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Assessment Report on the
VLF EM-16 Geophysical Survey
Carried Out Over a Portion of

THE MORGAN CLAIM

Kamloops Mining Division
Tod Mountain, B.C.
NTS 92/1/16 EAST
Latitude 50° 54'
Longitude 120° 01'

For

Callex Mineral Exploration Ltd.
101 - 744 West Hastings Street
Vancouver, B.C. V6C 1A5

SUB-RECORDER RECEIVED	
FEB 3 1988	
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VANCOUVER, B.C.	

by

W.G. Hainsworth, P.Eng.
International Field Services Inc.
905 - 837 West Hastings Street

Vancouver, B.C. V6C 1B6
GEOLOGICAL BRANCH
ASSESSMENT REPORT

17,074

January 20, 1988

part 2 of 2

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INTERNATIONAL FIELD SERVICES INC.

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INTRODUCTION

The Morgan Claim property of Callex Mineral Explorations Ltd. ("Callex") on Tod Mountain, north of Kamloops, British Columbia has complied with recommendations of the writer in a report entitled "Report on the Morgan Claim, Kamloops Mining Division, Tod Mountain, B.C." of December 15, 1983.

The company has requested the writer to comment on the work completed to date and to make recommendations concerning future work.

Details concerning the claim location, access, etc. are available in the above quoted report and are herewith repeated for continuity. Refer to figure 1.

The writer was not present during the work programs nor has he visited the property since their completion. Comments in this report are made solely from data supplied to the writer by the company.

LOCATION AND ACCESS

The claim group lies 32 kilometers (20 miles) to the northeast of the city of Kamloops, B.C. Access to the claim is by means of Highway #5, north from Kamloops to the Heffley Creek turn-off, then east along the well-paved Heffley Creek (Tod Mountain) road to termination at the Louis Creek road. A few miles north of this junction the logging road, not marked in any manner, starts within a farm pasture and winds its way up the hillside through the Morgan claim. From Kamloops to the showing is a distance of 67 kilometers (42 miles).

The Morgan claim is within the Kamloops Mining Division with the claim centering on north $50^{\circ}54'$ latitude and west $120^{\circ}01'$ longitude. Its National Topographic System location is 92/I/16East.

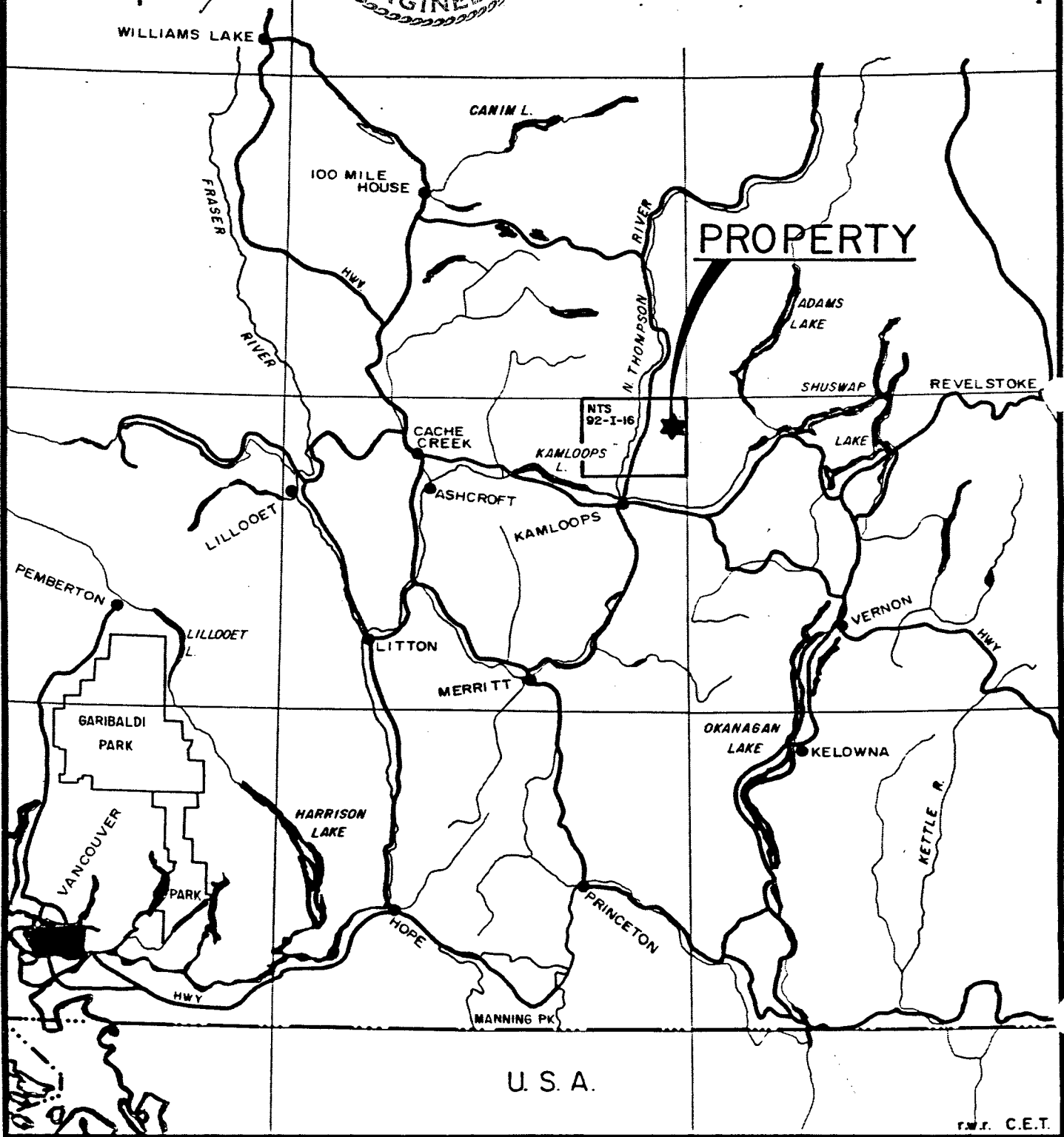
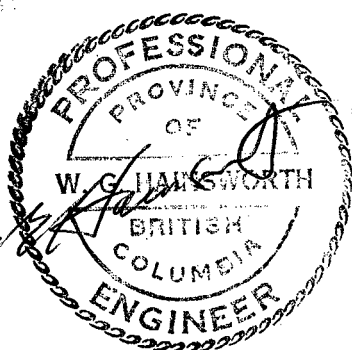
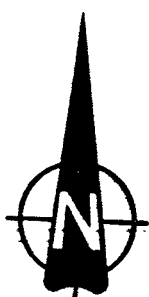
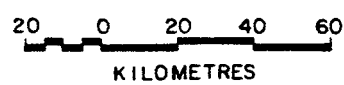
CALLEX MINERAL EXPLORATION LTD.

MORGAN CLAIM

KAMLOOPS M.D. - B.C.

NTS 92-1-16

LOCATION MAP



PROPERTY

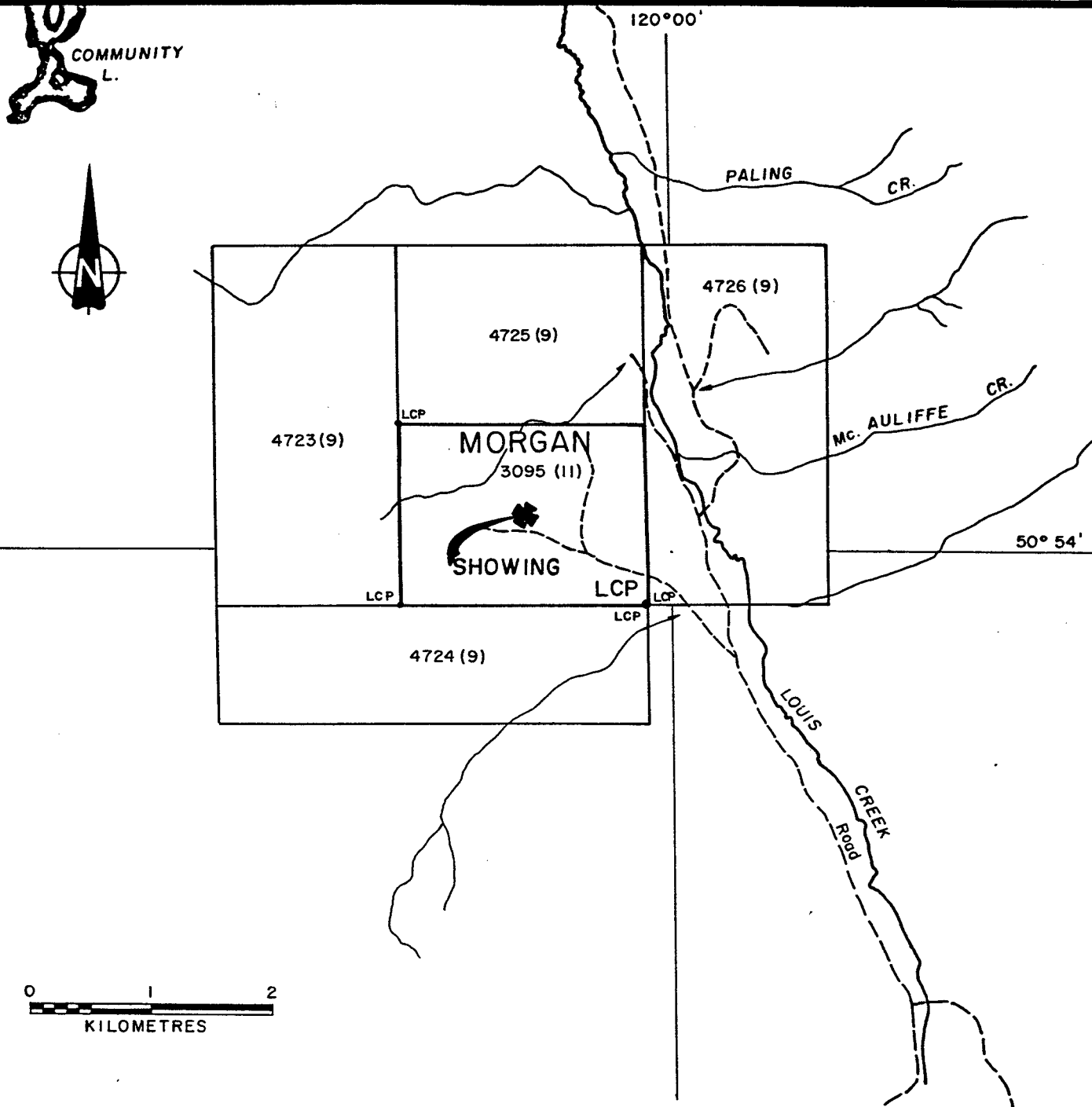
The Morgan claim group is within the Mining Division of Kamloops, British Columbia.

The property consists of 12 units, 3 in a north-south arrangement and 4 in an east-west direction. In total the claim occupies approximately 300 hectares of area with the southeast corner of the property being at an elevation of 760 meters (2,500 feet) rising to 1,310 meters (4,300 feet) along the north boundary. Refer to figure 2.

The Claim

<u>Name</u>	<u>No. of Units</u>	<u>Record No.</u>	<u>Expiry Date</u>
Morgan	12	3095	November 19, 1987

Application has been made for further assessment work which, if accepted, will give the Morgan claim an expiry date of November 19, 1990.



**CALLEX MINERAL
EXPLORATION LTD.**

MORGAN CLAIM

KAMLOOPS M.D. - B.C. NTS 92 - I - 16

CLAIM MAP

HISTORY

The past history of this particular area is sporadic with little available detail.

The first evidence of property work was the driving of an adit upon a quartz vein. The date of this engineering work is unknown but it has been suggested that it was carried out sometime during the 1930's. Although the portal is presently concealed by bulldozer debris, local knowledge reports the adit drift to run some 55 feet (17 meters) on a westerly bearing. No sampling has been reported from the underground showing.

In 1970-1971, a Mr. W.J. Stuart of North Vancouver, the owner of 20 claims (Argo claims) overlying the adit zone, had an electromagnetic and self-potential survey run over those claims pertinent to the workings.

Some eight years later, an unknown mining company out of Vancouver acquired the ground. There is some uncertainty to their work approach but it appears that high-grade adit material was transported from the portal and deposited on a flat area above the adit. In addition light bulldozer trenching and stripping was organized just east of the adit on surface exposures.

In 1981, the ground was staked as the Morgan claim.

In 1984, geochemical surveys over a restricted portion of the claims was undertaken in two time periods - July 7 to 15th and October 14 to 17th. In total some 467 soil samples were collected, assayed and plotted on maps. The results were submitted as an assessment report dated January 10, 1985 (see bibliography).

Until the recent October 13 to 16th, 1987 survey, no further work had been carried out.

REGIONAL GEOLOGY

The area lying to the north and northeast of Kamloops belongs to the hill and valley scenario. There are no prominent ridges or ranges extending over lengthy distances, only isolated hills building into high mountains separated by lengthy and wide valleys.

Paleozoic formations, classified as the Cache Creek Group, dominate the area. These formations exhibit a north-northwest area trend. Isolated outliers of volcanics of the Kamloops Group belonging to the Miocene era are scattered through the highly altered greenstones of the Cache Creek. Intrusive Jurassic plugs of granitic material complete the intrusion of the area by the Coastal Mountain orogeny.

Strong fault structures dominate the area and are best displayed by the prominent northwest linear which trends up Louis Creek. Another parallel structure lies a short distance to the east of Louis Creek at the base of Tod Mountain. The North Thompson River occupies a strong north-south lineament. Lying between these trends are numerous, broken, short length east-west linears.

LOCAL GEOLOGY

Underlying the Morgan claims are moderately metamorphosed Cache Creek formations. Due to snow conditions the writer can express an opinion only in the area of the showings. Here the host rock is a highly altered well-sheared greenstone, presumably of volcanic origin. The chloritization and fine graininess of the formation testifies to the regional dynamic and thermal metamorphism. It is likely that local areas show variable intensities of alteration but this could not be verified during the examination.

The British Columbia Department of Mines in an early report, without the benefit of a property examination, refers to argillaceous sediments in the area. A report by an undergraduate student at the University of British Columbia during a three day property examination classifies the local rocks as belonging to the chlorite schist, quartz-mica schist and amphibolite groups. He also refers to small bodies of granitic material being located within the claims boundaries.

Trends of the formation appear to swing from the north to northwest but this could not be too readily confirmed due to the relative size of the area viewed through the snow.

Structurally the local prints follow the regional pattern. The quartz veins are contained within two quadrants, that of a north to northwest, as with the regional trends, and an east-west grouping. Although the examination allowed for little observation as to which is the more persistent or strongest of the two patterns, the writer would favour the north-northwest set.

SHOWINGS

There is one known showing area on the property. This is located almost dead centre of the claim units on Morgan #6. It was the centre of activity in past years when the adit was driven; the work program of 1970-71 revolved around this particular area and the trenching of 1979-80 was concentrated in this section.

The most evident work in the area has been the 1979-80 trenching and stripping. Several trenches, cut north-south, have been put down on north to northwest trending quartz veins. The trenches, some 12 meters (40 feet) apart, expose rather bullish looking quartz structure trending 155° azimuth and dipping steeply to the northeast. The widths varied from 10 to 12 inches (25 to 30 cm). There were no visible sulphides contained within the massive, amorphous quartz veins. The writer was informed that one of the trenches also intersected the junction of an east-west quartz structure with the northwest trending veins. The intersection could not be located under the snow.

Some 18 meters (60 feet) to the south-southwest, cat work has uncovered a disseminated pyritic zone within the greenstones. The mineral is moderately distributed throughout the formation and extends at least 30 meters (100 feet) in a north-south direction. The width (or length?) is not known. Assays to 0.06 oz/ton gold are said to have been sampled from this section. The writer chipped a sample from 3 well mineralized rock exposures over this length (sample #9278: 0.003 oz/ton Au; 0.4 oz/ton Ag). No quartz veins are reported to have been exposed within this iron zone.

Bordering this zone some 3 to $4\frac{1}{2}$ meters (10 to 15 feet) to the west is a prominent gully running 175° azimuth. The east face of this gully exposed a series of coalescing quartz veins similar to that seen in the trenches. The dry looking quartz structures, separated by a highly sheared micaceous formation, varied from 20 to 25 cm. (8 to 10 inches) in width with traces of sulphides scattered throughout. Two of the veins had a strike of 95° azimuth while the third carried a bearing of 20° azimuth with all three structures dipping north at a moderately steep angle. A sample (#9279) chipped across $92\frac{1}{2}$ cm. (37 inches) of the face and enclosing the three veins assayed 0.005 oz/ton gold and 0.05 oz/ton silver.

Across the gully some 25 feet (8 meters) the west slope is partially concealed by debris pushed over the bank by a bulldozer. This, coupled with the snow, made localization of the adit portal difficult at this time. The pinpointing of this adit portal and an examination and sampling of this underground working is a very important requirement.

Some 35 to 40 feet (11 to 12 meters) above the gully floor there is a flat area which is said to have been stripped by a bulldozer in the search for the underlying adit vein. It is reported that this area was the dumping ground for the removal of portal rock in 1979. Assays running in the tens of ounces of silver plus minor gold values are reputed to have come from samples taken from this stockpile area. Several large blocks of quartz running to heavy sulphides of chalcopyrite, tetrahedrite and pyrite were located under the 15 to 20 inches (37 to 50 cm) of snow. Samples were chipped from these blocks and combined as one representative sample, #9280. The resulting assay was gold 0.008 oz/ton; silver 7.26 oz/ton and copper 1.114%.

An examination of the government airborne magnetometer map of the area shows a quiet plateau of magnetic intensities underlying the property. In general the isomagnetic lines portrait the regional rock trend with no variations.

THE RECOMMENDED WORK PROGRAM

The Phase I of Stage I for the investigation of the twelve (12) units of the Morgan Claim required an expenditure of approximately \$30,000 distributed through a grid preparation, soil sampling, EM 16 and geological surveys plus trench and adit clean-up.

The company states that the portal of the adit could not be located due to soil slumpage and broken rock distribution. In addition, over the area covered by the survey, little rock exposure was noticed thus influencing the company in not putting a geological survey into compliance.

In 1984, the flagged grid covering an area of 67.5 hectares was laid out and a soil sampling survey completed within this grid plat.

The 1987 program consisted of a program of EM-16 surveyers, prospecting, rock sampling and soil geochemistry over a part of the Morgan claim. A report on the geology, soil and rock geochemistry has been prepared and submitted by Mr. J.R. Poloni of J.R. Poloni & Associates Ltd. (November 24, 1987).

ANALYSIS OF THE RESULTS

The Claim Grid

The original 1984 baseline, centering on the old adit area, was run on an east-west bearing for a distance of 400 meters (1312 feet) to the west and 500 meters (1641 feet) to the east. Cross lines were turned off this baseline every 50 meters (164 feet). These cross lines were carried 350 meters (1148 feet) to the north with the exception of four lines which were carried an additional 150 meters (492 feet) north. The south cross lines were all run to a point 350 meters (1148 feet) below the baseline. Flagged stations were located on the lines every 50 meters (164 feet) and were utilized for the collection of soil material. In certain localities, particularly close to the adit location, the intervals of stations were reduced to 25 meters (82 feet).

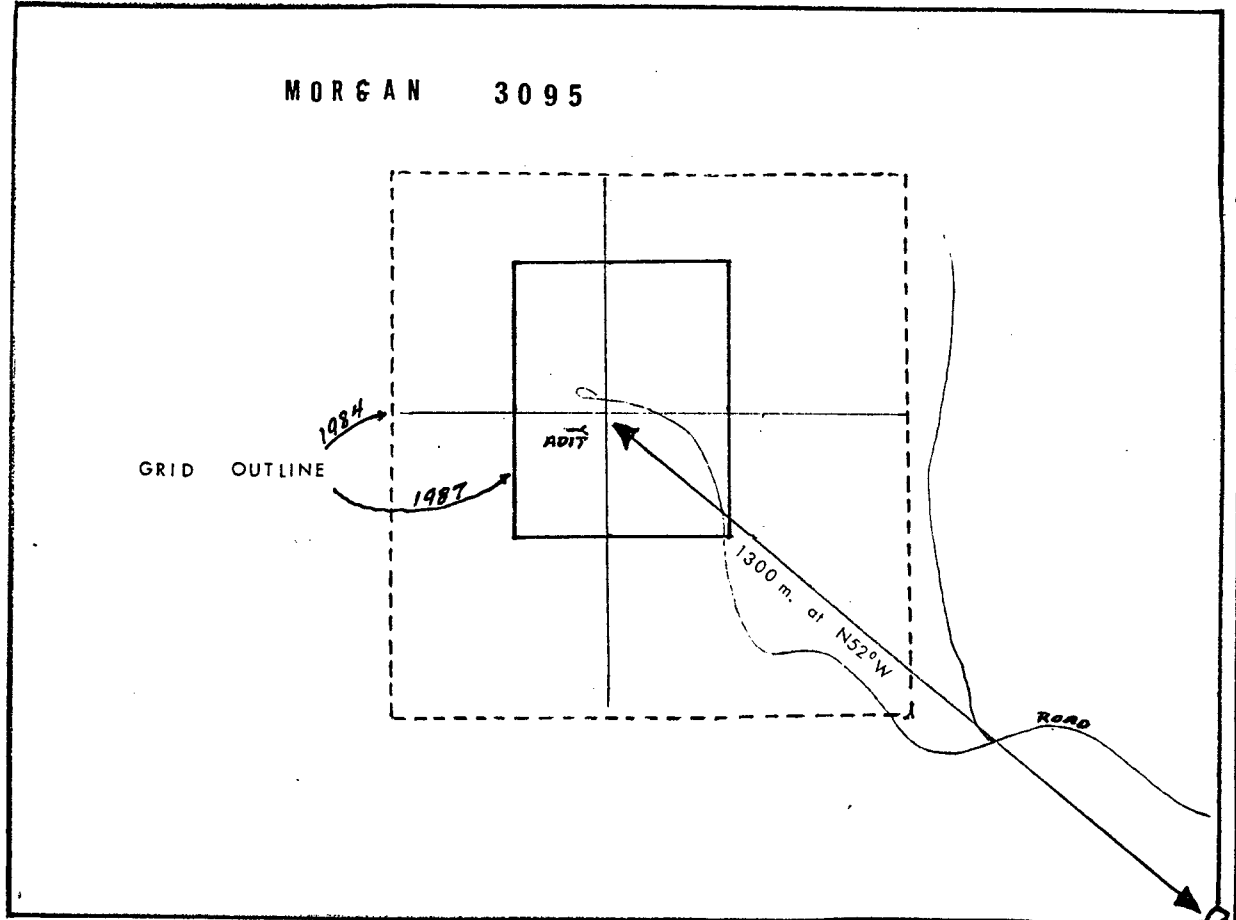
A total of 900 meters (2,953 feet) of flagged base line and 13,900 meters (45,605 feet) of flagged cross lines were put in place aggregating 14,800 meters (48,560 feet) of grid work.

The 1984 grid covers an area approximately 1½ claim units wide and almost 2 claim units deep. No claim posts were tied into the survey.

The 1987 grid overlaid this same 1984 grid but due to time erosion, new station flaggings were required. The area was cut down to the boundaries of the 1 + 50 west picket line and the 2 + 100 east picket lines. Readings at 25 meter stations were run north on all lines for 2 + 50 meters and south for 2 + 00 meters. See figure 3.

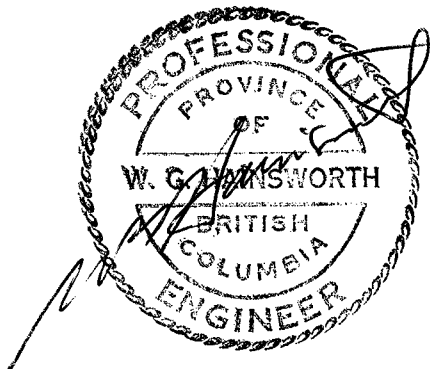


MORGAN 3095



SCALE: 1:12500

LEGAL
CORNER
POST



CALLEX MINERAL
EXPLORATION LTD.

MORGAN CLAIM

KAMLOOPS M.D. - B.C.

NTS 92 - 1 - 16

GRID LOCATION

To Accompany A Report By
W. G. HAINSWORTH P. Eng.

FIGURE: 31

Survey Results

The survey was carried out with a Geonics Unit, serial #71. Readings were taken every 25 meters along the grid lines which had 50 meters (165 feet) separations, and recorded.

The station selected was the Seattle, Washington transmitter on a frequency of 23.8 kHz. The operator faced west when making the readings. The quadrature was used to dampen the null and both dip angle and quadrature readings were recorded and plotted. See figure 4. The data was put through the Fraser Filter with results as shown on figure 5. The various interpreted conductors are also shown on this figure.

In order to relate this survey to the 1984 soil survey, the anomalies (silver and copper) of the earlier survey has been shown on figure 5.

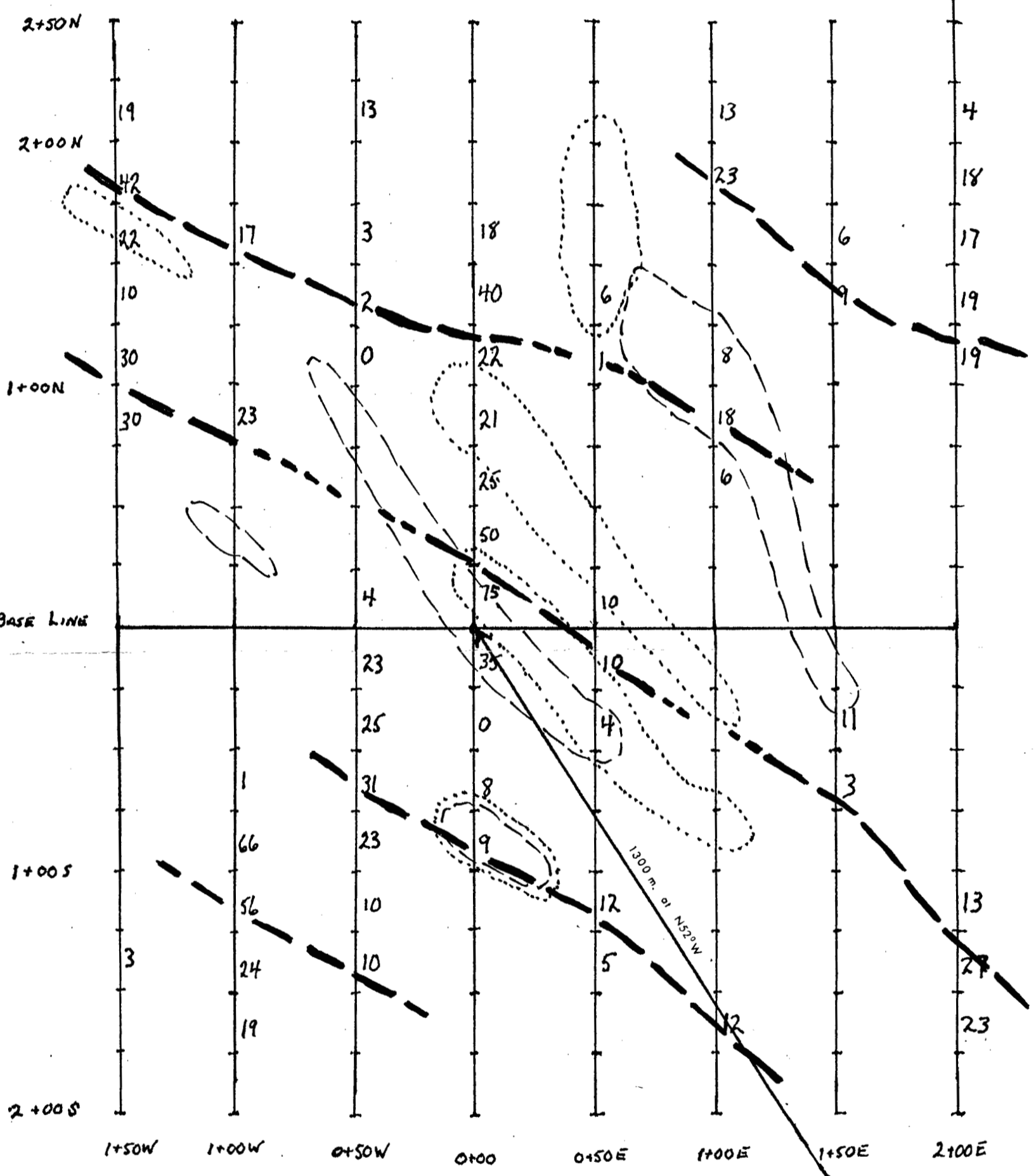
The conductors trend with the areal lineations, that is northwest-southeast. Continuity appears to be fairly strong with the middle contained conductors. The northeast and southwest conductors are of short duration.

The most consistent conductor is that tending slightly north of the adit portal location. This main conductor can be traced over 450 meters (1,500 feet) from station 1 + 25 south on line 2 + 00 east through to station 1 + 00 north on line 1 + 50 west. Associated with the conductor are two local silver anomalies and a relatively strong copper anomaly. The location of the soil anomalies with the conductors are sufficient to call them coincidental.

The second largest conductor parallels the main conductor some 75 to 90 meters to the north. At the extreme of this conductor there are associated soil anomalies - a silver response at the northwest end and an elongated copper anomaly extending across the southeast end.

Another conductor paralleling the main conductor at an interval of 100 meters to the south has a coincident copper and silver soil anomaly.

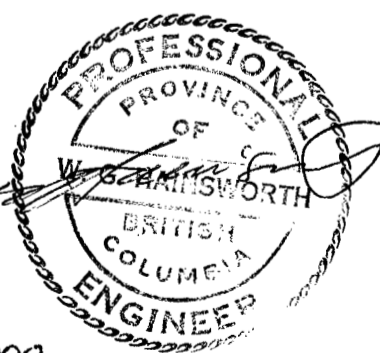
Two other conductors of short duration bound the main set of conductors.



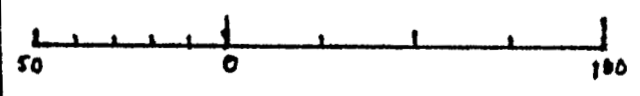
BASE LINE

1300 m. at N52°W

TO LEGAL CORNER POST



SCALE 1:2000



SYMBOLS

- EM-16 CONDUCTOR
- - - - - COPPER ANOMALY
- SILVER ANOMALY

CALLEX MINERAL EXPLORATION LTD.

MORGAN CLAIM

KAMLOOPS M.D. - B.C.

NTS 92-1-16

Fraser Filter Contour

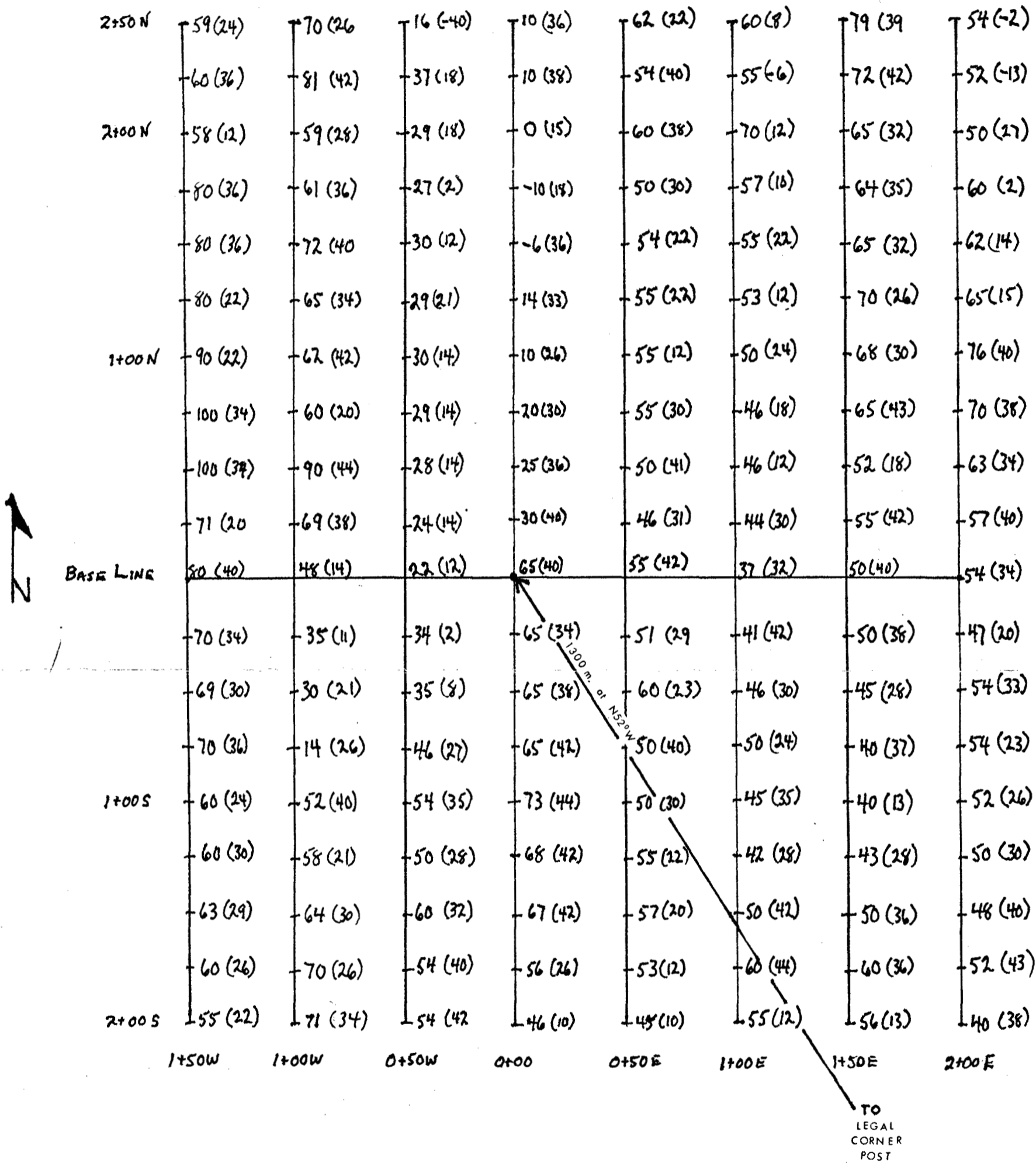
To Accompany A Report By
W.G. HAINSWORTH P. Eng

FIG. 5

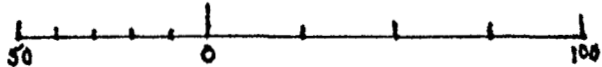
EM16 Specifications

MEASURED QUANTITY	In-phase and quad-phase components of vertical magnetic field as a percentage of horizontal primary field. (i.e. tangent of the tilt angle and ellipticity).
SENSITIVITY	In-Phase : $\pm 150\%$ Quad-phase : $\pm 40\%$
RESOLUTION	$\pm 1\%$
OUTPUT	Nulling by audio tone. In-phase indication from mechanical inclinometer and quad-phase from a graduated dial.
OPERATING FREQUENCY	15-25 kHz VLF Radio Band. Station selection done by means of plug-in units.
OPERATOR CONTROLS	On/Off switch, battery test push button, station selector switch, audio volume control, quadrature dial, inclinometer.
POWER SUPPLY	6 disposable 'AA' cells.
DIMENSIONS	42 x 14 x 9 cm
WEIGHT	Instrument: 1.6 kg Shipping: 4.5 kg

0+00



SCALE 1:2000



CALLEX MINERAL EXPLORATION LTD.

MORGAN CLAIM

KAMLOOPS M.D. - B.C.

NTS 92-1-16

EM-16 DATA

To Accompany A Report By
W.G. HAINSWORTH P. Eng

FIG. 4

FURTHER INVESTIGATION

The Morgan claim has shown some consistency in conductors and soil anomalies.

In essence, the Phase I recommendations of the writer in his December 15, 1983 property examination report has been carried out with the exception of the size of the surveys. The surveys have covered only from 30% to 10% of the claim thus leaving open the possibilities of further structures on the remaining portion.

In addition, the adit has not been open for inspection and/or sampling. This should be an important work requirement.

The writer recommends that expansion of the present grid be extended to cover the remaining grid and similar - soil and EM-16 - surveys be run over the extension lines. The portal of the adit should be located and opened for further examination.

ITEMIZED COST STATEMENT

Labour (Field and drafting)

R.J. Hainsworth (International Field Services Inc.)	\$ 963.06
A. Raven (Taiga Explorations Inc.)	809.43
J.J. Poloni (Taiga Explorations Inc.)	

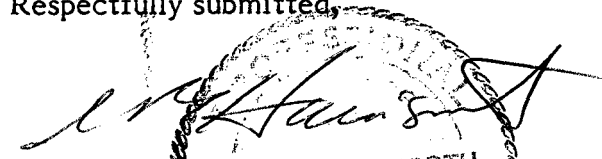
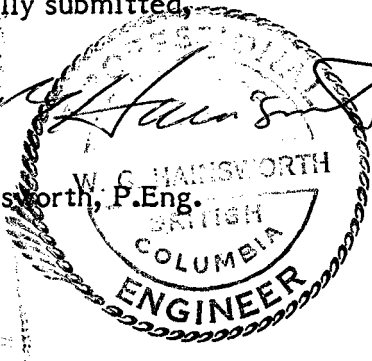
Professional Service

Geo. Keir (Supervision)	251.10
W.G. Hainsworth (Hainsworth & Associates) - (Report)	1,150.00

Expenses (Jeffco Holdings Ltd.)

Travel, lodging, meals, etc.	<u>700.98</u>
	<u>\$ 3,874.57</u>


Respectfully submitted,

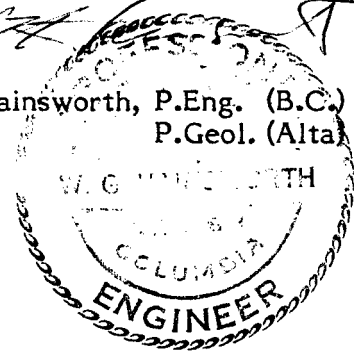

W.G. Hainsworth, P.Eng.


CERTIFICATE

I, W.G. Hainsworth, P.Eng., of Vancouver, B.C. do hereby certify:

- (1) That I am a Consulting Geologist residing at 836 West 13th Avenue, Vancouver, B.C.
- (2) That I am a graduate of the University of Western Ontario, London, Ontario, Bachelor of Science Degree, Honours Geology.
- (3) That I have practiced my profession for some 30 years.
- (4) That I have been a continuous member of the Association of Professional Engineers of British Columbia since 1965 and am a Professional Geologist registered with the Association of Professional Engineers, Geologist and Geophysists of Alberta since 1979.
- (5) That I have no financial interest, direct or indirect, in Callex Mineral Exploration Ltd., and do not expect to obtain any such interest.
- (6) That the information contained in this report is based on a visit to the property on December 10, 1983 and perusal of all pertinent data supplied by the company concerning the recent surveys.


W.G. Hainsworth, P.Eng. (B.C.)
P.Geol. (Alta)



To Accompany:

ASSESSMENT REPORT ON THE
VLF EM-16 GEOPHYSICAL SURVEY
CARRIED OUT OVER A PORTION OF
THE MORGAN CLAIM, KAMLOOPS
MINING DIVISION, TOD MOUNTAIN, B.C.

FOR

CALLEX MINERAL EXPLORATION LTD.
101 - 744 West Hastings Street
Vancouver, B.C. V6C 1A5

January 20, 1988

BIBLIOGRAPHIES

G.S.C., Memoir 249 - Geology and Mineral Deposits of Nicola Map Area, B.C.,
Cockfield 1961

G.S.C., Memoir 296 - Vernon Map Area, B.C., Jones 1959

B.C. Department of Mines Report: 1971, Pages 304-305

Department of Energy, Mines & Resources, Ottawa
Airborne Magnetic Survey Maps 4784 and 4783G

Report on the Geochemical Survey Carried Out Over a Portion of the Morgan Claim,
W.G. Hainsworth, January 1985

RESUME

GEORGE H. KEIR

#207 - 1348 Barclay
Vancouver, B.C.

Field Supervisors Qualifications

I am a graduate of the University of Madras in India, where I attained a B.Sc. Degree in Geology. I have practised my profession since 1956.

From 1956 to 1961, I was Geologist at Barnat Gld Mines in Malartie, Northwestern Quebec. This company was operated by the Little Long Lac Group of Toronto, Ontario.

From 1962 to 1965, I was Geologist at Matagami Lake Mines in Northwestern Quebec. This company is operated by Noranda Mines Ltd., mining Zine and Copper Ore.

In 1966, I returned to Malartie and was appointed as Chief Geologist at Barnat Gold Mines. Later, I was appointed as Chief Geologist and Assistant Manager of Malartie Goldfields Ltd. also, both mines were operated by the Little Long Lac Group. During this period, I was in charge of exploration programs in Quebec and Labrador.

In 1970, I moved to British Columbia where I was appointed as Chief Geologist at King Resources Ltd. in Revelstoke, B.C., mining Molybdenum Ore.

From 1973 to date, I have been self-employed and have done work for many junior mining companies including: Columbia River Mines, Jordon River Mines and Terra Mining in the North West Territories.

During 1977 and 1978, I was General Manager of Osebow Tungsten Mines in Nevada; mining and milling Tungsten Ore.

At the present time, I am a director of Pasadena Energy Corp., Callex Mineral Exploration and Charlemagne Resources Ltd., all companies on the Vancouver Stock Exchange.