

SH-1395-13446

Report on the  
Geochemical Survey  
Carried Out Over a Portion of  
The Morgan Claim  
Kamloops Mining Division  
Tod Mountain, B.C.  
NMS 92/I/16 East  
Latitude 50° 54'  
Longitude 120° 01'

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

by  
W.G. Hainsworth, P.Eng.,  
W.G. Hainsworth & Associates Ltd.  
905 - 837 West Hastings Street,  
Vancouver, B.C. V6C 1B6

January 10, 1985

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**13,446**

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# W. G. HAINSWORTH & ASSOCIATES LTD.

## *Mining Consultants*

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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 consequently are not herewith reprinted. Refer to figures 1 and 2.

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

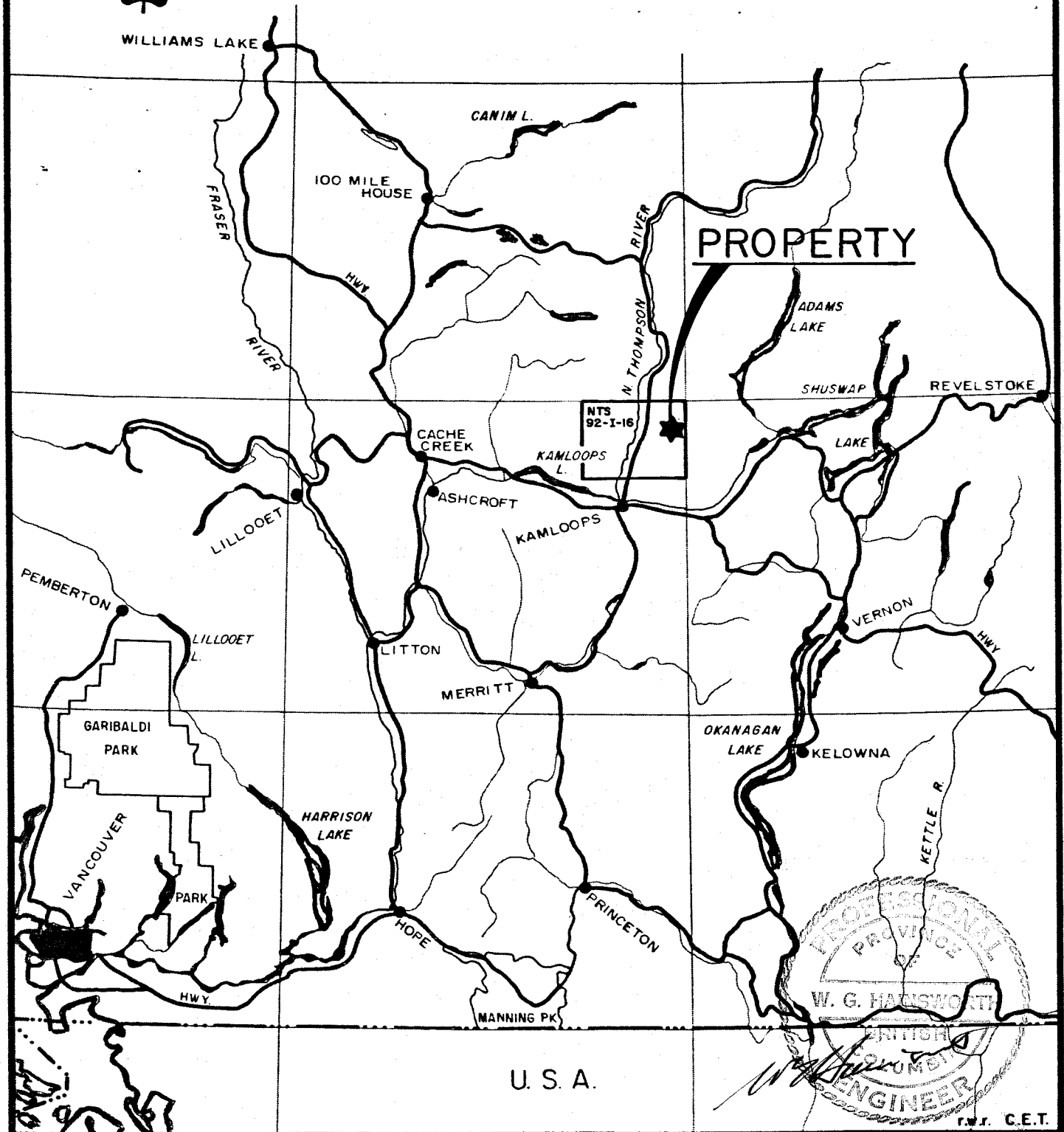
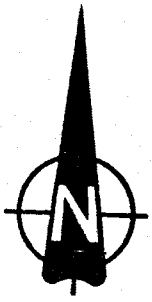
The Morgan claim group consisting of 12 units lies thirty-two kilometers to the northeast of the city of Kamloops, B.C. Access to the claims is by means of Highway #5, north from Kamloops to the Heffley Creek turn-off, then east along the well-paved Heffley Creek (Tod Mountain) road to termination at 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.

# CALLEX MINERAL EXPLORATION LTD.

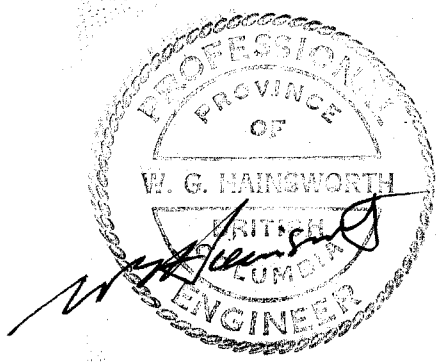
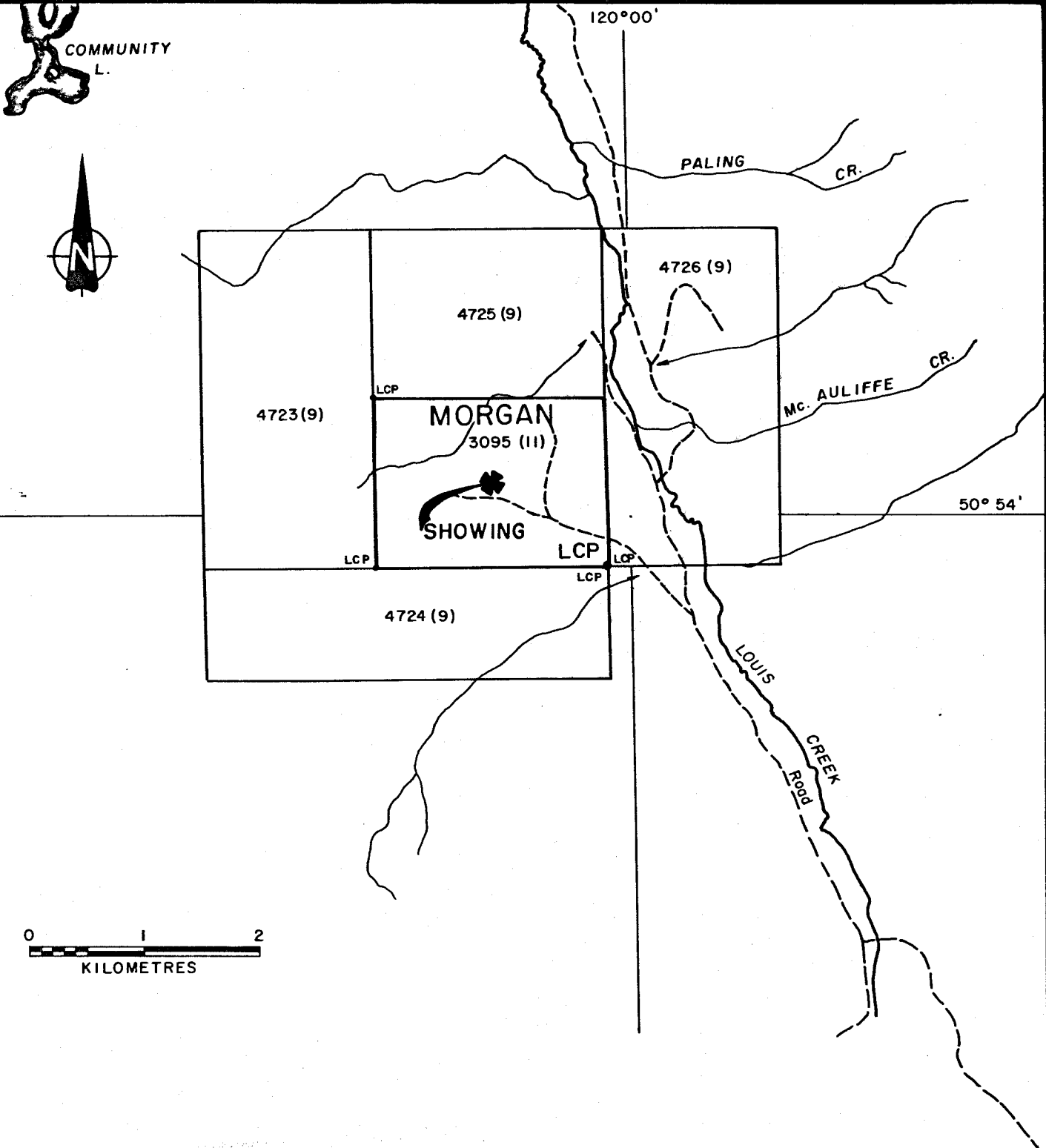
MORGAN CLAIM  
KAMLOOPS M.D. - B.C. NTS 92-I-16

## LOCATION MAP

20 0 20 40 60  
KILOMETRES



PROFESSIONAL  
ENGINEER  
W. G. HAGSWORTH  
BRITISH COLUMBIA  
P.E.C.E.T.



**CALLEX MINERAL  
EXPLORATION LTD.**  
MORGAN CLAIM  
KAMLOOPS M.D. - B.C. NTS 92 - I - 16  
**CLAIM MAP**

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 areal 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. Likely, 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 claim boundaries.

Trends of the formation appeared to be to 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 trend, and an east-west group. 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-south set.

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. The EM 16 survey is being held in obedience pending recommendations following the soil survey.

To date, the flagged grid covering an area of 67.5 hectares has been laid out and a soil sampling survey completed within this grid plat.

ANALYSIS OF THE RESULTS

The Claim Grid

A 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 soil collection were reduced to 25 meters (82 feet).

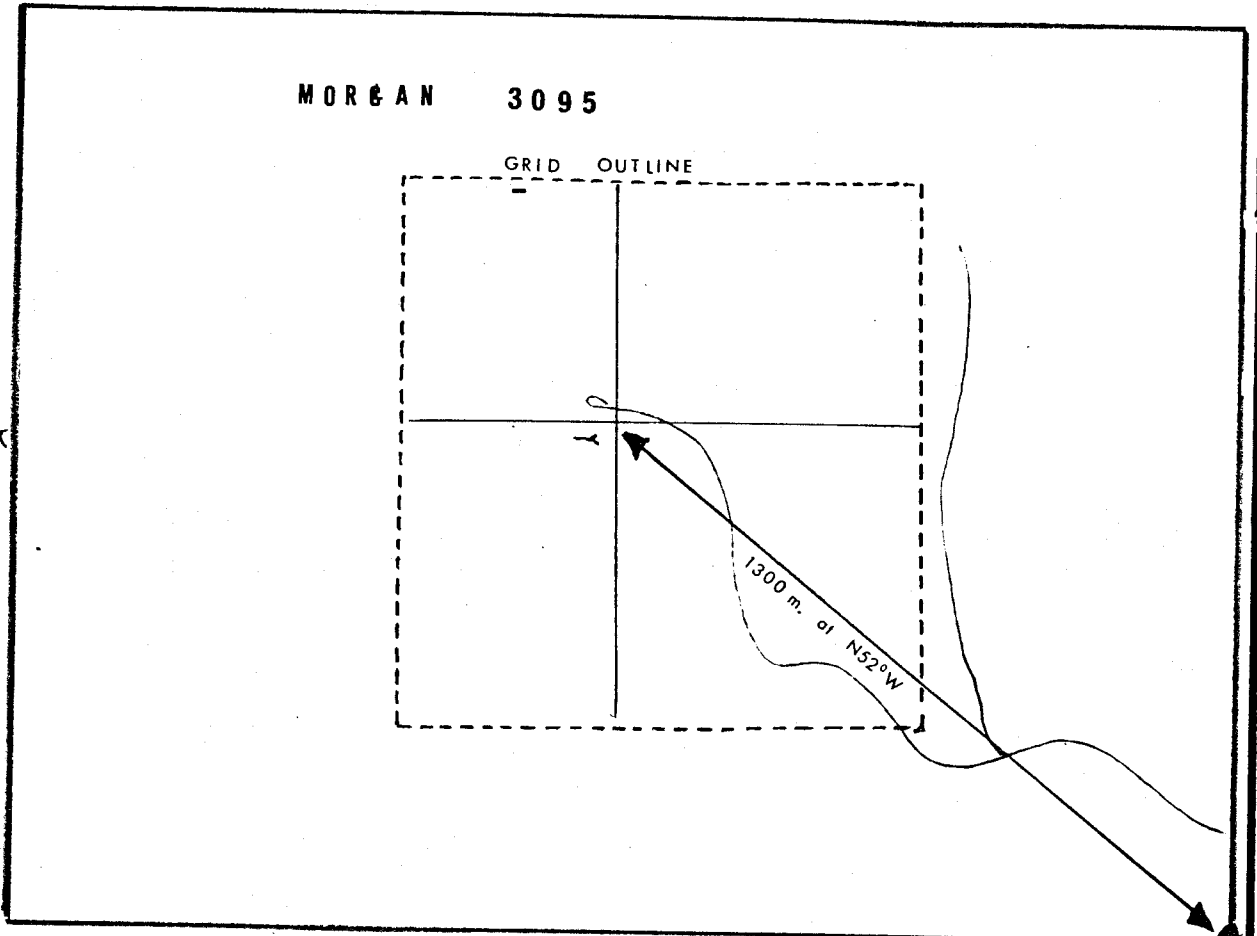
A total of 900 meters (2953 feet) of flagged base line and 13,900 meters (45605 feet) of flagged cross lines were put in place aggregating 14,800 meters (48,560 feet) of grid work.

The grid covers an area approximately  $1\frac{1}{2}$  claim units wide and almost 2 claim units deep. No claim posts were tied into the survey.



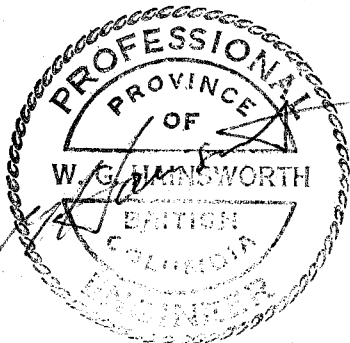


MORGAN 3095



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: 7

r.w.r. C.E.T.

Soil Survey

There were 407 soil samples collected during this survey. The samples were taken from the 'B' horizon some 15 to 20 centimeters (6 to 8 inches) deep, field dried then shipped to Acme Analytical Laboratories Ltd. in Vancouver where they were geochemically analysed for copper and silver. The laboratory method was the normal digestion of the minus 80 mesh pulverized sample with a hot mixed concentration of hydrochloric acid and nitric acid (aqua regia) in a boiling water bath and diluted to 10 ml. with demineralized water. The extracted metals were then determined by the atomic absorption method. The copper is reported to within one part per million while the silver, after corrections for background, is analysed within 0.1 part per million (ppm).

No samples were run spectrographically for the detection of other metals.

Copies of the assay reports are attached as Appendix 'A'.

Figures 3 and 4 show the plotted results of the copper and silver assays.

Copper Analysis (Figure 4)

A statistical analysis of the 407 samples run for copper shows:

Mean	= 93.95 ppm
Mode	= 57.0 ppm
Standard Deviation	= 107.01 ppm
Standard Error of Mean	= 5.30
Statistically Possible Anomaly	= 200.96 ppm
Statistically Probable Anomaly	= 307.96 ppm

This latter figure, 307.96 ppm, is also considered the Threshold Value.

With the Standard Deviation being somewhat high, in excess of the mean (14%), the population grouping is intimated to be broad. Reference to figure 6, the copper histogram and installed curve, illustrates the average broad spread of the data around the mean.

COPPER

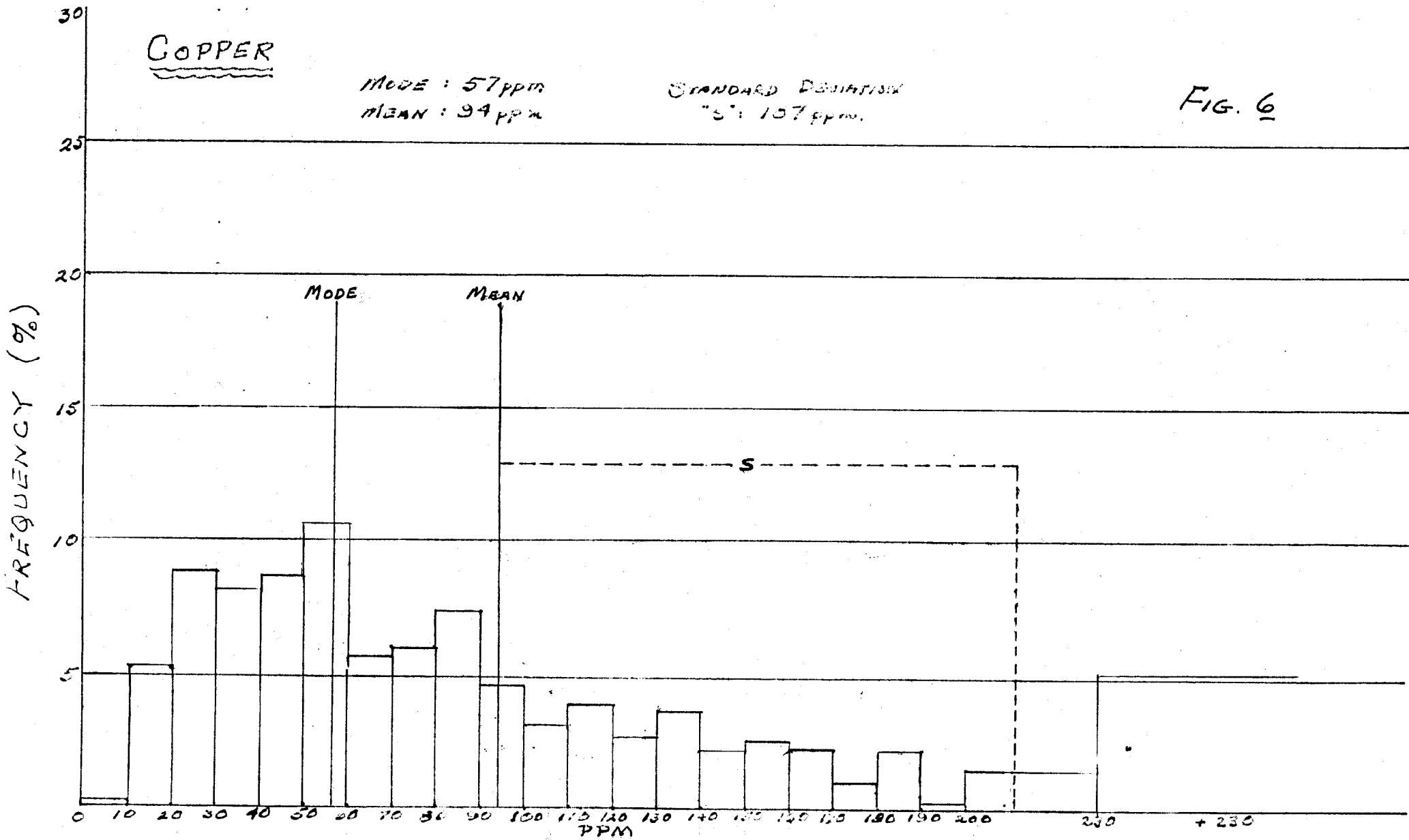
MODE : 57 PPM

MEAN : 94 PPM

STANDARD DEVIATION

"S" : 107 PPM.

FIG. 6



The assay results show a grouping of high copper values in the vicinity of the underground workings. The northwest trend is quite apparent immediately over the adit where modest copper values also appear on adjacent lines (10+50 East at 0+50 South and 10+ 50 West at 0+75 North). Copper values on strike, become weaker and more scattered beyond these points.

A parallel anomaly with an extremely high copper assay, lies 75 meters to the south of the adit. This particular area is reported to lie within heavy bush with no apparent surface indications of copper veins or leached dump material.

Line 1+00 East and 1+50 East exhibit continuity in a north northwesterly pattern at point 1+25 North and 0+25 South respectively.

Spikes occur at various localities but show little continuity as witness line 1+00 West at 0+25 North, line 3+00 West at 1+00 South and line 1+00 East at 3+75 North.

In the area enclosed by the grid, copper values are apparent in the near vicinity of the adit. The lack of continuity in other locations makes the anomalies suspect.

Silver Analysis (Figure 3)

The statistical analysis of the 407 samples run for silver shows:

Mean	= 0.260 ppm
Mode	= 0.17 ppm
Standard Deviation	= 0.362 ppm
Standard Error of the Mean	= 0.131
Statistically Possible Anomaly	= 0.622 ppm
Statistically Probable Anomaly	= 0.985 ppm

The 0.985 ppm figure is considered to be the Threshold Value.

The Standard Deviation has a much greater swing (40%) from the mean than it has in the copper statistics. This results in a variable distribution of assays, with results reaching a high of 6.1 ppm in the vicinity of the extreme copper assay south of the adit. The tightness of the curve within the silver histogram demonstrates the control of the assays within a select group.

The silver anomalies, like those of the copper, are grouped in the vicinity of the adit, and in some cases are related to the copper results. Two parallel anomalies extend across lines 1+00 East, 0+50 East and 0+00 close to the baseline. Single, isolated high readings lie close by the parallel structures.

On lines 4+50 East and 5+00 East near the baseline, high soil assays extend towards the northwest. The 5+00 East line is the furthestmost east that the grid was taken consequently the extension of this anomaly to the south-east is unknown.

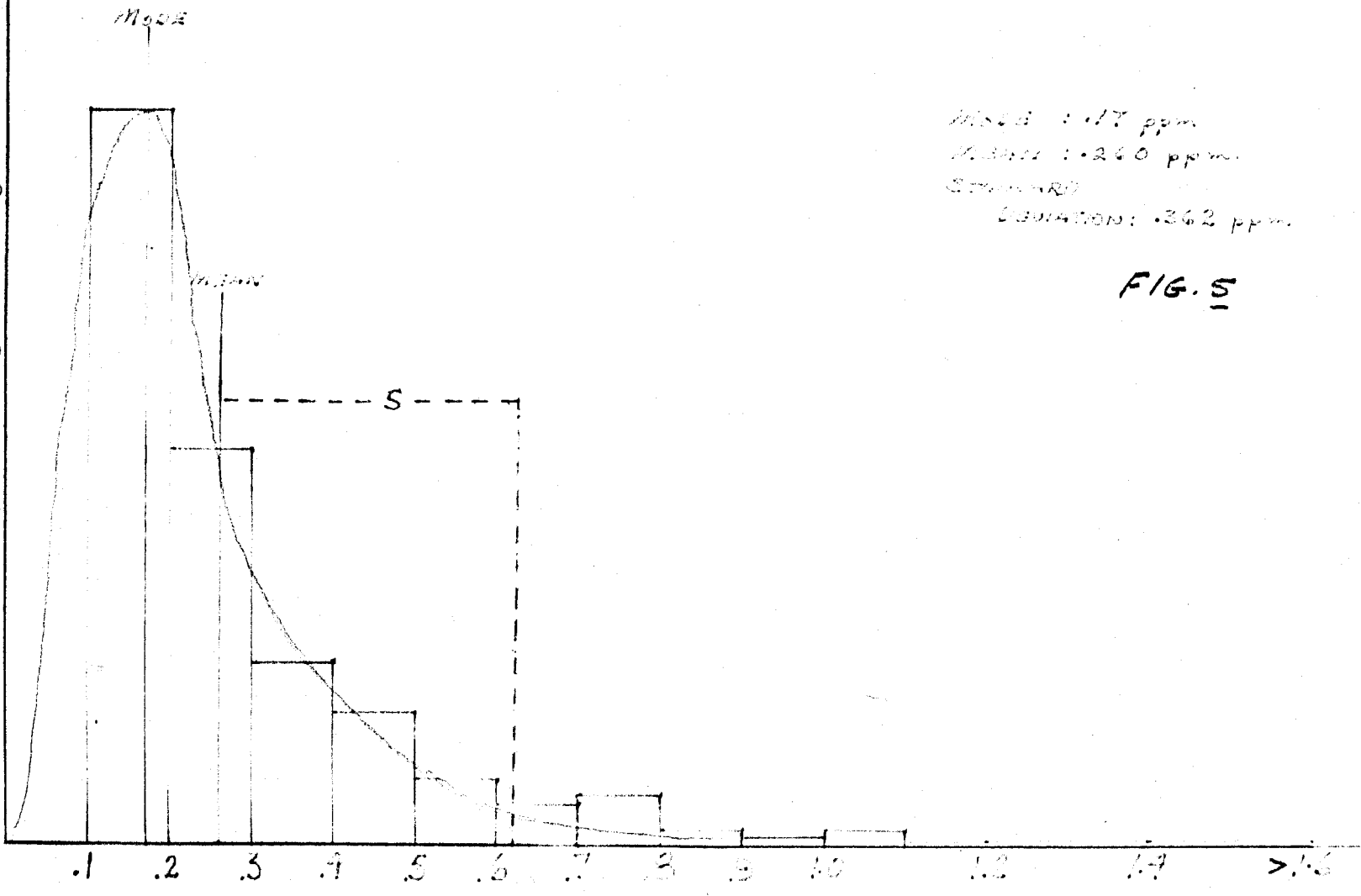
Two high readings running at right angles to the normal trend are exhibited at 2+00 South on line 4+00 East and 2+50 South on line 3+50 East. This zone could well extend through to a moderate reading at 3+00 South on line 3+00 East.

The grouping of copper and silver assays in the vicinity of the adit area allow for the possibility of a disseminated copper-silver mineralized zone. This possibility should not be overlooked.

SILVER PARTICLES

FREQUENCY (%)

60  
50  
40  
30  
20  
10  
.1 .2 .3 .4 .5 .6 .7 .8 .9 1.0 1.1 1.2 1.3 >1.6



MODE: 0.17 microns  
MEAN: 0.260 microns  
STANDARD DEVIATION: 0.262 microns

FIG. 5

Particle Size (microns)

### Further Investigation

In a report on the initial geochemical survey written September 13, 1984 for Callex Mineral Exploration Ltd. (early portion of this report) the writer recommended that a more detailed soil survey be conducted in the vicinity of the anomalies as outlined on the original grid.

From October 14th to 17th, 1984 two field men detailed specific areas of the grid by running an additional four intermediate lines for an aggregate of 1.3 kilometers and collecting a further 60 samples. The samples were shipped to the same laboratory, Acme Analytical Laboratories Ltd., in Vancouver where the process previously described was performed for the same mineral content - silver and copper. In addition two rock chips in the vicinity of the presumed underground adit portal were collected and analyzed.

### Copper Analysis

The additional sampling substantiates the northwest structure that extended for some 200 meters across the adit zone. In addition it verified the weak halo that surrounds the probable anomaly. In total this zone extends better than 370 meters through the central portion of the grid. It should be realized that a dump carrying good grade mineralization exists above the adit and this could, in part, be responsible for a portion of the anomaly.

The high grade section that lay some 75 meters south of the adit has been shown to be a very localized structure.

The intermediate lines have also abruptly broken the anomalous zones which lay to the northeast of the adit. These structures have been broken into discontinuous but discernible trends.

### Silver Analysis

The intermediate lines have had a more severe effect on the silver anomalies as opposed to the copper results. The highgrade section still exists above the adit in keeping with the copper structure (the mineralized dump?). However the previous broad zones have been sharply cut off by weak values leaving the readings as small groups or individual spikes.

As a result of the extra lines the silver structures have been broken to the point of scattered values.

Itemized Cost Statement

Total number of days = 13 days  
 Time Period = 4 persons from July 7th to July 15th, 1984  
                   2 persons from Oct. 14th to Oct. 17th, 1984  
 Rates = \$100 per person per day.  
 Total Wages = \$ 4400.00

Accommodation = 13 days @ \$36.30/day plus tax  
                   = \$ 505.03

Food = 13 days, variable daily amount  
       = \$ 280.58

Truck Rental = 13 days @ 38.27/day  
                   = \$ 497.51  
 Gas               = \$ 297.25

Travel (air) = \$ 923.68  
           (land) = 422 km @20c/km = \$ 84.40  
           (misc) = \$ 22.90

Assaying = 60 soils @ 3.35	= 201.00	
407 soils @ 3.45	=1406.80	
2 rock chips @ 13.25	= 26.50	
		<u>\$ 1634.30</u>

Supervision = 5 days @ 170/day = \$ 850.00

Reports, drafting, typing etc  
                   2 reports = \$ 1929.85

Equipment Supply Purchases = \$ 268.52

Equipment Rental 2 days @20/day = \$ 40.00

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Total = \$ 11,734.02

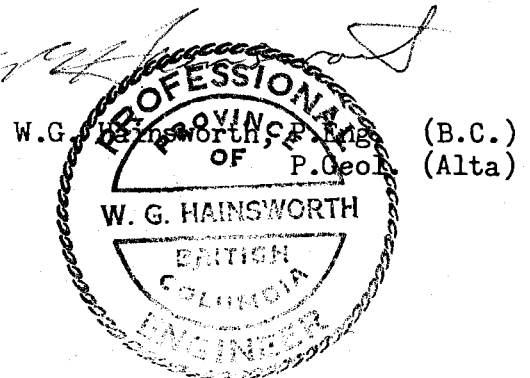
For Field Supervisors qualifications please see Page 11.



CERTIFICATE

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

- (1) That I am a Consulting Geologist residing at #4 - 4100 Salish Drive, 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.
- (7) That consent is herewith given to Callex Mineral Exploration Ltd., to use any or all material from this report in information circulars, offerings or shareholders brochures providing, however, that no portion is used out of context in such manner as to convey a meaning differing from that set out in the whole.



To Accompany:  
REPORT ON THE  
GEOCHEMICAL 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

September 13, 1984  
January 10, 1985

**R E S U M E**

**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.

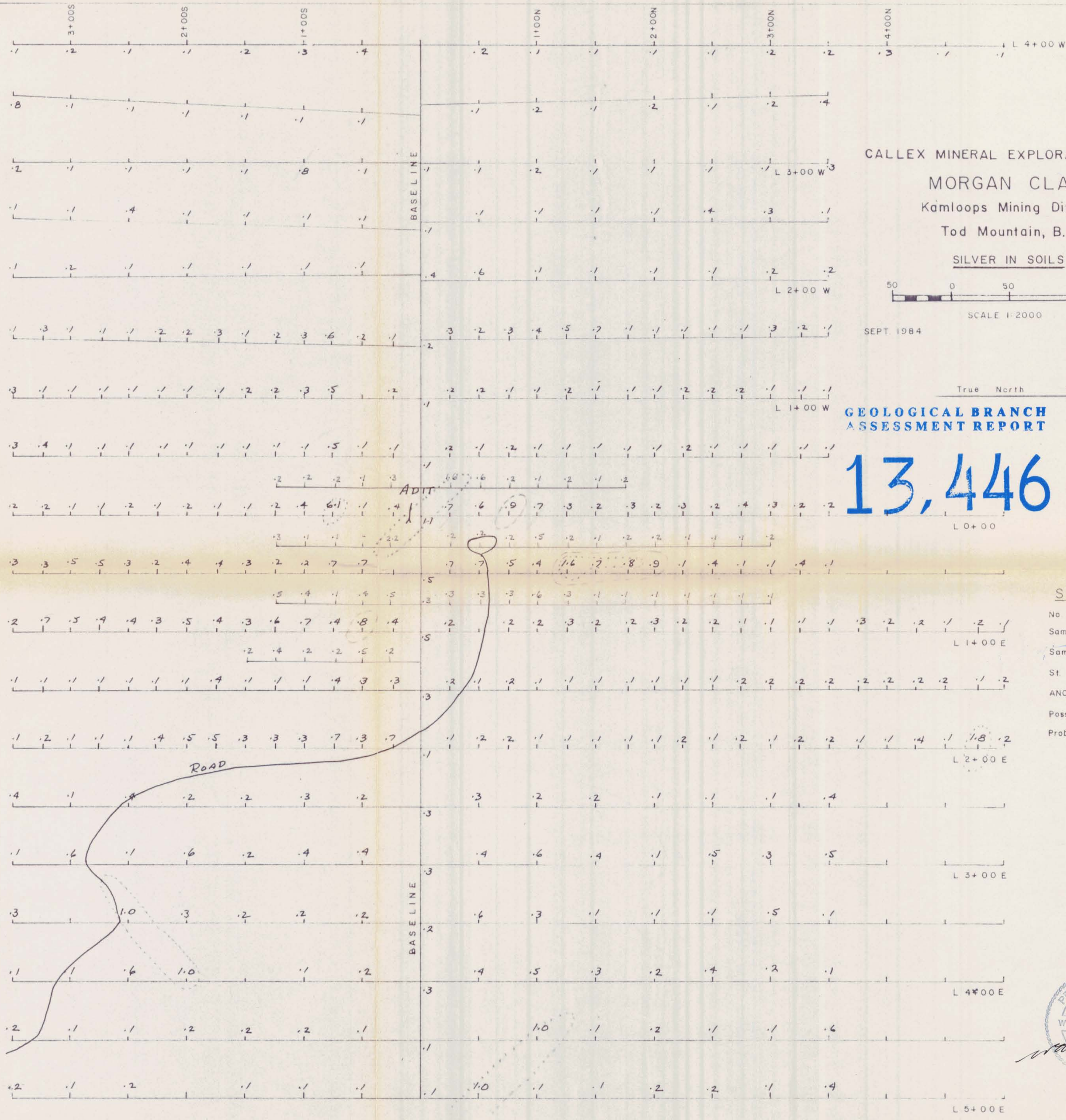
In 1966, I returned to Malartie and was appointed as Chief Geologist at Barnat Gold Mines. Later, I was appointed as Chief Geologist and Assistant Manager of Malartie Goldfields Ltd. also, both mines were operated by the Little Long Lac Group. During this period, I was in charge of exploration programs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



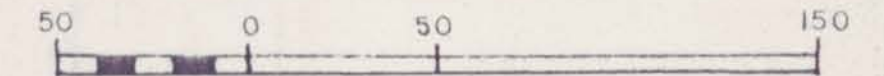
CALLEX MINERAL EXPLORATIONS LTD.

MORGAN CLAIM

Kamloops Mining Division

Tod Mountain, B.C.

SILVER IN SOILS



SCALE 1:2000

SEPT. 1984

W.G.H.

True North

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

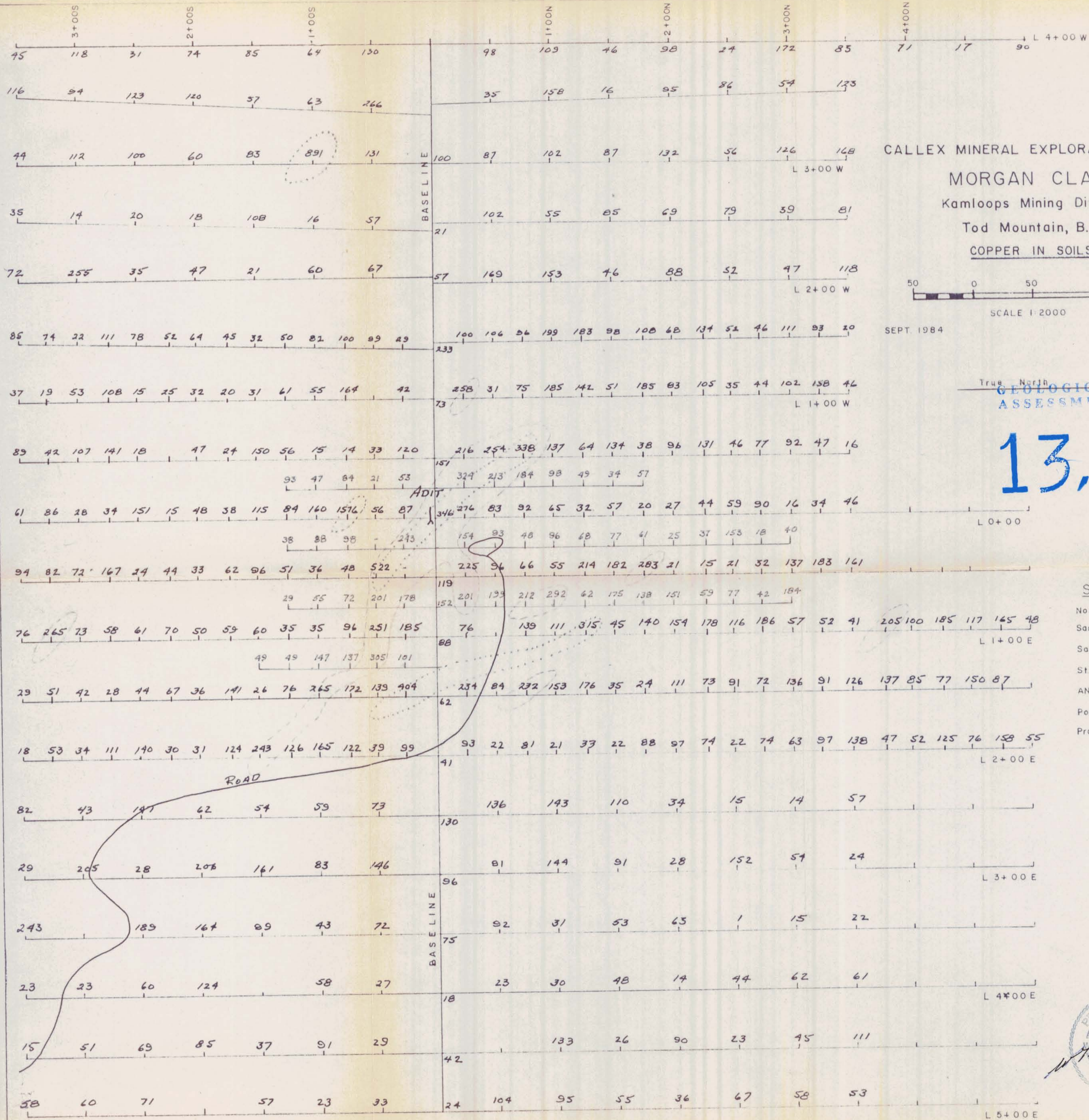
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Fig. 3

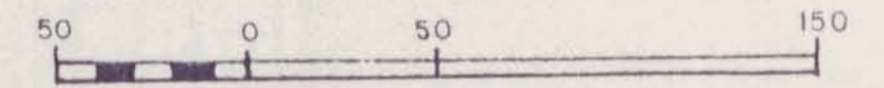
STATISTICS

No Samples = 407  
 Sample Mode = 0.17 ppm  
 Sample Mean = 0.260 ppm  
 St. Deviation = 0.362 ppm  
 ANOMALIES:  
 Possible => 0.662 ppm  
 Probable => 0.987 ppm





CALLEX MINERAL EXPLORATIONS LTD.  
MORGAN CLAIM  
Kamloops Mining Division  
Tod Mountain, B.C.  
COPPER IN SOILS



SCALE 1:2000

SEPT. 1984

W.G.H.

True North  
**GEOLOGICAL BRANCH**  
**ASSESSMENT REPORT**

**13,446**

Fig. 4

**STATISTICS**

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Sample Mode = 57.0 ppm  
Sample Mean = 93.95 ppm  
St. Deviation = 107.01 ppm  
ANOMALIES:  
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