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GEOPHYSICAL SURVEY

FILE NO:

by

Gary G. Lee, P.Eng.  
January-April 1993

SJ3-RECORDER  
RECEIVED  
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M.R. #.....\$.....  
VANCOUVER, B.C.

MARILYN Mineral Claims  
Atlin Mining Division, B.C.

Grant Numbers:

203605

203637

203628-203636 incl.

316795

316796

Grouping Document Numbers 3012891 and 3034274

NTS Map 104 N/12W

Latitude 59° 38', Longitude 133° 49'

Work done by owners:  
Bradley T. White and Gary C. Lee

Date submitted:

**GEOLOGICAL BRANCH**  
**ASSESSMENT REPORT**

June 1 1994

23,395

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## INTRODUCTION

### General

From January 20-23, March 25-31 and April 1-5, 1993 a two-man exploration crew (comprising the writer and Bradley T. White) completed a magnetometer and VLF survey on the MARILYN claim group. During this time, approximately 8 km of new grid was added to an existing grid (see previous assessment report "Magnetometer Survey" dated April 1991).

The survey was performed on the following claims: #203605, 203637, 203628-203636 incl., 316795 and 316796 (see claim map, page 2).

The grid consists of a total of approximately 19 km of flagged lines, of which 8 km are new, having been added in 1993.

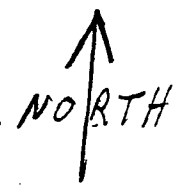
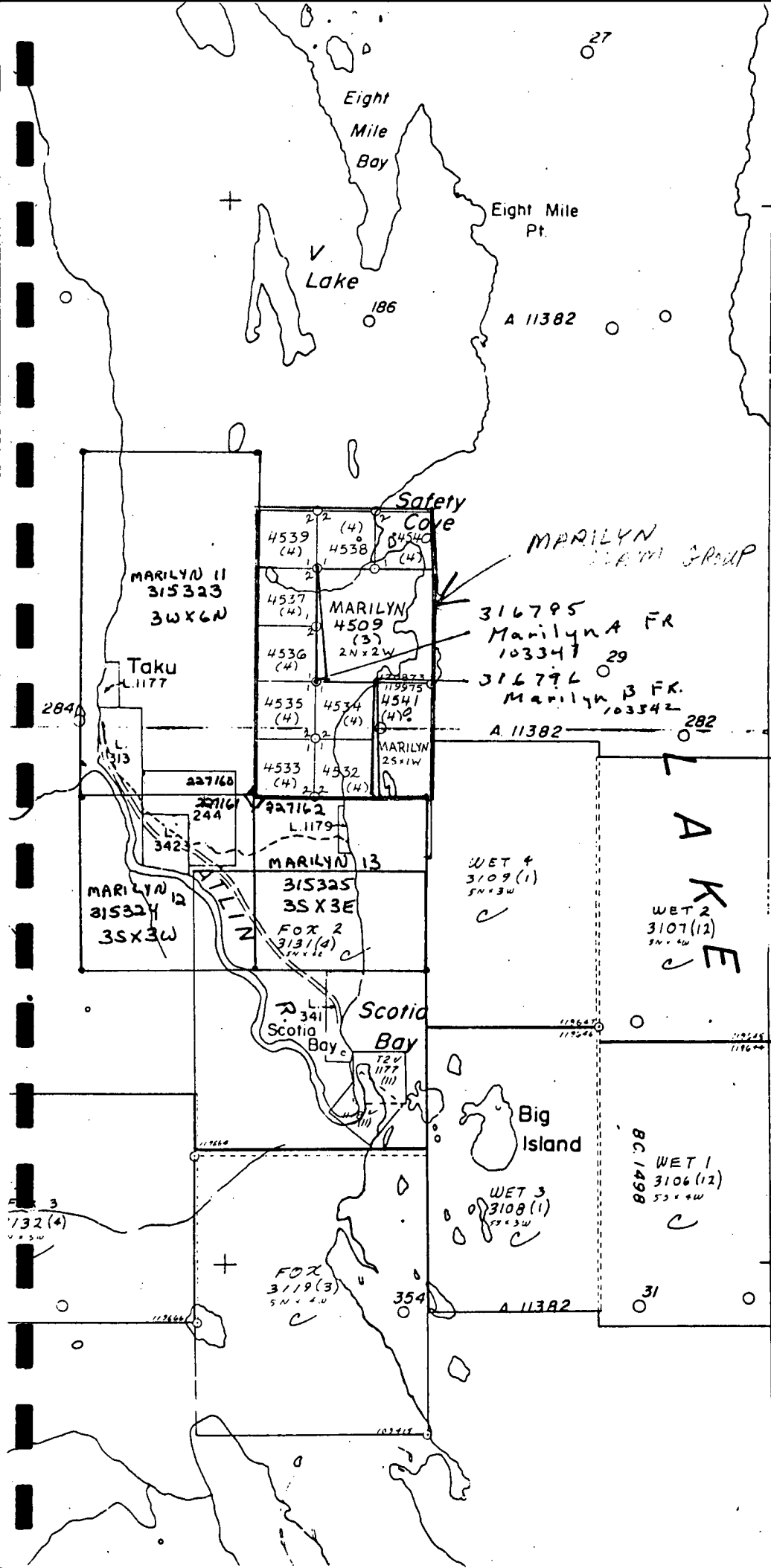
The claims are jointly held by myself (the writer) and Mr. White.

### Location and Access

The claims are located 9 km in a straight line northwest of Atlin, B.C. on the west shore of Atlin Lake. The location is clearly marked on the maps.

Access to Atlin is by an all-weather road connected to the Alaska Highway. Access to the claims from Atlin is by a gravel road (Fourth of July Road) 5.5 km north of the town and thence 4.5 km west across Atlin Lake on the ice by snowmobile or on water by boat. If one wishes to travel the complete distance by air, boat or snowmobile, this can be accomplished by departing from the shoreline in downtown Atlin and travelling a distance of 9 km.

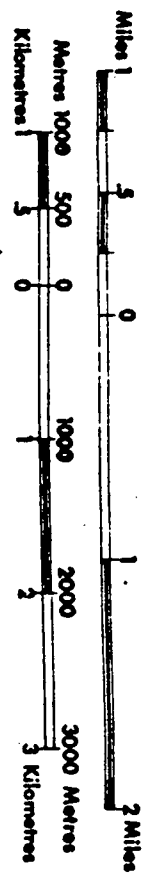
MARILYN CLAIMS  
NTS 104N/12W



SCALE  
1 : 50,000

TO EAST SEE MAP 104-N-12-E

- LEGEND
- CROWN-GRANTED MINERAL CLAIM
  - REVERTED C.O. MINERAL CLAIM
  - FORFEITED MINERAL CLAIM
  - VERIFIED LEGAL CORNER POST
  - LEGAL SURVEY
  - LEGAL CORNER POST & TAG NUMBER OTHER



## History

There is no evidence of any physical work on the MARILYN claims. The only past activity has been some prospecting and staking, which probably occurred as a result of the "lively" looking rocks along or just inside the shoreline. The government geologists obviously noticed this, as shown by their sampling in which a couple of samples were anomalous in some of the precious and base metals. This can be seen on Mihalynuk's map (Open File Map 1992-8) reproduced on page 7 for sample numbers MM91-13-9 and 12. Unfortunately, standard prospecting techniques have been very limited in the past, as indicated by the ground magnetic and VLF maps where most, if not all, the interesting structure is covered by shallow overburden where the magnetic and/or EM response is strong.

Since the discovery of gold in 1898-99, Atlin has been a producer of placer gold until the present. During this time, a few shafts (e.g. Yellow Jacket on Pine Creek, and the Beavis near Atlin) have been sunk in bedrock with the purpose of evaluating occurrences of lode gold. Over the past 10 years, there have been numerous junior companies plus a couple of majors (e.g. Homestake on the Yellow Jacket property at Pine Creek) exploring in the area particularly to the east of Atlin.

The closest significant activity to the MARILYN claims is the Beavis Mine property approximately 6 km to the southeast across Atlin Lake (see Geology map, page 6). Here, the first work reported was underground development performed in 1904. As reported in Archer-Cathro's Beavis Mine Property Study (July 15, 1987) by Mr. M. P. Phillips, the "workings consist of a steeply inclined shaft, lateral development on two levels (55 feet and 110 feet below surface) and a short winze from 55 Level to surface. The shaft is believed to have been sunk to about 150 feet below

surface." Gold occurrences in the Beavis will be mentioned in the economic geology section as outlined during recent (1987) shaft rehabilitation by B.Y.G. Resources Ltd.

In April 1991, a geophysical report followed by a geochemical report (November 1992) were submitted by the author.

### Topography

The elevation on the area surveyed ranges from 2200 to 2400 feet above sea level. With the exception of a few steep cliffs on Atlin Lake, the area is easily traversed. To the west of the survey area, the slopes begin to steepen, peaking at an elevation of 3000 feet (see copies of photographs, page 11).

### Grid and Field Procedure

The old picket lines were re-flagged and chained at 100 m spacing, with 25 m stations; the old stations were re-covered so that all past work could be accurately located in the field. The new lines were flagged at 20 m stations. This can be clearly seen on the Magnetic and VLF composite map (in pocket) where the blueprint of the sepia is much clearer.

A Geonics EM16 was employed for the VLF survey, with readings taken at 25 m<sup>or 20</sup> intervals. Both the in-phase and quadrature were read. All stations were read by facing the direction of the transmitting station and thence turning clockwise 90° before taking the readings. Most lines had to be read on Seattle and/or Hawaii since the conductor directions were unknown. With one exception, Seattle and Hawaii turned out to be the best stations, and the results are computer-plotted on the EM16 maps contained in the pocket.

Magnetometer readings were taken at 12.5 m and 10 m (on grid extension) spacings with a Scintrex MF-2 fluxgate magnetometer. This instrument reads the vertical component of the earth's magnetic field. Readings were taken to the nearest 10 gammas in short loops and corrected for diurnal. Each loop was subsequently corrected to adjacent loops throughout the survey.

#### ECONOMIC GEOLOGY

Aitken's geology map (1960) and the more detailed geology map (1992-8) compiled by Mihalyuk and Smith are shown on pages 6 and 7 respectively. A description of the rock types occurring in the general area of interest is reproduced on these maps and will not be repeated here.

Of more general interest to the east on Pine Creek, C. H. Ash and R. L. Arksey have noted in their paper entitled The Listwanite-Lode Gold Association in British Columbia: "Linears defined by aeromagnetic lows in serpentinite may delineate zones of carbonatization. Magnetite formed during the serpentization of ultramafic rocks produces a strong magnetic signature. Carbonatization results in the destruction of magnetite, creating zones of reduced magnetic susceptibility. The application of aeromagnetic lows as an exploration tool in delineating zones of carbonatization in ultramafics has been discussed by Gresens, et al (1982). This approach has been applied by Homestake Mineral Development Co. in the Atlin camp and has proven successful (D. Marud, personal communication, 1989)."

Seven miles to the west of Homestake's Pine Creek (Yellow Jacket) property is the Beavis property (see geology map, page 6). According to the report by M. P. Phillips in Archer-Cathro's Beavis Mine Property Study (July 15, 1989), the "geological setting and mineralization at the Yellow Jacket closely resemble those at the



GEOLOGY MAP (104-N)

G.S.C. - AITKEN - 1960  
 - ATLIN, MAP 1082A  
 LEGEND

Scale 1:250,000



QUATERNARY  
 PLEISTOCENE AND RECENT

**17** Glacial drift; alluvium

JURASSIC (May be in part older and younger)  
 COAST INTRUSIONS

**12** Undifferentiated granitic rocks; 12a, Black Mountain body, 12b, Fourth of July Creek body; 12c, pink granite; 12d, Mount McMaster body; 12e, diorite; 12f, alkaline granite

PENNSYLVANIAN AND PERMIAN  
 ATLIN INTRUSIONS

**9** Peridotite; meta-diorite and meta-gabbro; 9a, serpentinite; 9b, carbonitized serpentinite; 9c, talc-bearing (steatitized) ultramafic rocks

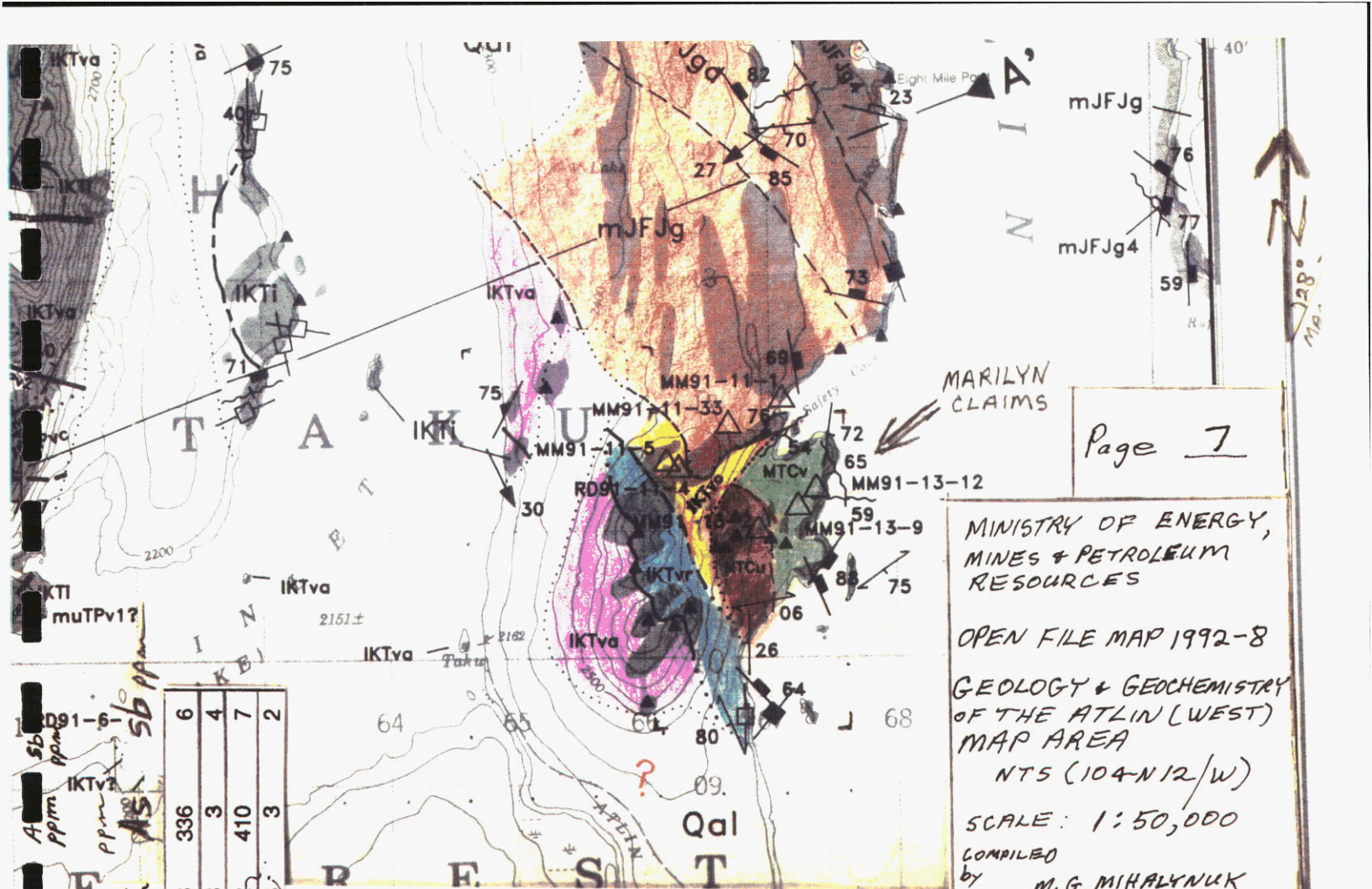
CACHE CREEK GROUP

**6** Chert, argillite, chert-pebble conglomerate and chert breccia; derived quartzite and schist; minor 7 and 8  
**7** Greenstone and volcanic greywacke; derived amphibolite; minor 6 and 8  
**8** Limestone and limestone breccia

PROTEROZOIC

**A** Undifferentiated, mainly volcanic rocks of uncertain, possibly several, ages. Andesite, basalt, agglomerate, tuff, breccia; diorite and quartz diorite porphyries; rhyolite. In part probably Triassic, probably equivalent to 10





Page 7

MINISTRY OF ENERGY,  
MINES & PETROLEUM  
RESOURCES

OPEN FILE MAP 1992-8

GEOLOGY & GEOCHEMISTRY  
OF THE ATLIN (WEST)  
MAP AREA

NTS (104-N12/W)

SCALE: 1:50,000

COMPILED  
by M. G. MIHALYNUK  
& M. T. SMITH

	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Sb ppm
MM91-13-12	40	1.2	560	6	33	6
MM91-13-2	<5	<0.4	2	6	8	4
MM91-13-9	250	3.2	14	112	72	410
MS91-11-7-3	<5	<0.4	7	38	548	2

**FOURTH OF JULY INTRUSIVE SUITE**

- mJFJg** (mJFJg where undivided. Polyphase, heterogeneous intrusive suite of Middle Jurassic (165 to 171 Ma U-Pb; Mihal et al., in review) age. West of Atlin Lake, the different phases form linear, north-northwest-trending belts, cut by a st of leucogranite and alaskite south of Deep Bay.)
- GRANITICS**
- IKTvc** Conglomerate and tuffaceous conglomerate Directly overlies and contains clasts of Fourth of July batholith and Cache Creek lithologies. Commonly well indurated and may grade into IKTr.
- IKTvr** Rhyolite: white-weathering, aphanitic flows and ashflows, locally with well-developed flow foliation and parallel platy parting. Commonly brecciated or tuffaceous
- IKTb** Basaltic andesite flows: Dark brown to black, with vitreous, acicular to tabular plagioclase up to 5mm. Flow units may be greater than 5m to less than 0.5m thick and either planar or with highly irregular bounding surfaces. Flow-top breccias are common. Interflow tuffs are generally blue-green, feldspar porphyritic, block to well-bedded ash tuffs. At one locality these flows rest on a probable paleosol.
- IKTva** Coarse andesitic to dacitic breccia and flows: Volumetrically the most significant unit in the Table Mountain volcanic complex. Blocks are rounded and range from 0.05 to 3m diameter, with 5-20cm most common. Blocks and flows vary in colour: orange, tan, maroon, grey or light green and generally display some flow layering and display weak but pervasive argillic alteration. Feldspar ± hornblende comprise 5-20%. Also includes sparsely feldspar-phyrlic mauve dacite with irregular flow banding and subconchoidal fracture. Coarse block accumulations are in part laharic. May contain rhyolitic blocks. Locally intercalated with IKTa.
- MTCv** Volcanic rocks: massive, green to grey or brown weathering, fine-grained basalt flows and breccia. Characteristic dark green ("mint green") on fresh surface. Rare protolith textures include pillows, amygdules and breccia clasts. Pervasive randomly oriented shears and sheared layers containing cataclasts 1 mm to 1 cm in size are diagnostic, and may represent primary slump or autoclastic processes. Unit as mapped also includes a unit of massive, light green, aphanitic siliceous volcanic rocks near the northwest tip of Teresa Island.
- MTCu** Ultramafic rocks: unit as mapped includes: (1) Harzburgite: light to dark brown or red weathering, dark purple brown to black on fresh surface; typically forms unfoliated, medium to coarse-grained domains within a fine-grained, foliated matrix of sheared, recrystallized harzburgite or serpentinite; and (2) Serpentinite: green to rusty brown weathering, greenish black to purple on fresh surface; slickensided surfaces are light to medium green, polished, and contain fibrous aggregates.

Beavis. .... Two gold-bearing veins are exposed in the underground workings and both are confined to the porphyry dyke. .... Silicification is most intense at the junction of faults or where there is a change in strike." Also, samples "taken from the mine dumps containing the greatest amount of grey quartz (25%) as opposed to white quartz returned the highest assays (0.870 oz/ton gold and 1.87 oz/ton silver). .... The highest assay returned from samples taken from underground workings was 0.745 oz/ton gold with 0.47 oz/ton silver across 3.2 feet from No. 2 vein on the 55 Level crosscut." A more detailed geological description can be obtained from the Archer-Cathro report.

As seen by inspecting the more detailed (1:50,000) government geology map on page 7, the close proximity of the andesitic rocks, rhyolites, ultramafic complexes and volcanics in the area all require close examination with geophysics and geochemistry.

#### PURPOSE

- 1) To watch for magnetic lows which may be indicative of good lode prospects, as discussed in the Economic Geology section.
- 2) To accurately locate the VLF conductor axes. These can be employed as future prospecting targets in the hopes they may bear a direct relation to possible gold mineralization.

#### RESULTS

The VLF results plotted by computer can be seen as profiles on the maps contained in the pocket. The location of the VLF conductor axes have been transferred to the Magnetometer Map and the VLF Composite contained in the pocket.

### INTERPRETATION AND CONCLUSIONS

The main conductor axes have been labelled A, B, C, D and E and can be seen on the magnetic and VLF composite map (in pocket). As seen in the 1991 survey, the magnetic lows which show up on the darker portion of the magnetic/VLF composite plan still remain areas of interest since they could indicate zones of carbonatization (see 1992 Geochemical Report locating gold anomalies). In addition, one can see that more magnetic lows have been detected to the west during the 1993 program. Also, significant VLF inflection points (conductor axis) have been marked in small print on the computer-generated profile maps. These should be investigated in the field (prospecting, mapping, geochem and/or trenching). It is not possible, at this time, to interpret the cause or draw any definite conclusions as to whether they bear any direct relation to possible economic mineralization.

### RECOMMENDATIONS

With the recent Windy Craggy decision in northern B.C., it is very difficult to attract exploration investment. Consequently, expensive geochemical and/or drilling programs are probably not able to be financed at this time.

It is recommended that cheaper prospecting and hand-digging of trenches be undertaken across the conductor axis and magnetic low (and geochemical high) areas where the overburden is suspected to be shallow.

**MARILYN MINERAL CLAIMS**  
**Atlin Mining Division, B.C.**

STATEMENT OF COSTS

(Work done between January 20 and April 5, 1993)

FIELD:

Engineer: 16 days @ 275/day	\$4,400.00
Assistant: 16 days @ 200/day	3,200.00
Mag. and VLF rental	500.00
Supplies (flagging, batteries, gas, etc.)	125.00
Room and board	650.00
Truck (4x4): 16 days @ 50/day	800.00
Snowmobile rental	200.00

REPORT:

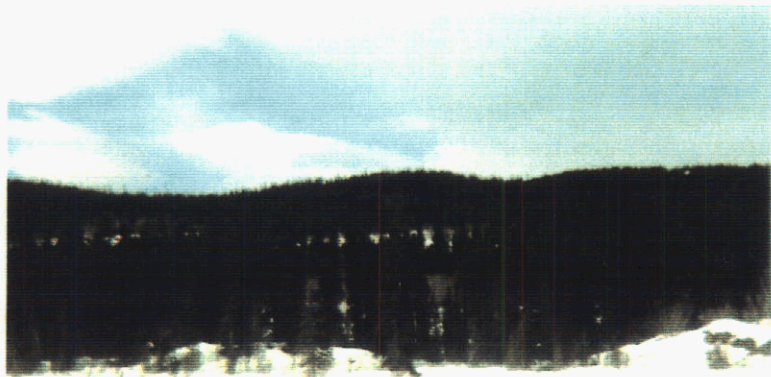
VLF - computer map	107.00
Data reduction, plotting, contouring, and report writing	850.00
Report preparation (compilation and typing)	150.00
Report reproduction (maps, binding, etc.)	175.00

**TOTAL**

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**\$11,157.00**

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LOOKING WEST - MARYLIN CLAIMS IN BACKGROUND

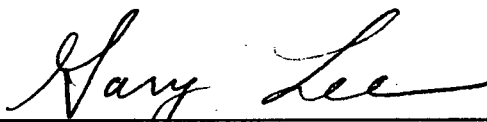


STATEMENT OF QUALIFICATION

I, **GARY C. LEE**, of the City of Whitehorse in the Yukon Territory  
HEREBY CERTIFY that:

1. I am a self-employed Geological Engineer.
2. I am a graduate of the University of Toronto, Toronto, Ontario, with a degree in Applied Science - Geological Engineering (Mineral Exploration option).
3. I am a member of the Professional Engineering Associations of the Yukon, B.C. and Ontario.
4. I supervised and carried out the work described in this report.

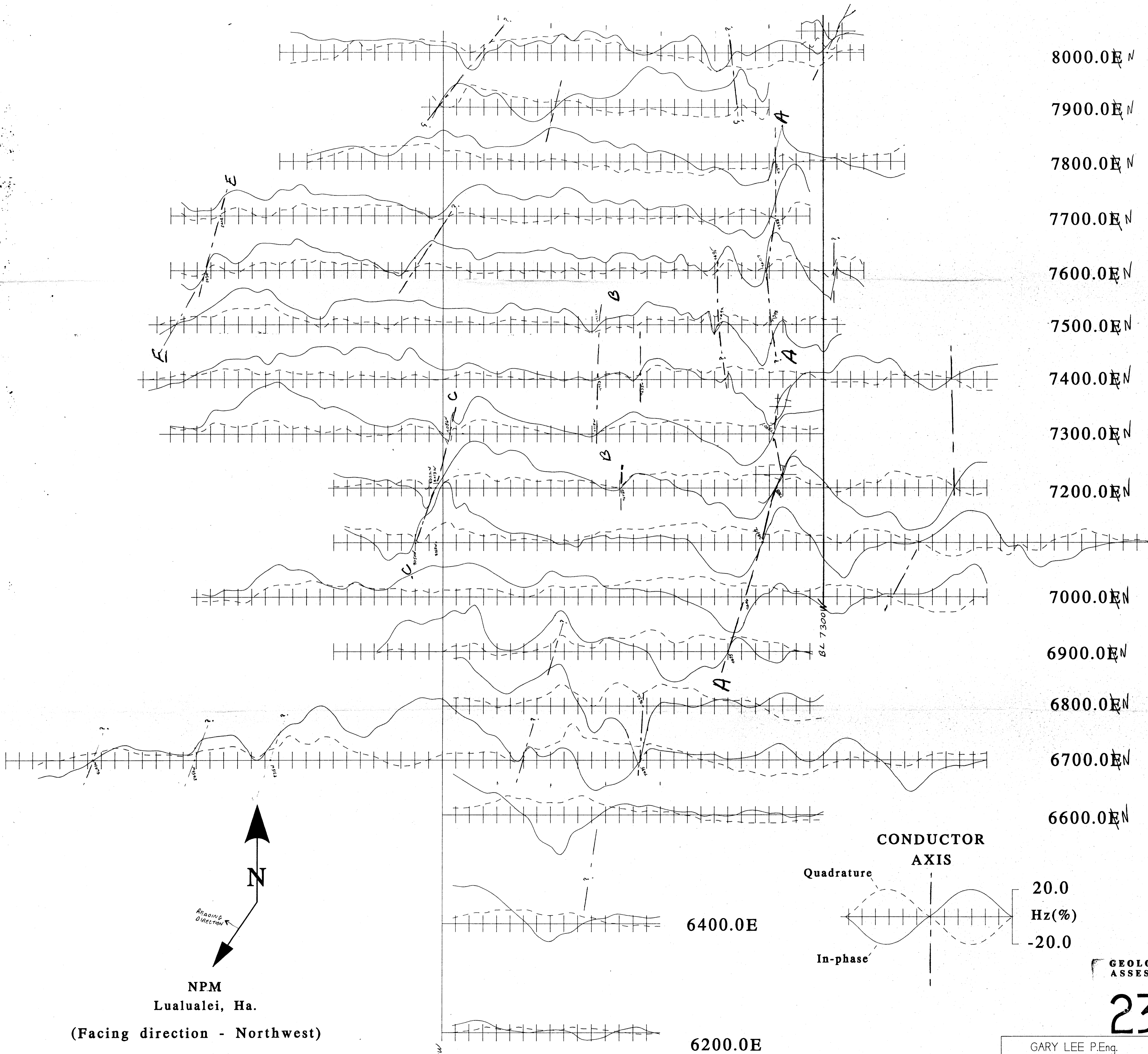
Respectfully submitted,

  
\_\_\_\_\_  
Gary C. Lee, P.Eng.

Date: 1 May 27 1994

8800W 8700W 8600W 8500W 8400W 8300W 8200W 8100W 8000W 7900W 7800W 7700W 7600W 7500W 7400W 7300W 7200W 7100W 7000W 6900W

8000.0E N  
7900.0E N  
7800.0E N  
7700.0E N  
7600.0E N  
7500.0E N  
7400.0E N  
7300.0E N  
7200.0E N  
7100.0E N  
7000.0E N  
6900.0E N  
6800.0E N  
6700.0E N  
6600.0E N



NPM  
Lualualei, Ha.  
(Facing direction - Northwest)

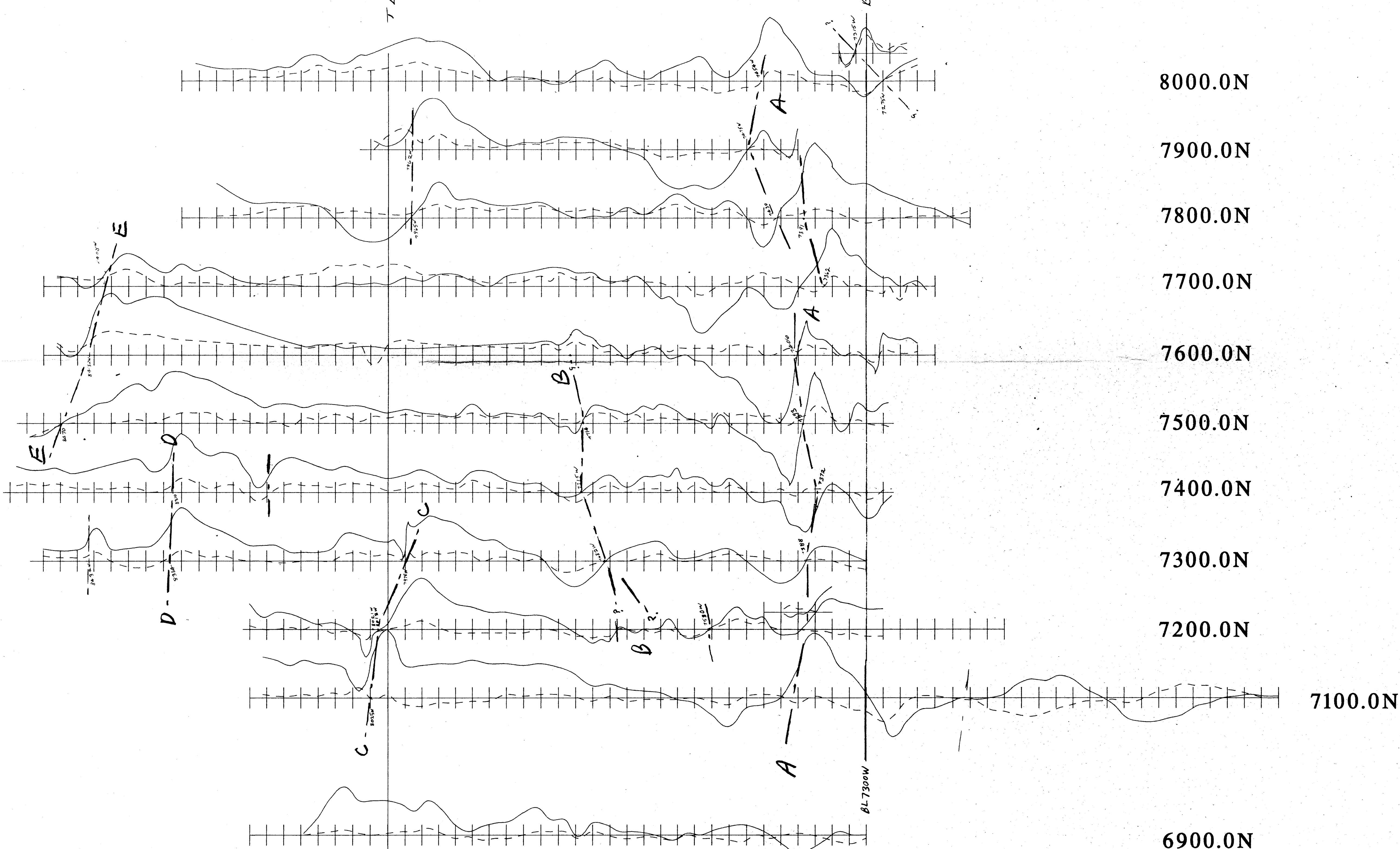
0 metres 200

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

23,395

GARY LEE P.Eng.	Claims: MARILYN
EM-16 VLF Survey	Mining District: Atlin B.C.
Transmitter - Lualualei Ha.	NTS: 104 N12W Scale: 1:3,000
AMEROK GEOPHYSICS	OPERATOR: G. Lee
	DATE: 21 MAR 94 Figure:

8800W 8700W 8600W 8500W 8400W 8300W 8200W 8100W 8000W 7900W 7800W 7700W 7600W 7500W 7400W 7300W 7200W 7100W 7000W 6900W

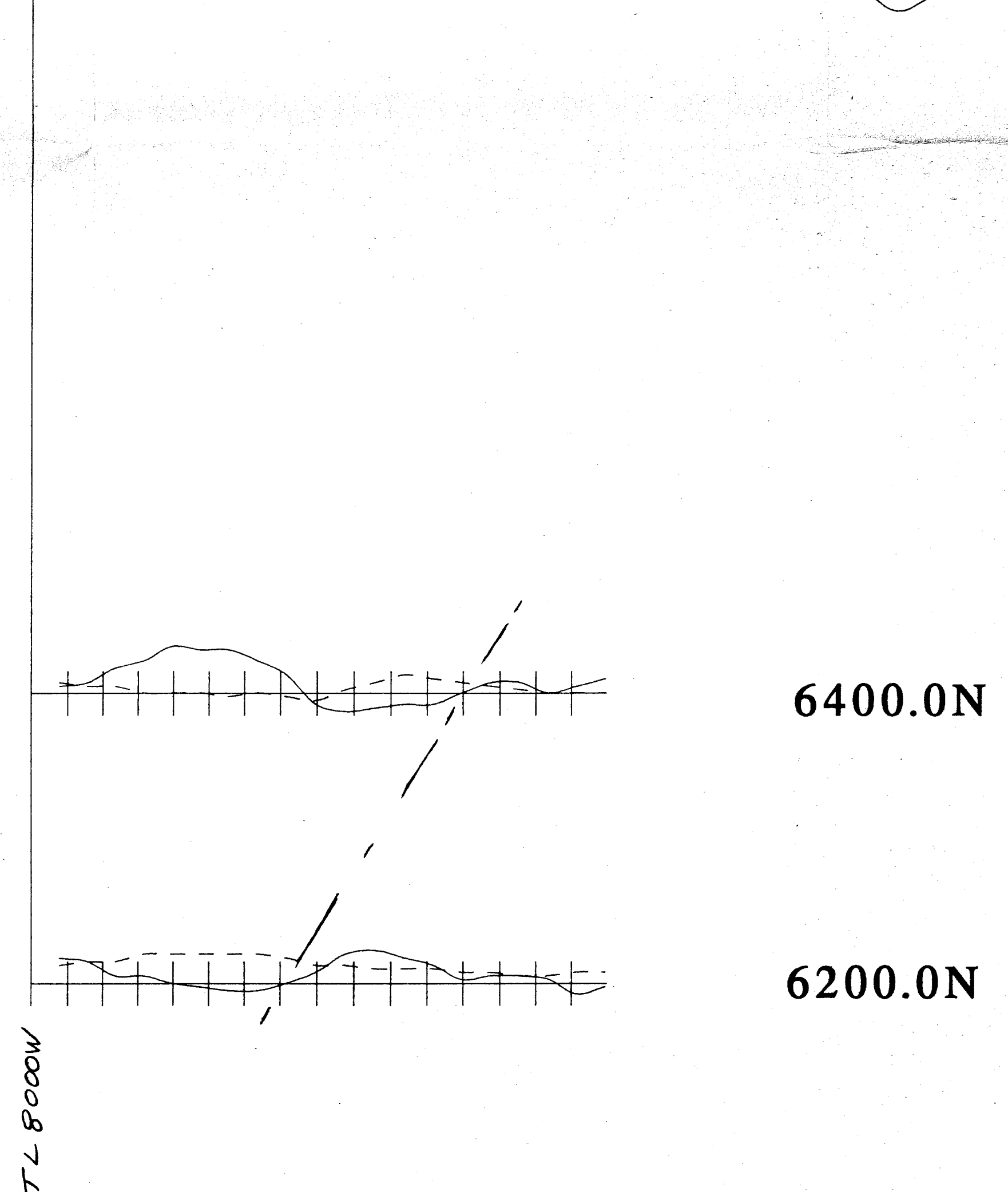
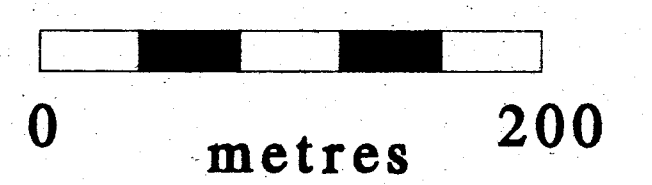
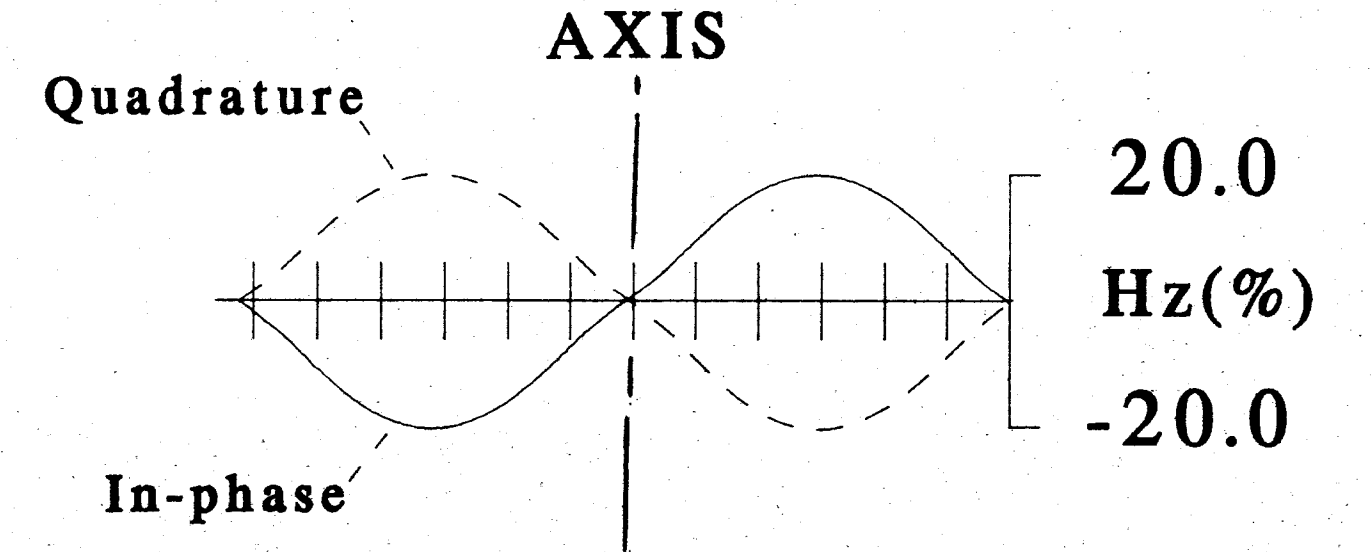


**NLK**  
 Jim Creek, Wa.  
 (Facing direction - Southwest)

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

**23,395**

CONDUCTOR  
AXIS

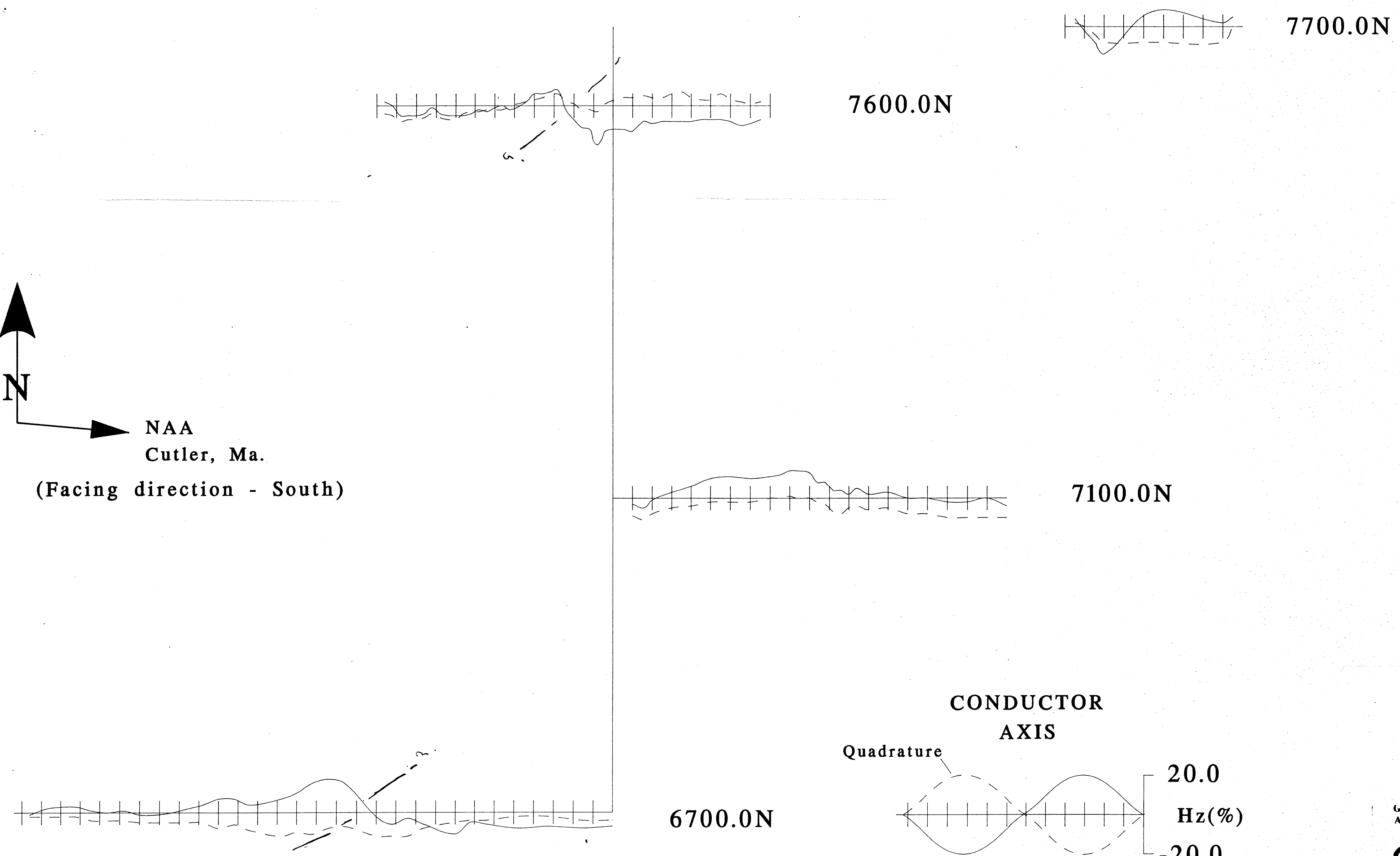


GARY LEE P.Eng.	Claims: MARILYN
EM-16 VLF Survey	Mining District: Atlin B.C.
Transmitter - Jim Creek Wa.	NTS: 104 N2W   Scale: 1: 3,000
AMEROK GEOPHYSICS	OPERATOR: G. Lee
	DATE: 21 MAR 94   Figure:



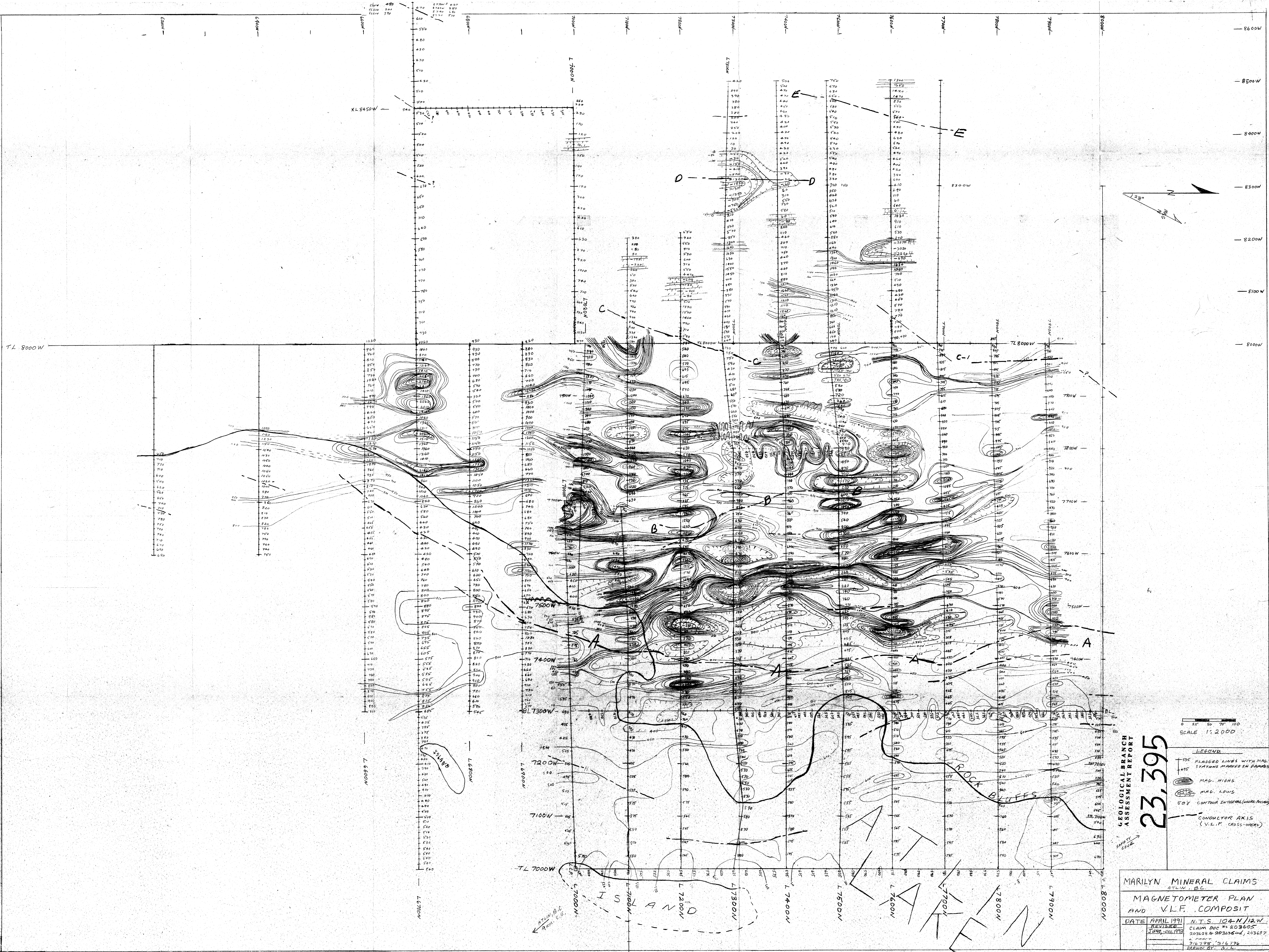
8800 W 8700 W 8600 W 8500 W 8400 W 8300 W 8200 W 8100 W 8000 W 7900 W 7800 W 7700 W 7600 W 7500 W 7400 W 7300 W 7200 W 7100 W 7000 W 6900 W

**N**  
 NAA  
 Cutler, Ma.  
 (Facing direction - South)



**GEOLOGICAL BRANCH  
 ASSESSMENT REPORT**  
**23,395**  
 0 metres 200

GARY LEE P.Eng.	Claims: MARLYN
EM-16 VLF Survey Transmitter - Cutler Ma.	Mining District: Atlin B.C. NTS:104 N12W Scale: 1: 2500
<b>AMEROK GEOPHYSICS</b>	OPERATOR: G. Lee DATE: 21 MAR 94 Figure:



0 25 50 75 100  
 SCALE 1:2000  
**LEGEND**  
 - 500' FLASSED LINES WITH MAG. STATIONS MARKED IN SQUARES  
 - MAG. HIGHS  
 - MAG. LOWS  
 - 50Y CONTOUR INTERVAL (MAG. ASSUMED)  
 - CONDUCTOR AXIS (V.L.F. CROSS-OVERS)

**GEOLOGICAL BRANCH ASSESSMENT REPORT**  
**23,395**  
**MARILYN MINERAL CLAIMS**  
 ATLIN, B.C.  
**MAGNETOMETER PLAN AND V.L.F. COMPOSIT**  
 DATE APRIL 1991 N.T.S. 104N/12W  
 CLAIM DOC # 203605  
 203628 & 203636 and 203637  
 DRAWN BY: G.L.