COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

N.T.S. 105 H2

INDUCED POLARIZATION AND MAGNETICS SURVEY

MTB CLAIMS

Highland River Area, Watson Lake, M.D.

Yukon Territory

Work performed: June 12-26, 1977

Location: 61° 8' N - 128° 40' W

Claims: MTB # 1 - 18

July 1977

A.R. Scott

PLATE NUMBERS

117-77-1		Location Plan at scale of 1:250,000	
117-77-2	*	Pseudo Section	line 0+00
117-77-3		"	1+005
117-77-4		"	2
117-77-5		"	3
117-77-6		"	4
117-77-7		"	5
117-77-8		"	5+50
117-77-9		"	6
117-77-10		"	7
117-77-11		"	8
117-77-12		"	9
117-77-13		"	10
117-77-14		"	11
117-77-15		Magnetic contour plan at scale of 1:2,500	
117-77-16		Apparent resistivity contour plan (n=3) at 1:2,500	
117-77-17		Chargeability contour plan (n=3) at 1:2,500	

* Pseudo sections indicate apparent resistivity and chargeability values for n= 1, 2, 3, and 4; and magnetic field strength profiles.

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INTRODUCTION AND SUMMARY

The MTB 1-18 mineral claims are located in the Hyland River area, Watson Lake Mining District of the Yukon Territory.

The claims are centered at 61° 8' N latitude by 128°40' W longitude, as indicated on the accompanying location plan, plate 117-77-1.

The claims were staked north to south between two small west flowing creaks and lie along the eastern side of the Dolly Varden Creek valley.

During the period June 12 - June 26, 1977, a Cominco geophysical crew under the direction of D.P. Olson, geophysicist, conducted an induced polarization/apparent resistivity and total field magnetics survey over a portion of the MTB claims.

The object of the survey was to attempt to define a geophysical target that could be the source of mineralized boulders found within the talus.

This report describes these geophysical surveys, discusses the results, and makes recommendations for further work on the property.

GEOLOGY

The Dolly Varden Creek area is underlain by carbonate and pellitic sediments of Upper Paleozoic age. In the MTB locale, the sediments form a north trending embayment, some four miles in width within a large mass of granites of mesozoic age.

GEOPHYSICAL SURVEYS

Magnetics

A Scintrex MP-2 total field proton precession magnetometer was used for the survey. Readings were taken at a 10 meter station interval along cross lines 50 meters apart. The raw data was corrected for diurnal variation by the standard base and

sub-base station looping method.

The data is presented in contour plan form on accompanying plate 117-77-15, and in profile form on the IP pseudo sections.

Induced polarization/apparent resistivity survey

A Scintrex IPR-8 receiver with a 2.5 kw motor generator/transmitter was used for the survey of the MTB claims.

The IPR-8 operates in the time domain, and various windows on the decay curve can be measured. On this survey the unit was operated in "mode 2" in which 3 windows (from 130-650 msec, 650-1170 msec, and 1170-1690 msec) are measured on cessation of the 2 second current pulse. The middle M_{232} window of 650-1170 msec is the value that has been plotted. Units are millivolts per volt and to convert to the more usual "Newmont" millisecond value, the numbers should be multiplied by 0.7 (for a "normal" type of decay curve).

The pole dipole electrode array was used on the survey with an "a" spacing of 25 meters at "n" values of 1, 2, 3 and 4. Station interval was 25 meters along cross lines 100 meter apart.

The chargeability and apparent resistivity n=3 values are presented in contour plan form as plates 117-77-16 and 117-77-17, and in pseudo section form as plates 117-77-2 to 117-77-14.

DESCRIPTION OF RESULTS

a) Magnetics survey

The magnetic field data is presented in contour plan form on accompanying plate 117-77-15. The values are also plotted on the IP pseudo sections in profile form.

Local magnetic highs within the survey area rise only some 300 gammas above local background, possibly due to either a small increase in magnetite content, or a moderate increase in some other weakly magnetic mineral. These highs are well defined and correlate well to chargeability highs.

b) Induced Polarization Survey

The induced polarization (chargeability) and apparent resistivity data are plotted in contour plan form for the n=3 separation values on accompanying plates 117-77-16 and 117-77-17.

The results for all separations are also presented in the standard pseudo section format.

Generally, the chargeability highs are not well defined by the n=1 (and often the n=2) values. This would indicate that the source material is overlain by an appreciable amount of non-polarizable material.

c) Correlation

There is very good positive correlation of the magnetic field strength to chargeability in the survey area, suggesting that some of the source material for the chargeability anomalies is weakly magnetic (the local magnetic anomalies are only some 300 gammas in amplitude). The very strong IP response suggests a source of several percent (by volume) of polarizable material. Apparent resistivity values associated with the chargeability highs are, in all cases, greater than 700 ohm meters.

As such, the geophysical results should be considered as encouraging and further evaluation is warranted.

The interpretation of the data is complicated by the fact that the chargeability response is "anomalous" over most of the survey area. Extending the survey to obtain a better understanding of the regional trends and background values should be considered.

However, four relatively isolated anomalies labelled A, B, C and D, are apparent in the data and are indicated on the accompanying chargeability plan, plate 117-77-17.

CONCLUSION AND RECOMMENDATIONS

The 1977 geophysical work on the MTB claims indicate that a large portion of the survey area is underlain by rocks containing several percent (by volume) of polarizable material. The chargeability anomalies correlate very well with moderate magnetic highs (up to some 300 gammas above local background), suggesting the source material is, in part, weakly magnetic. Apparent resistivities associated with these chargeability and magnetic highs are only relatively low.

As the anomalous area is very large and is open to the north west and south east, it is difficult to deduce whether these anomalies are the response to isolated features, or represent the response to more regional sedimentary features.

Diamond drilling and/or trenching to determine the source of these weakly magnetic, strong chargeability anomalies would appear to be warranted, subject to a review of available geological data.

If drilling is initiated and results are encouraging, the survey coverage should be extended to close off these anomalies.

Report by: _____

Alan Scott
Geophysicist

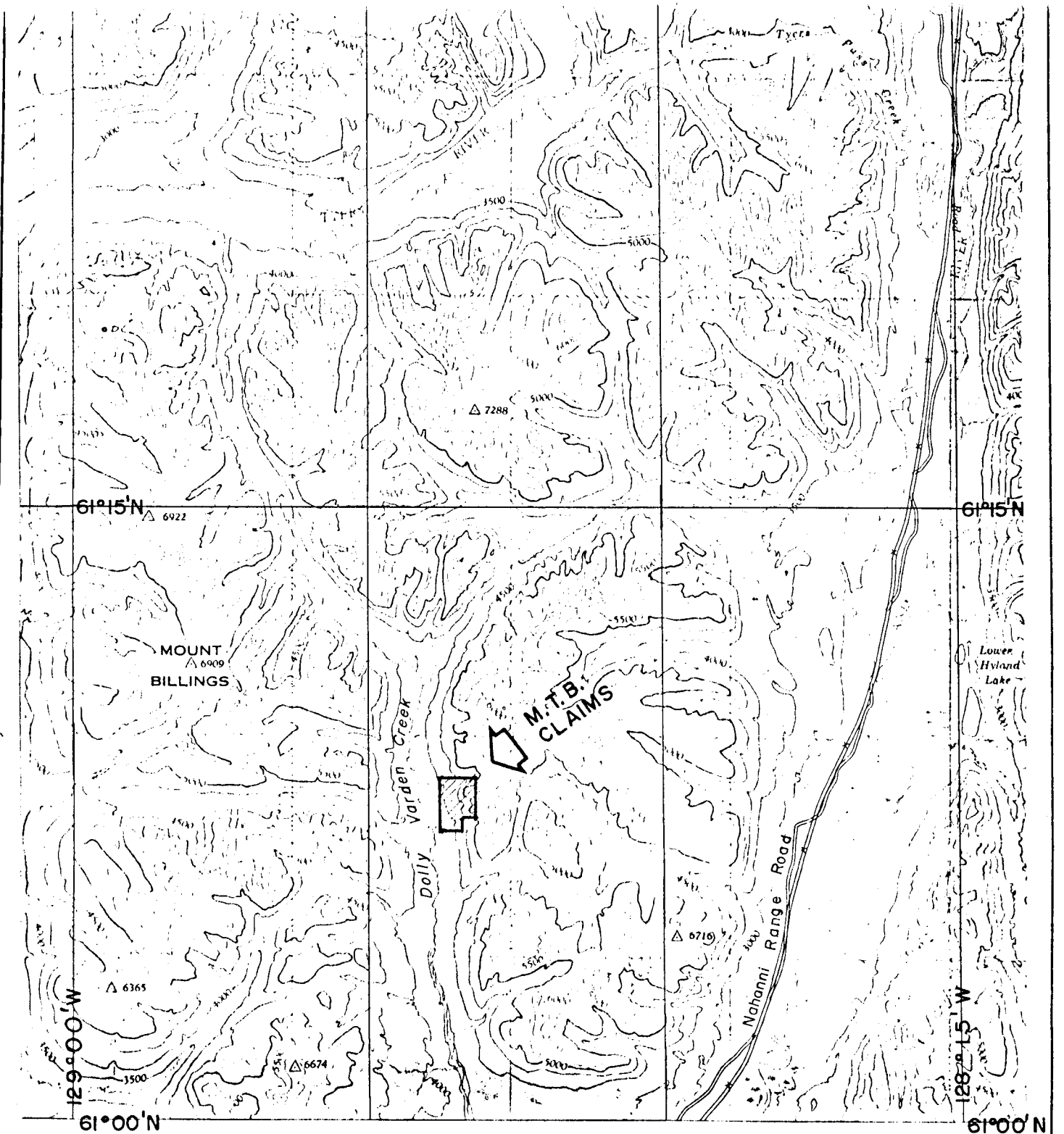
Endorsed for Release by: _____

G. Harden, Manager
Exploration Western
District

AS/mg

Distribution:

Mining Recorder (3)
W.D. Files (1)
Admin. Files (1)



Scale 1 : 250,000
1 Inch to 4 Miles Approximately

Kilometres 5 0 5 10

M.T.B. CLAIMS
WATSON LAKE M.D., YUKON

Dominion

N.T.S. 105 H2

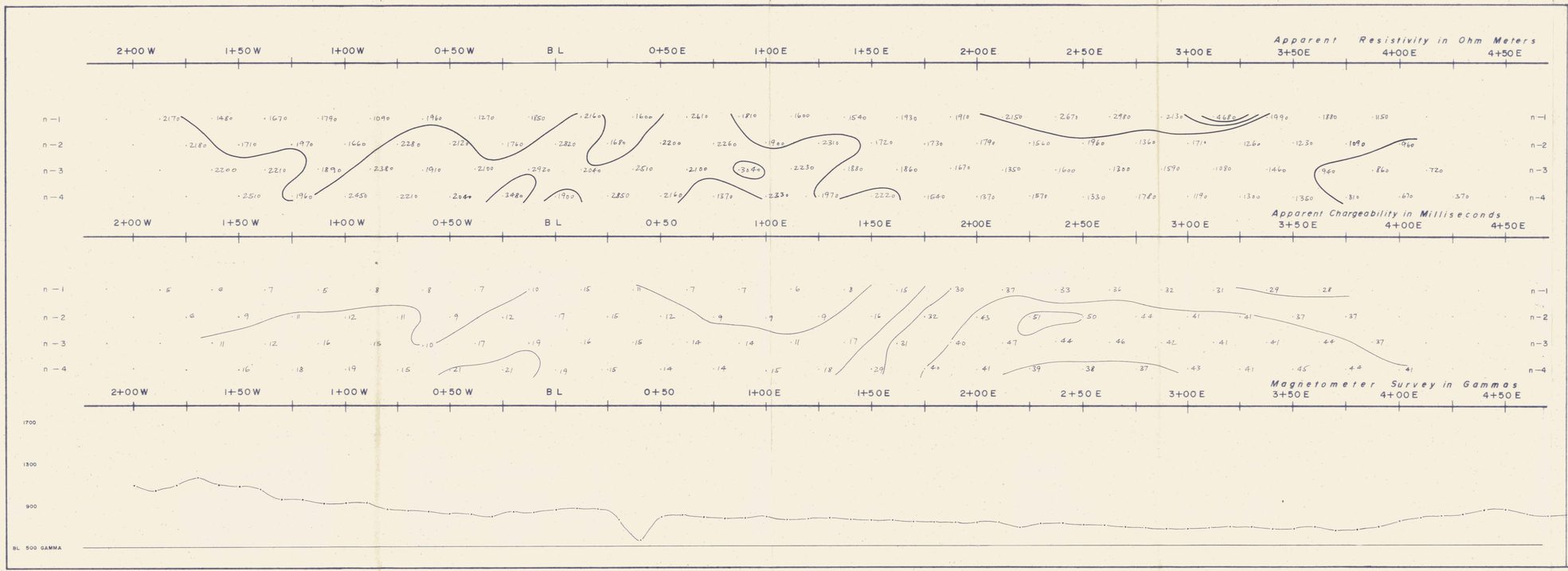
Drawn by:		Traced by:	
Revised by	Date	Revised by	Date

LOCATION MAP

Scale: 1 : 250,000

Date: JULY 1977

Plate 117-77-1



N.T.S. 105 H 2

PLATE 117-77-2

COMINCO LTD.

M. T. B. CLAIMS

WATSON LAKE M.D., YUKON

LINE NO. 0+00

POLE-DIPOLE
ELECTRODE CONFIGURATION

SURFACE PROJECTION OF ANOMALOUS ZONES

CONTOUR INTERVALS :
APP. RES. — 1000 ohm meters
APP. CHARGE — 10 milliseconds
MAGNETOMETER 1cm = 200 gammas

DATE SURVEYED JUNE 1977

APPROVED

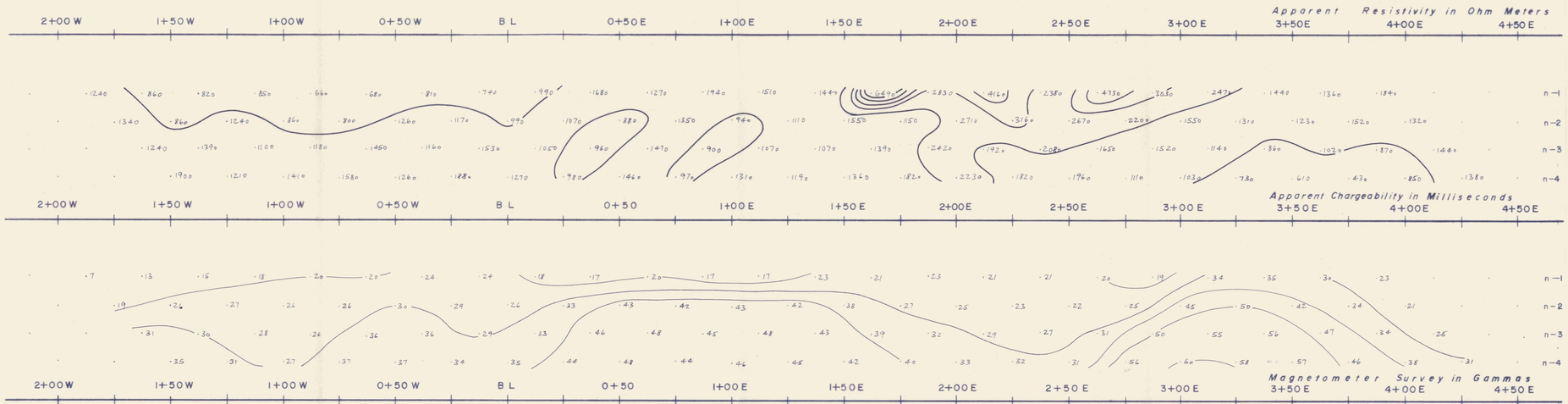
DATE

I.P. EQUIPMENT
TRANSMITTER 2.5 KW TIME DOMAIN
RECEIVER SCINTREX IPR-8

MAGNETOMETER EQUIPMENT
SCINTREX MP II PROTON PRECESSION MAGNETOMETER

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD., EXPLORATION DIVISION

LINE 0+00



N.T.S. 105 H 2

PLATE 117-77-3

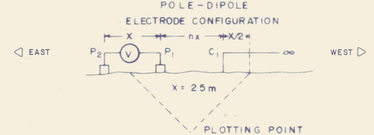
COMINCO LTD.

M.T.B. CLAIMS

WATSON LAKE M.D., YUKON

LINE NO. 1+00 S

POLE-DIPOLE ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

CONTOUR INTERVALS:
APP. RES. — 1000 ohm meters
APP. CHARGE — 10 milliseconds
MAGNETOMETER 1cm = 200 gammas

DATE SURVEYED JUNE 1977

APPROVED

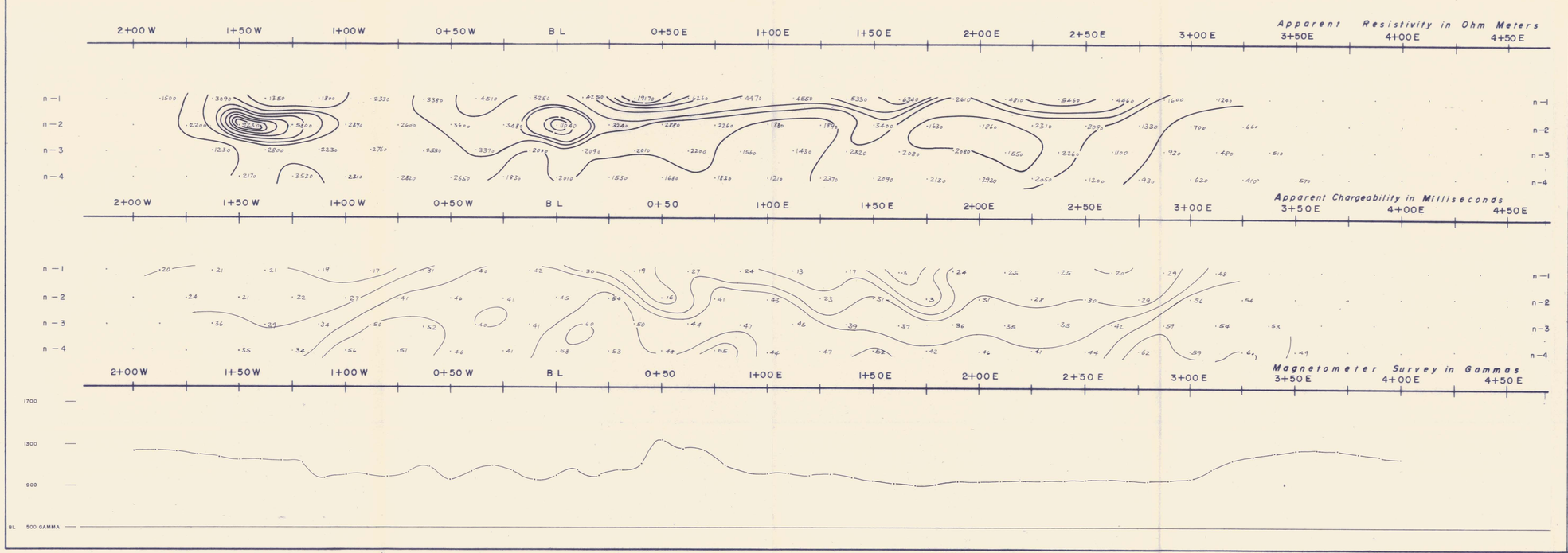
DATE

I.P. EQUIPMENT
TRANSMITTER - 2.5 KW TIME DOMAIN
RECEIVER SCINTREX IPR-8

MAGNETOMETER EQUIPMENT
SCINTREX MP II PROTON PRECESSION MAGNETOMETER

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD., EXPLORATION DIVISION

LINE 1+00 S



N.T.S. 105 H 2

PLATE 117-77-4

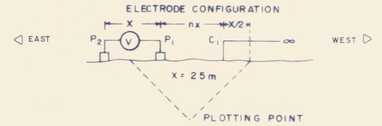
COMINCO LTD.

M.T.B. CLAIMS

WATSON LAKE M.D., YUKON

LINE NO. 2+00 S

POLE-DIPOLE ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

CONTOUR INTERVALS :
APP. RES. - 1000 ohm meters
APP. CHARGE — 10 milliseconds
MAGNETOMETER 1cm = 200 gammas

DATE SURVEYED JUNE 1977

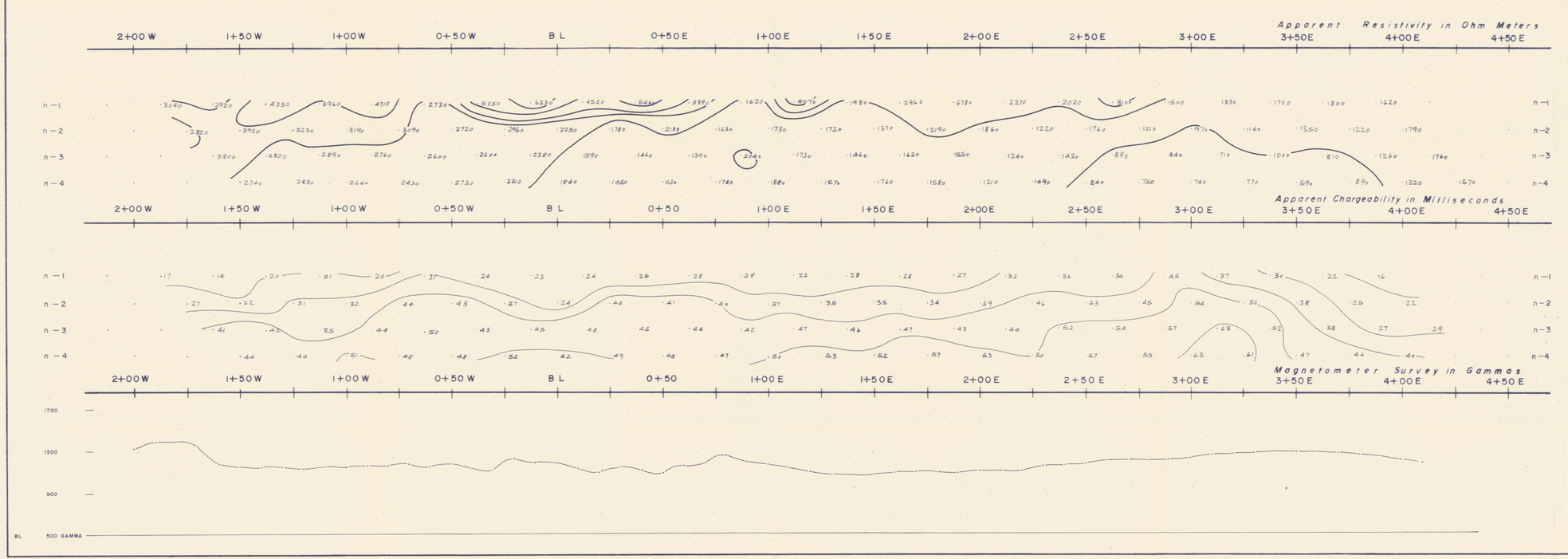
APPROVED

DATE

I.P. EQUIPMENT
TRANSMITTER 2.5 KW TIME DOMAIN
RECEIVER SCINTREX IPR-8
MAGNETOMETER EQUIPMENT
SCINTREX MP II PROTON PRECESSION MAGNETOMETER

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD., EXPLORATION DIVISION

LINE 2+00 S



N.T.S. 105 H 2 PLATE 117-77-5

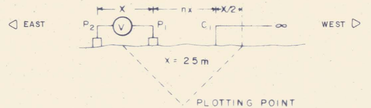
COMINCO LTD.

M.T.B. CLAIMS

WATSON LAKE M.D., YUKON

LINE NO. 3+00 S

POLE-DIPOLE
ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

CONTOUR INTERVALS :
APP. RES. — 1000 ohm meters
APP. CHARGE — 10 milliseconds
MAGNETOMETER 1cm = 200 gammas

DATE SURVEYED JUNE 1977

APPROVED

DATE

I.P. EQUIPMENT
TRANSMITTER 2.5 KW TIME DOMAIN
RECEIVER SCINTREX IPR-8

MAGNETOMETER EQUIPMENT
SCINTREX M.P.II PROTON PRECESSION MAGNETOMETER

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD., EXPLORATION DIVISION

LINE 3+00 S

N.T.S. 105 H 2

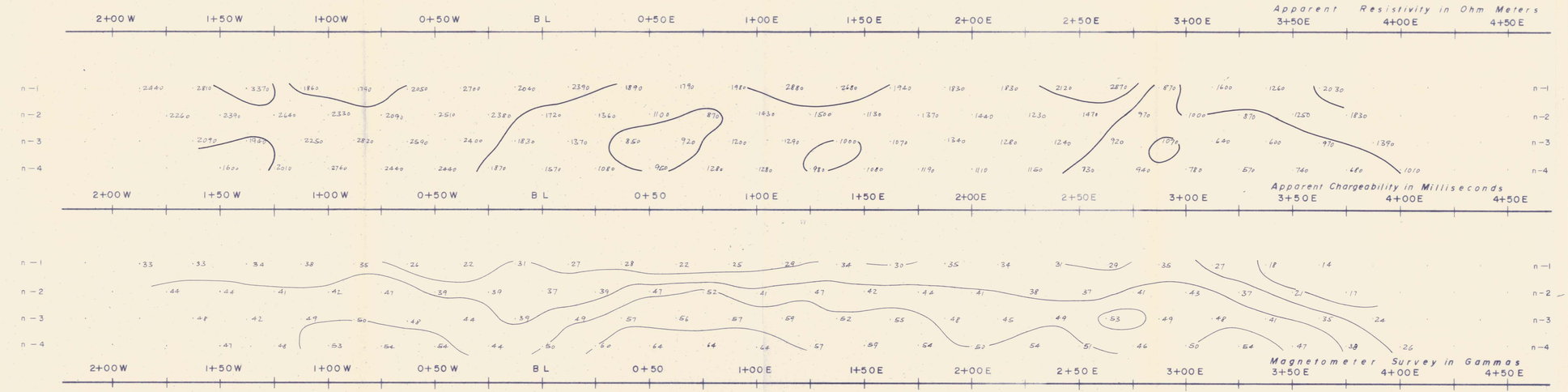
PLATE 117-77-6

COMINCO LTD.

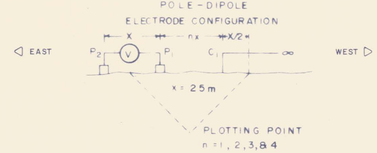
M.T.B. CLAIMS

WATSON LAKE M.D., YUKON

LINE NO. 4+00 S



POLE-DIPOLE ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

CONTOUR INTERVALS:
APP. RES. — 1000 ohm meters
APP. CHARGE — 10 milliseconds
MAGNETOMETER 1cm = 200 gammas

DATE SURVEYED JUNE 1977

APPROVED

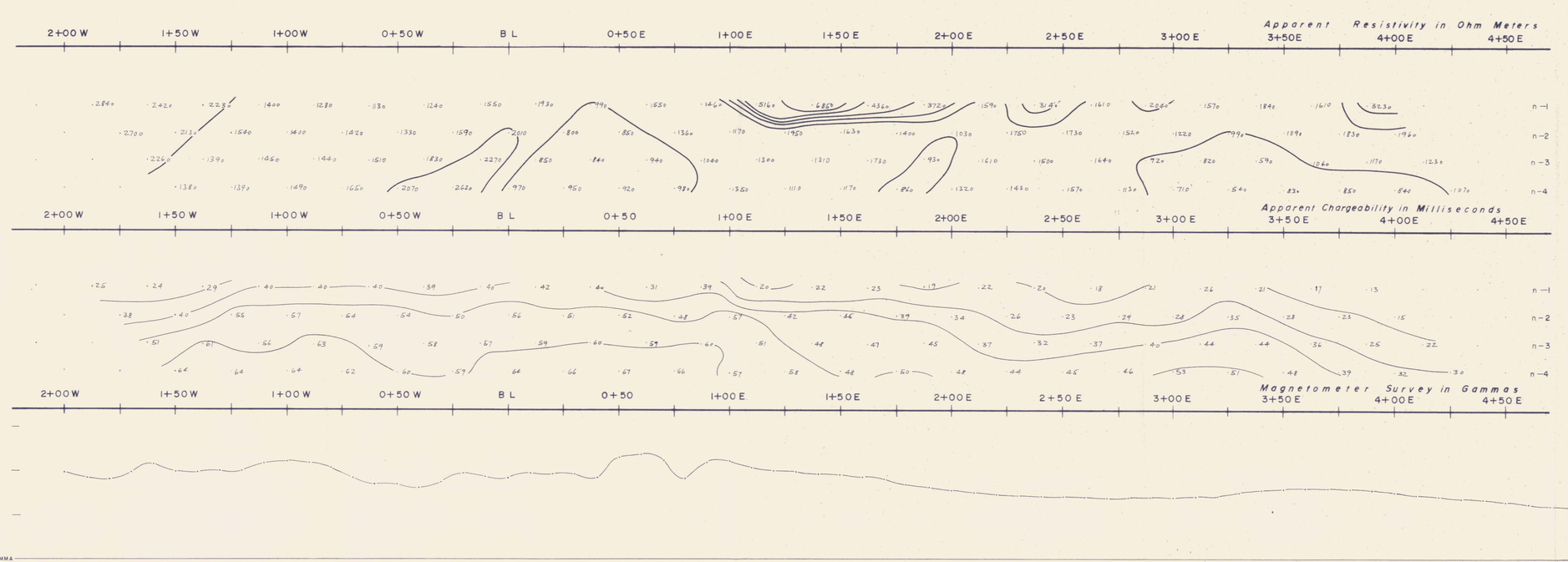
DATE

I.P. EQUIPMENT
TRANSMITTER 2.5 KW TIME DOMAIN
RECEIVER SCINTREX IPR-8

MAGNETOMETER EQUIPMENT
SCINTREX M.P.II. PROTON PRECESSION MAGNETOMETER

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD., EXPLORATION DIVISION

LINE 4+00 S



N.T.S. 105 H 2

PLATE 117-77-7

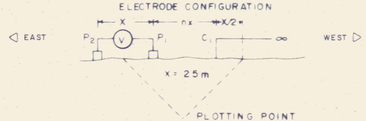
COMINCO LTD.

M. T. B. CLAIMS

WATSON LAKE M.D., YUKON

LINE NO. 5+00 S

POLE – DIPOLE
ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

CONTOUR INTERVALS :
APP. RES. – 1000 ohm meters
APP. CHARGE – 10 milliseconds
MAGNETOMETER 1cm = 200 gammas

DATE SURVEYED JUNE 1977

APPROVED

DATE

I.P. EQUIPMENT
TRANSMITTER 2.5 KW TIME DOMAIN
RECEIVER SCINTREX IPR-8

MAGNETOMETER EQUIPMENT
SCINTREX M.P.II. PROTON PRECESSION MAGNETOMETER

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD., EXPLORATION DIVISION

LINE 5+00 S

N.T.S. 105 H 2

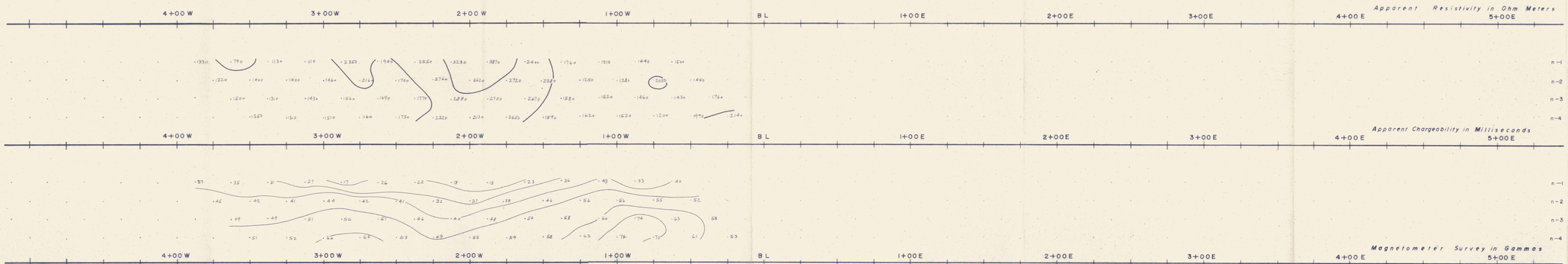
PLATE 117-77-8

COMINCO LTD.

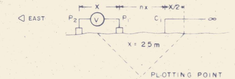
M. T. B. CLAIMS

WATSON LAKE M.D., YUKON

LINE NO. 5+50 S



POLE-DIPOLE ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

CONTOUR INTERVALS :
APP. RES. — 100 ohm meters
APP. CHARGE — 10 milliseconds
MAGNETOMETER 1cm = 200 gammas

DATE SURVEYED JUNE 1977

APPROVED

DATE

I.P. EQUIPMENT
TRANSMITTER 2.5 KW TIME DOMAIN
RECEIVER SCINTREX IPR-8

MAGNETOMETER EQUIPMENT
SCINTREX MP II PROTON PRECESSION MAGNETOMETER

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD., EXPLORATION DIVISION

LINE 5+50 S

N.T.S. 105 H 2

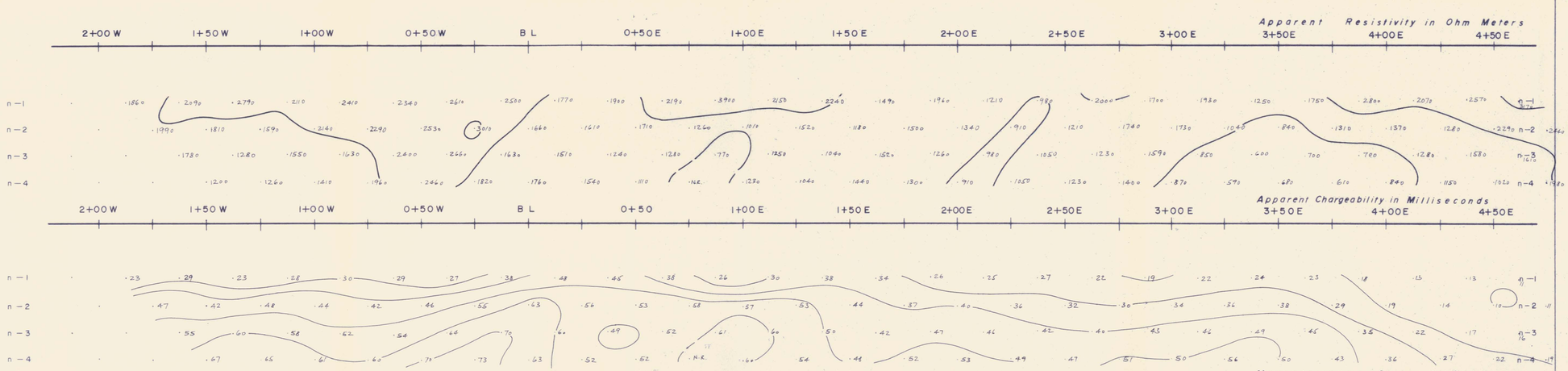
PLATE 117-77-9

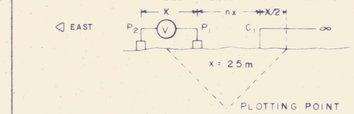
COMINCO LTD.

M. T. B. CLAIMS

WATSON LAKE M.D., YUKON

LINE NO. 6+00 S





SURFACE PROJECTION OF ANOMALOUS ZONES

CONTOUR INTERVALS:
APP. RES. — 1000 ohm meters
APP. CHARGE — 10 milliseconds
MAGNETOMETER 1cm = 200 gammas

DATE SURVEYED JUNE 1977

APPROVED

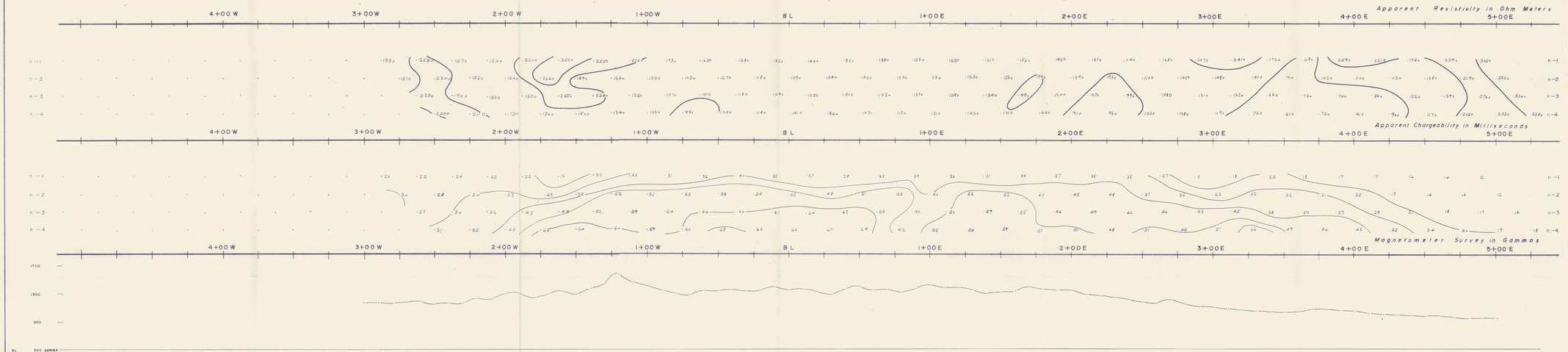
DATE

I.P. EQUIPMENT
TRANSMITTER 2.5 KW TIME DOMAIN
RECEIVER SCINTREX IPR-8

MAGNETOMETER EQUIPMENT
SCINTREX MP II PROTON PRECESSION MAGNETOMETER

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD., EXPLORATION DIVISION

LINE 6+00 S



N.T.S. 105 H 2

PLATE 117-77-10

COMINCO LTD.

M. T. B. CLAIMS

WATSON LAKE M.D., YUKON

LINE NO. 7+00 S

POLE-DIPOLE ELECTRODE CONFIGURATION

PLOTTING POINT
n = 1, 2, 3, & 4

SURFACE PROJECTION OF ANOMALOUS ZONES

CONTOUR INTERVALS:
APP. RES. — 1000 ohm meters
APP. CHARGE — 10 milliseconds
MAGNETOMETER 1cm = 200 gammas

DATE SURVEYED JUNE 1977

APPROVED

DATE

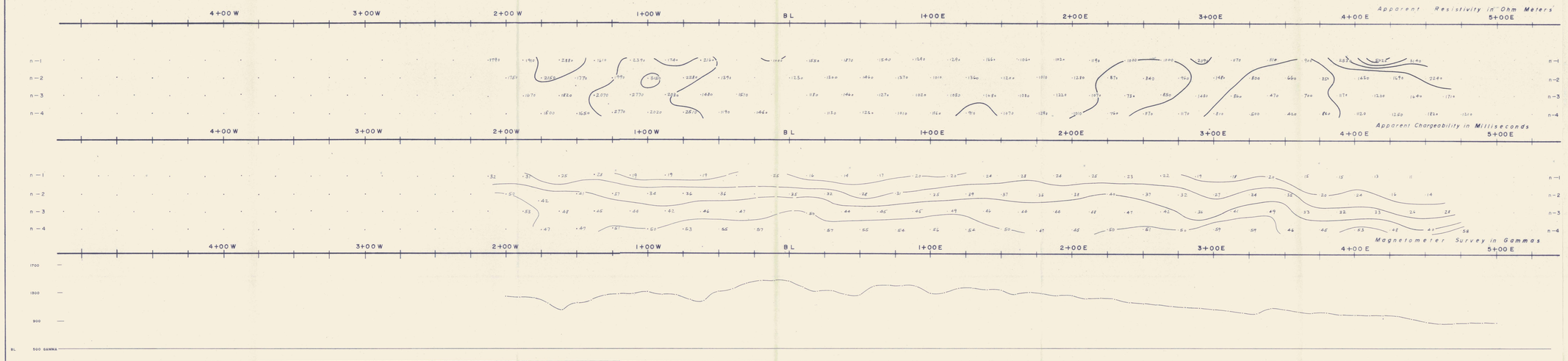
I.P. EQUIPMENT
TRANSMITTER 2.5 KW TIME DOMAIN
RECEIVER SCINTREX IPR-8

MAGNETOMETER EQUIPMENT
SCINTREX MP II PROTON PRECESSION MAGNETOMETER

INDUCED POLARIZATION AND RESISTIVITY SURVEY

SURVEYED BY COMINCO LTD., EXPLORATION DIVISION

LINE 7+00 S



N.T.S. 105 H 2

PLATE 117-77-11

COMINCO LTD.

M. T. B. CLAIMS

WATSON LAKE M.D., YUKON

LINE NO. 8+00 S

POLE-DIPOLE ELECTRODE CONFIGURATION

SURFACE PROJECTION OF ANOMALOUS ZONES

CONTOUR INTERVALS :
APP. RES. — 1000 ohm meters
APP. CHARGE — 10 milliseconds
MAGNETOMETER 1cm = 200 gammas

DATE SURVEYED JUNE 1977

APPROVED

DATE

I.P. EQUIPMENT
TRANSMITTER 2.5 kW TIME DOMAIN
RECEIVER SCINTREX IPR-8

MAGNETOMETER EQUIPMENT
SCINTREX MP II PROTON PRECESSION MAGNETOMETER

INDUCED POLARIZATION AND RESISTIVITY SURVEY

SURVEYED BY COMINCO LTD., EXPLORATION DIVISION

8+00 S
LINE

N.T.S. 105 H 2

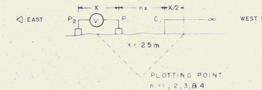
PLATE 117-77-12

COMINCO LTD.

M. T. B. CLAIMS

WATSON LAKE M.D., YUKON

LINE NO 9+00 S



SURFACE PROJECTION OF ANOMALOUS ZONES

CONTOUR INTERVALS:
APP. RES. — 1000 ohm meters
APP. CHARGE — 10 milliseconds
MAGNETOMETER 1cm = 200 gammas

DATE SURVEYED: JUNE 1977

APPROVED

DATE

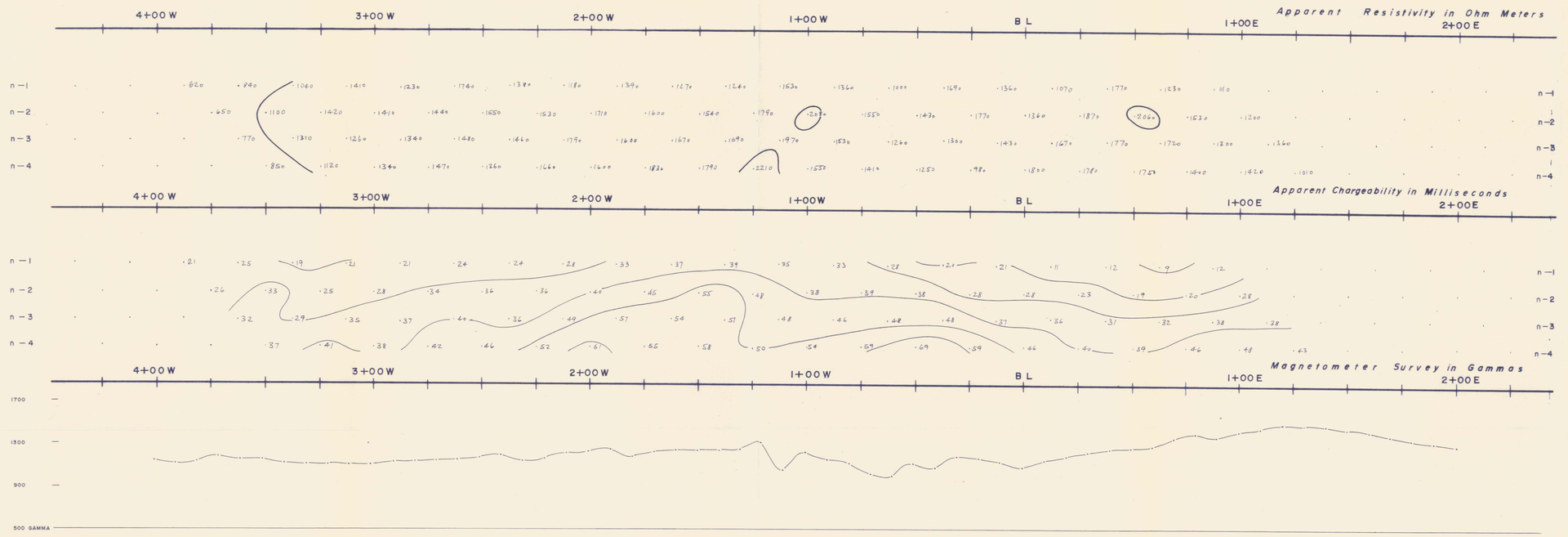
I.P. EQUIPMENT
TRANSMITTER 2.5 KW TIME DOMAIN
RECEIVER SCINTREX IPR-8

MAGNETOMETER EQUIPMENT
SCINTREX MP II PROTON PRECESSION MAGNETOMETER

INDUCED POLARIZATION AND RESISTIVITY SURVEY

SURVEYED BY COMINCO LTD., EXPLORATION DIVISION

LINE 9+00 S



N.T.S. 105 H 2

PLATE 117-77-13

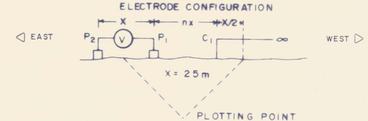
COMINCO LTD.

M. T. B. CLAIMS

WATSON LAKE M.D., YUKON

LINE NO. 10+00 S

POLE-DIPOLE ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

CONTOUR INTERVALS :
APP. RES. — 1000 ohm meters
APP. CHARGE — 10 milliseconds
MAGNETOMETER 1cm = 200 gammas

DATE SURVEYED JUNE 1977

APPROVED

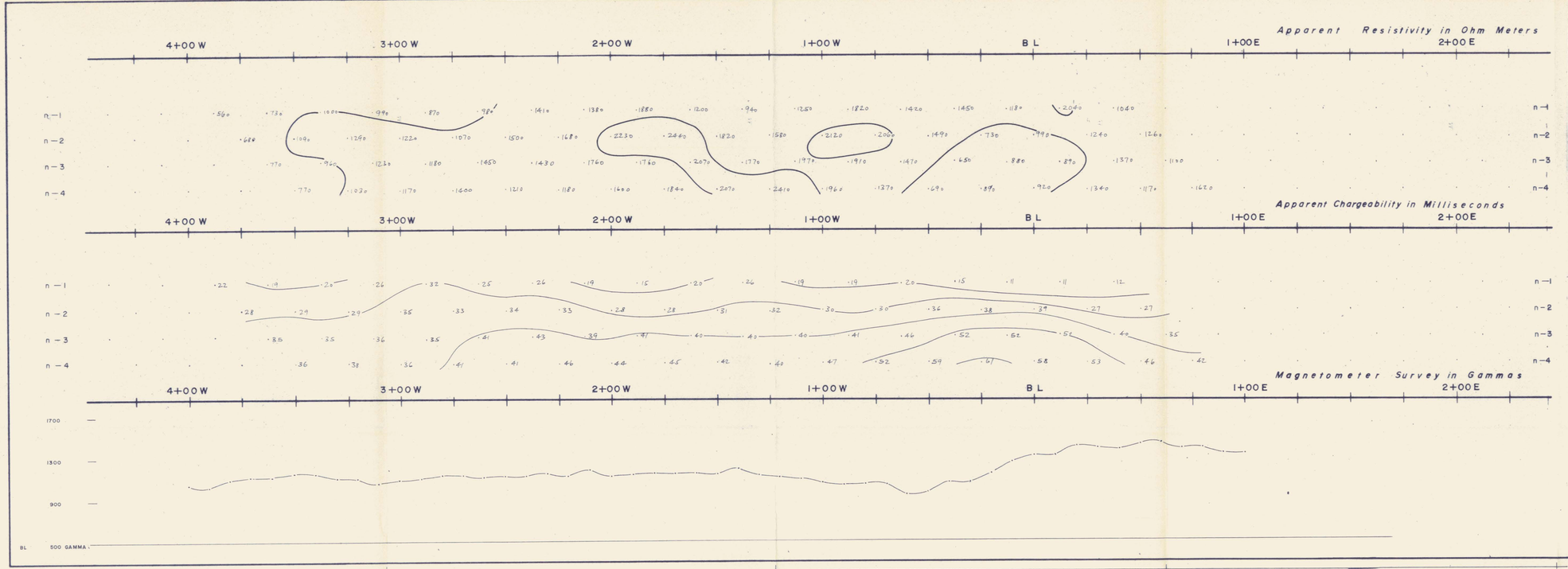
DATE

I. P. EQUIPMENT
TRANSMITTER 2.5 KW TIME DOMAIN
RECEIVER SCINTREX IPR-8

MAGNETOMETER EQUIPMENT
SCINTREX MP II PROTON PRECESSION MAGNETOMETER

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD., EXPLORATION DIVISION

LINE 10+00 S



N.T.S. 105 H 2

PLATE 117-77-14

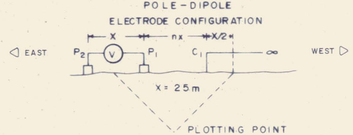
COMINCO LTD.

M. T. B. CLAIMS

WATSON LAKE M.D., YUKON

LINE NO. 11+00 S

POLE-DIPOLE
ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

CONTOUR INTERVALS :
APP. RES. — 1000 ohm meters
APP. CHARGE — 10 milliseconds
MAGNETOMETER 1cm = 200 gammas

DATE SURVEYED JUNE 1977

APPROVED

DATE

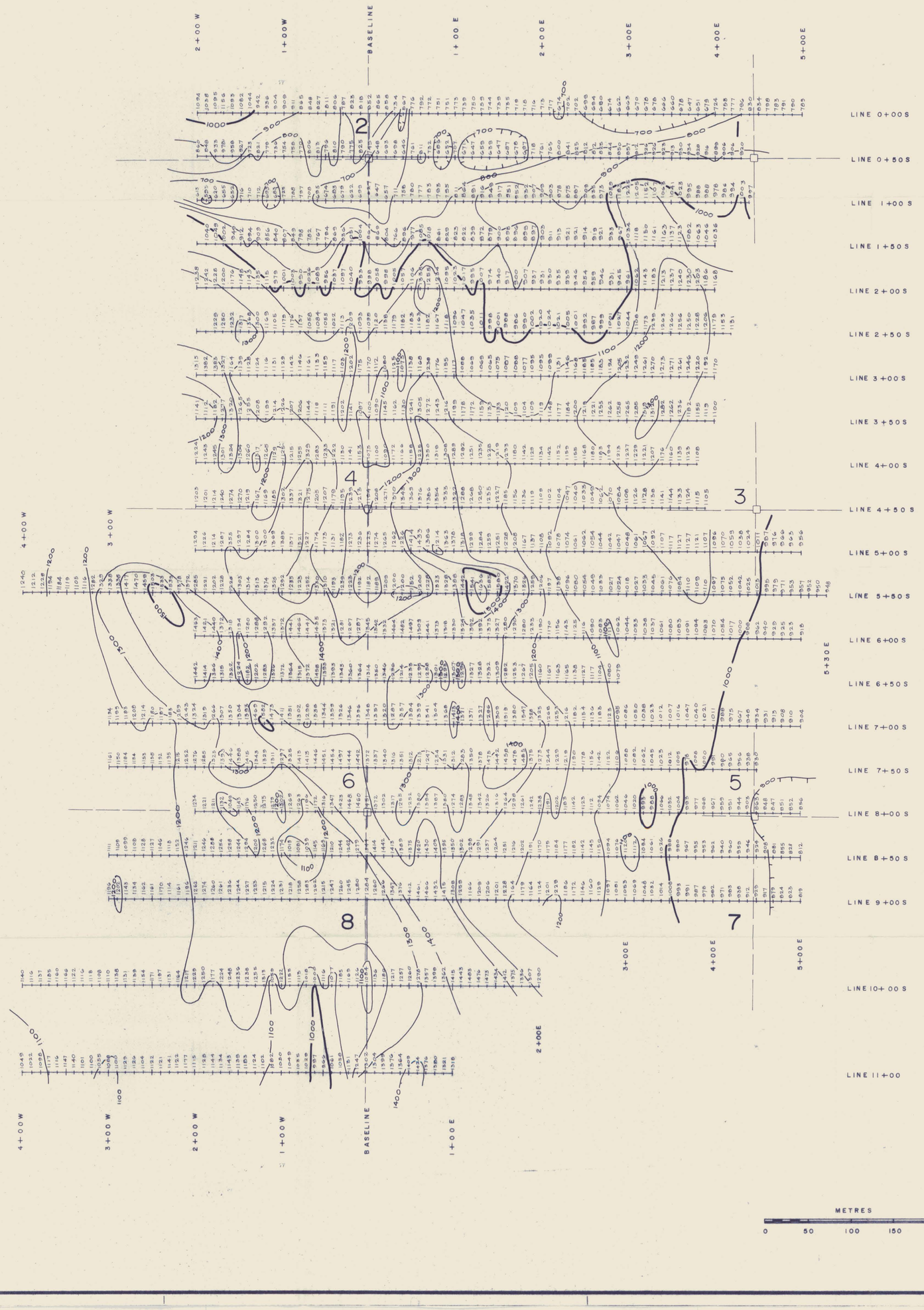
I.P. EQUIPMENT
TRANSMITTER 2.5 KW TIME DOMAIN
RECEIVER SCINTREX IPR-8

MAGNETOMETER EQUIPMENT
SCINTREX MP II PROTON PRECESSION MAGNETOMETER

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD., EXPLORATION DIVISION

LINE 11+00 S

31° 00'
MAGNETIC



CONTOUR INTERVAL

100 GAMMAS

500 GAMMAS

INSTRUMENT — SCINTREX MP III PROTON PRECESSION MAGNETOMETER (TOTAL FIELD MEASUREMENT)

BASELEVEL 58,000 GAMMAS

CLAIMPOST INDICATED AND BOUNDRYLINE (APPROX. LOCATION)

METRES

0 50 100 150 200

TO ACCOMPANY A REPORT BY J. KLEIN P. ENG

M.T.B. CLAIMS
WATSON LAKE M.D., YUKON

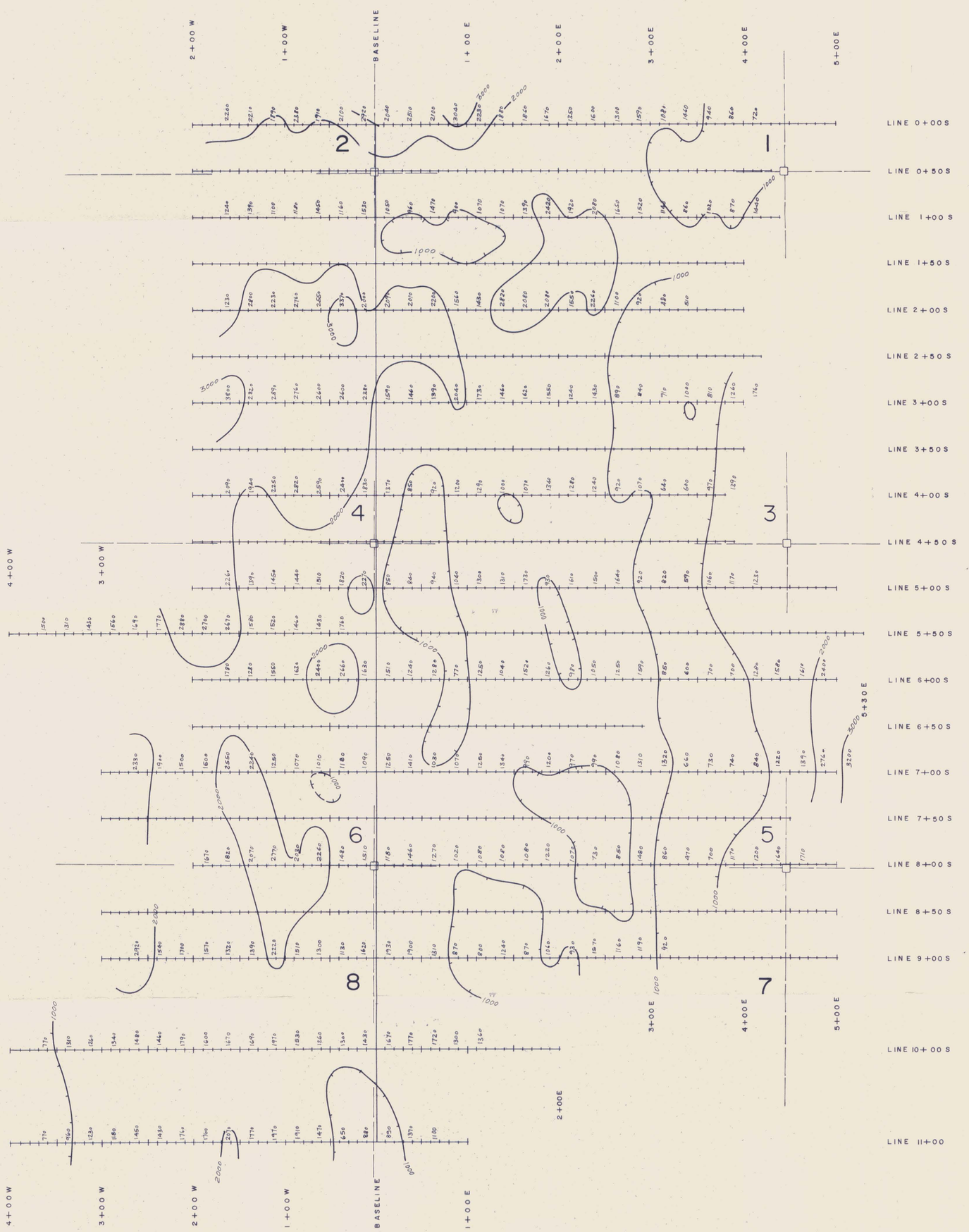
N.T.S. 105 H 2

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

MAGNETOMETER SURVEY

Scale: 1:2,500 Date: JULY 1976 Plate: 117-77-15

3+00 MAGNETIC



LEGEND

INSTRUMENT :
SCINTREX RECEIVER IPR-8
SCINTREX TRANSMITTER IPC-7
2.5 kw TIME DOMAIN

CONDUCTORS
NO INDICATED WIDTH
WIDTH INDICATED
LOCATION UNCERTAIN
POSSIBLE CONDUCTOR

CONDUCTIVITY(mhos)/DEPTH(meters) 25 / 15

CLAIM POSTS — INDICATED
INFERRED
CLAIM BOUNDARY
(APPROXIMATE LOCATION)

MARSHY AREA
LAKE
(APPROXIMATE SIZE AND LOCATION)
RIVER — CREEK

1976 GEOPHYSICS GRID

METRES
0 50 100 150 200

TO ACCOMPANY A REPORT BY J. KLEIN P. ENG

M. T. B. CLAIMS
WATSON LAKE M.D., YUKON

N.T.S. 105 H 2

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

RESISTIVITY CONTOUR
n = 3

Scale: 1:2,500 | Date: JULY 1976 | Plate: 117-77-16

FORM 210-0660

LEGEND

INSTRUMENT :
SCINTREX RECEIVER IPR-8
SCINTREX TRANSMITTER IPC-7
2.5 kw TIME DOMAIN

CONDUCTORS
NO INDICATED WIDTH
WIDTH INDICATED
LOCATION UNCERTAIN
POSSIBLE CONDUCTOR

CONDUCTIVITY(mhos)/DEPTH(meters) 25/15

CLAIM POSTS — INDICATED
INFERRED
CLAIM BOUNDARY
(APPROXIMATE LOCATION)

MARSHY AREA
LAKE
(APPROXIMATE SIZE AND LOCATION)
RIVER CREEK

1976 GEOPHYSICS GRID

METRES
0 50 100 150 200

TO ACCOMPANY A REPORT BY J. KLEIN P. ENG

M.T.B. CLAIMS
WATSON LAKE M.D., YUKON

N.T.S. 105 H 2

Drawn by:	Traced by:	
Revised by / Date	Revised by / Date	CHARGEABILITY CONTOUR n = 3
		Scale: 1:2,500
		Date: JULY 1976
		Plate: 117-77-17

FORM 210-0680