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FILE NO:	PACIFIC GEOPHYSICAL LTD	APR 6 1902
	REPORT ON THE	M.R. # \$ VANCOUVER, B.C.

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# INDUCED POLARIZATION, RESISTIVITY AND MAGNETIC SURVEYS

ON THE

#### WANN PROJECT

# NANAIMO MINING DIVISION, BRITISH COLUMBIA

FOR

DAIWAN ENGINEERING LTD.

LATITUDE: 50° 37' N LONGITUDE: 127° 40' W

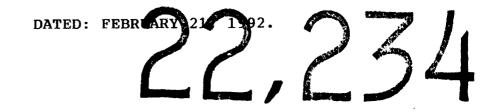
N.T.S. 92L/12

BY

Michael J. Cormier, B.Sc. Geophysicist

 $\mathbf{and}$ 

Paul A. Cartwright, P.Geoph. Geophysicast OGICAL BRANCH ASSESSMENT REPORT



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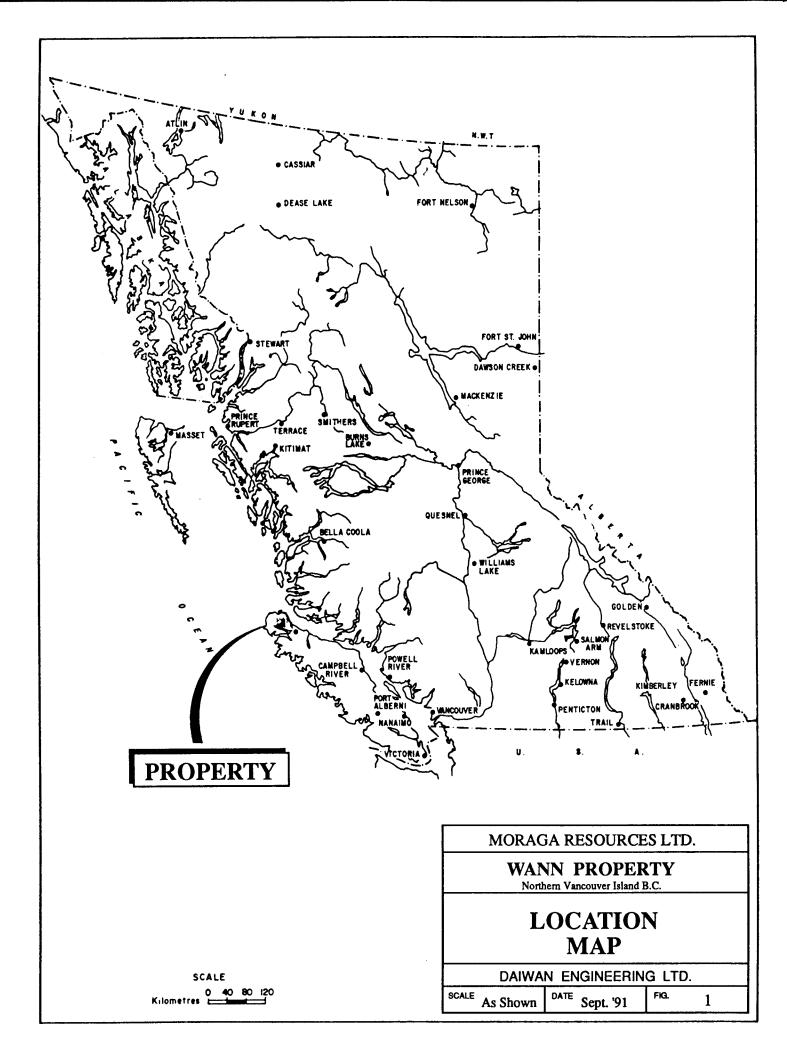
# PART B ILLUSTRATIONS

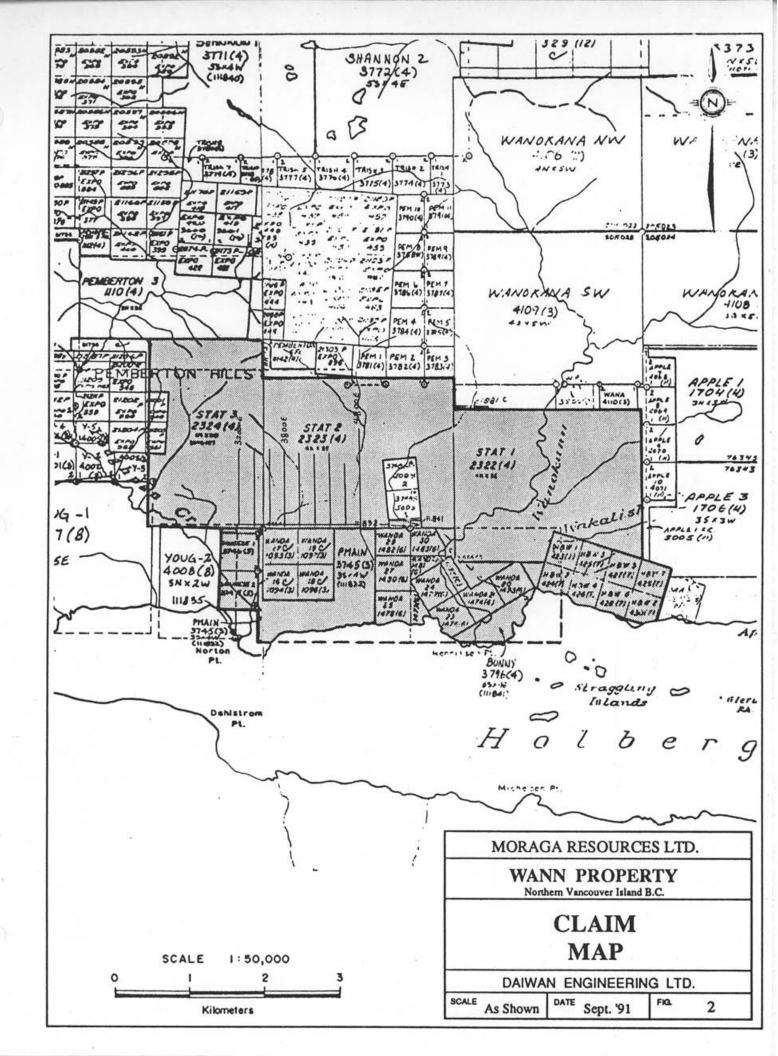
Location Map	Fig. 1
Claim Map	Fig. 2
IP Pseudosections	9 Sections
Contoured IP with Interpretation	PLAN MWIP
Contoured Resistivity	PLAN MWRES
Contoured Magnetics	PLAN MWMAG

#### SUMMARY

Induced Polarization, resistivity and magnetic surveys have been carried out on the Wann Project by Pacific Geophysical Ltd. on behalf of Daiwan Engineering Ltd. during the period January 14,1992, and January 18, 1992 to January 21, 1992.

Interpretation of the survey has led to the identification of four separate zones of anomalous IP response, felt to be attributable to the presence of sulphide mineralization. Further survey work, as well as drilling, has been recommended in order to more completely outline the sources responsible for the zones.





#### 1. INTRODUCTION

Induced Polarization (IP), resistivity and total field magnetic surveys have been carried out on the Wann Project at the request of Daiwan Engineering Ltd. by Pacific Geophysical Limited. The property, located approximately 25 km southwest of Port Hardy, on northern Vancouver Island, was accessed by road.

Field work was carried out during the period January 14, 1992, and January 18, 1992 to January 21, 1992 under the direction of Michael J. Cormier, geophysicist. A total of 10.5 line-kilometers of IP / resistivity and total field magnetic data was acquired.

#### 2. DESCRIPTION OF CLAIMS

claims, all of	which are lo	cated in the	Nanaimo Mining Division
Name	Record No.	Units	Expiry Date
Stat 1	2322	20	Apr. 14, 1996
Stat 2	2323	20	Apr. 14, 1996
Stat 3	2324	15	Apr. 14, 1996
H&W 1-8	423-430	8	July 19, 1996
Bunny	3796	12	Apr. 17, 1996
P. Main	3745	12	Mar. 15, 1996
Squeeze 1	3746	1	Mar. 15, 1996
Squeeze 2	3747	1	Mar. 15, 1996

The Wann Project is comprised of the following contiguous claims, all of which are located in the Nanaimo Mining Division.

The claims listed above are owned by M. Pearson, with the exception of the H&W 1-3 claims which are owned by R. McBean. All

of the claims are presently held under an option agreement by Moraga Resources Limited.

## 3. DESCRIPTION OF GEOLOGY

The following description of geology has been taken from the "REPORT ON THE WANN PROPERTY, NORTHERN VANCOUVER ISLAND, BRITISH COLUMBIA" by Peter G. Dasler of Daiwan Engineering Ltd., dated September 20, 1991.

"The property is underlain by Bonanza Series volcanics, intruded by stocks of quartz monzonite or granite (inferred from the geophysical information and mapping in the Wanokana drainage), and bounded on the southwest side by a major zone of hot spring(?) silica deposits with associated bedded pyritic horizons, and remobilized pyrite in veins.

A large portion of the central part of the property is low lying, or covered by significant overburden. There are large alteration zones: silica and pyrite replacement in the volcanics, and clay alteration alongside highly silicified zones in volcanics in the intrusive to the north, and in Wanokana Creek Canyon. The rock alteration is typical of zonation (phyllic) within a porphyry copper system, with further imprints of late epithermal remobilization."

## 4. INSTRUMENT SPECIFICATIONS

The IP / resistivity measurements were made using an EDA Model IP-6 six channel time domain receiver set to "mode 3" whereby a delay time (TD = 80 milliseconds) is followed by 10 measurement windows (td = 80,80,80,80,160,160,160,360,360 and 360 milliseconds)

yielding a total integration time of 1880 milliseconds. In order to allow ease of comparison with IP data collected east of the present survey grid, windows 3 through 7 have been used for plotting purposes. This integration area more closely matches that used by the instrument utilized to acquire the eastern data. The signal used to make the measurements was provided by a Phoenix Model IPT-1 transmitter producing a 2 second on / 2 second off square wave of alternating polarities. The transmitter was powered by a 2 kilowatt motor generator set. IP effects were recorded as chargeability in milliseconds while apparent resistivity values were normalized in units of ohm - meters.

EDA Model PPM-375 magnetometers were employed to collect the total field magnetic data along the grid lines as well as to monitor the magnetic field at the base station. At the end of each day, the recorded base station data were combined with the field readings to correct for diurnal variations in the earth's magnetic field.

## 5. SURVEY SPECIFICATIONS

The IP / resistivity was carried out using the pole - dipole array with an interelectrode spacing of 75 meters. The moving current electrode was to the south of the potential electrode pair. Measurements were made at stations along grid lines spaced 200 meters apart, recording four dipole separations in each case.

Total field magnetic readings were made at 25 meter intervals along the same grid lines referred to above.

## 6. DATA PRESENTATION

The induced polarization and resistivity results are shown on the following data plots in pseudosection format:

Line	<u>Electrode Interval</u>	Reading Interval	<u>Total Coverage</u>
3200E	75 meters	5000N - 6125N	1125 meters
3400E	75 meters	5000N - 6125N	1125 meters
3600E	75 meters	5000N - 6125N	1125 meters
3 <b>80</b> 0E	75 meters	5000N - 6125N	1125 meters
4000E	75 meters	5000N - 6050N	1050 meters
4200E	75 meters	5000N - 5900N	900 meters
4400E	75 meters	5000N - 6050N	1050 meters
4600E	75 meters	5000N - 59 <b>7</b> 5N	975 meters
4800E	75 meters	4375N - 6400N	2025 meters

Also included with this report is a contoured, posted, 1:5000 scale plan map (PLAN: MWIP) of the 10-point Fraser-filtered chargeability values which includes the IP interpretation. The Fraser filter value is arrived at by calculating an average value for each dipole separation using one n=1 value, two n=2 values, three n=3 values and four n=4 values. These results are then further averaged to yield one number which can be contoured in plan view. The strong, moderate and weak IP anomalies are indicated by bars in the manner shown on the plan map legend as well as on the pseudosections. These bars represent the surface projection of the

anomalous zones interpreted from the transmitting and receiving electrode locations when the anomalous values were measured. The contoured, posted Fraser filtered resistivity data are illustrated on the 1:5000 scale plan map labelled PLAN: MWRES.

Magnetic survey results are posted and contoured on the 1:5000 scale plan map labelled PLAN: MWMAG.

#### 7. DISCUSSION OF RESULTS

For this discussion, the reader is referred to the map labelled PLAN: MWIP. Here, four zones of increased chargeability are interpreted to be present, along with their constituent anomalies, and are illustrated.

Zone A, by far the largest of the four anomalous features, dominates the northern half of the present geophysical grid and appears to be the manifestation of a sulphide system located in the area. Within the zone, two areas of strong IP effects are noted to be present: a) a region located at the eastern edge of the present grid, remaining open to the east; and b) a smaller feature situated at the north end of Line 3600E, remaining open to the north. In both cases, it is felt that the material responsible for the anomalous response comes to well within one dipole length (75 meters) of surface. Between a) and b) lies a near-surface chargeability (overlying higher magnitude effects) low IΡ

coincident with elevated resistivity values. It is the authors' understanding that a diamond drillhole (Wan-T) located in this vicinity penetrated through silica cap and into a strongly altered zone at approximately 35 meters. This result is felt to be entirely consistent with the geophysical data. Other drillholes located within Zone A (T-1 through T-7) all had to be abandoned in overburden. Within Zone A, depth of cover is interpreted to be variable and probably contributes to changes in the magnitudes of the chargeability and resistivity measurements.

It is also observed that, in general, the resistivities measured within the confines of Zone A are higher than those outside of it, and are increasing going from south to north. There is not, however, a direct correlation between high chargeabilities and high resistivities. In some cases, the high resistivity readings are offset to some degree from the anomalous IP effects. Similarly, the total field magnetic data are generally higher in magnitude within the area identified as Zone A as opposed to outside the zone boundaries.

Only the southern limit of Zone A has been identified by the present survey program. The feature remains undefined in the north, west and east directions.

The second zone of interest outlined by the geophysical surveys is identified as Zone B on PLAN: MWIP. The chargeability response

of this feature is interpreted as being caused by a polarizable, near-surface, flat lying body of limited depth extent.

Zone C (located at the south end of Line 3200E) and Zone D (located at the south end of Line 4400E) exhibit similar responses. Both features are found at the ends of lines and are characterized by elevated chargeability and resistivity measurements. Zone C remains open to the south and west, while Zone D remains open to the south.

## 8. CONCLUSIONS AND RECOMMENDATIONS

Interpretation of the geophysical surveys carried out on the Wann Project have led to the outlining of four zones of interest illustrated on plan map MWIP.

The largest of these features, Zone A, is thought to represent a fairly widespread area of sulphide enrichment covered by variable depths and types of cover. It is recommended that further IP / resistivity data be collected in order to define the north, west and east borders of the zone. All existing information should then be reviewed in order to choose the best targets for a drill program to follow.

At a moderate priority level, it is recommended that the source (and its possible economic potential) of Zone B (interpreted to be

caused by flat-lying, near surface material) be tested by drilling.

Finally, it is recommended that further IP / resistivity surveying be carried out in order to determine the extent of Zone C and Zone D, at which point further evaluation of their potential could be made.

PACIFIC GEOPHYSICAL LTD.

Matul J. Comien Michael J. Cormier, B.Sc.

Paul A. Carturit

Paul A. Cartwright, P.Geoph.

Dated: February 21, 1992.

# 9. PERSONNEL

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The personnel utilized during the geophysical program are listed below:

N	lame	<u>Occupation</u>	Address	Date
М.	Cormier	Geophysicist	212-744 W.Hastings St. Vancouver, B.C.	Jan.14/92 Jan.18-21/92 Feb.17-20/92
J.	Jordan	Geophysicist	"	Jan.14/92 Jan.18-21/92
Α.	Pratt	Helper	"	Jan.14/92 Jan.18-21/92
Α.	Sperling	Helper	17	Jan.14/92 Jan.18-21/92
s.	Fleming	Helper	"	Jan.14/92 Jan.18-21/92
М.	Steiner	Helper		Jan.14/92 Jan.18-21/92
Ρ.	Cartwright	Geophysicist	n	Feb.17-21/92

PACIFIC GEOPHYSICAL LIMITED Paul A. Cartury

Paul A. Cartwright, P.Geoph.

Dated: February 21, 1992.

# 10. STATEMENT OF COST

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Reference: Wann Project

Data Acquisition	\$ 8,550.00
Mobilization - Demobilization	\$ 1,000.00
Data Processing, Plotting, Reproduction	\$ 1,035.00
Interpretation and Report Preparation	\$ 1,050.00

Subtotal	\$ 11,635.00
G.S.T.	\$ 814.45
Total	\$ 12,449.45

PACIFIC GEOPHYSICAL LTD.

Paul A. Cartunt

Paul A. Cartwright, P.Geoph.

Dated: February 21, 1992.

#### 11. CERTIFICATE

I, Paul A. Cartwright, of the City of Vancouver, Province of British Columbia, do hereby certify:

- I am a geophysicist residing at 4238 West 11th Avenue, Vancouver, British Columbia.
- I am a graduate of the University of British Columbia, with a B.Sc. degree (1970).
- 3. I am a member of the Society of Exploration Geophysicists, the European Association of Exploration Geophysicists and the Canadian Society of Exploration Geophysicists.
- 4. I have been practising my profession for 21 years.
- 5. I am a Professional Geophysicist licensed in the Province of Alberta.
- 6. I have no direct or indirect interest, nor do I expect to receive any interest, directly or indirectly, in the property or securities of Daiwan Engineering Ltd. or any affiliates.
- Permission is granted to use in whole or in part for assessment and qualification requirements but not for advertising purposes.

Dated at Vancouver, British Columbia this 21st day of February, 1992.

Paul A. Cart un M

PAUL A. CARTWRIGHT, P.GEOPH.

12. CERTIFICATE

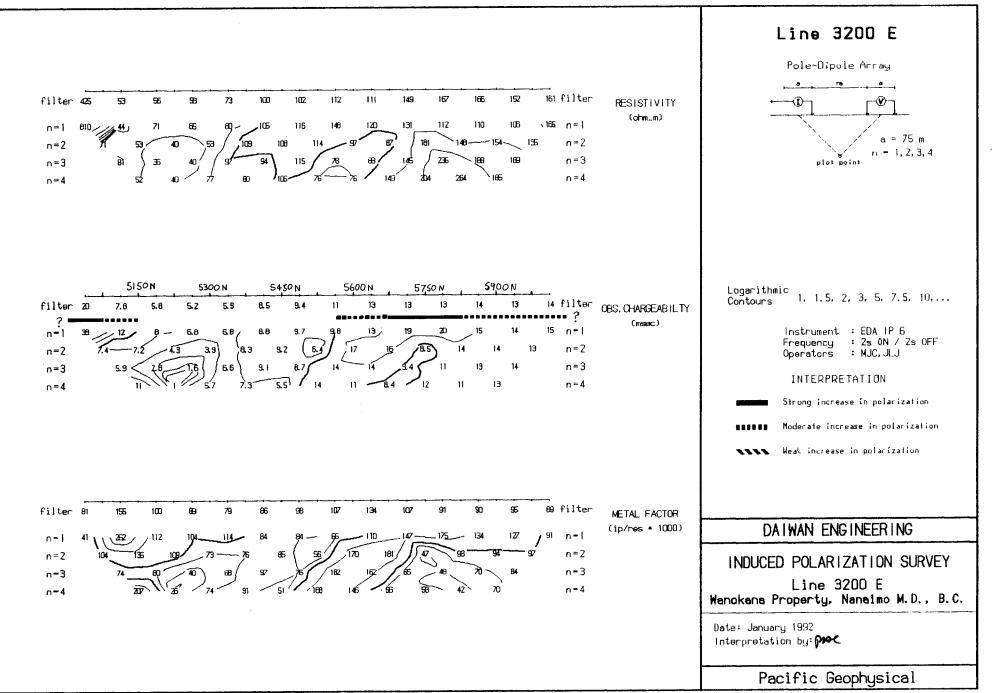
I, Michael J. Cormier, of the City of Vancouver, Province of British Columbia, do hereby certify:

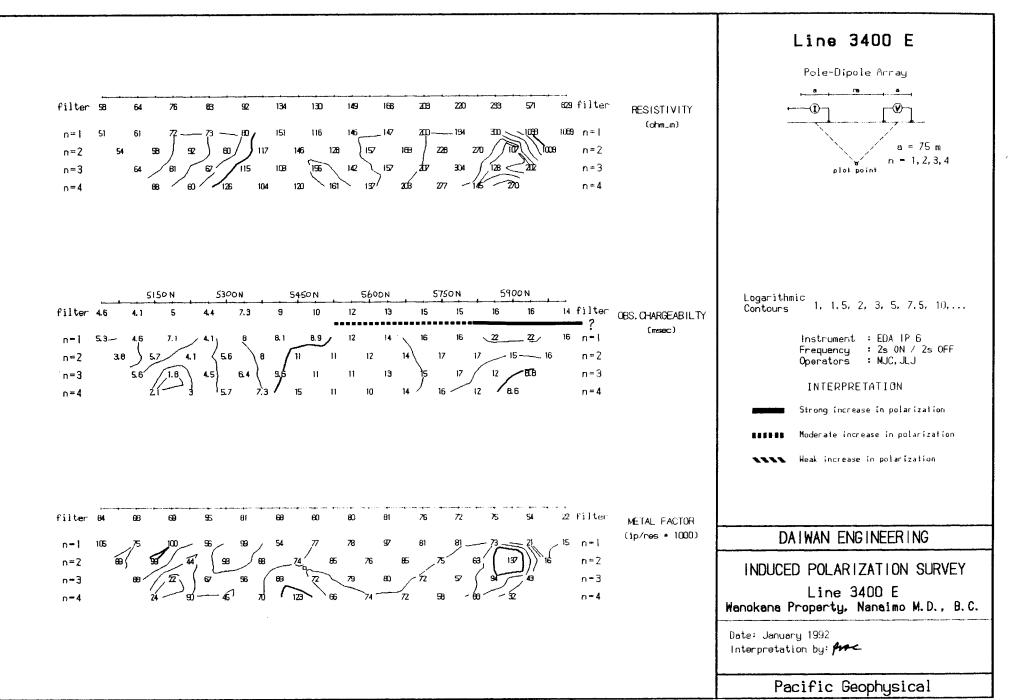
- I am a geophysicist residing at 5512 Kings Road, Vancouver, British Columbia.
- I am a graduate of McGill University, Montreal, Quebec with a B.Sc. degree (1981).
- 3. I have been practising my profession for 10 years.
- 4. I have no direct or indirect interest, nor do I expect to receive any interest, directly or indirectly, in the property or securities of Daiwan Engineering Ltd. or any affiliates.
- Permission is granted to use in whole or in part for assessment and qualification requirements but not for advertising purposes.

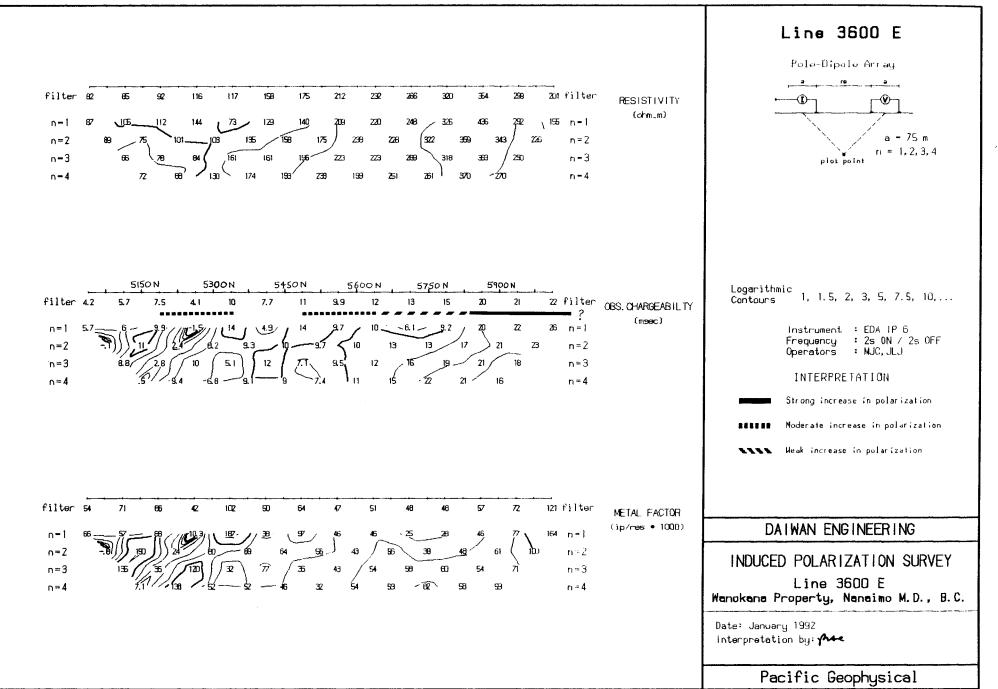
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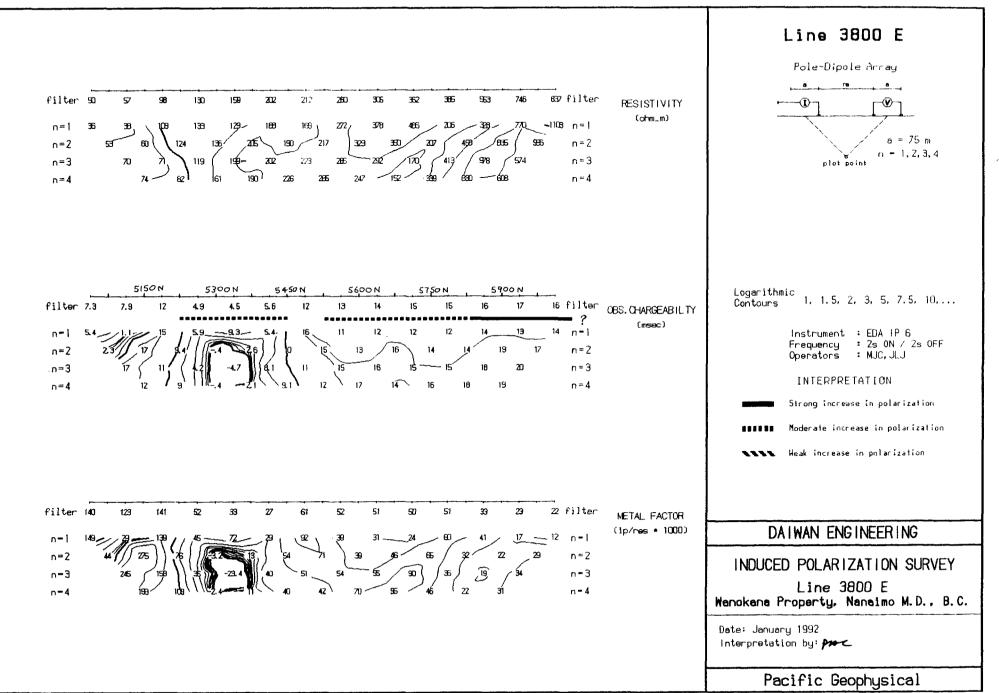
Michael J. Comien

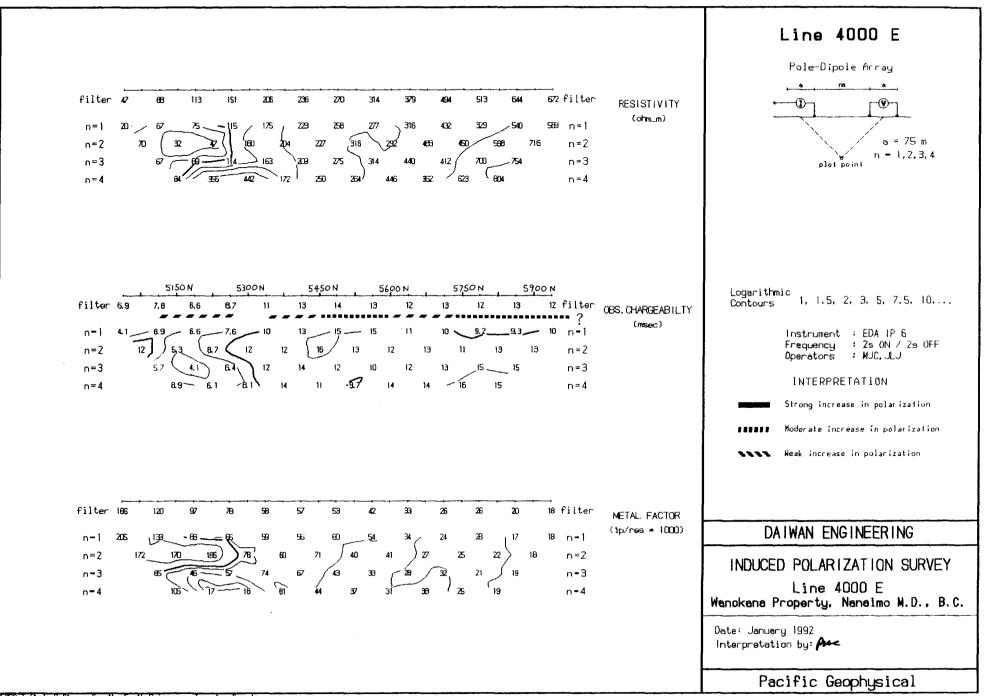
MICHAEL J. CORMIER, B.Sc.



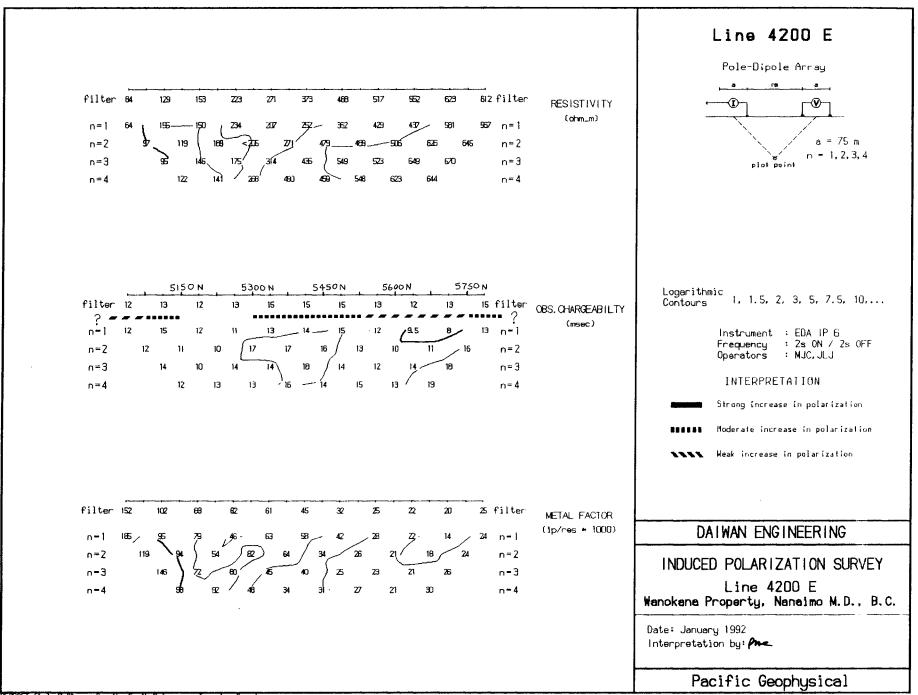


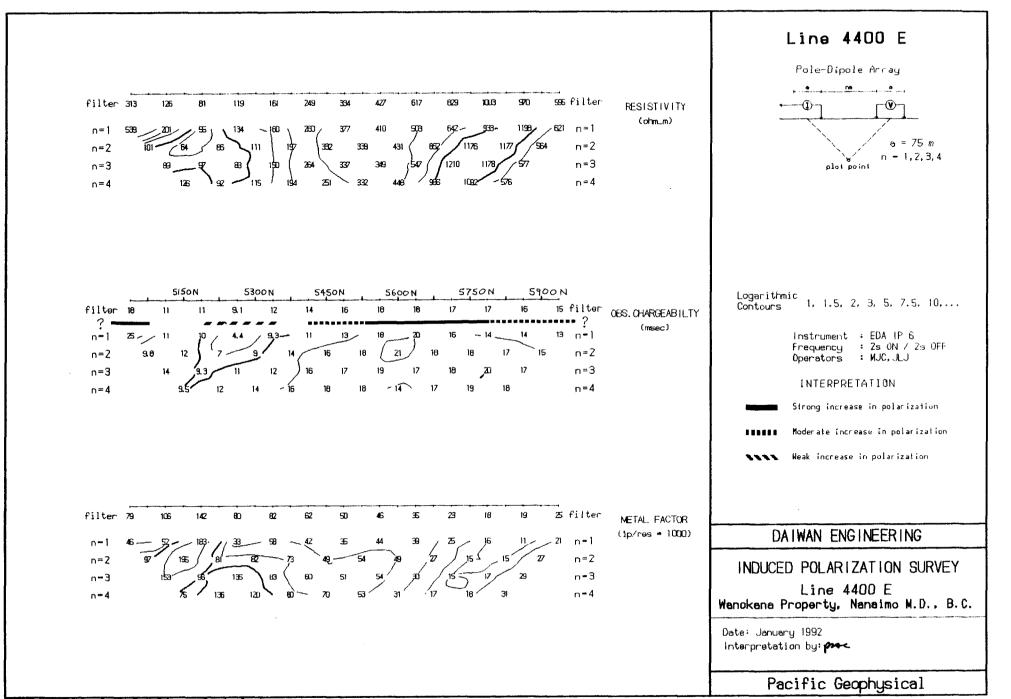




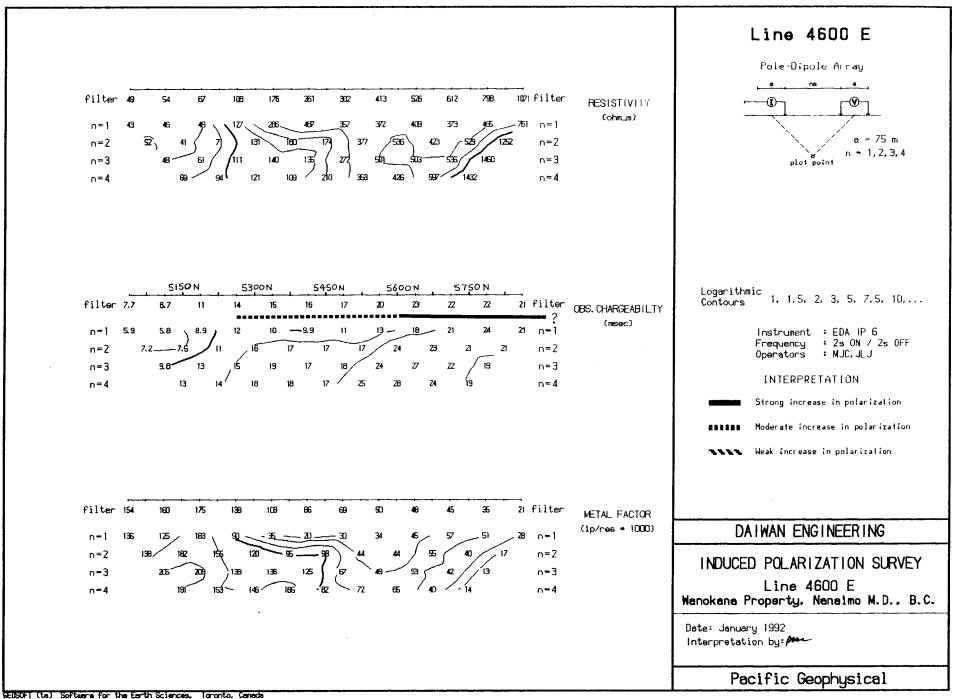


GEOSO-T (tm) Software for the Earth Sciences, Taronto, Canada

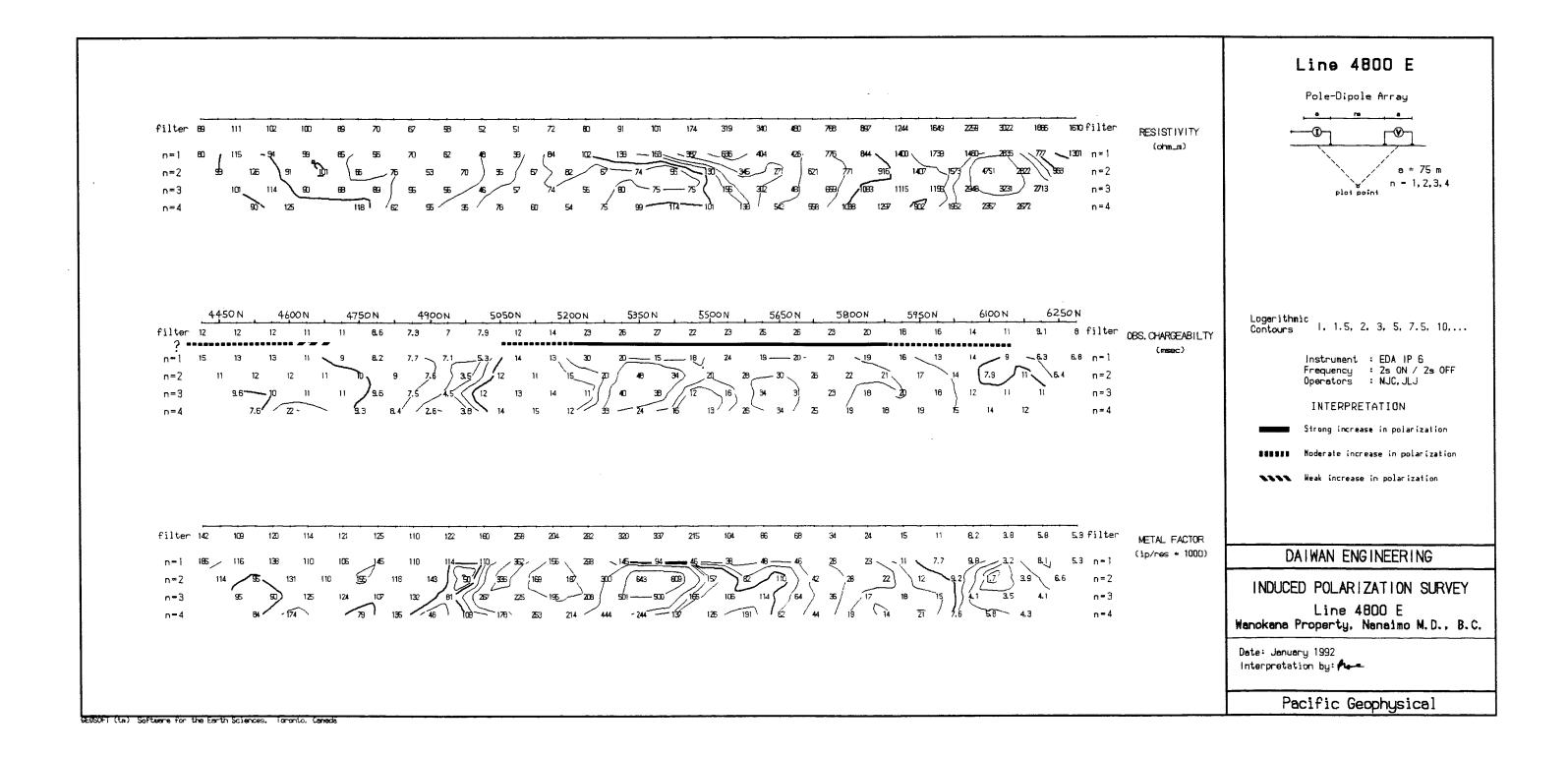


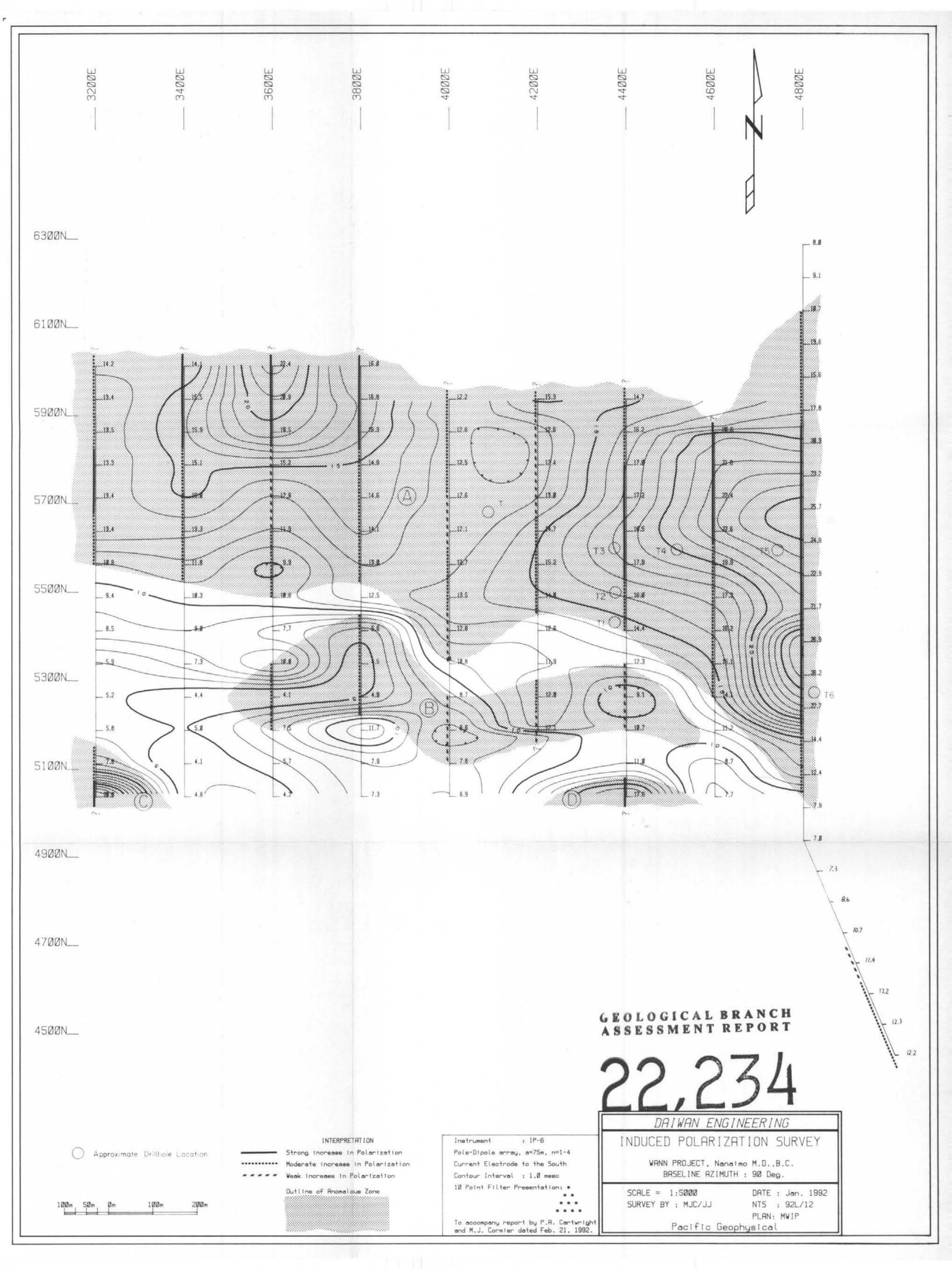


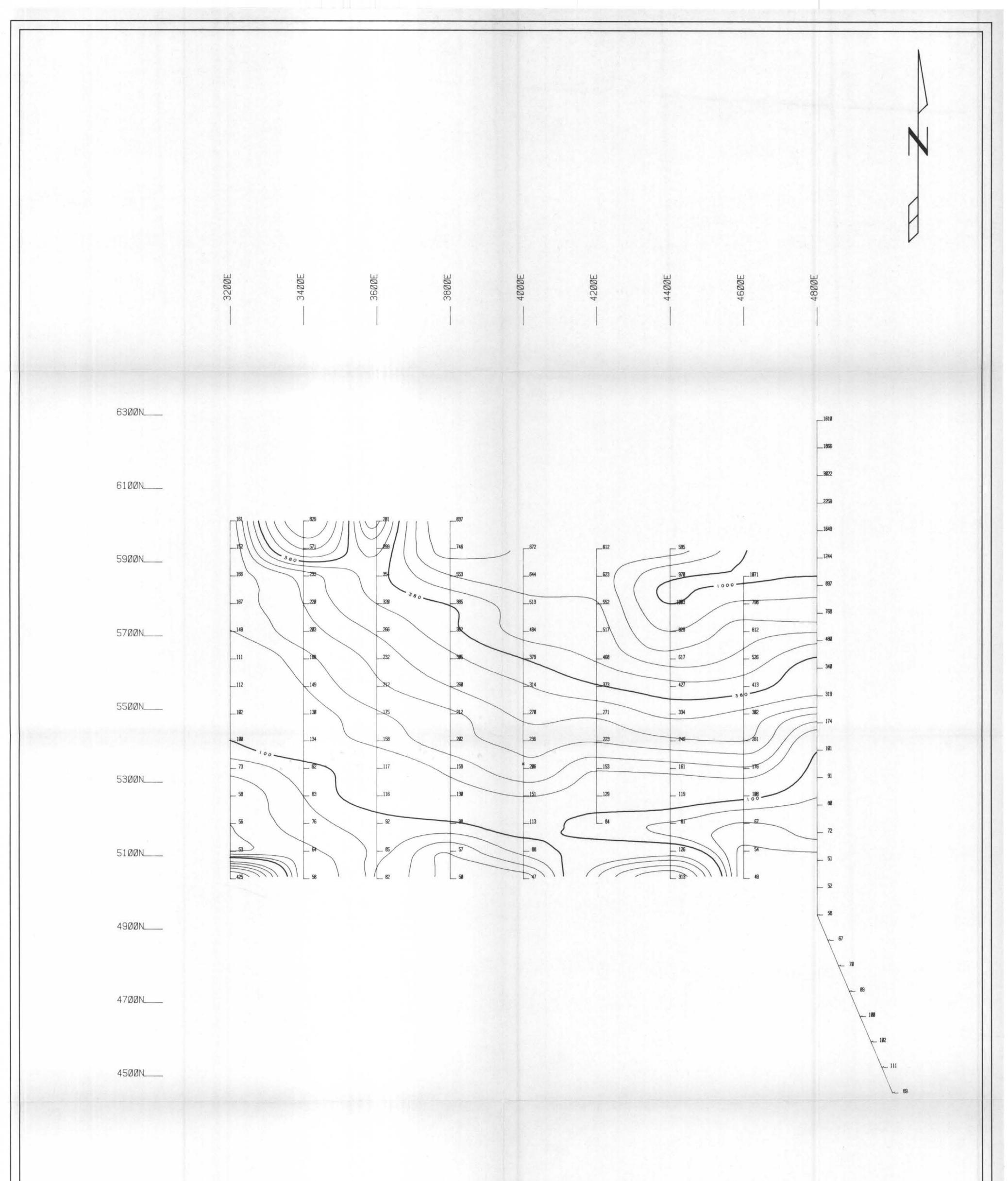
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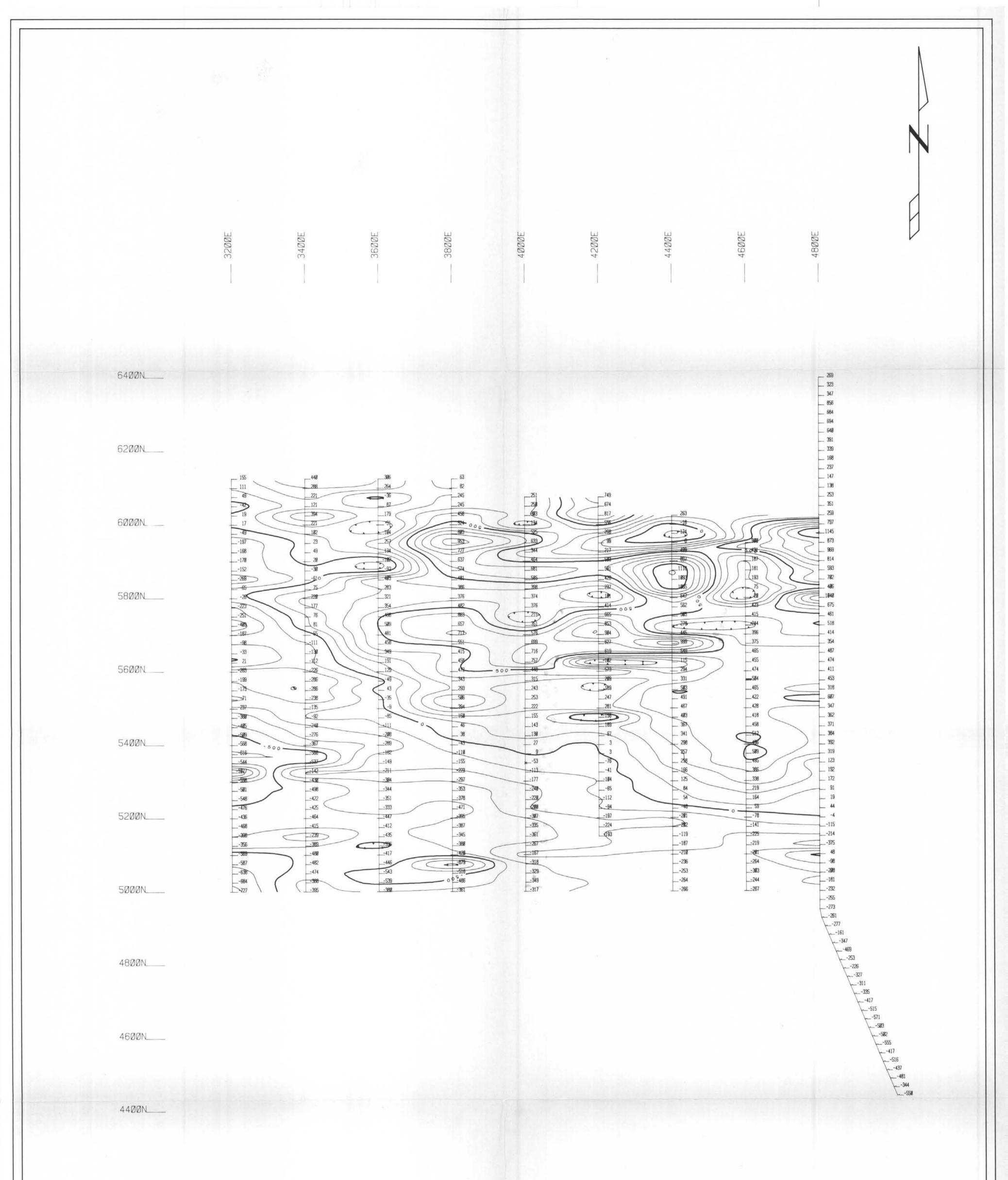
GEOSOFT (ta) Software for the Earth Sciences, Ioronto, Canadi #/.







	GEOLOGICAL BRANCI ASSESSMENT REPORT
	22,234 DRIWAN ENGINEERING
	Instrument : IP-6 Pole-Dipole Array. a=75m. n=1-4 Current Electrode to the South Contour Interval: 1.1.5.1.8.2.2.2.6. 3.2.3.8.4.6.5.6.6.8.8.3.10, ohm-m
100m 50m 0m 100m 200m	10 Point Filter Presentation: * SCALE = 1:5000 DATE : Jan.   SURVEY BY : MJC/JJ NTS : 92L/   To accompany report by P.A. Cartwright and M.J. Cormier dated Feb. 21, 1992. PLAN : MWRE



Instrument : PPM-375 CALL MAGNETOMETER SURVEY	Field : Total Datum : 56000 Contour Interval : 100 m Station Spacing : 25 me To accompany report by P.1	WANN PROJECT, Nanaimo M.D.;B.C. BASELINE AZIMUTH : 90 Deg. SCALE = 1:5000 DATE : Jan. 1992
		MAGNETOMETER SURVEY