLEM survey show a pair of conductors. These conductors are relatively low conductivity ($\delta t = 2S$) and shallow, with a interpreted depth to top of about 15 m. The conductors are also quite narrow, with widths of less than 5 metres. The dip of the conductors is difficult to determine from the data as the induced EM fields of the two conductors interact with each other, though it can be assumed to be a relatively shallow north dip (approx. 40°) to conform with local geology. In addition, a Bouguer gravity survey was carried out along Line 9100E, to test for anomalous densities associated with the conductors. No significant density contrasts are noticeable.

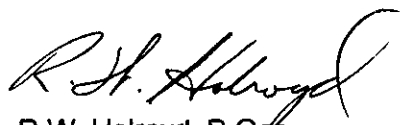
On the basis of this geophysical work, this target is not due to any significant accumulation of sulphide. Black carbonaceous argillites have been mapped in the area, and contain disseminated pyrrhotite and veins of pyrite, and probably represent the source of this EM/mag feature.

CONCLUSIONS

During this brief geophysical test in 1997 a Cominco Ltd. geophysical crew completed 5.4 km of total field magnetic measurements on the eastern portion of the On 1-20 claims, to define and evaluate previous airborne EM/MAG features in a favourable geologic setting. These geophysical surveys defined a conductive-magnetic target which was detailed with HLEM and Bouguer gravity surveys.

The source of the EM/mag responses is probably carbonaceous argillites, with pyrrhotite, mapped nearby to the east. No significant massive sulphides are likely to be associated with these geophysical responses.

Report by:



R.W. Holroyd, P. Geo
Senior Geologist
Cominco Ltd.

APPENDIX 1

GEOPHYSICAL SURVEY EQUIPMENT AND PROCEDURES

MAGNETIC SURVEY

The instrumentation for the magnetic survey consisted of a pair of GSM-19 magnetometers manufactured by GEM Systems of Ontario. One of these was set up as a recording base station (taking readings every 3 sec.) and the other as a field unit taking measurements at each point of the survey grid. The field magnetometer and base were synchronized so that a field reading was taken at the same instant as a base station record. Readings on the grid were taken every 12.5 metres, which was decreased to every 5 metres in locations where the magnetic response changed rapidly. At the end of a survey day the two units were connected to a computer and the day's data was transferred to the computer memory. Corrections for diurnal magnetic field variations were applied to each survey station value before plots were made. Reading accuracies of ± 5 nT were attained for the magnetics survey.

The total field magnetic data is presented in stacked profile form at a scale of 1:5,000.

GRAVITY SURVEY

Gravity readings were taken with a LaCoste Romberg gravity meter, Model "G", S/N 494. This unit is sealed, internally pressure compensated, and thermostatically controlled during operation to minimize drift from atmospheric pressure and temperature changes. A base station was established on the grid and by utilizing base station readings (at least 2 per day) all gravity readings were corrected for diurnal drift and levelled to this common base. Gravity readings were corrected for latitude and elevation (including both free-air and Bouguer corrections). The data has been processed for a Bouguer density of 2.67 g/cc.

The elevation survey was carried out with a Nikon D-50 theodolite and Nikon prism reflector. A base station was established near the middle of the gravity line and the gravity stations were surveyed to the end of the line. On the return trip stations were checked at 100 metre intervals finally tying in to the survey base station. Any minor errors were distributed throughout the stations of that loop, resulting in individual station accuracies in the order of 0.05 metres.

With reading variations due to gravity meter reading accuracy and drift, and elevation errors, the overall accuracy of the corrected gravity values is probably in the order of 0.05-0.10 mgals.

The gravity data are also plotted in profile form, along with the topographic profile, at a horizontal scale of 1:5,000. The gravity reductions are calculated for a Bouguer density of 2.67 gm/cc, and profiles are presented at a vertical scale of 1 cm = 0.25 mgals, and topography at a scale of 1 cm = 25 m.

HORIZONTAL LOOP ELECTROMAGNETIC SURVEY

The HLEM system used was a Max-Min I-10 and a MMC data logger, manufactured by Apex Parametrics Ltd. The survey employed two different coil spacings (100 and 150 metres). Two frequencies: 1760, and 3520 Hz, were read at a 25 metre station interval.

For data collection, the receiver (Rx) and transmitter (Tx) were simultaneously tilted in a coplanar orientation paralleling the topographic slope (horizontal loop mode). The Rx-Tx separation was kept constant by using the interconnecting reference cable as a chain.

The HLEM results are presented in profile form at 1:5000, one plot for each frequency. Data points are plotted half way between the Tx-Rx location. In-Phase (IP) data points are indicated by dots joined by a solid line; Out-of-Phase (OP) data is indicated by a dashed line. The conductor width, conductivity-thickness, and depth to top are interpreted from the HLEM data.

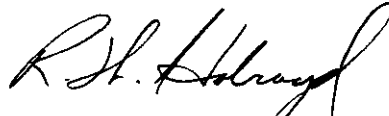
A conductor will show a negative IP and/or OP trough of width (with respect to background values) equal to that of the conductor width plus the length of the coil separation. The IP and OP widths due to a conductive source are shown, respectively, above and below the zero line. The shallower a conductor is from the surface, the higher will be the amplitude of the IP and OP responses. Better conductors will respond on progressively lower frequencies whereas poor conductors are seen only on the higher frequencies. A higher IP/OP response amplitude ratio is also indicative of better conductance.

APPENDIX III

CERTIFICATION OF QUALIFICATIONS

I, ROBERT W. HOLROYD, of 2752 Dollarton Highway, in the City of North Vancouver, in the Province of British Columbia, do hereby certify:

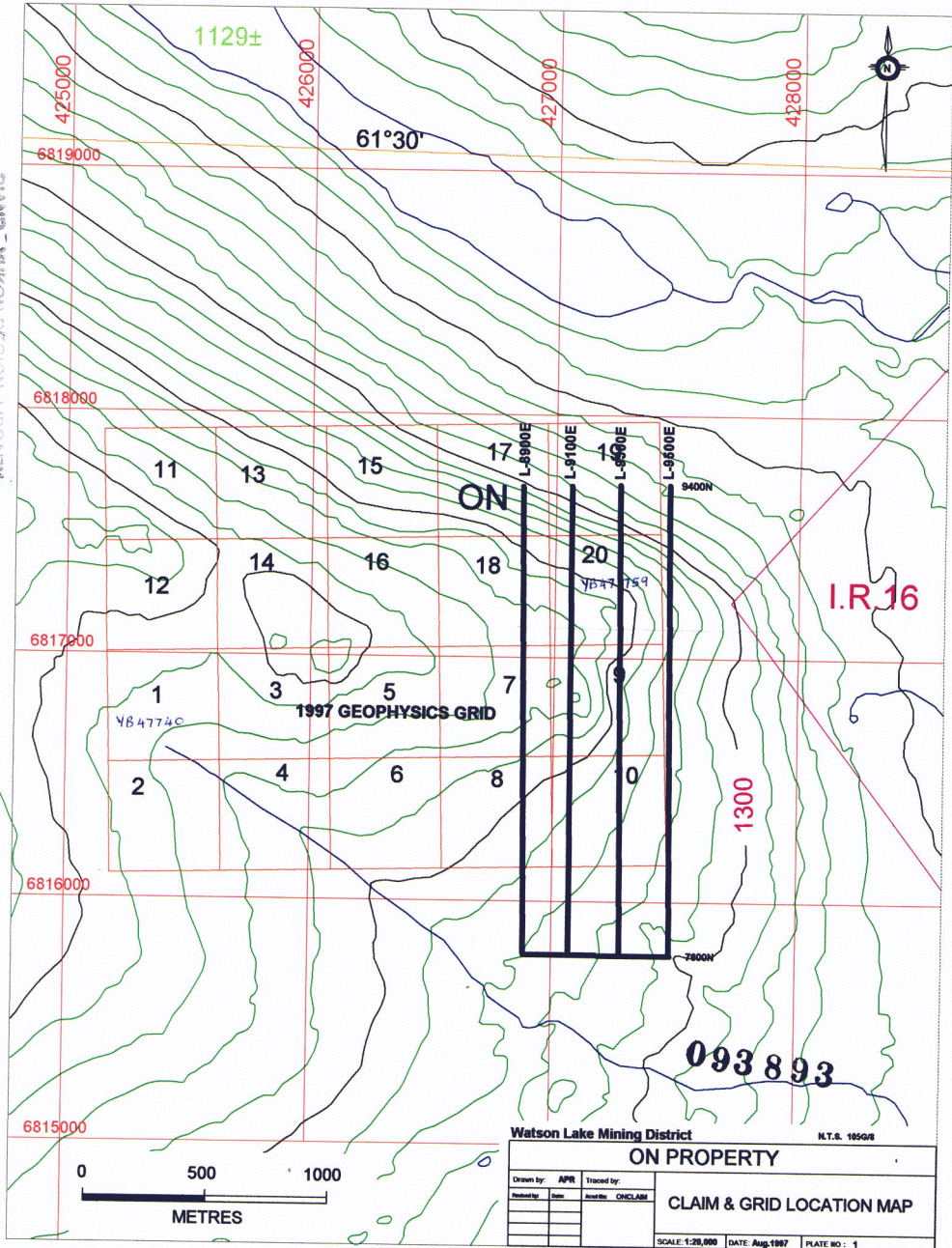
- i. THAT I graduated with a Bachelor of Science in Honours Applied Earth Science - Cooperative Programme, from the University of Waterloo in 1977.
- ii. THAT I am a member in good standing of the Association of Professional Engineers and Geoscientists of the Province of British Columbia.
- iii. THAT I have been actively practising my profession since 1973, and have been an employee of Cominco Ltd. from 1977 to present.



R. W. Holroyd, B.Sc./P. Geo.
Senior Geologist,
Cominco Ltd.

August 26, 1998

DIAND - YUKON REGION LIBRARY



Watson Lake Mining District

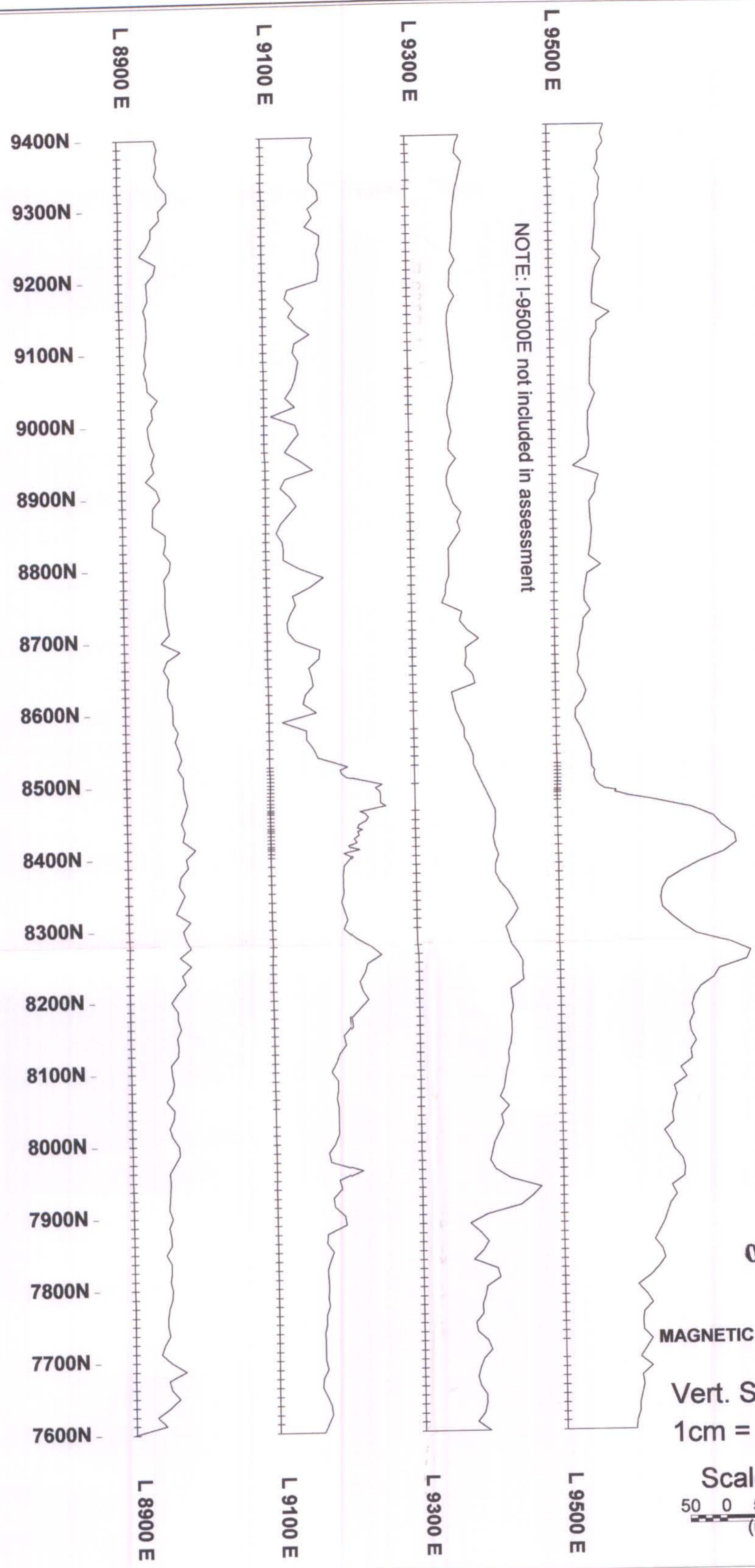
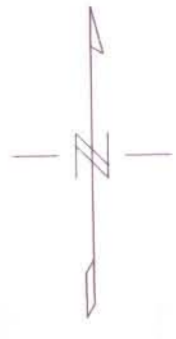
N.T.S. 10504

ON PROPERTY

Drawn by:	APR	Traced by:	
Revised by:		Assisted by:	ONCLAM
Date:			

CLAIM & GRID LOCATION MAP

SCALE: 1:20,000 DATE: Aug. 1987 PLATE NO.: 1



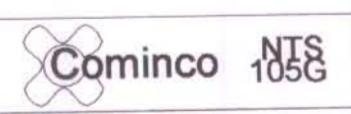
093 893

MAGNETIC BASE = 58400 nT

Vert. Scale
1cm = 100 nT

Scale 1:5000
50 0 50 100 150 200
(metres)

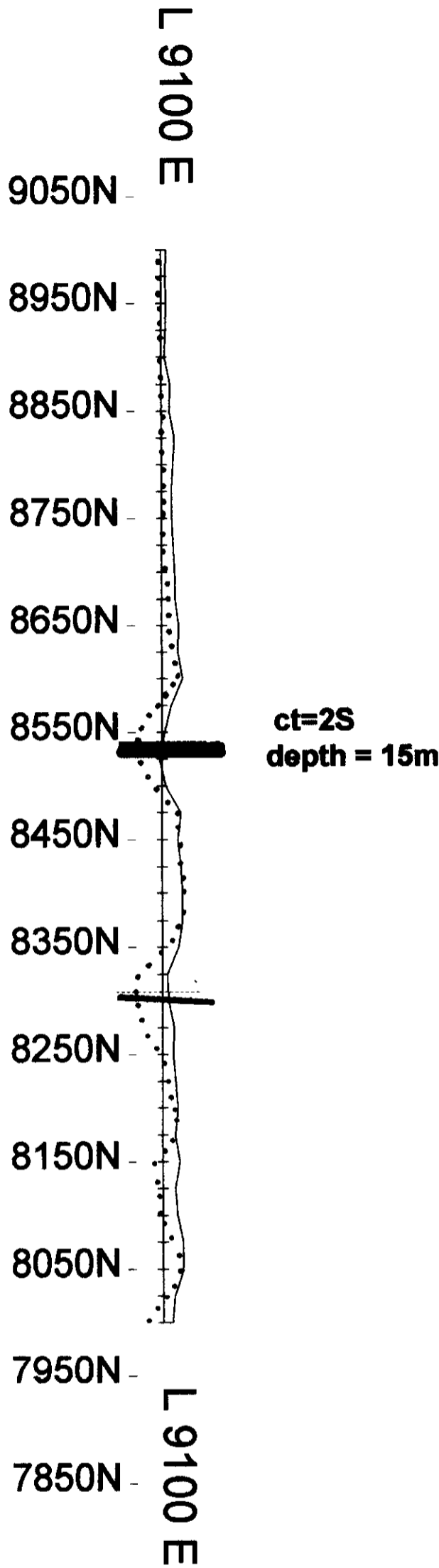
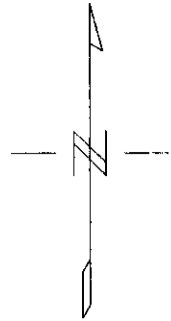
COMINCO EXPLORATION



Drawn by:	Traced by:
Revised by: Date:	Revised by: Date:

PELLEY MTN PROPERTIES
ON 1-20 CLAIMS
TOTAL FIELD MAGNETICS SURVEY

Scale: 1:5000 Date: JUNE 1997 Plate: 2



VERTICAL SCALE:
1cm = 20%

Scale 1:5000

OUT OF PHASE
IN PHASE _____

093 893

100 0

(metres)

COMINCO EXPLORATION



NTS
105G

Drawn by:		Traced by:	
Revised by:	Date:	Revised by:	Date:

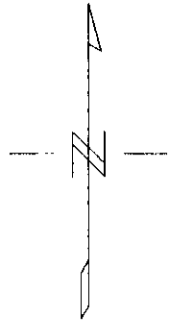
PELLEY MOUNTAIN PROPERTIES
ON GRID-L9100E

HORIZONTAL LOOP EM SURVEY: 1760 HZ.
100 metre coil spacing

Scale: as shown

Date: JULY 1997

Plate: 3



L 9100 E

9050N -

8950N -

8850N -

8750N -

8650N -

8550N -

8450N -

8350N -

8250N -

8150N -

8050N -



L 9100 E

VERTICAL SCALE:
1cm = 20%

OUT OF PHASE
IN PHASE _____

093893

Scale 1:5000



COMINCO EXPLORATION



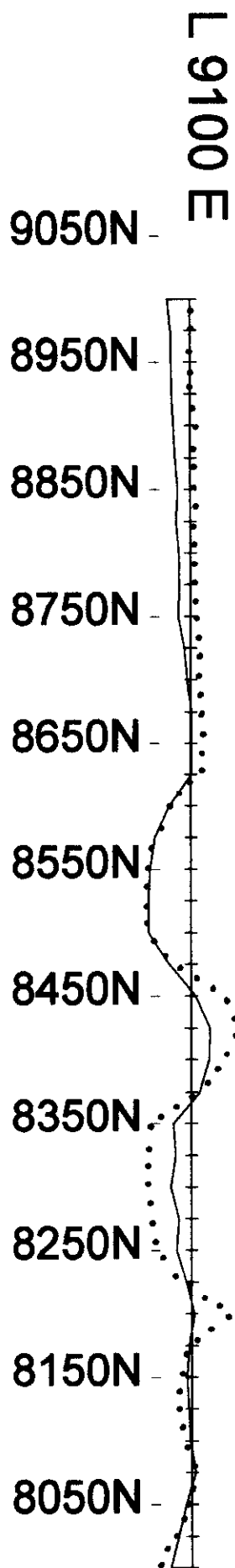
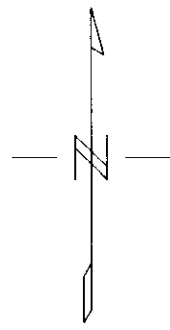
Drawn by:		Traced by:	
Revised by:	Date:	Revised by:	Date:

**PELLY MOUNTAIN PROPERTIES
ON GRID-L9100E
HORIZONTAL LOOP EM: 3520 HZ.
100 metre coil spacing**

Scale: as shown

Date: JULY 1997

Plate: 4

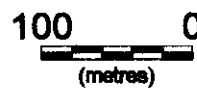


VERTICAL SCALE:
1cm = 20%

OUT OF PHASE
IN PHASE _____

Scale 1:5000

093893



COMINCO EXPLORATION



Drawn by:		Traced by:	
Revised by:	Date:	Revised by:	Date:

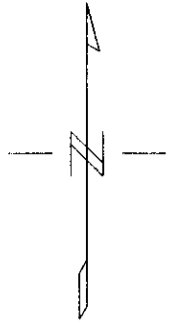
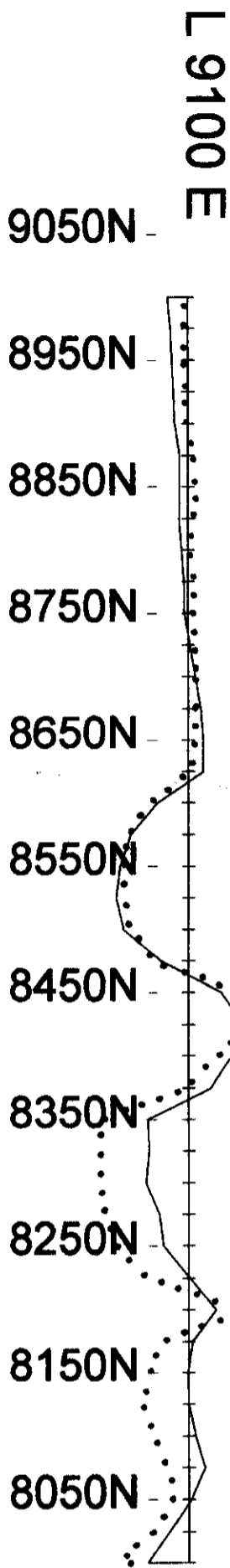
**PELLY MOUNTAIN PROPERTIES
ON GRID-L9100E
HORIZONTAL LOOP EM SURVEY: 1760 HZ.
150 metre coil spacing**

Scale: as shown

Date: JULY 1997

Plate:

5



L 9100 E

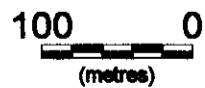
VERTICAL SCALE:
1cm = 20%



Scale 1:5000

OUT OF PHASE
IN PHASE _____

093893



COMINCO EXPLORATION



NTS 105G

Drawn by:	Traced by:
Revised by: Date:	Revised by: Date:

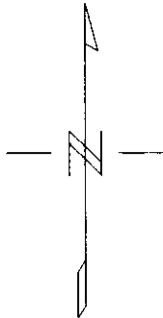
**PELLEY MOUNTAIN PROPERTIES
ON J GRID-L9100E
HORIZONTAL LOOP EM SURVEY: 3520 HZ.
150 metre coil spacing**

Scale: as shown

Date: JULY 1997

Plate: 6

L 9100 E



9050N

8950N

8850N

8750N

8650N

8550N

8450N

8350N

8250N

8150N

8050N

7950N

7850N

7750N

TOPOGRAPHY
GRAVITY

VERTICAL SCALE:
TOPO: 1cm=25 metres
GRAVITY: 1cm=0.25 mgals

L 9100 E

093893

Scale 1:5000

100 0
(metres)

COMINCO EXPLORATION



NTS
105G8

Drawn by:		Traced by:	
Revised by:	Date:	Revised by:	Date:

ON 1-20 GRID - L-9100E
BOUGUER GRAVITY SURVEY
(Density = 2.67 gm/cc)

Scale: as shown

Date: JULY 1997

Plate:

7