CANEX PLACER LIMITED
EXPLORATION DIVISION

6329

PART 1 OF 2.

A GEOPHYSICAL REPORT

on the

BEND 2R MINERAL CLAIM
(20 units)

Revelstoke Mining Division
51°38'N; 118°33'W

Owned by Seaforth Mines Ltd.
Operated by Canex Placer Limited

by R. W. Cannon, B.Sc., P. Eng.

May - June 1977

700 BURRARD BUILDING • 1030 WEST GEORGIA STREET • VANCOUVER, B.C., CANADA V6E 3A8 • (604) 682-7082

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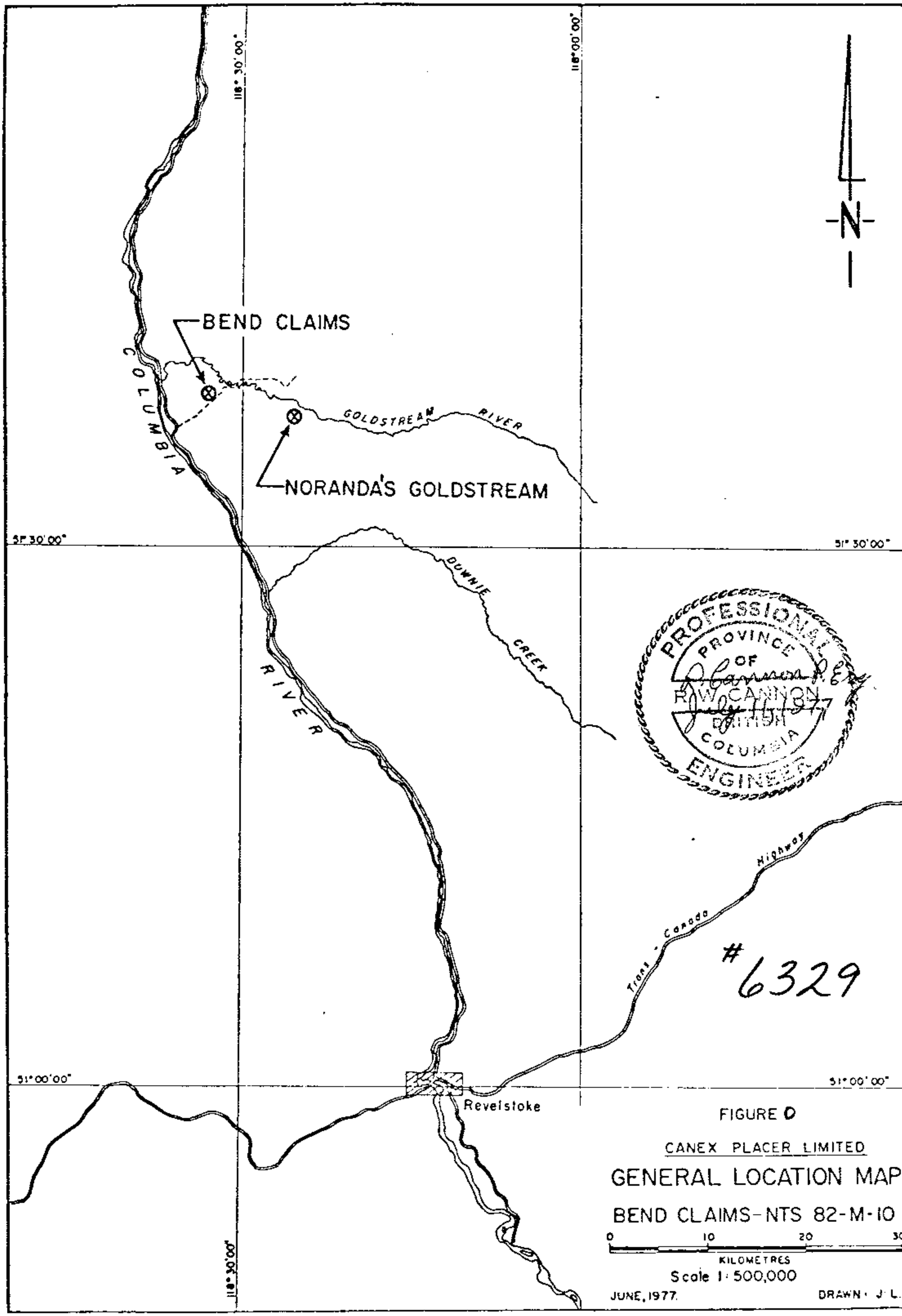
Maps & Profiles


BEND CLAIMS
NORANDA'S GOLDSTREAM
COLUMBIA RIVER
GOLDSTREAM RIVER
DOWNIE CREEK
Trans - Canada Highway
Revelstoke
118° 30' 00"
118° 00' 00"
51° 30' 00"
51° 00' 00"
N
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
R. W. CANNON
#6329
FIGURE D
CANEX PLACER LIMITED
GENERAL LOCATION MAP
BEND CLAIMS-NTS 82-M-10
0 10 20 30
KILOMETRES
Scale 1: 500,000
JUNE, 1977.
DRAWN: J. L.

Statement of Expenditures

The following expenses were incurred for the electro-magnetic survey on the BEND 2R mineral claim during the period May - June 1977.

Salaries:		
R. Rivera -- 4 days @ $110/day	$ 440.00	
R. Cannon -- 8½ days @ $90/day	765.00	
L. Kiss -- 3½ days @ $70/day	245.00	
W. Pentland -- 3 days @ $110/day	330.00	
F. Thrane -- 3 days @ $50/day	150.00	
		$1,930.00
Motel Accomodation, meals:		
22 man days @ $30/man day		660.00
Drafting, Maps:		
2 days @ $60/day		120.00
Report Preparation:		
4 days @ $110/day		440.00
TOTAL		$3,150.00

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R. W. CANNON

R. Cannon, P. Eng.
July 11, 1977

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INTRODUCTION

In March 1977 Canex Placer Limited optioned the BEND 2R mineral claim, Record Number 254(7), from Seaforth Mines Ltd.

In May and June 1977 an exploration program consisting of line cutting, geophysics and reconnaissance soil sampling was completed. This report covers the geophysics part of the program.

LOCATION AND ACCESS (51°38'N; 118°33'W)

The BEND 2R, consisting of 20 units, is located 50 miles north of Revelstoke, B.C, and 4 miles east of the highway to the Mica Dam. The claim straddles a small swampy creek in the old Goldstream River channel approximately 1,000 metres southwest of the present Goldstream River.

Access is by paved road to a point 50 miles north from Revelstoke from which a good logging road extends eastward across the claim. Several secondary logging roads provide good access on the claim.

Elevations range from 2100' to 3500' ASL. The topography is moderate with the exception of steep slopes bordering the old Goldstream River channel.

GEOLOGY

Outcrops on the BEND 2R claim are few, being generally limited to logging roads and in this case to the eastern one third of the claim.

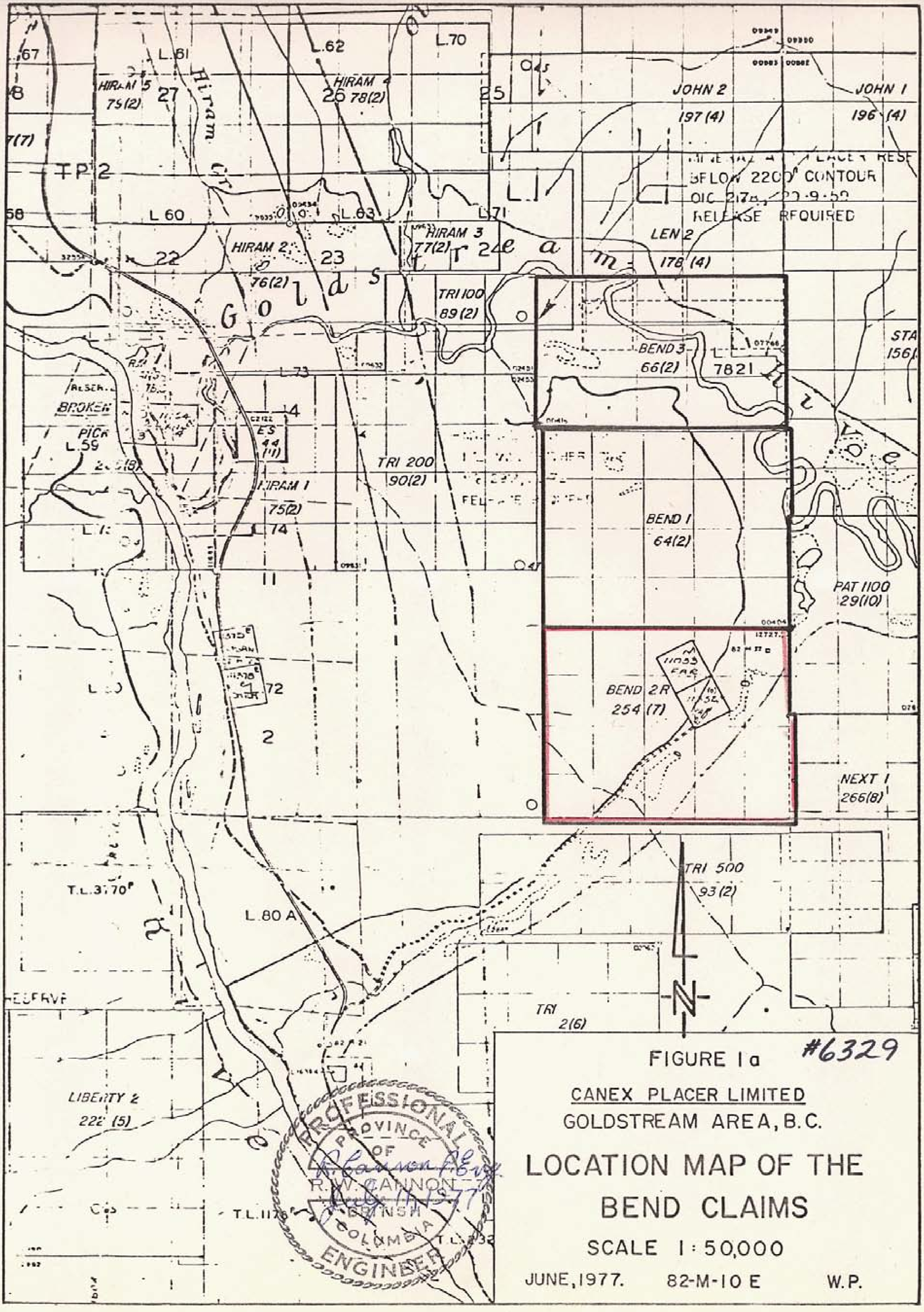
The area is underlain by rocks of the Lower Cambrian Lardeau group. These rocks are largely metamorphosed sediments presently classified as muscovite, chlorite and graphitic schists and occasional beds of limestone and quartzite. Talc schists are found locally.

The beds strike east-west and dip 30°-50° to the north.

The main zone of interest is a limey graphitic schist with an overall width of about 300 metres. This formation is believed to be the equivalent of the ore bearing zone at the Noranda Mines Ltd. property some 8 kms. to the east.

This graphitic schist is best exposed by logging roads near the eastern claim boundary. The surface trace of the zone is west-southwest due to the rising ground to the west.

Four irregular beds of talcose schists (soapstone) varying from 0.5 m. to 1.5 m. are exposed toward the northern edge of the graphitic zone at the



#6329

FIGURE 1a

CANEX PLACER LIMITED

GOLDSTREAM AREA, B.C.

LOCATION MAP OF THE BEND CLAIMS

SCALE 1 : 50,000

JUNE, 1977. 82-M-10 E W.P.

intersection of a small creek and a logging road. Associated chloritic schists carry minor sulphide mineralization in the form of pyrrhotite and chalcopyrite.

ELECTRO-MAGNETIC SURVEY

Geological mapping, soil sampling, magnetic and gravity surveys done by Seaforth Mines in 1976 had indicated an area of interest between 100+00W and 108+12W, and from 103+00S to 118+00S. The electro-magnetic survey was done on this block.

Line Preparation

All of the old lines which were at 125 metre intervals and 75 metre stations were rechained using 20 metre stations. In addition, approximately 10 kms. of intermediate lines were cut and chained.

Methods and Equipment

Because the topography on the property locally is quite severe and because it was not considered worthwhile to survey precise horizontal distance and elevation differences between stations, the best E-M technique to use was judged to be the shootback method. This technique was developed to handle topographic and station spacing irregularities in an elegant way. Two identical coils are used to transmit and/or receive signals alternately. By considerations of symmetry it is easy to show that the dip angles of the E-M field at each receiving coil, when no conductor is present in the earth, are equal in magnitude. These can be measured with a sign convention such that their algebraic sum is zero (Crone, 1966).

Options available in the use of the shootback E-M method are signal frequency and transmit coil orientation. A horizontal transmit coil configuration usually yields a stronger anomaly from a given conductor, but at the expense of a high "noise" level due to thunderstorm activity. This orientation also yields a wider null which makes taking readings more difficult and mentally fatiguing for the operator. A vertical transmit coil was therefore chosen so as to obtain a better signal-to-noise ratio in this conductive area.

By using lower frequencies we can "tune out" anomalies due to poor conductors such as small fault zones. The higher the frequency, the higher the response from weak conductors, but a good conductor's response is not expected to increase much with frequency. On this property we chose to use two frequencies: 390Hz and 1830Hz. As will be shown later, the two frequency information is required to obtain unambiguous apparent resistivity values.

Measurements consisted of determining the tilt angle and calibrated field strength (FS) with the receiver coil in the null position at each 10 m. or 20 m. station. Thus a total of 8 readings require recording at each station! The 390 Hz information was not taken in obviously non-conductive areas and on fill-in lines. A 60 m. in-line coil separation was used, which gives a nominal 30 m. depth of exploration. The FS reading obtained at each receiver coil was summed and plotted at the midpoint between the two coils, the same plot position used for the resultant tilt angle measurement.

The shootback E-M equipment used was manufactured by Crone Geophysics Ltd. of Toronto, and is known as the CEM unit. Banks of 3 - 6v. dry cell lantern batteries were used for power.

The calibration procedure used is as follows: where resistive level ground was encountered the gain settings on both instruments were set so as to cause a maximum reading of 100 on the field strength meter while alternately transmitting with a horizontal loop. The gain settings were then doubled for better resolution of the FS at null.

Interpretation Procedures

The interpretation of the Shootback E-M data proceeds along two lines. First, anomalous events and contacts defined as sudden changes in the level of response are picked and rated. (The expected tilt angle responses from lenticular bodies of various depths, dips and thicknesses are shown on Figure 1. These curves were abstracted from two sources: (1) model studies provided by Crone Geophysics, and (2) Lin, 1969. The curves from Lin are not strictly applicable since they were derived for a transmitter orientation 15^{o} off the vertical).

Because of the shallow depth expected for the conductors at the property most of the "event" interpretation relies on discerning an upward peak flanked by two lows having a 60 m. + distance between the lows. A pronounced weakening of thw FS response over many of the stronger anomalies leads to the use of this characteristic as a criteria for picking weaker anomalies.

Interpreted contacts are shown on the profiles and plan maps as a vertical line with "R" scribed on the resistive side and "C" on the conductive side of the contact. Anomalous events interpreted as thin steeply dipping conductive zones are marked with a vertical arrow at the apex of the body. These events are rated under the rules given in the next section

Reliability -- A (Definite anomaly) is easily discernable on the 1830 Hz tilt angle profile and is marked by a sharp drop in the FS at null over the apex.

-- B (probable anomaly) is discernable on the 1830 tilt angle profile but with some uncertainty. Some support must be present on the FS at null profile.

-- C (possible anomaly) has an ambiguous dip angle signature but is marked by a clear FS at null minimu. Another criterion is a fairly clear tilt angle anomaly lacking confirmation on the FS at null profile.

Strength -- 1 (strong) has a 1830 Hz tilt angle amplitude (peak to trough) greater than 10^{o}.

-- 2 (moderate) has the amplitude greater than 5^{o} but less than 10^{o}.

-- 3 (weak) has the amplitude less than 5^{o}.

Thus, for example, a definite and strong anomaly would be rated A-1 while a possible weak anomaly would be rated C-3.

Further analysis of anomalous shootback E-M events involving determination of depth, dip and condictivity-thickness product according to the curves of Lin, 1969, is not considered possible for our data given the disturbed nature of the profiles.

The second line followed in the interpretation of the shootback E-M data utilizes the results of a recent study of the behaviour of the D-M field over a conductive layered earth (Saydam, 1975). On Figure 2 is shown the response of the shootback method over an homogeneous earth as a function of earth resistivity. The top set of three curves relates to the tilt angle response at 3 frequencies; the bottom set relates to the FS at null reading at three frequencies, and the bottom resistivity scales relate to 3 different coil separations.

Five regions along the resistivity axis in Figure 2 are readily determinable by two frequency surveys in the field. These five characteristic resistivity regions are defined by the four indicated "break points" where the nature of the curves changes in some basic way. Table 1 lists the criteria for recognizing these "break points" on our two frequency 60 m. coil separation survey.

TABLE 1 Definition of "break points" in the Shootback E-M Layered Earth Response Curves		
Break Point	Tilt Angle Criterion	Field strength at Null Criterion
1	|tilt angle| 1830 = 10°	FS 1830>FS 390
2	|tilt angle| 1830>|tilt angle| 390	FS 1830=FS 390
3	|tilt angle| 1830=|tilt angle| 390	
4	|tilt angle| 1830<|tilt angle| 390	FS 1830=FS 390

It is clear then, that in order to recognize the five resistivity regions it is required, at each station, to measure 8 quantities: 2 dip angles at 1830 Hz, 2 calibrated FS at nulls at 1830 Hz, 2 dip angles at 390 Hz, and 2 FS at 390 Hz. It is also clear that to properly use the FS at null criteria the low frequency and high frequency calibration reading must be the same. If significantly different, then an adjustment must be made prior to plotting the profiles.

Now referring to the appropriate resistivity scale on Figure 2 we can give numerical values for the five apparent resistivity ranges separated by these break points. For a 60 m. coil separation, we obtain the values shown in Table 2.

TABLE 2 Apparent Resistivity Ranges Recognizable in Shootback E-M Surveys		
Region Lying Between These "Break Points"	Apparent Resistivity Range, Ohm-m	How Marked on the Geophysical Maps
No E-M Response	Resistivity >200	XXXXXXXXXXXXXXXXXXX
Above No. 1	Resistivity >30	Blank
Between 1 and 2	30> resistivity >7	Blank
Between 2 and 3	7> resistivity >2	Bar above line colored orange
Between 3 and 4	2> resistivity >½	Bar below line colored red
Below No. 4	½> resistivity	Both bars

Analysis of the several layered earth models in Saydam, 1975 shows that similar "break points" can be defined in almost every 2 layer case, but that the resistivity figures change as a function of the layered earth parameters, both for resistive and conductive overburden. Table 3 gives the resistivity values at each of the breaks for various two layer situations.

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TABLE 3
Summary of Changes to the "Break Point" Resistivity Values for Various Two Layer Earth Cases.
A 60m. Coil Separation is Used Throughout

A. Resistive Overburden (Resistivity of Overburden is 10 times the Resistivity of the Basement)

Depth to Interface	Resistivity of Conductive Basement, Ohm-m			
	Break Point 1	2	3	4
0 (homogeneous earth)	30	7	2	0.5
8 m.	22	5	1.3	0.1
15 m.	17	4	0.6	0.1
30 m.	8	1	0.2	0.1

B. Conductive Overburden (Resistivity of Basement is 10 times the Resistivity of the Overburden)

Depth to Interface	Resistivity of Conductive Overburden, Ohm-m			
	Break Point 1	2	3	4
Infinity (homogeneous earth)	30	7	2	0.5
30 m.	20	7	2	0.5
15 m.	16	4.5	1.6	0.4
8 m.	9	3	1	0.3

Results

The electro-magnetic results are plotted in profile and on a plan map on a scale of 1:4000.

The electromagnetic results as displayed on Figure 3 show in some detail the layout of the various electrical conductors found on the property. The apparent strike of the set of conductors changes very slightly from due east on line 100 W to N65°E around line 106+25W. Allowing for the 10° to 20° rotation of strike due to a 200 m. relief and a dip of from 30 to 45°N on the western lines we get an approximate true strike of N80°E.

The electromagnetic results are dominated by a 400 m. wide (apparent thickness) conductive environment very emphatically delimited by an almost absolutely "dead" electrical response on either side. The conductive zone is traced for a strike length of 1 km. and extends off the grid in both directions.

The true thickness of the conductive zone can be determined on a section by section basis by first solving for the apparent dip on section then correcting for topography and strike. Using Keevil's 1977 figure of 36°N for dip of foliation rotating 45° and rounding to 30° dip on the sectional sheets we obtain the figures for stratigraphic thickness shown on Table 4.

TABLE 4

Characteristics of Electrical Section within the Conductive Zone

Line No.	Total conductive zone: Apparent Along Line	Total conductive zone: Thickness (m) In section at 30° Apparent Dip	Total conductive zone: True Thickness (m)	Wide Conductive Sub-Unit: Approx. Thickness (m)	Wide Conductive Sub-Unit: Approx. Resistivity (ohm-m)	No. of discernable E-M events Class: A	B	C
100+00W	430	200	140	25	7	1	1	2
100+62W	470	240	170	35	7	0	2	2
101+25W	570	270	190	20	6	0	1	4
101+97W	670	330	230	30	7	1	3	3
102+50W	740	360	250	55	5	1	3	4
103+12W	710	330	230	55	4	1	4	0
103+75W	680	330	230	70	4	0	3	1
104+37W	700	360	250	55	5	1	1	0
105+00W	770	370	260	70	6	1	1	0

The wide sub-zone interpreted to have resistivities in the range 5-7 ohm-m is marked with the orange coloured bar on the profiles and on Figure 3. The most conductive part of the sub-unit along strike is around line 103+75W. Its interpreted true thickness is in the range 25-70m. (see Table 4).

That the remaining conductive sub-units within our conductive zone are representing thin, highly graphitic beds is the most likely interpretation. The hope is, of course, that one or more of them represents a massive sulfide deposit either at sub-outcrop or a few hundred meters down dip.

RECOMMENDATIONS

A drill hole is recommended at this time to test the most favourable combination of anomalies yet encountered on the property. The 150 m. long recommended hole should be collared at or near 102+50W, 106+20S and drilled at -50° toward grid south. A slight deviation is azimuth to the east will yield a better angle to the bedding, but may miss the source of the magnetic anomaly. If the magnetics are fully explained by trenching then a due south azimuth is recommended. The target bed should be encountered at about 70 m.

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R. W. Cannon, P. Eng.

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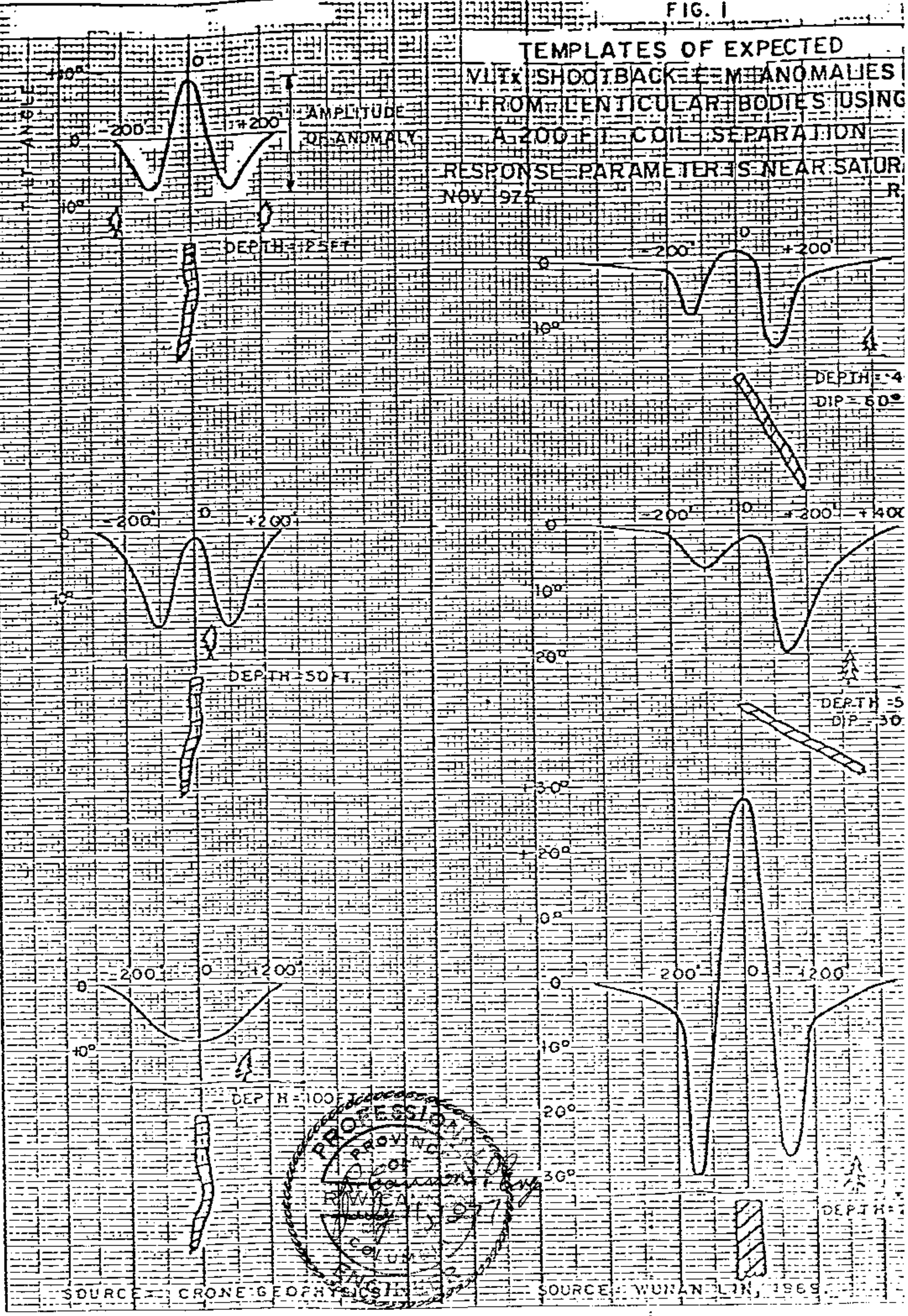
FIG. 1

TEMPLATES OF EXPECTED VLF Tx SHOOTBACK E-M ANOMALIES FROM LENTICULAR BODIES USING A 200 FT COIL SEPARATION

RESPONSE PARAMETERS NEAR SATUR

NOV 1975



HALF SPACE

FIG. 2

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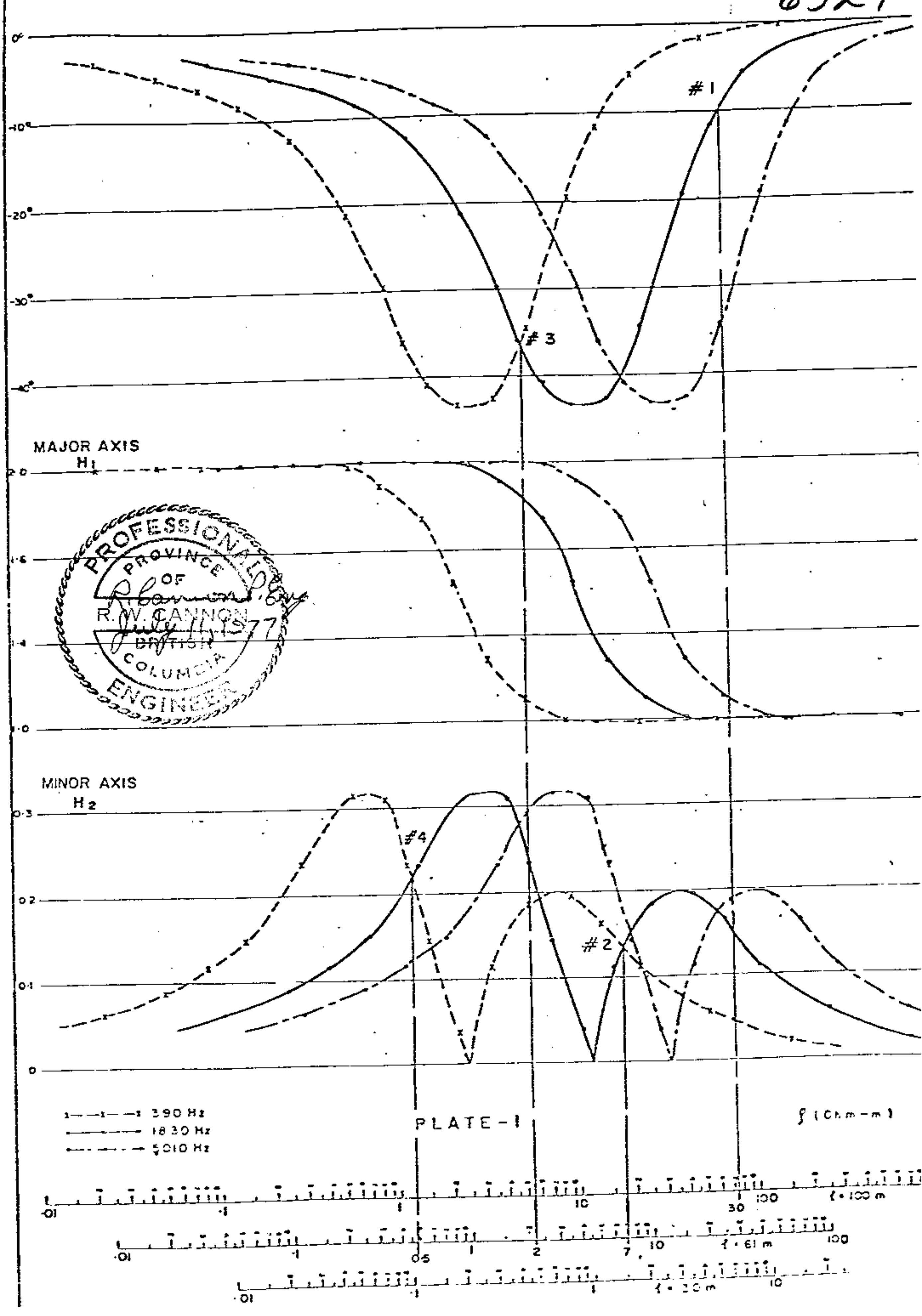

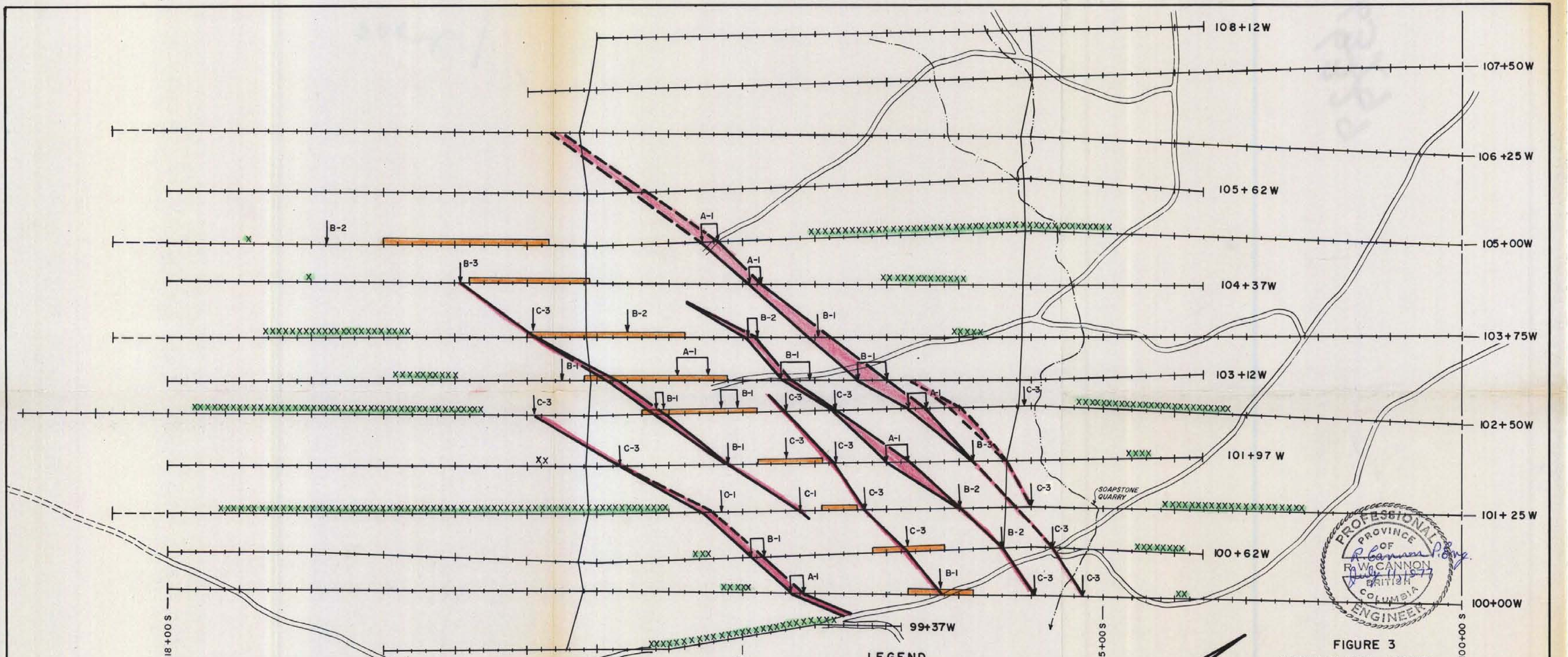

LEGEND

XXXX INDICATES RESISTIVITY GREATER THAN 200Ω-m (DIP ANGLES<5° AND FS <10 UNITS)

INDICATES FS_{1830}<FS_{390}

A-2 INDICATES DISCRETE CONDUCTOR FOUND BY SHOOTBACK E-M

B-1 INDICATES A WIDE DISCRETE CONDUCTOR

INTERPRETED SUBOUTCROP OF CONDUCTIVE ZONES

FIGURE 3

CANEX PLACER LIMITED

GOLDSTREAM AREA, B.C.

C.E.M. INTERPRETATION MAP

0 100 200 METRES

JUNE, 1977. SCALE 1:4000 V-156 R.A.R.

(J. L.)

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R. Cannon P.Eng. July 11, 1977

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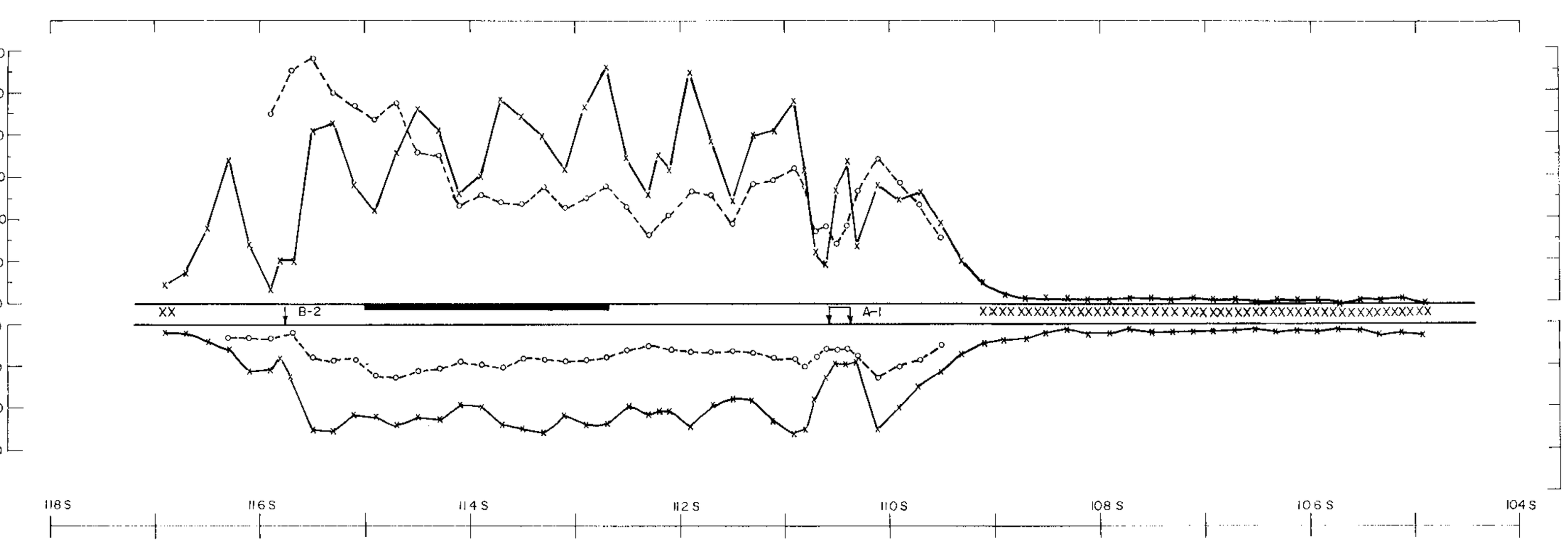
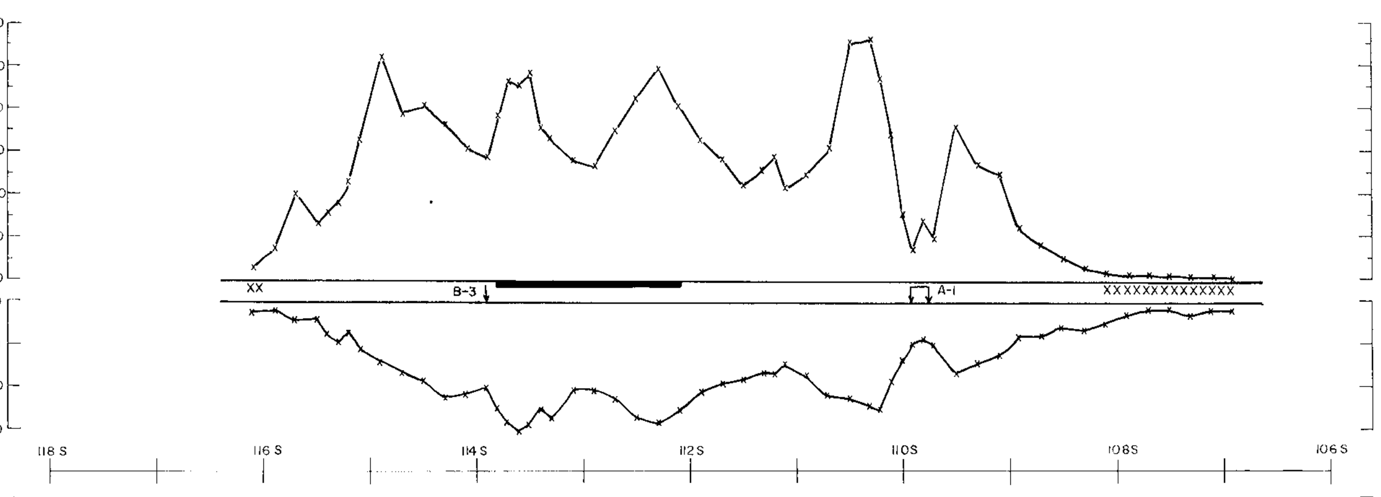
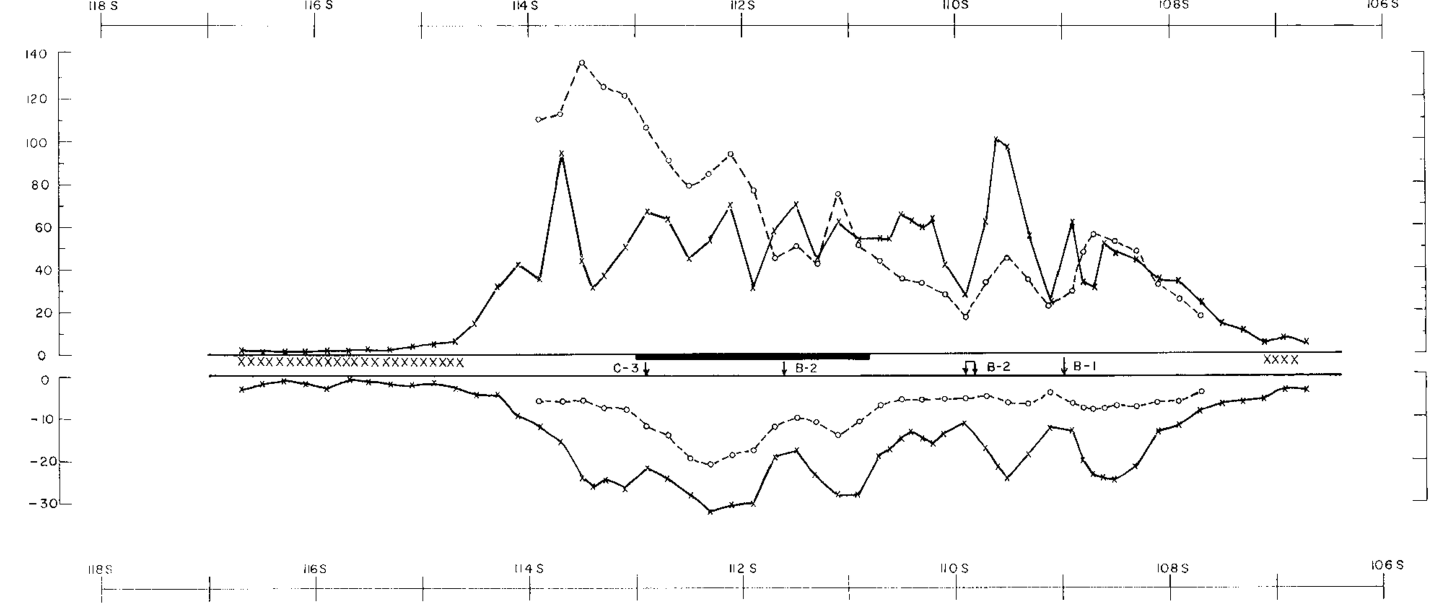
PART 1 OF 2



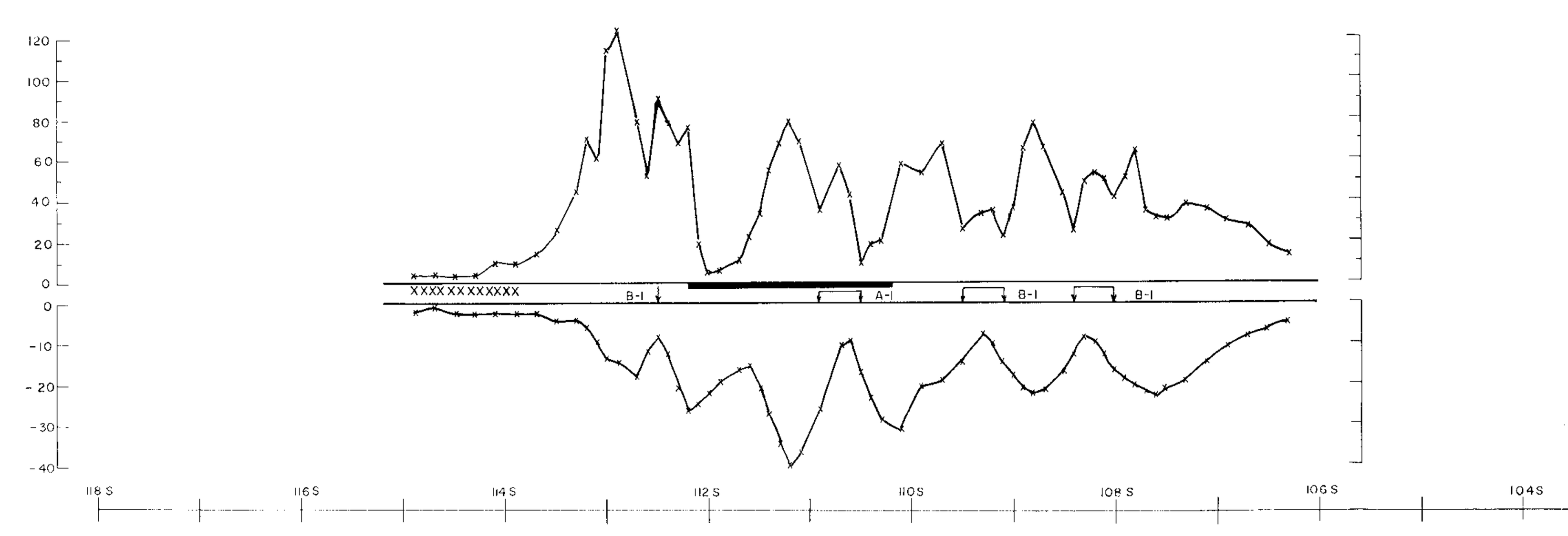
LINE 105+00 W



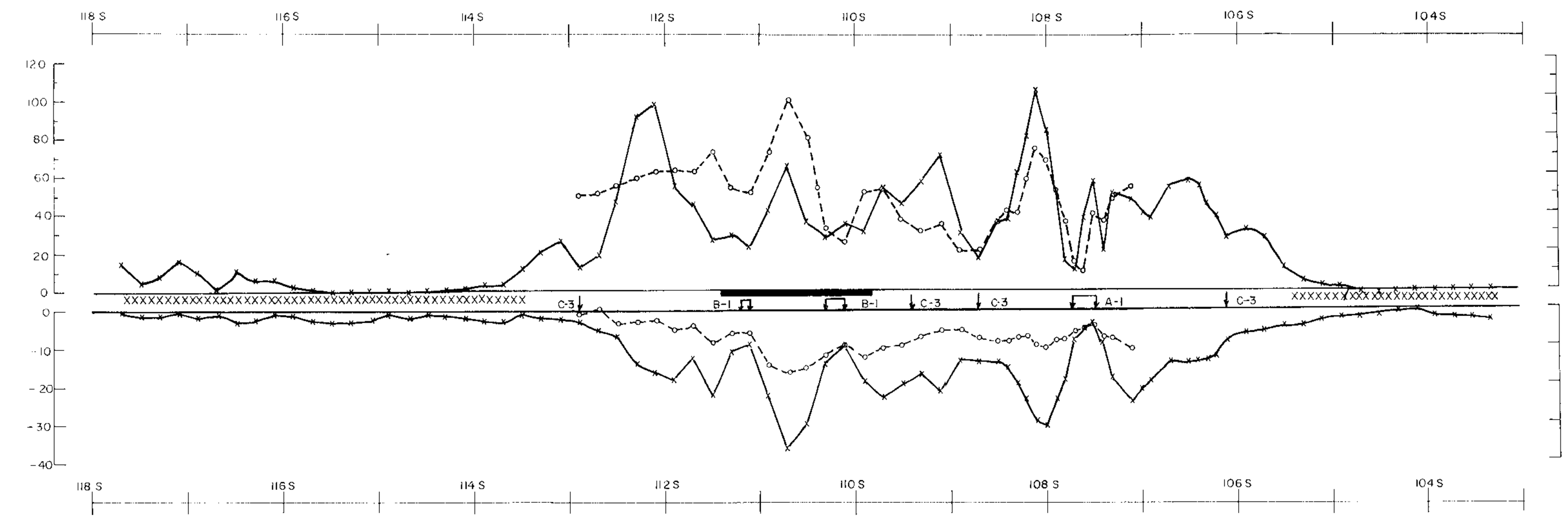
LINE 104+37 W



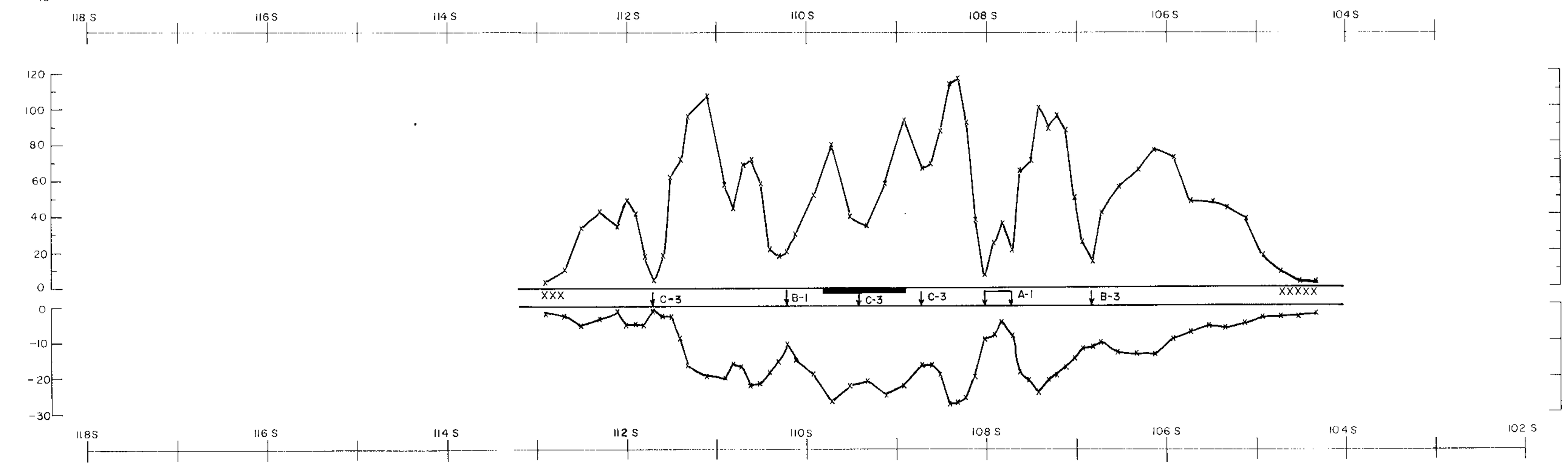
LINE 103+75 W



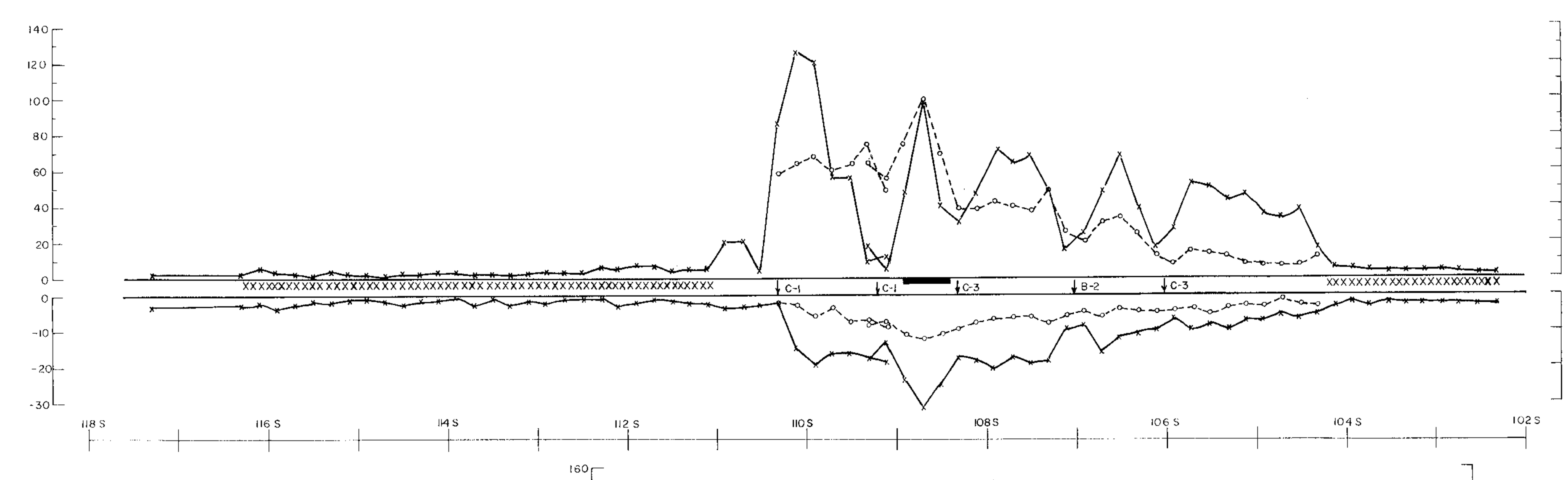
LINE 103+12 W



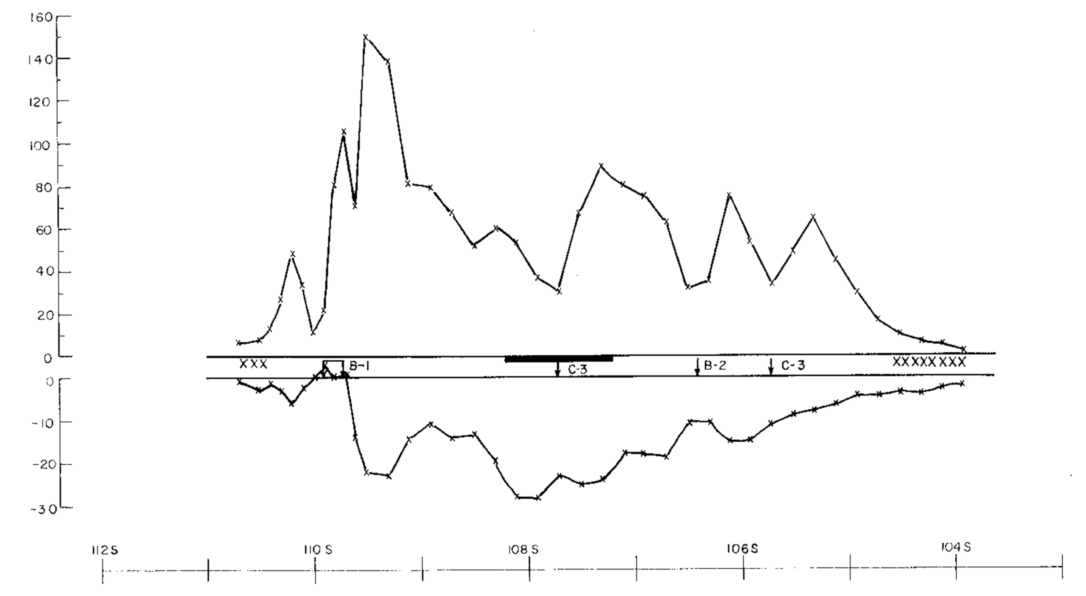
LINE 102+50 W



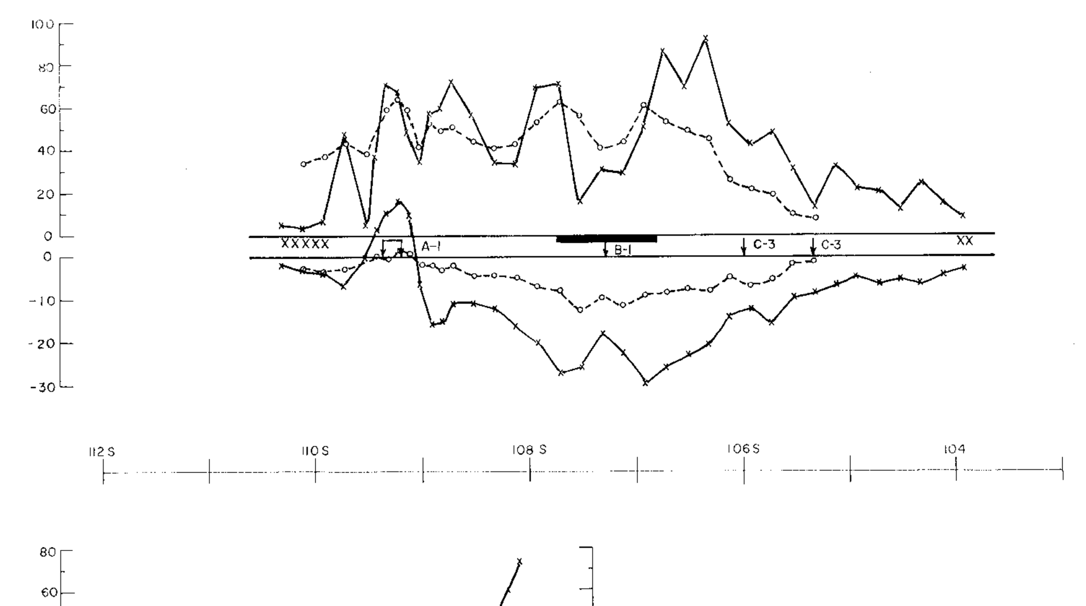
LINE 101+97



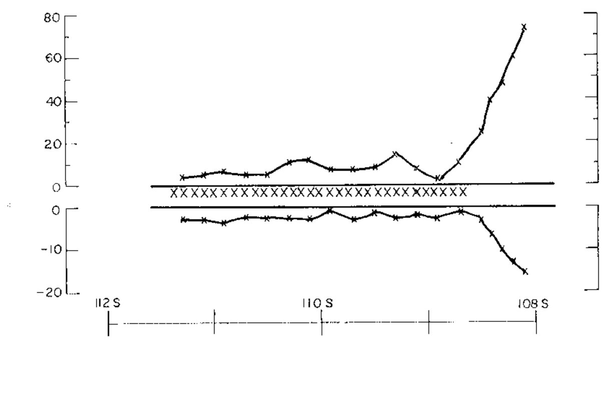
LINE 101+25 W



LINE 100+62 W



LINE 100+00 W



LINE 99+37 W

LEGEND

VERTICAL Tx SB E-M

RELATIVE FS AT NULL
- 1830 Hz
- 390 Hz

RESULTANT DIP ANGLE
- 1830 Hz
- 390 Hz

XXXXXXX INDICATES RESISTIVITY GREATER THAN 200 Ω-m (DIP ANGLES<5° AND FS<10 UNITS)

INDICATES $FS_{1830} < FS_{390}$

A-2 INDICATES DISCRETE CONDUCTOR FOUND BY SHOOTBACK E-M

B-1 INDICATES A WIDE DISCRETE CONDUCTOR

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part 1

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 6329
PART 1 OF 2

FIGURE 4

DRAWN R.A.R.	SCALE 1:4000	CANEX PLACER LIMITED	C.E.M. RESULTS IN PROFILE
TRACED J.L.	DATE: JULY, 1977	GOLDSTREAM AREA, B.C.	FILE No. V-156
APPROVED			

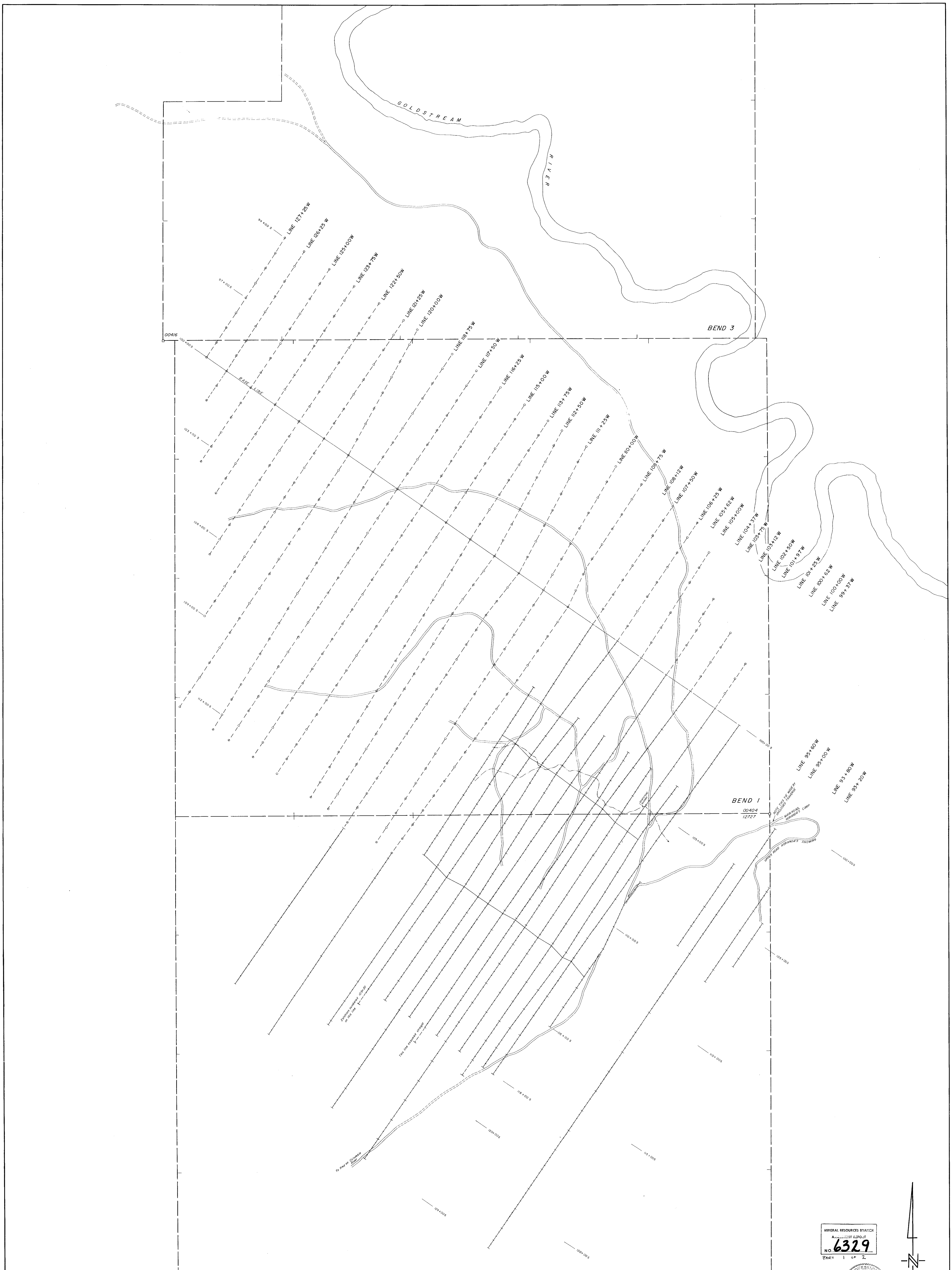

FIGURE 5

DRAWN	SCALE 1:4000	CANEX PLACER LIMITED	PLAN MAP OF CLAIMS AND LINES
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