2738

GEOCHEMICAL AND GEOPHYSICAL REPORT

ON WORK DONE

BETWEEN JUNE 30 AND SEPTEMBER 1, 1969

ON

THE SUSAN 1-30, HELEN 1-23, DANA 1-14, DIANE 1-4

MINERAL CLAIMS

Owned by J.H. Montgomery

LOCATED ON JOHNNY DAVID CREEK

OMINECA MINING DIVISION, B.C.

54° 126° N.E.

by

J.H. Montgomery, PhD., P.Eng.

July 15, 1970

TABLE OF CONTENTS

FIGURES

INTRODUCTION

The following report is a record of the exploration work done on the Susan, Helen, Dana, and Diane Mineral Claims between June 30 and September 1, 1969.

LOCATION AND ACCESS

The claims are located on and near Johnny David Creek, a southerly flowing tributary of Bulkley River. They lie 60 miles east of Smithers and 4 miles north of Perow, B.C. (N.T.S. Ref. 93L/9W; Lat: 54° 34', Long: 126° 26'.) Access is excellent by way of gravel road which leaves Highway 16 one mile east of Perow.

CLAIMS AND OWNERSHIP

All 71 claims are owned by J.H. Montgomery.

Claim Name	Record Nos.	Record Date
SUSAN 1-30	75078 - 75107	
HELEN 1-23	75055 - 75077	
DANA 1-14	79762 - 79775	
DIANE 1-4	74567 - 74570	

DOMINION OF CANADA:
PROVINCE OF BRITISH COLUMBIA.
TO WIT:

In the Matter of

I, JOSEPH H. MONTGOMERY

of VANCOUVER

in the Province of British Columbia, do solemnly declare that

STATEMENT OF COST

a) Labor

Name	Position	No. of Days	Dates	Rate	Amount
D. Symonds	Party Chief and Geophysical operator	50	6/30 - 8/5 8/15 - 8/31	$25/day	1,250
B. Miller	Geophysical helper	50	6/30 - 8/5 8/15 - 8/31	$20/day	1,000
B. Mckenzie	Soil sampler	20	6/30 - 7/20	$20/day	400
J.H. Montgomery	Geological Engineer	4	7/1, 8/5, 8/15, 8/16	$50/day	200

b) Geochemical Analyses

300 Soil samples @ $2.00		600
300 Tree Samples @ 4.00		1,200

c) Food

124 Man-days @ $7	868

d) Induced Polarization Survey under contract by GEO-X Surveys 2,000

$7,518

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

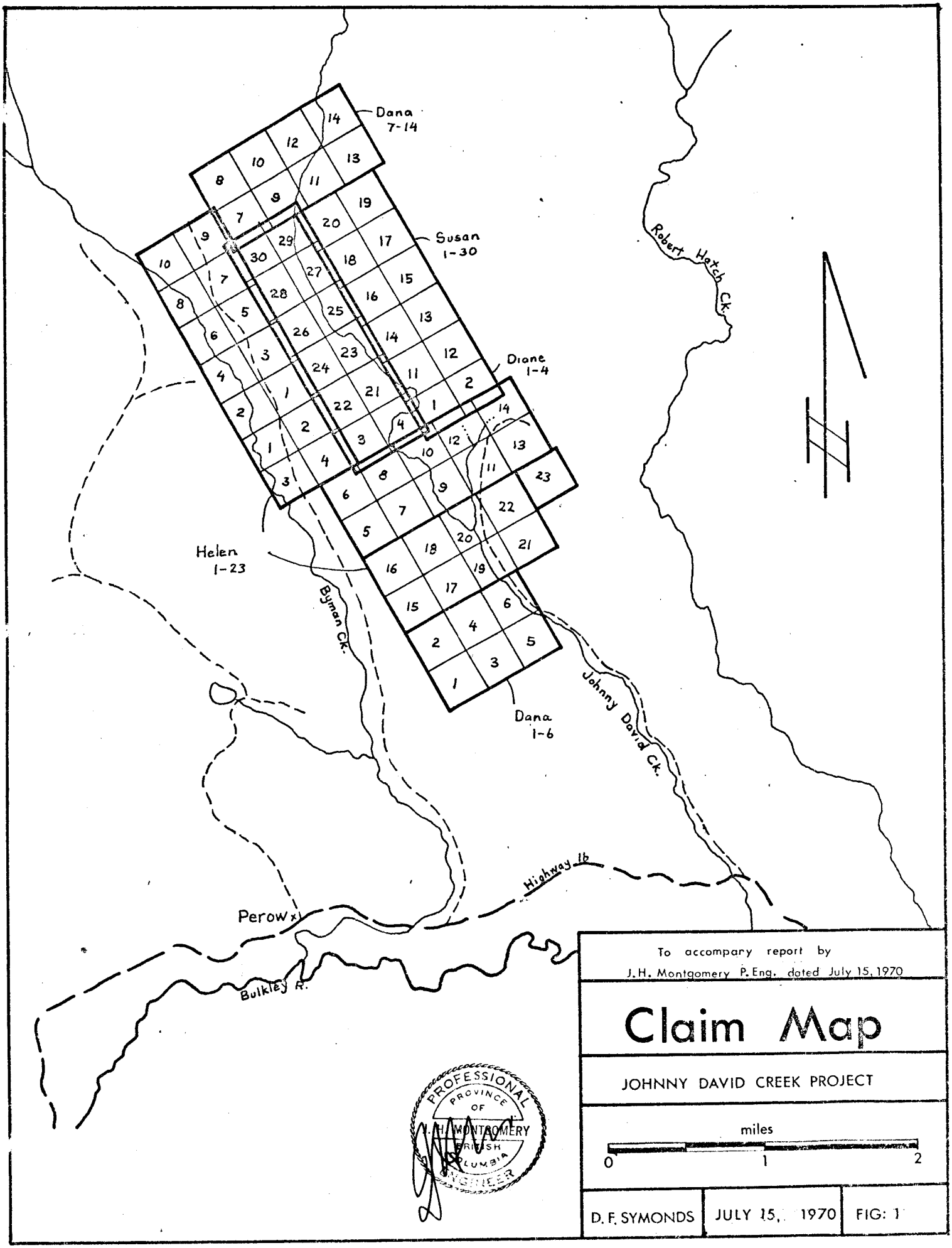
Declared before me at the City of Vancouver, in the Province of British Columbia, this 8th day of September 1970, A.D.

J. H. Montgomery

G. Phillips

A Commissioner for taking Affidavits within British Columbia or
A Notary Public in and for the Province of British Columbia.

Sub-mining Recorder


Dana
7-14
Susan
1-30
Diane
1-4
Helen
1-23
Dana
1-6
Robert Hatch Ck.
Byman Ck.
Johnny David Ck.
Highway 16
Perow
Bulkley R.
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. H. MONTGOMERY
To accompany report by
J.H. Montgomery P.Eng. dated July 15, 1970
Claim Map
JOHNNY DAVID CREEK PROJECT
miles
0
1
2
D. F. SYMONDS
JULY 15, 1970
FIG: 1

QUALIFICATIONS OF OPERATORS

Party Chief, Douglas Symonds, a geology student at U.B.C., took 2 years of chemical engineering before switching to geology. He has worked for the author for the past 4 years and is thoroughly experienced in all phases of mineral exploration, in particular Crone E.M., magnetometer and geochemical surveys.

Bruce Miller and Bill Mckenzie have worked for the author for the past 2 years and were thoroughly trained geochemical samplers previous to their employment on the property. Both worked under strict supervision of either Symonds or the author.

GEOCHEMICAL SURVEY

I. Soil Survey

a) Soil Development

Soil development is relatively immature. Both the organic Ao and the enriched B horizons are poorly developed. The leached A_1 horizon was absent in the majority of the samples.

The soil consists of glacial till, typlical of the general area.

b) Linecutting Grid

A grid was established in a reconnaissance fashion by chain and compass. Lines are spaced 1,000 feet in a northwesterly direction. A baseline 7,000 feet long runs perpendicular to the lines and provides survey control.

I. Soil Survey (continued)

c) Field Procedure

Samples were collected every 400 feet on all lines. The sample was put in a brown paper envelope and careful notes were kept regarding depth, color, type horizon and texture. In occasional locations, samples were collected from different depths and different horizons to properly evaluate analytical results. In general, the B horizon was collected.

d) Analytical Procedures

All samples were sent to Bondar Clegg & Co. in North Vancouver.

The minus 80 mesh fraction was used; weight of sample 0.5 gram, volume of dilution 10 ml. extraction with hot HNO_3 and $HClO_4$. Analysis by atomic absorption Spec (Techtron AA4) nitrous and acetylene for Mo and Acetylene and air for Cu and Zn. The analyst was Ken Bright.

e) Interpretation of Results

No difference in results was noted in the metal content of samples taken from either different depths or different types of horizons.

From experience in the general area it can be concluded that all results fall in the low background range, i.e. Mo less than 3 ppm, Cu less than 20 ppm, Zn less than 200 ppm.

I. Soil Survey (continued)

e) Interpretation of Results (continued)

Two higher Copper values of 125 ppm and 175 ppm at the southern end of lines J and H are considered entirely erratic and without significance.

It was not considered necessary to draw up a frequency distribution curve. The soil survey did not produce any anomalies. The glacial overburden is probably too thick to allow for geochemical expression in the soil even if mineralization was present in bedrock.

II. Biogeochemical Survey

a) Field Procedure

Timber consisted mostly of Douglas fir, lodgepole pine, alder and minor unidentified species. Of these, the Douglas fir was sampled every 400 feet on all lines. The second year growth was collected and put in medium large brown paper bags to speed up the drying process. Notes were kept regarding location and size of trees.

b) Analytical Procedures

Sample preparation includes careful drying of the samples and subsequent ashing at a low temperature for 24 hours to prevent loss of metal through evaporation. After ashing, analysis proceeds by the same process as soil samples.

II. Biogeochemical Survey (continued)

c) Interpretation of Results

All results, with few exceptions, conform to the regional background range. Mo: 0-25 ppm, Cu 100-300 ppm, Zn 1300-3000 ppm.

Two high Mo samples of 49 and 70 ppm occur on and adjacent to line J (2000 E) at 3200 N. and 3600 N. These values are considered erratic and of no significance. The same applies to a Copper content of 450 ppm at 4000 E, 1600 N.

No anomalous areas could be detected.

ELECTROMAGNETIC SURVEY

Instrument used: Crone dual frequency unit.

Low frequency : 400 hz.

High frequency : 1600 hz.

a) Field Procedure

A coil separation of 200 feet was used. Readings were taken every 100 feet over the magnetically anomalous areas. Readings were plotted at the "Chief's" position, the Chief's coil being always to the N. or E. of the helper's coil.

ELECTROMAGNETIC SURVEY (continued)

b) Interpretation of Results

Complex variations in electromagnetic response were recorded on magnetic Anomaly "A". A number of steeply dipping conductive zones are indicated with a northeasterly strike and, as well, a broad horizontal conductor between 10 N. and 30 N. on lines 19E and 21E and to a lesser extent on line 23E. Conductivity is moderate to good with dip angles in the 5 - 10 degree range, and low to high frequency ratios in the 0.8 range indicating possible disseminated sulphides.

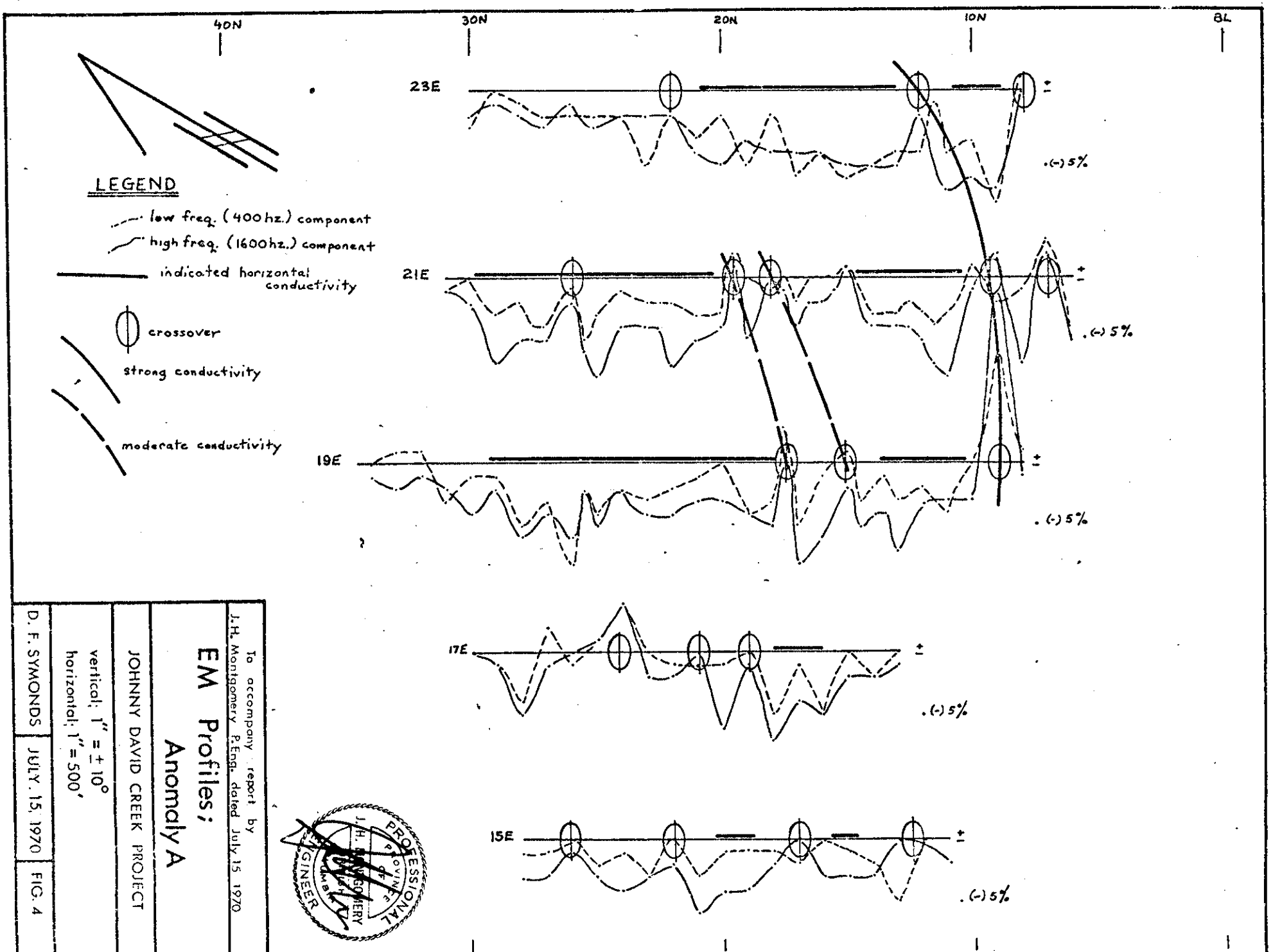
On Anomaly "B" a steeply dipping, moderately conductive body is indicated. Low to high frequency ratios are best on line 60E, 32N.

MAGNETIC SURVEY

Instrument used: Sharpe MF-1

a) Field Procedure

Readings were taken at intervals of 200 feet on the reconnaissance grid and at intervals of 50 feet on lines spaced 200 feet on details of Anomaly "A" (fig. 4). Traverses were closed each day to allow for adjustment due to diurnal variation. Extra readings were also taken on Anomaly "B" (fig. 7)



To accompany report by J.H. Montgomery P.Eng. dated July 15 1970

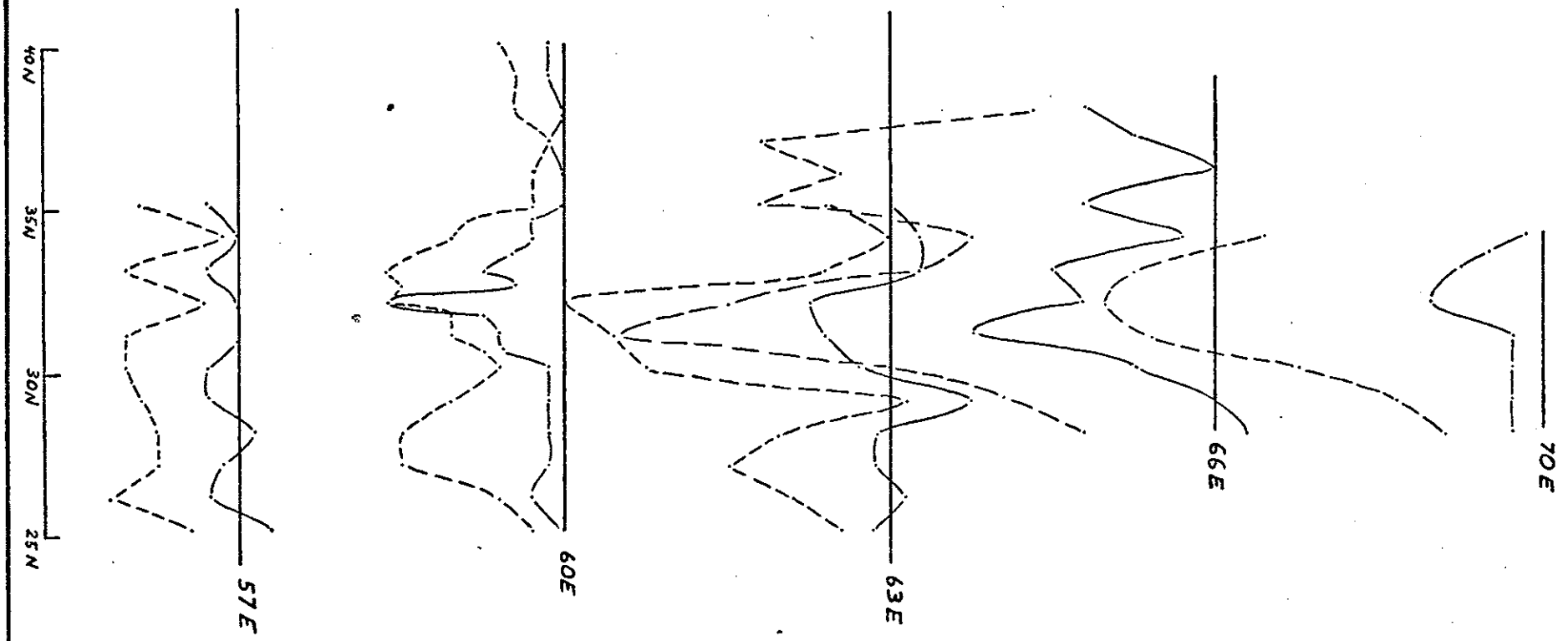
EM Profiles; Anomaly A

JOHNNY DAVID CREEK PROJECT

vertical; 1" = ± 10°
horizontal; 1" = 500'

D. F. SYMONDS | JULY. 15, 1970 | FIG. 4

PROFESSIONAL ENGINEER PROVINCE OF MANITOBA J.H. MONTGOMERY



Low Frequency component

High Frequency component

PROFESSIONAL ENGINEER
J. H. MONTGOMERY
PROVINCE OF BRITISH COLUMBIA

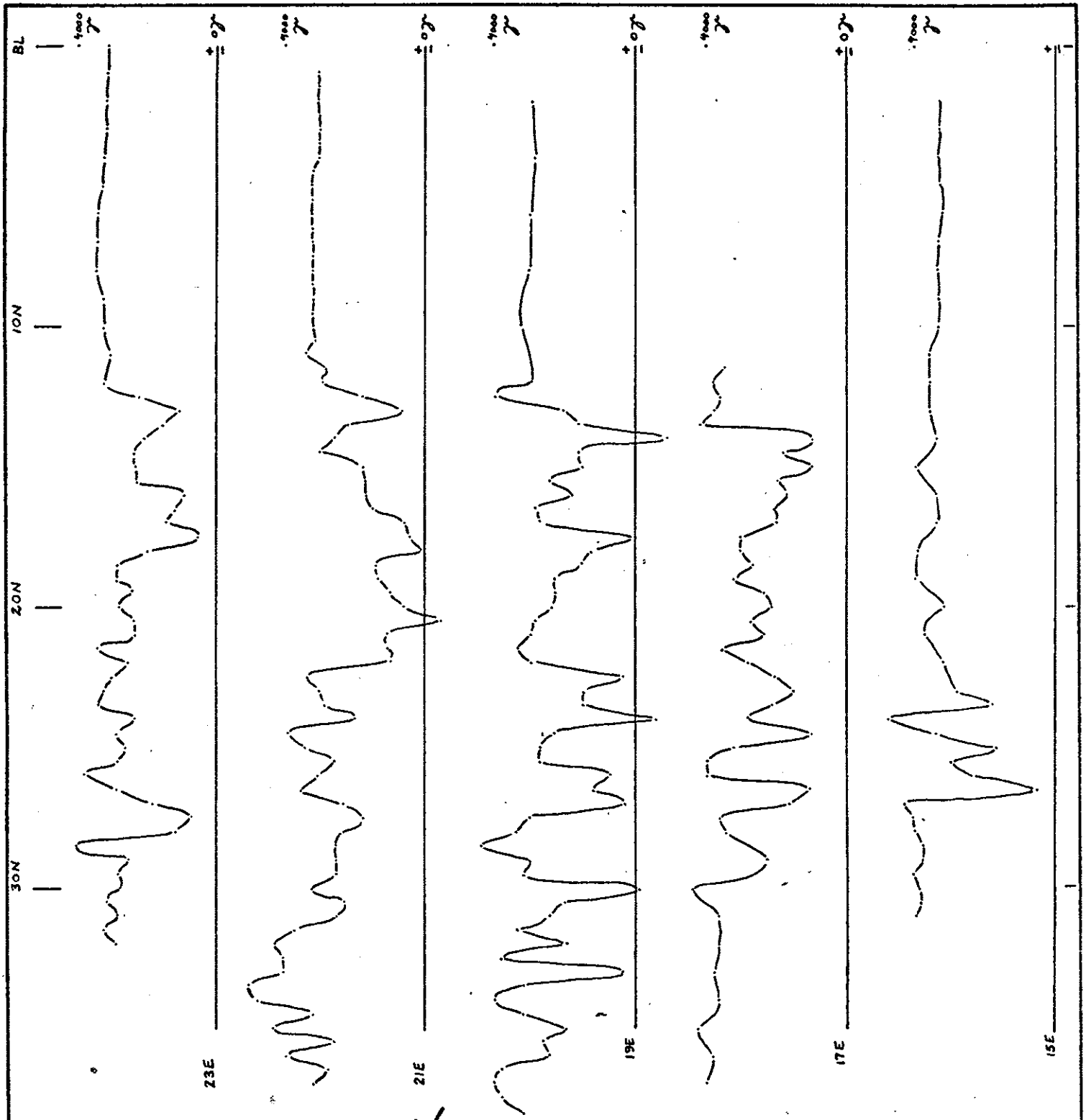
To accompany report by
J. H. Montgomery, P. Eng. dated July 15, 1970

EM Profiles; Anomaly B

JOHNNY DAVID CREEK PROJECT

vertical: 1" = ± 10°
horizontal: 1" = 500'

D F SYMONDS	JULY 15, 1970	FIG. 5



To accompany report by
J.H. Montgomery, P. Eng. dated July 15, 1970

Magnetic Profiles; Anomaly A

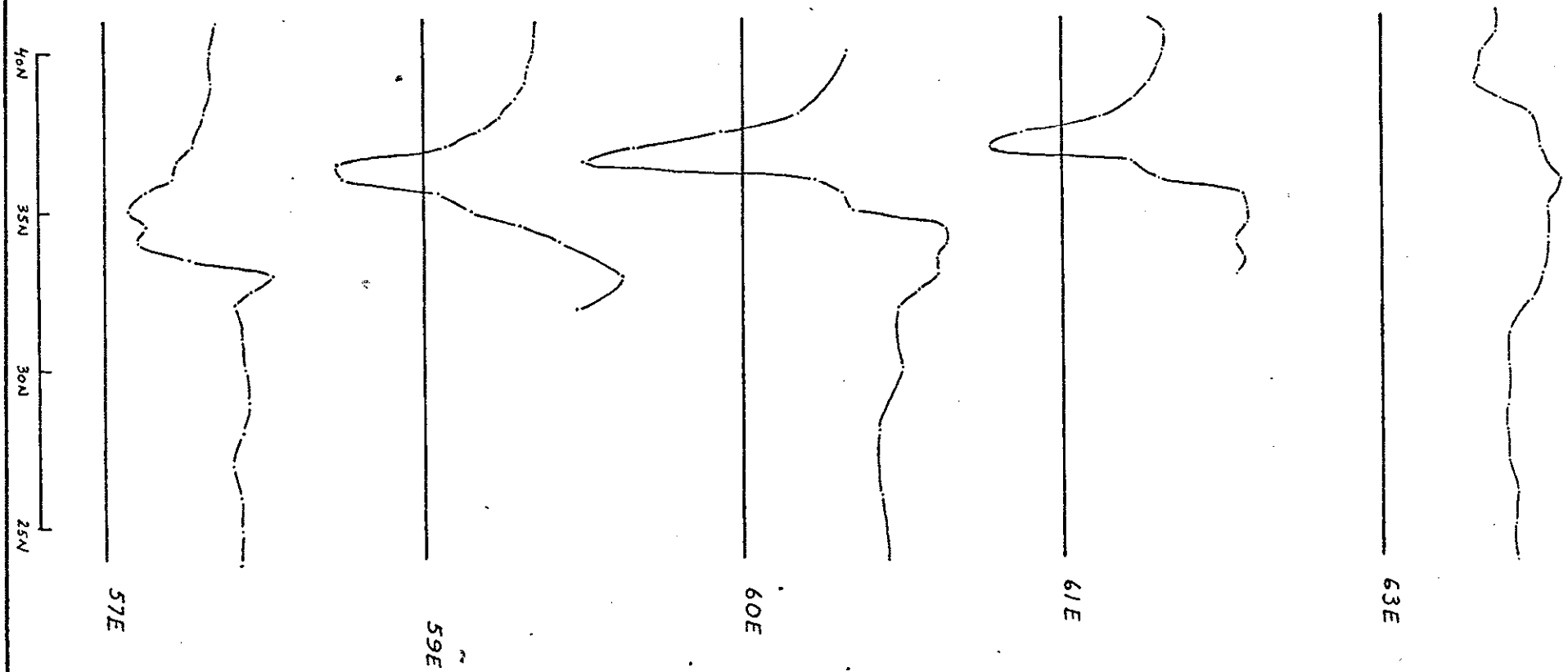
JOHNNY DAVID CREEK PROJECT

horizontal; 1" = 500'

vertical; 1" = 4000γ (±)

D. F. SYMONDS	JULY 15, 1970	FIG. 6

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. H. MONTGOMERY



To accompany report by
J.H. Montgomery, P.Eng. dated July 15, 1970

Magnetic Profiles; Anomaly B

JOHNNY DAVID CREEK PROJECT

vertical: 1" = ± 4000 γ
horizontal: 1" = 500'

D. F. SYMONDS	JULY 15, 1970	FIG. 7

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. H. MONTGOMERY

MAGNETIC SURVEY

b) Interpretation of Results

Two distinct anomalies are indicated.

Anomaly "A" as shown in fig. 4 is about 800 feet by 2,000 feet extending from 10 N. to 30 N. on lines 15E to 23E. The profiles indicate an abrupt change from a homogeneous bedrock to a complex bedrock with magnetic variations of several thousand gammas. No conclusions regarding the shape or size of the body can be made.

Anomaly "B" as shown in fig. 7 is a sharp linear anomaly at 37 N. on line 59E to 61E. Its amplitude is in the order of 8,000 gammas. From the shape of the curves and its occurrence, a dike-like body carrying magnetite is indicated. The strike of the dike would be parallel to the baseline with a dip to the southeast in the same direction as the gridlines.

CONCLUSION

No geochemical or biogeochemical anomalies were found.

Two coincident magnetic, electromagnetic and Induced Polarization anomalies, Anomalies A and B are indicated.

Two diamond drillholes, one on each of the anomalies, are recommended.

Respectfully submitted.

J.H. MONTGOMERY, P.ENG.

July 15, 1970

GEOPHYSICAL REPORT

on an

INDUCED POLARIZATION SURVEY

over Portions of The

Susan Claim Group, Johnny David Creek Project

Situated in the

Perow Area, Omineca Mining Division

Latitude 54° 34'N, Longitude 126° 26'W

N.T.S. 93 L/9

Field Work

October 24 to November 7, 1969

by

GEO-X SURVEYS LTD.

On behalf of

TAGUS SYNDICATE

Instrument Operators:

J. Hollenberg

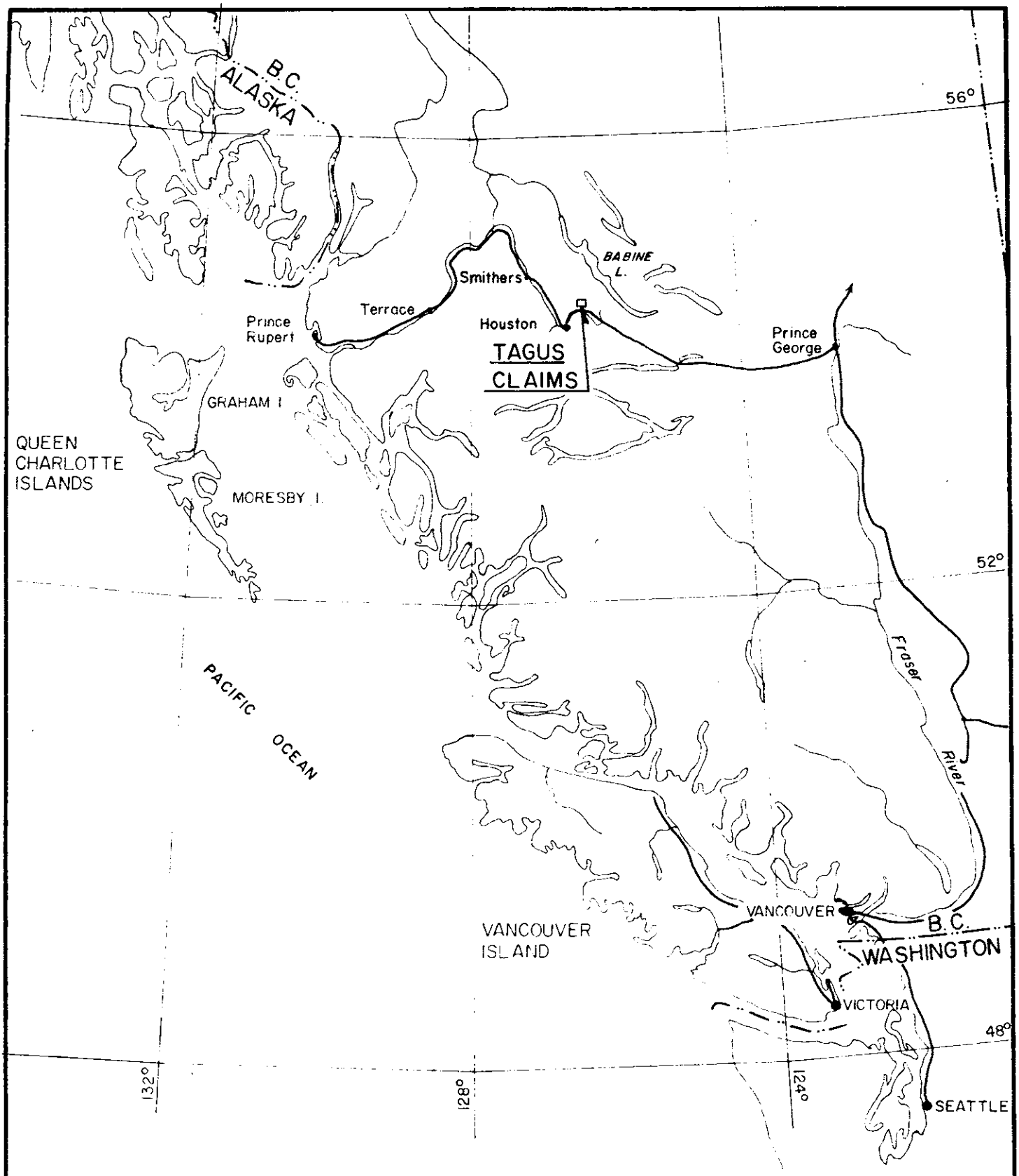
W. Bellamy

Report by:

G.E. White, B.Sc.
Geophysicist

D.R. Cochrane, P. Eng.

TABLE OF CONTENTS

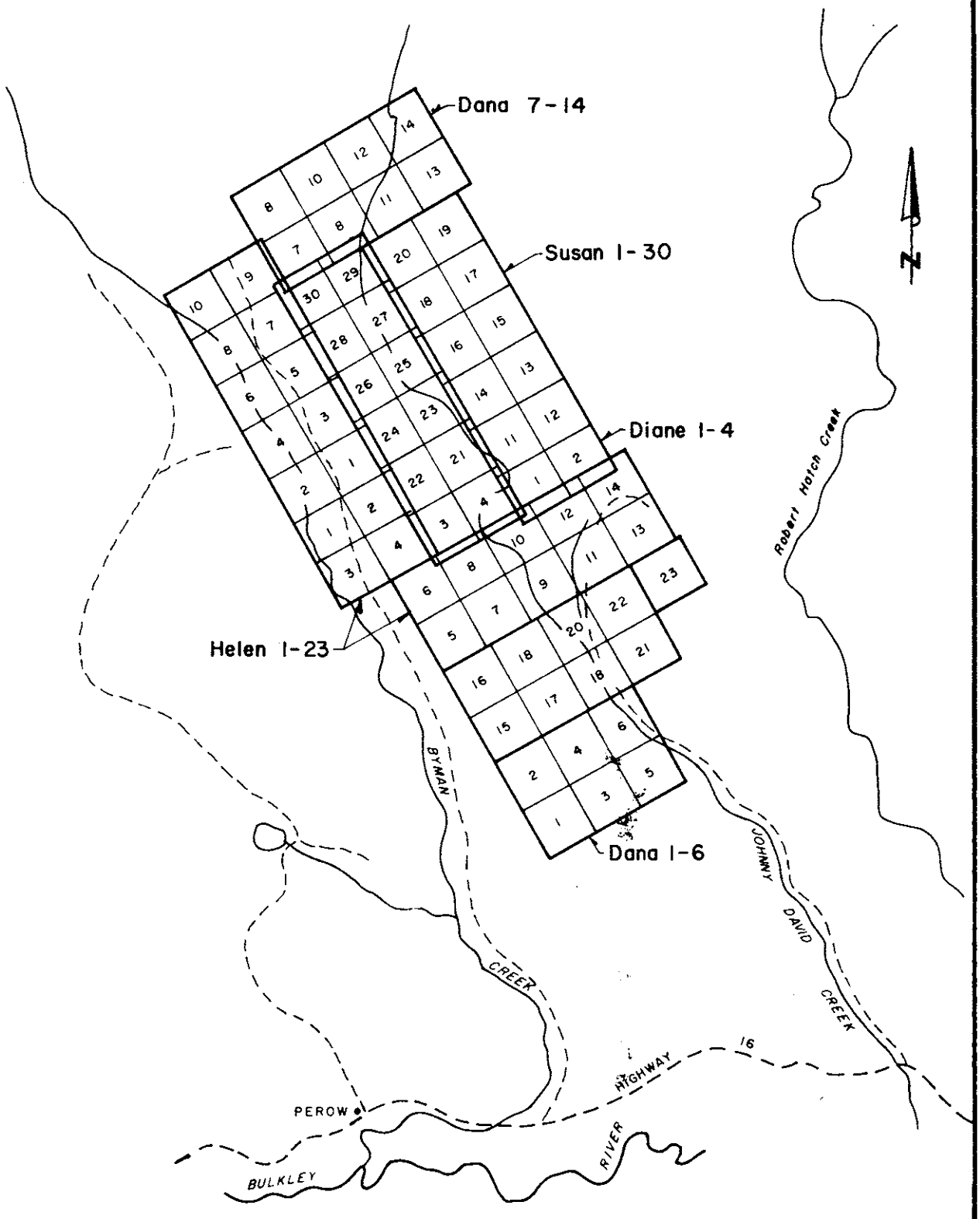


TAGUS SYNDICATE
BABINE LAKE AREA - OMINECA M.D.
BRITISH COLUMBIA

LOCATION MAP

GEO - X SURVEYS LTD.

Drawn D. E. Y.	Dated DEC. 5/69	Fig. No.
Checked	Job No. 1132	1



Copied From Claim Map Supplied By Client

0 1 2

MILES (APPROX)

TAGUS SYNDICATE
BABINE LAKE AREA - OMINECA M.D.
BRITISH COLUMBIA

CLAIM MAP

GEO - X SURVEYS LTD.

Drawn D.E.Y	Dated DEC. 5/69	Fig. No.
Checked	Job No. 1132	2

SUMMARY

From October 24 to November 7, 1969, Geo-X Surveys Limited, on behalf of Tagus Syndicate, conducted 5.5 line miles of induced polarization surveying on the Susan Claim Group located just north of the settlement of Perow in the Omineca Mining Division, British Columbia. A Hewitt Enterprises Pulse type induced polarization unit, deployed in a Wenner field array was utilized to record self-potential, apparent resistivity and chargeability.

Two areas designated the Western section and the Eastern section were surveyed. Anomalous chargeability zones characterized by peaks some 2 1/2 and 3 1/2 times background were located in the west and east respectively. The chargeability peaks are not excessively high but in view of the relatively low and even background they are distinct and obvious. The correlation of these data with the previously collected EM and magnetic information shows some obvious coincidence. Therefore, investigation as to the cause of these geophysical irregularities is recommended.

Respectfully submitted,

Glen E. White, B.Sc.
Geophysicist

D.R. Cochrane,
Professional Engineer

INTRODUCTION

During the period October 24 to November 7, 1969 a Geo-X Surveys geophysical field crew conducted 5.5 line miles of induced polarization surveying on the Susan group of mineral claims in the Perow Area, Omineca Mining Division, Province of British Columbia. The work was conducted on behalf of Tagus Syndicate. The purpose of the survey was to examine two areas, in which previous work had located anomalous electromagnetic and magnetic geophysical responses for possible over voltage effects by the induced polarization method. Correlation of the data would then guide future exploration of the property.

This report describes the instrumentation, field procedure and data normalization, and discusses the results obtained.

LOCATION AND ACCESS

The Settlement of Perow is on Highway #16 on the southeastern end of the Bulkley Valley in the West-Central Area of B.C., approximately 55 miles east of Smithers and 40 miles west of Burns Lake. The property, known as the Johnny David Creek project of which the Susan Claim Group is only a part, lies some 3 miles slightly east of north of the Perow Post Office. Normal access is by an unimproved dirt road,

which from a point on Highway #16 about 1 mile east of Perow proceeds north for a distance of approximately 5 miles, to the west side of the property.

CLAIMS

The Johnny David Creek project consists of the following claim groups:

Helen 1 - 23 inclusive

Dana 1 - 14 inclusive

Diane 1 - 4 inclusive

Susan 1 - 30 inclusive

These claims form a contiguous block of 71 mining claims. The above mineral claims are situated in the Omineca Mining Division and are described on the B.C. Department of Mines Minerals Map 93 L/9.

The survey was conducted on behalf of Tagus Syndicate, 805 - 850 West Hastings Street, Vancouver B.C.

GENERAL SETTING

The claims group is situated in the Nechako Plateau, a subdivision of the British Columbia Interior Plateau physiographic system. This is in general an area of low relief and of flat or gently rolling hills.
The local area is characterized by elevations ranging from about 2000 feet to 3500 feet with numerous small valleys and draws.

Glacial drift is widespread and a high percentage of the bedrock is obscured.

Geologically, much of the plateau is underlain by flat or gently dipping Tertiary lava flows which cover older volcanic and sedimentary rocks of the Takla and Hazelton groups, and intrusive rocks of Upper Jurassic and Cretaceous Age.

Bulletin No. 48 Stuart S. Holland, Landforms of British Columbia A Physiographic Outline, British Columbia Department of Mines and Petroleum Resources. 1964.

SURVEY GRID AND DATA PRESENTATION

The ground control grid was established by Tagus Syndicate previous to the induced polarization survey. The area surveyed consisted of a series of N30°W trending cross-lines (approximately) extending from an N60°E trending base-line(approximately true). In the western portion of the property the lines are 200 feet apart and extend from 15 to 23 east and from 4 to 36 north. In the eastern portion, the lines are 300 feet apart and extend from 57 to 70 east and from 20 to 45 north. They are roughly cut out and are flagged at 100 foot intervals.

5.51 line miles of induced polarization surveying was completed in all, and consisted of the following:

five point one five (5.15) line miles of reconnaissance surveying, at an "a" spacing and sampling interval of 200 feet; and .36 line miles of detail surveying with an "a" spacing and sampling interval of 100 feet.

The normalized induced polarization (chargeability), resistivity and self-potential data are shown on Figures 3A and 3B, in profile form and at a horizontal scale of 1 inch equals 200 feet. The vertical scales for the chargeability, resistivity and self-potential are 1" = 2 milliseconds, 1" = 300 ohm feet, and 1" = 40 millivolts respectively.

GENERAL CONSIDERATIONS OF THE PULSE TYPE INDUCED POLARIZATION METHOD

Two varieties of induced polarization surveys are in common use today in mineral exploration. The first is the time domain or pulse type method in which a steady direct current is impressed on the ground for a few seconds and then abruptly terminated. A fraction of a second after cessation of current impulse, the decay voltage, (caused by sub-surface capacitive-like storage) is measured. The second method is the variable (dual) frequency technique or frequency domain. In this variety, the percentage difference between the impedance (a.c. resistance) offered at two separate frequencies, is measured.

The Hewitt (HEW 100) I.P. unit is a time domain unit and the exact method of measurement is outlined in the

field procedure section.

The reader is referred to Wait, J.R. (1966), for a thorough treatment of frequency domain, and Seigel, H.O. (1966) and/or Brant (1966), for a discussion of time domain.

I.P. effect occurs when a current is passed through a volume of rock containing electronic conductors. Geophysical electronic conductors, or "metallic minerals" include most sulphides, (pyrite, chalcopyrite, bornite, molybdenite) certain oxides, clays, graphite and certain micas.

Apart from the sulphides, minerals with highly unsatisfied basal lattice surfaces act as leaky condensers and give rise to I.P. effects. All common rocks are responsive to some degree, and this response is designated background. It is often equivalent to one volume percent of scattered pyrite, and probably due to unsatisfied charges at lattice imperfections, mineral and rock boundaries, fractures, and so on. Background in various parts of B.C. with the HEW - 100 I.P. unit is as follows:

Area	Lithology	Background (mv/v)
Highland Valley	Guichon Batholith	2.5 to 4.0
Aspen Grove	Nicola Volcanics	4.0 to 7.5
Cassiar	Lower Paleozoic sediments	1.5 to 5.0

Factors other than the amount of metallic conductors which affect I.P. response are grain size, conductivity of mineral, porosity, tortuosity (pore geometry), type of gangue minerals, composition and amount of pore fluid, degree of alteration, and mode of mineralization (disseminated, lode, vein type, etc.).

The apparent resistivity is also measured during the I.P. survey. Rogers, (1966), has pointed out that the resistivity of rock is only slightly influenced by changes in the sulphide content at low levels. Much of the change is due to other effects such as moisture content, fracturing, pore space, ground water, extent, degree and type of alteration, type of sulphides and mode of sulphide distribution, etc. However, alteration in combination with increased sulphide content, not uncommonly affects the resistivity significantly. Unfortunately , there are many additional causes for resistivity variation and rarely can sulphides be recognized or predicted from resistivity data alone.

Background d.c. apparent resistivity in various parts of B.C. with the HEW - 100 I.P. unit is as follows:

Area	Lithology	Background (ohm-feet)
Highland Valley	Guichon Batholith	1600
Aspen Grove	Nicola Volcanics	1000
Cassiar	Lower Paleozoic sediments	1000 - 2000

Previous to current impression, the receiving pots are balanced, and thus, the self-potential value in millivolts is often a useful geophysical tool. When metallic lustered sulphide minerals are situated in a suitable geological-hydrological environment, the sulphides oxidize and a natural or spontaneous "battery effect" occurs. Often the self-potential effect over sulphide bodies is negative and in the order of a few hundred millivolts.

With a Wenner electrode configuration, the self-potential and first derivative of the self-potential are valuable information if the transit interval is equal to, or is one-half the "a" spacing distance. In other cases, where the "a" spacing and transit interval are not evenly propertional, the self-potential results are of little useful value.

BIBLIOGRAPHY

Frequency Domain:

Wait, J.R. (1951) Editor, Overvoltage Research and Geophysical Applications. Longon, Pergamon Press.

Time Domain:

Brant, A.A. (1966) Examples of Induced Polarization Field

Results in the Time Domain - Society of Exploration Geophysicists' Mining Geophysics, Volume I, Case Histories.

Seigel, H.O. (1966) Three Recent Irish Discovery Case Histories Using Pulse Type Induced Polarization - S.E.G. Volume I, Case Histories - p.p. 341

Rogers, G.R. Introduction to the Search for Disseminated Sulphides, S.E.G. Volume I.

FIELD PROCEDURE

A Hewitt Enterprises Pulse Type IP was used throughout the survey.

Instrument specifications are described in Appendix IV.

The standard Wenner electrode array was deployed with a reconnaissance "a" spacing (one third the distance between the current electrodes) of 200 feet, and a detail spacing of 100 feet.

A brief description of the field procedure follows: Prior to voltage application, the self-potential is balanced and recorded, between the two receiving pots "a" feet apart. Normally a voltage of 250, 500 or 1000 volts is impressed between the back electrode (one "a" behind the instrument)

and front electrode (two "a" in front of the instrument). The electrodes in high ground resistivity stations, consist of a single steel or aluminum stake, and in low resistivity areas, of multiple aluminum foil electrodes situated about a central metal stake (to increase ground bearing, and therefore current and voltage). A four second pulse of d.c. current is applied, during which time the I (current in milliamperes) and dV (impressed EMF in millivolts) is observed and recorded by the operator. 0.3 seconds after cessation of pulse, the residual (decay) voltage is integrated for 0.8 seconds (on integration function #1). From these data, the apparent d.c. resistivity and normalized induced polarization value may be calculated, as described in the data reduction portion of this report.

INDUCED POLARIZATION DATA REDUCTION

The following information was recorded by the instrument operator at each pulse station:

1. The property, operator's initials, job and page number, "a" spacing, transit interval and remarks on topography.
2. The line and station co-ordinates;
3. The self-potential reading in millivolts (S.P. mv);
4. The current in milliamperes (I ma);
5. The impressed emf in millivolts (dV mv);

6. The induced polarization decay voltage in millivolts (IP mv);
7. The resistor capacitor switch (R.C.) setting;
8. The current electrode voltage switch value;
9. The integration function switch (I.F.)setting;
10. The pulse time in seconds.

From this data, the apparent resistivity is calculated from the following relation:

$$\rho = \frac{2\pi \times a \quad dV}{I \ (ma)}$$

Where: ρ = apparent resistivity in ohm-feet

π = 3.1416

"a" = 1/3 distance between the current electrodes

The normalized IP value is obtained by utilization of the following relation:

$$\text{IP norm} = \frac{\text{IP (mV)} \times 100 \times k \times \text{R.C.}}{\text{dV (mV)}}$$

Where: IP norm = normalized IP in millivolt seconds per millivolt or milliseconds

K = a constant depending on the IF setting.

R.C. = resistor - capacitor shunt.

The final apparent resistivity, self-potential and chargeability valves are plotted at a point midway between the receiving pots.

DISCUSSION OF RESULTS

The normalized induced polarization response in the western section (chargeability) (Figure 3A) varied from a low of .2 to a high of 5 milliseconds. Background chargeability is approximately 2 milliseconds. An apparently continuous anomalous chargeability zone, trending easterly from 15E - 12N to 21E - 9N, is some 2 1/2 times background and was subsequently detailed at a 100 foot "a" spacing. The results obtained suggest a causitive body consisting possibly of two parallel bands, each about 100 feet wide, some 60 - 100 feet beneath the surface, dipping gently to moderately northerly. The resistivity data varies from a low of 125 ohm-feet to a high of 600 ohm-feet and decreases slightly in the areas of high chargeability. Correlation of the ground magnetometer data with the induced polarization results indicates that the zone of anomalous chargeability runs parallel to, but is offset from a ENE - WSW trending magnetic disturbance. The electromagnetic data located several strong conductors in this same area. The self-potential results show only relatively small changes over the anomalous area.

The eastern section of the area surveyed, (Fig. 3B) contains the greatest variation in chargeability, from a low

of -2.2 milliseconds to a high of 7.4 milliseconds (some 3 1/2 times background) on line 63E. Detail surveying with the 100 foot "a" spacing confirmed this anomalous chargeability response. Two NE - SW trending anomalous chargeability zones were located. Apparent resistivity values were very low, in the order of 50 - 200 ohm-feet, thus the effective depth penetration of the potential field might possibly be limited to some 30% of the "a" spacing. This would indicate that a causitive body will be closer to surface than the "a" spacing distance. Thus the chargeability response on line 63 may therefore be caused by a chargeability feature some 25 - 60 feet beneath the surface. The self-potential data indicates steeper rate changes in this area than in the western one, some of which appear to be coincident with the areas of high chargeability. Correlation of the combined geophysical data suggests that the anomalous chargeability zones may be caused by (tabular and/or lenticular bodies located in a shear zone or associated with a litho-logic contact.

Respectfully submitted,

Glen E. White, B.Sc.,
Geophysicist

Read and checked by:

D.R. Cochrane,
Professional Engineer

PROFESSIONAL ENGINEER
PROVINCE OF
D. R. COCHRANE

APPENDIX I

PERSONNEL

Name: WHITE, Glen E.

Education: B. Sc. Geophysics - Geology
University of British Columbia.

Professional Associations: Assoicate member of Society of Exploration Geophysicists.

Experience: Pre-Graduate experience in Geology-Geochemistry-Geophysics with Anaconda American Brass.

Since Graduation in 1966 in Geophysics - Geology, has obtained experience in Mining Geophysics with Sulmac Explorations Ltd.

Airborne Geophysics with Spartan Air Services consulting on second derivative.

Micro-Gravity project with Velocity Surveys Ltd.

Recently acted as mining Geophysicist and technical Sales Manager in the Pacific north-west for W. P. McGill and Associates

Presently employed as Airborne and Mining Geophysicist with Geo-X Surveys Ltd.

Active experience in all Geologic provinces of Canada has been obtained.

APPENDIX I

PERSONNEL

NAME: BELLAMY, Norman Warren

EDUCATION: Grade Ten - Fraser Lake Senior Secondary.

EXPERIENCE: Two and one half years in Underground Mines.

Five years with various companies doing field work in mining exploration.

Presently employed by Geo-X Surveys Ltd. since August 3, 1968 doing various types of field work under Professional supervision.

APPENDIX I

PERSONNEL

NAME: HOLLENBERG, Jack

EDUCATION: Grade XII

V.E.V. Graduation in Electronics
(All education obtained in the Netherlands)

EXPERIENCE: September 1964 - June 1967- P.M. Wright Electrical Co., Montreal, P.Q. Development and design of electric and electronic heating equipment and controls for industrial purposes.

June 1967 - October 1967 - Huntec Ltd., Toronto, Ont. Field operator and Geophysical technician involved mainly in induced polarization surveys.

May 1968 - May 1969 - Velocity Surveys Ltd., Toronto, Ont. Geophysical field technician, operator and draftsman for induced polarization, magnetometer, electromagnetic and geochemical surveys. Also employed by Velocity Surveys Ltd. in Vancouver, B.C.

May 1969 - present. Employed by Geo-X Surveys Ltd. as a Geophysical field technician and operator involved in all major field surveys, such as magnetometer EM , and induced polarization.

APPENDIX II

PERSONNEL AND DATES WORKED

A. FIELD CREW

Warren Bellamy	Operator	Oct. 23 - 31
Wayne Marsden	Helper	Oct. 23 - 31
Jack Hollenberg	Operator	Oct. 23 - 31
David Mowat	Helper	Oct. 23 - 31

B. REPORT PREPARATION

Glen E. White	Geophysicist	Nov. 1-3,12,14, 27-29
D.R. Cochrane	P. Engineer	Dec. 3-5

C. DRAFTING AND REPRODUCTION

Dave Yip	Draftsman	Nov. 24-26

APPENDIX III

COST BREAKDOWN

The following is a cost breakdown of an induced polarization survey covering the Susan Claim Group, Johnny David Creek Project in the Perow Area, Omineca Mining Division of B.C., completed for Tagus Syndicate through an Agreement with Geo-X Surveys Ltd. dated October 27, 1969.

As per contract, 5 line miles	
@ $420.00 per line mile	$2,100.00

S.L. Sandner, President

GENERAL SPECIFICATIONS OF THE HEWITT PULSE TYPE INDUCED POLARIZATION UNIT.

Transmitter Unit

Current pulse period (D.C. Pulse Manual initiated timer)	1 - 10 seconds
Current measuring ranges	0 - 500 0 - 1000 Milliamperes 0 - 5000
Internal voltage converter 27 volt D.C. 350 watt output with belt back batteries	250 500 volts D.C. 1000 Nominal

500 watts using 27 volts aircraft batteries.

Transmitter can switch up to 3 amps at 1000 volts from generator or battery supply with resistive load. The switching is done internally in the transmitter unit. Remote control output can switch up to 10 kilowatts of power by using a separate control unit. A remote control cord is supplied with auxiliary equipment.

Receiver Unit

Self Potential Range	0 - 1000 millivolts 1 millivolt resolution
Impressed EMF Ranges	0 - 30 0 - 100 millivolts 0 - 300 0 - 1000
Input Terminals with Three Combinations	P_1 - P_2 P_1 - P_0 P_2 - P_0
Induced Polarization Ranges	0 - 30 0 - 60 millivolt 0 - 90 seconds

Integration Time Periods	.8 seconds 1.6 seconds
Tandem Integration Time Periods	3 ranges plus 4 integration combinations.
Delay Time from Cessation of Current Pulse	.3 seconds

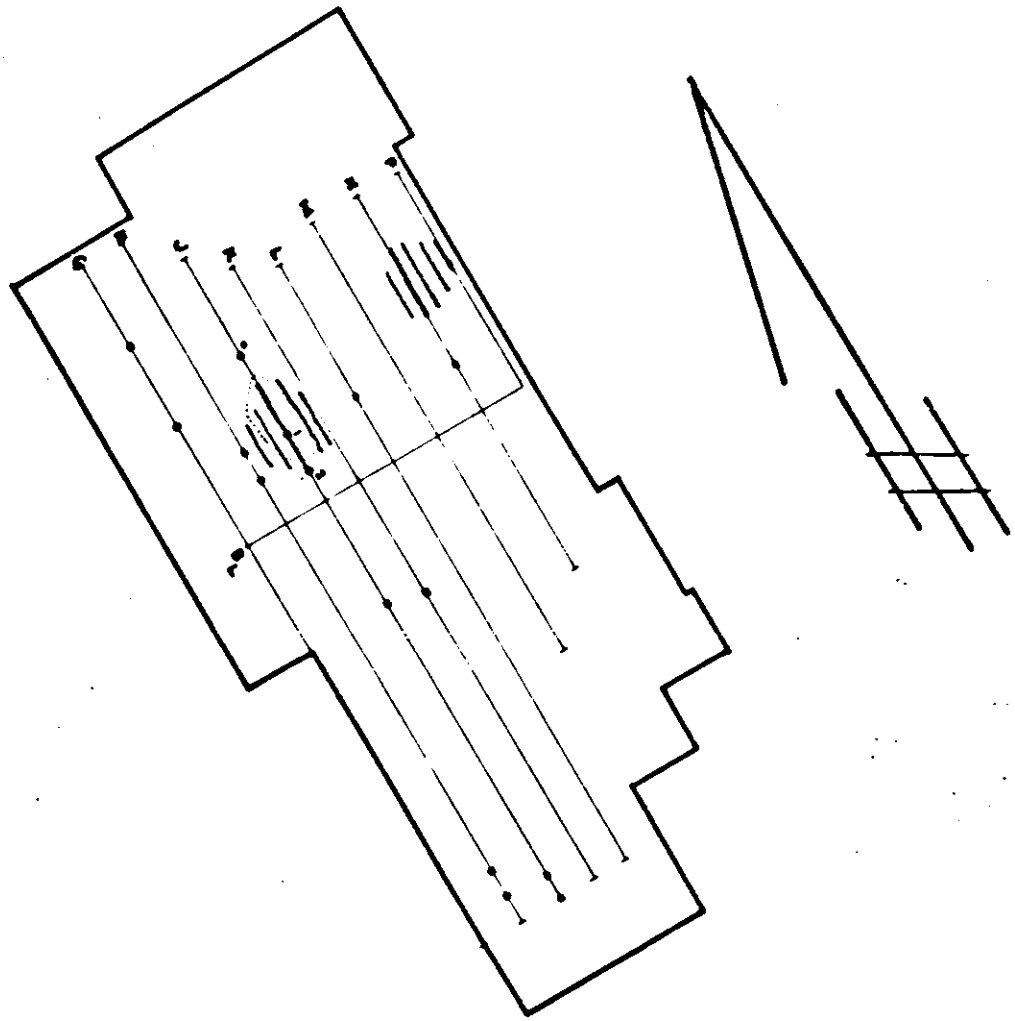
(Combined Photo Electric Coupled Receiver and Transmitter)

Operation Temperature -25° F - 120° F

POWER SUPPLY

Receiver Unit	4 Eveready E136 Mercury Batteries 2 Eveready E134 Mercury Batteries 2 Eveready E401 Mercury Batteries
Transmitter Unit	Sealed Rechargeable 8 amp. hr. belt pack capable of driving the converter at 350 watts for a minimum of one day's operation before recharge.

Manufactured by Hewitt Enterprises, Box 978A, Sandy, Utah, 84070
Phone: 801 571-0157



LEGEND

- proposed drill holes (2)
- anomalous soil or biogeochemical samples (Cu, Mo, Zn)
- outline of coincident magnetic - electromagnetic anomaly
- outline of claims (c.f. Fig. 2)
- outline of reconnaissance grid (geochem & mag)
- Crone dual freq EM grid (I.P. Survey)

TAGUS SYNDICATE

Proposed Drill Hole Locations

JOHNNY DAVID CREEK PROJECT

miles

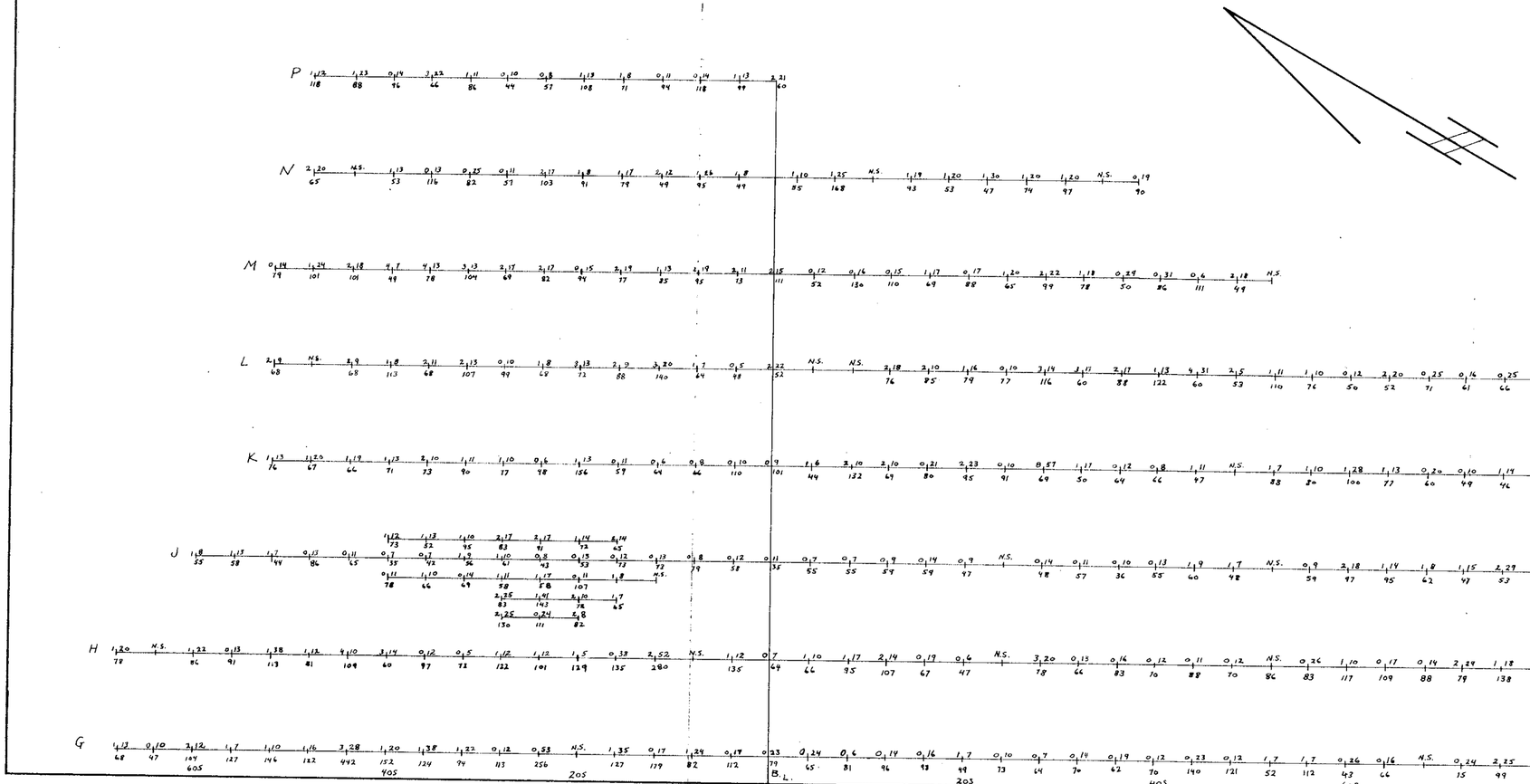
0 1

D. F. SYMONDS | AUG. 27, 1969 | FIG. 7

2738

M-3

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 223 MAP 2



LEGEND

Mo (P.P.M.)
Cu (P.P.M.)
Zn (P.P.M.)

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. H. MONTGOMERY

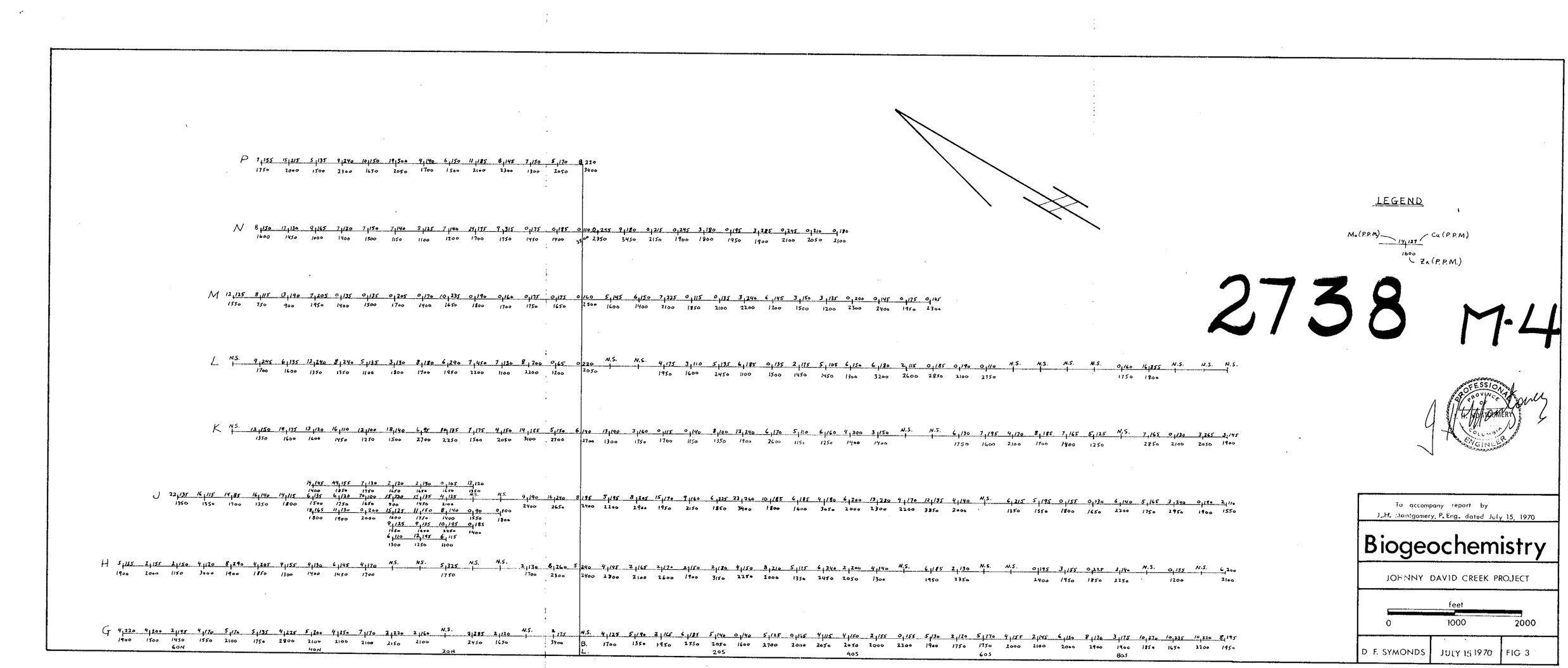
To accompany report by
J. H. Montgomery, P.Eng. dated July 15, 1970

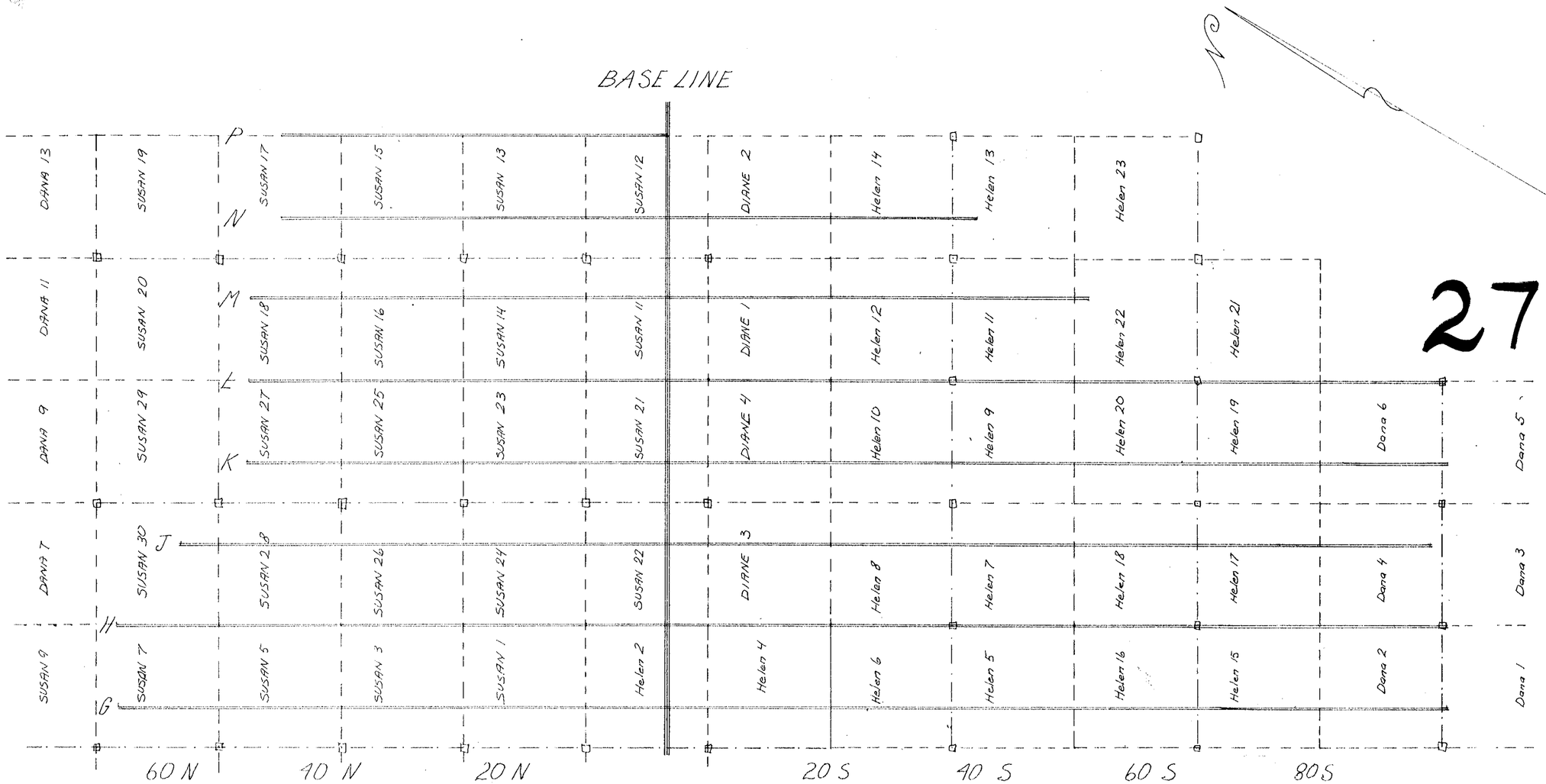
Geochemistry

JOHNNY DAVID CREEK PROJECT

feet
0 1000 2000

D. F. SYMONDS | JULY 15, 1970 | FIG 2


LEGEND
Mo (P.P.M.)
Cu (P.P.M.)
Zn (P.P.M.)
2738 M-4
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
To accompany report by J.H. Montgomery, P. Eng. dated July 15, 1970
Biogeochemistry
JOHNNY DAVID CREEK PROJECT
feet
0
1000
2000
D. F. SYMONDS
JULY 15 1970
FIG 3



Claim Boundary
Location Line
Post
Grid Lines

2738 M·9

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. H. MONTGOMERY

To accompany report by
J.H. Montgomery P.Eng.
Dated July 15 1970

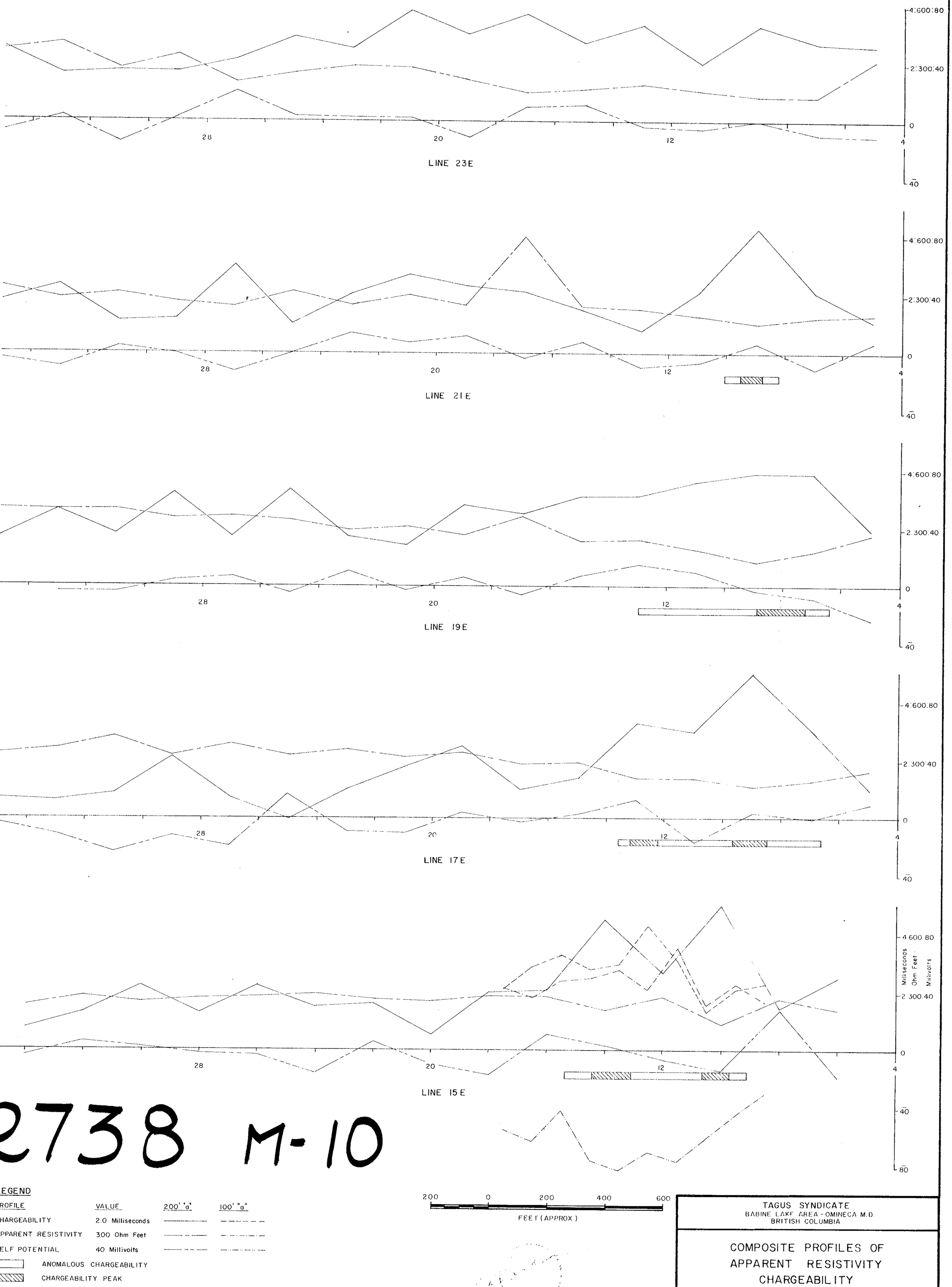
Plan Showing Location of Grid Lines in Relation to Claims

JOHNNY DAVID CREEK PROJECT

SCALE 1 Inch = 1000 Feet

R.W. July 15 1970

Fig 8



2738 M-10

LEGEND

PROFILE	VALUE	200' "a"	100' "a"
CHARGEABILITY	2.0 Milliseconds	———	- - - - -
APPARENT RESISTIVITY	300 Ohm Feet	— - — - —	- · - · - ·
SELF POTENTIAL	40 Millivolts	— - - — - -	- · - · - ·

ANOMALOUS CHARGEABILITY

CHARGEABILITY PEAK

200 0 200 400 600

FEET (APPROX)

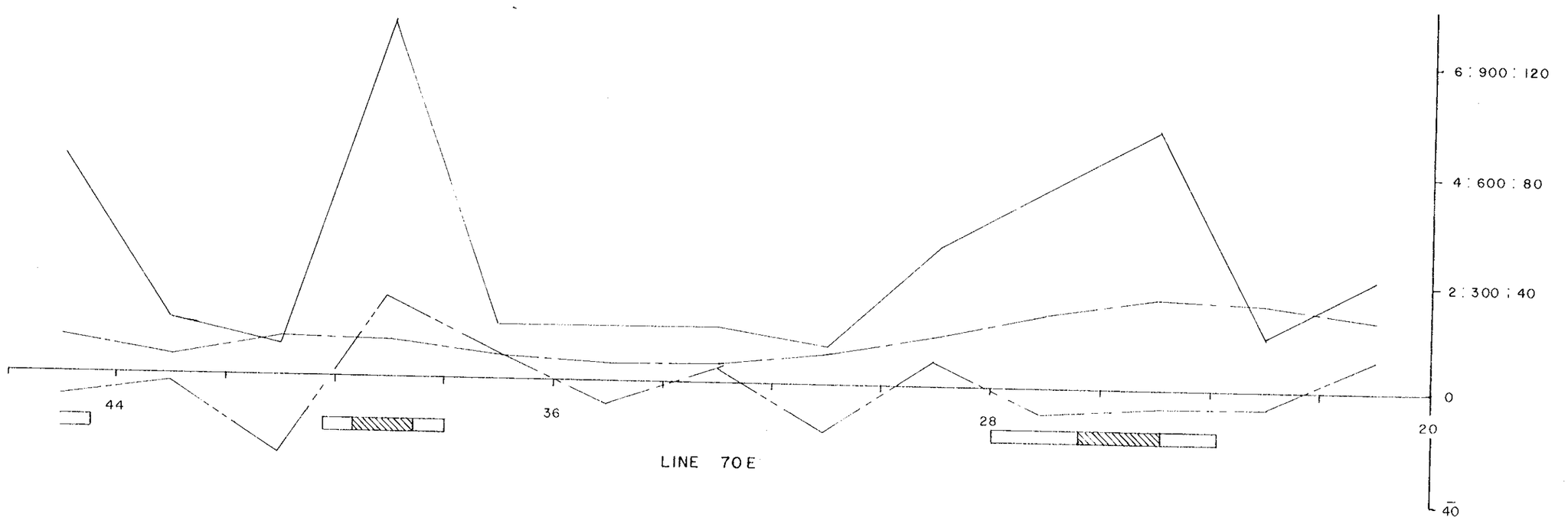
TO ACCOMPANY THE GEOPHYSICAL REPORT ON THE INDUCED POLARIZATION SURVEY ON THE DANA, DIANE, HELEN, & SUSAN GROUPS OF CLAIMS OWNED BY TAGUS SYNDICATE
BY G.E. WHITE, GEOPHYSICIST (READ & CHECKED BY D.R. COCHRANE, P. ENG.)
VANCOUVER, BRITISH COLUMBIA

GEO - X SURVEYS LTD.

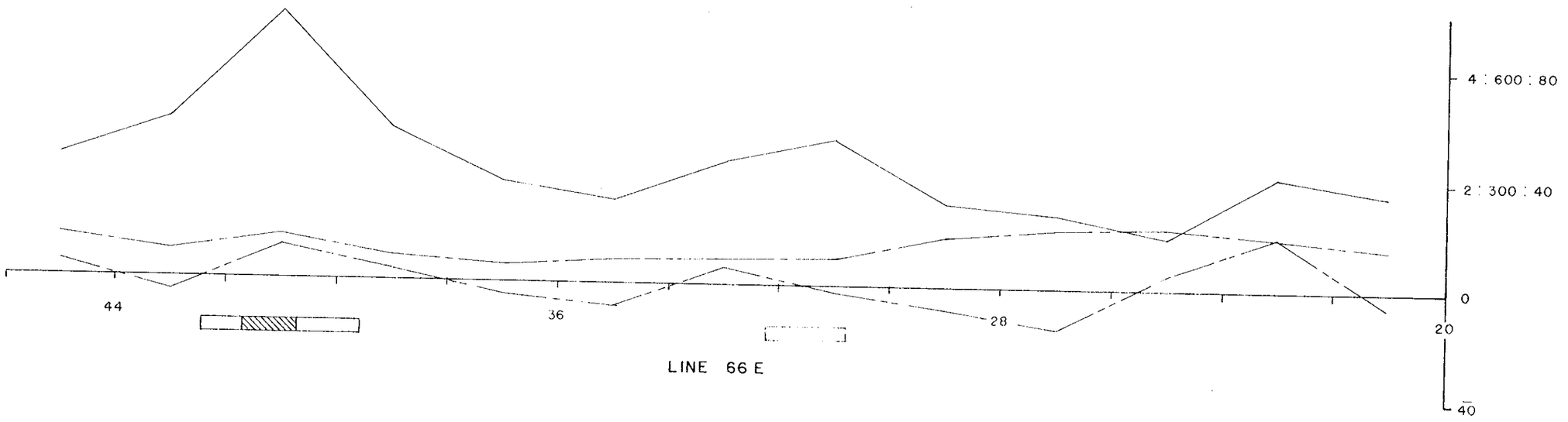
TAGUS SYNDICATE
BABINE LAKE AREA - OMINECA M.D.
BRITISH COLUMBIA

COMPOSITE PROFILES OF
APPARENT RESISTIVITY
CHARGEABILITY
SELF POTENTIAL

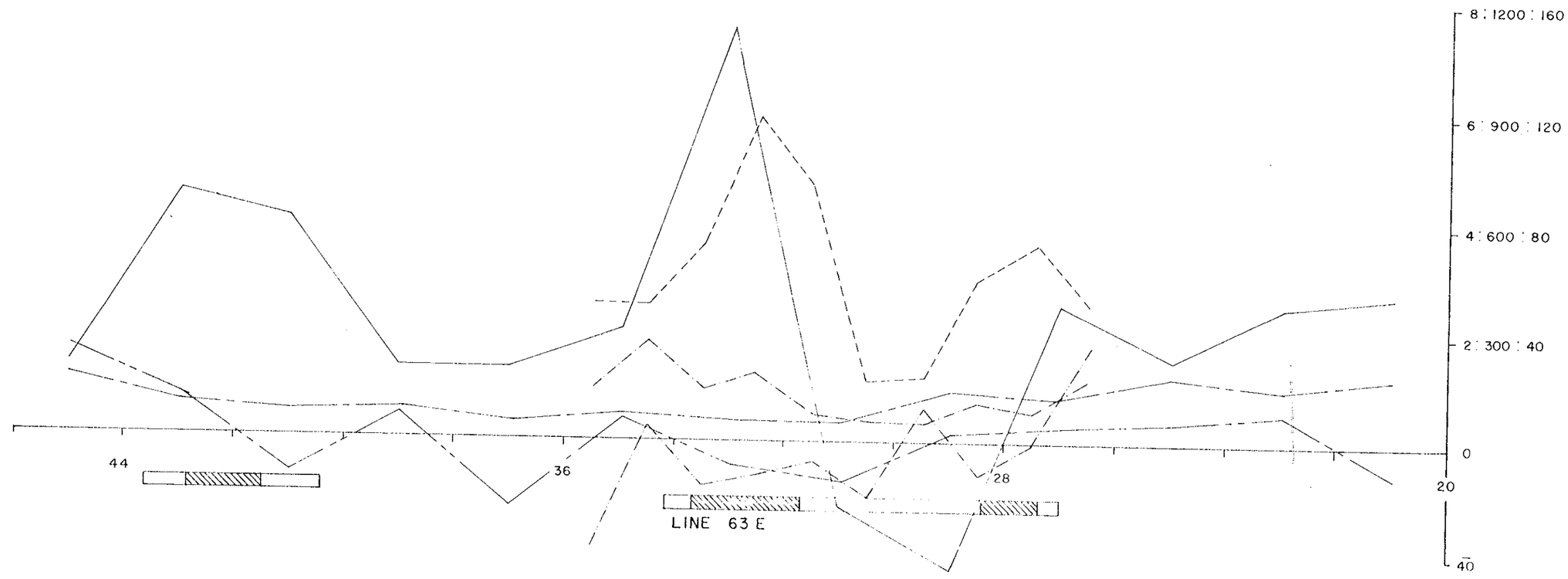
DRAWN	D E Y	JOB NO	FIG NO
DATED	DEC 5/69	1132	3-A
CHECKED	G		



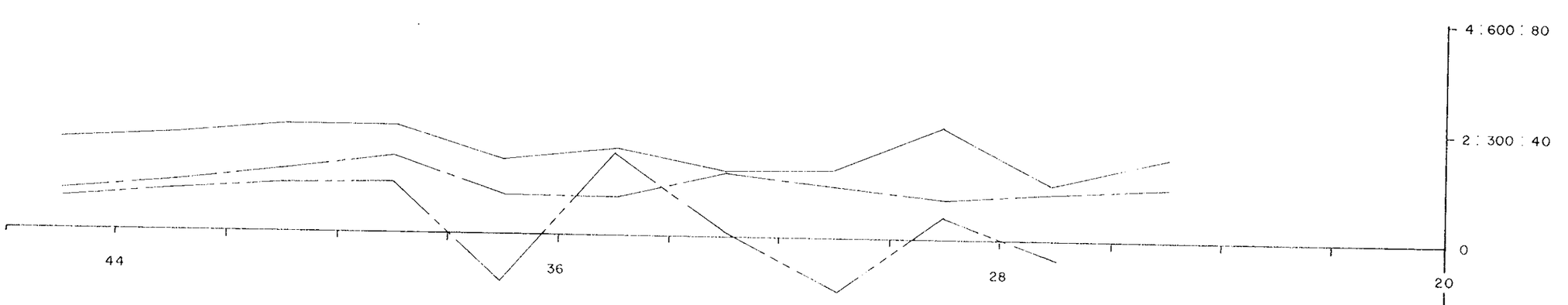
LINE 70E



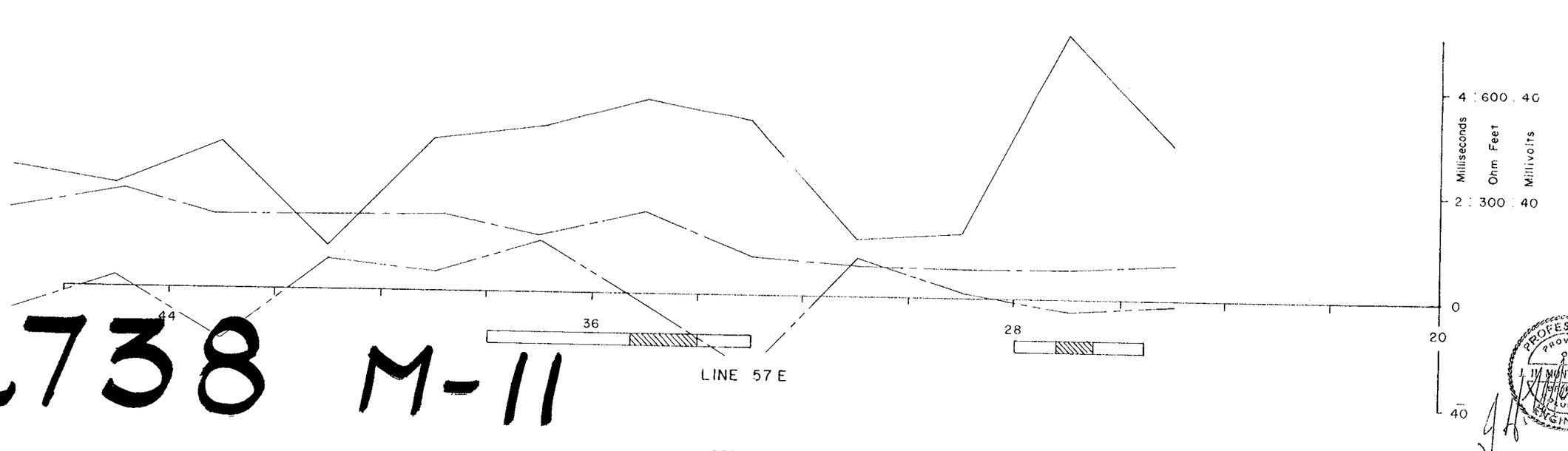
LINE 66 E



LINE 63 E



LINE 60 E



LINE 57 E

2738 M-11

LEGEND

PROFILE	VALUE	200' "a"	100' "a"
CHARGEABILITY	2.0 Milliseconds	———	- - - - -
APPARENT RESISTIVITY	300 Ohm Feet	— — —	— · — · —
SELF POTENTIAL	40 Millivolts	— — — —	— · — · —

ANOMALOUS CHARGEABILITY

CHARGEABILITY PEAK

200 0 200 400 600

FEET (APPROX.)

TO ACCOMPANY THE GEOPHYSICAL REPORT ON THE INDUCED POLARIZATION SURVEY ON THE DANA, DIANE, HELEN, & SUSAN GROUPS OF CLAIMS OWNED BY TAGUS SYNDICATE BY G.E. WHITE, GEOPHYSICIST (READ & CHECKED BY D.R. COCHRANE, P. ENG.) VANCOUVER, BRITISH COLUMBIA

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA J. M. MONTGOMERY

TAGUS SYNDICATE
BABINE LAKE AREA - OMINECA M.D.
BRITISH COLUMBIA

COMPOSITE PROFILES OF APPARENT RESISTIVITY CHARGEABILITY SELF POTENTIAL

GEO - X SURVEYS LTD.

DRAWN	D.E.Y.	JOB NO.	FIG. NO.
DATED	DEC. 5/69	1132	3-B
CHECKED			