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A GEOLOGICAL AND GEOCHEMICAL REPORT

ON

THE LIZ CLAIM GROUP 94D/8W

3.4 MILES NORTH-WEST of MOUNT CARRUTHERS
(Sikanni Range, B.C.)

OMINECA MINING DIVISION

BRITISH COLUMBIA

MINERAL CLAIM MAP	:	94D/8W	
Latitude	:	56°18'	N
Longitude	:	126°24'	W

FOR

SEREM LTD

BY

P. SONNENDRUCKER, P.Eng.
Geological Engineer

Field work: August 4 - 12, 1973

Report: June 1974.

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1. Introduction

A reconnaissance exploration program for Copper by geological traverses and geochemical stream sampling was carried out by SEREM Ltd in the Hogem Ranges, between Nation River and Sustut River, during the 1973 field season.

Copper showings were found at different places in the Sikanni Range, 25 miles South-South-East of Johanson Lake.

The LIZ #1 to 8 M.C. Group has been located for covering showings at 4 miles North-West of Mount Carruthers.

A surface exploration program with geological mapping and geochemical survey in soils was conducted for 9 days in August 1973.

This report describes the work done on LIZ GROUP, discusses the results and presents conclusions and recommendations. Survey data is presented on a geological map and geochemical maps for Cu and Zn, scale 1"=400'.

2. PROPERTY AND OWNERSHIP

The LIZ #1 to 8 Mineral Claims were located for SEREM Ltd on August 4, 1973 and recorded at Smithers Mining Recorder, Omineca Mining Division, on August 14, 1973 under Records No 127646 to 127653 inclusive.

Notice to group the 8 Mineral Claims into the LIZ GROUP was recorded on June 4, 1974.

The LIZ GROUP is owned by SEREM Ltd, 505-850 West Hastings Street, Vancouver B.C., in trust with Bergminex Associates.

SEREM Ltd, on behalf of Bergminex Associates, has been the operator for the work done in 1973 on LIZ GROUP.

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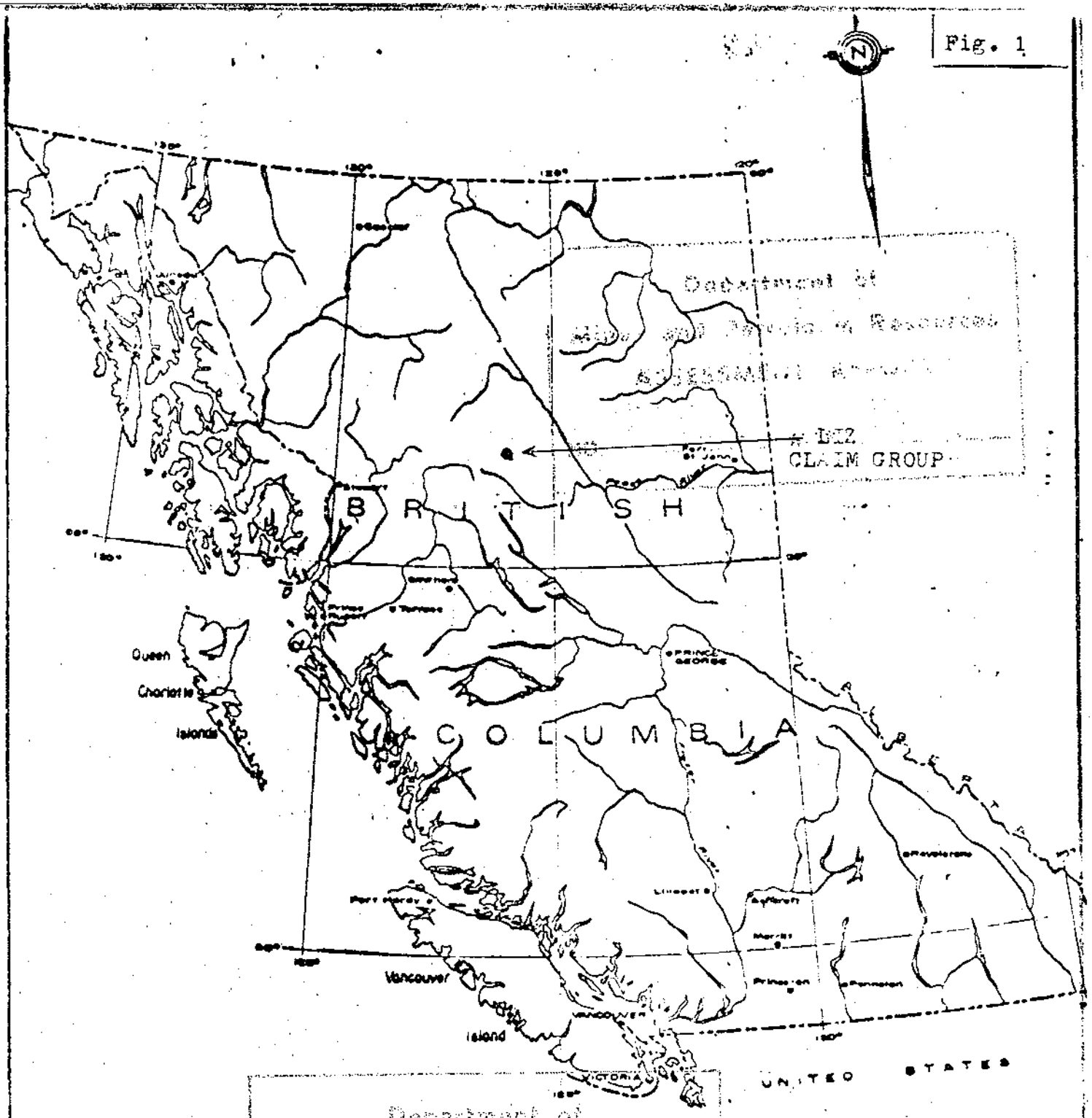
Fig. 1



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LOCATION MAP

Scale: 1" = 100 miles

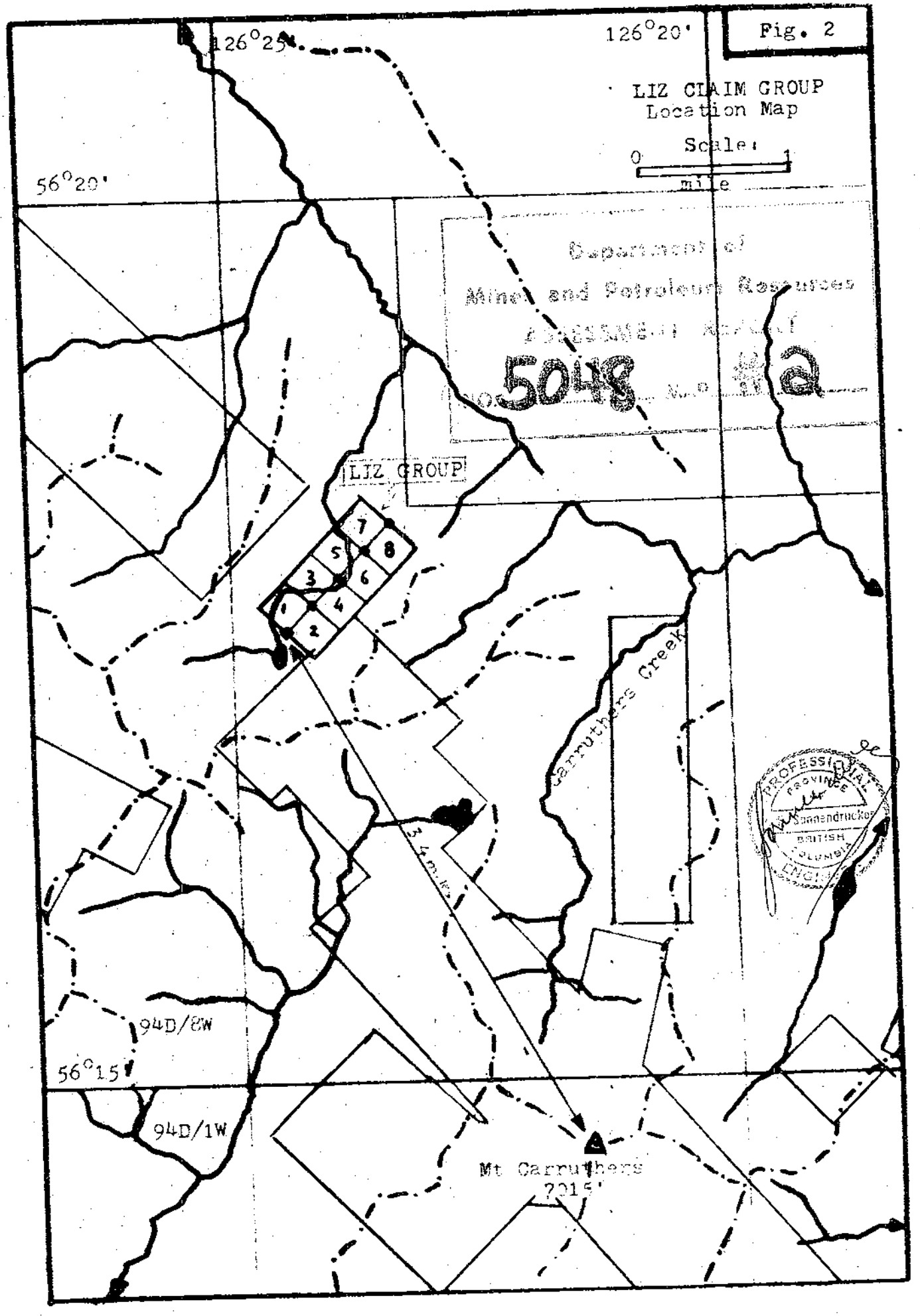
Fig. 2
126°25'
126°20'
LIZ CLAIM GROUP
Location Map
Scale:
0
1
mile
56°20'
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5048
MAP
LIZ GROUP
1
2
3
4
5
6
7
8
Carruthers Creek
3.4 miles
PROFESSIONAL
ENGINEER
PROVINCE
OF
BRITISH
COLUMBIA
94D/8W
56°15'
94D/1W
Mt Carruthers
7215'

3. LOCATION AND ACCESS

The LIZ GROUP is situated at 23 miles South of Johanson Lake and more precisely at 3.4 miles NNW of Mount Carruthers (7015') in the Sikanni Range, N.T.S. Map Sheet 94D (McConnell Creek).

The property is located in the Omineca Mining Division, at latitude 56°18' N and longitude 126°24' W, Mineral Claim Map 94D/8W.

Access is by helicopter from Johanson Lake. Work was carried out in 1973 from a fly camp set up near a small lake at 400' NE of LIZ #5-6 M.C. initial post.

4. PHYSIOGRAPHY

The LIZ GROUP trends NNE along the upper stream of a creek, tributary of Asitka River, between two alpine-type montainous ridges. Elevations on the Claim Group rise from 4300' to 5400'in the South-East corner.

The above-mentionned creek runs through a canyon dug in a rocky threshold down from the cirque of the headwaters.

The tree line is above the claim boundaries.

5. GEOLOGY

a) Regional

C.S.LORD (1948) has attributed to the Takla Group (sensu lato) all the assemblage of volcanic and sedimentary strata forming the Sikanni Range. However, he distinguished a lower (Upper Triassic) division and an upper (Jurassic) division.

The lower division comprises about 10,000' of mainly greenish pyroclastic rocks and lavas, characterized by black pyroxene grains and phenocrysts. Rare fine-grained sedimentary rocks (argillites, minor limestone) occur, but are unfossiliferous.

The upper division comprises more than 20,000 feet of volcanic

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and sedimentary rocks. The lowest part includes mainly reddish lavas and pyroclastic rocks characterized by many white feldspar phenocrysts and grains. These are overlain by shallow water, marine fossiliferous sediments interlayered with minor volcanic rocks, carbonaceous strata and coal. Fossils indicate a range in age from early Lower Jurassic to middle Upper Jurassic.

No angular discordance has been yet fully recognized between both divisions. The contact is marked by an abrupt change in the chemical composition of volcanic and pyroclastic rocks, the upper division being more acidic than the lower one. At 10 miles North of the Sikanni Range, a volcanogenic conglomerate occurs between lower and upper divisions.

By comparing with others areas of B.C., H.W.TIPPER (1959) has shown that the upper division of the Takla Group (Lord) could be equivalent to the Hazelton Group, well developed in Central B.C. (see GSC, Paper-74-1 Part A, for up-to-date detailed studies).

Structurally, the Takla (Lord) strata occupy a broad, northwesterly trending synclinorium, complicated by faults and subsidiary folds. The Sikanni Range appears as a faulted block of the southwestern limb of a subsidiary syncline.

b) Local : Refer to the geological map, Map #1 in pocket.

For getting a better knowledge about the local geology, the geological mapping was extended beyond the claim group boundaries.

Takla Group (sensu stricto= Lord's lower division):

Rocks of the Takla Group occur in the SSW part of the map.

Most of the Takla lavas are massive andesites (Unit 1). Neither pillow lavas or amygdaloidal lavas were encountered. Texture of the andesite lavas varies from fine grained to porphyritic, with amphibole as the most frequent phenocryst. Occasional pyroxenephenocrysts

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(augite) can also be observed. Porphyritic andesite lavas with plagioclase phenocrysts are rare compared to these ones with pyroxene or amphibole. These rocks contain only a few percent of mafic minerals in their groundmass and they are rather acid andesites. One very small outcrop of fine grained, dense, siliceous dacite lava was encountered.

Basic lavas are represented by two small outcrops of fine grained massive basalt lava (Unit 2) located in the southern central part of the area.

Pyroclastic rocks include tuffs (most frequent), agglomerate and a few occurences of volcanic breccias.

The grey to green, fine grained, andesite tuffs (Unit 3) are quite often thinly bedded. Rare thickly bedded to almost massive types also occur. The tuffs are often interbedded with siltstones of few millimeter thickness. In some cases. the siltstone beds thin out and appear as lenses in the including tuff material. The occasional lithic fragments of these tuffs include both sedimentary and volcanic material (black siltstone, andesite lava). Graded bedding from fine to coarse grained tuffs or agglomerates is a conspicious feature. Crossbedding is also noticeable.

The grey coloured agglomerates (Unit 3a) contain fragments ranging from one inch to 2-3 feet in diameter. These fragments or blocks are inbedded in fine tuff matrix. Tuffs grading into agglomerates show many indications of movement prior to diagenesis, affecting the unconsolidated beds. The lenses of siltstone deposited together with the tuffs, clearly show disturbance, while the underlying or overlying fine grained tuffs, alternating with siltstones, are undisturbed. These are obviously turbidite textures, likely resulted from slump of unconsolidated sediments on the flanks of volcano.

Volcanic breccias also occur in the target area (Unit 4). These breccias are andesitic in composition. Usually the breccias are fairly siliceous and often contain more or less disseminated pyrite and/or pyrrthotite.

Sedimentary beds of Takla Group are less frequent in this particular area than volcanic or pyroclastic ones. These sediments are black laminated siltstones and tuffaceous siltstones. The silicification of some siltstone beds is pronounced; they contain lenses or thin bands of black or grey chert. Pyritisation of siltstone beds is far less characteristic here than in southern areas of the Sikanni Range. The black siltstones are usually very thinly bedded but occasionally beds of one foot thickness were also encountered.

Chert beds of grey colour often occur in the fine grained andesite tuffs. They are likely of sedimentary origin, although the source of silica was probably the volcanic or post-volcanic activity.

Hydrothermal alteration (epidotization, chloritization, carbonatization) is is not at all evident in the Takla Group rocks. Apart from pyrite and pyrrhotite, no any sulfide was noticed in these rocks.

Hazelton Group (Lord's upper division)

The purple, red or reddish green fine grained to porphyritic andesite lavas (Unit 5) are fairly or well oxydized compared to the grey or greenish grey Takla Group andesite lavas. The purplish red colour of the Hazelton lavas is dus to hematite in the groundmass.

The phenocrysts, if any, are plagioclases rather than amphiboles or pyroxenes. Hazelton andesite lavas are probably slightly more acidic than Takla andesites.

Some of the andesite lavas are slightly brecciated (noticed only on weathered surfaces); epidote, carbonate and less frequently

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quartz are the fracture filling material.

Fine grained tuffs and argillaceous andesite tuffs are extremely oxydized (Unit 6). They are always red or purplish red in colour. Lithic fragments of reddish andesite lavas and occasionally of purplish red argillites are found in the tuffs. They are usually thinly bedded and often interbedded with purplish red argillites. Fine grained tuffs frequently grade into coarse tuffs which in turn may grade into agglomerates.

The agglomerates (Unit 7) are usually fine grained, they contain lithic fragments ranging from 1/5 to 1 inch in size. The fragments are reddish fine grained to slightly porphyritic andesite lavas.

Sedimentary rocks of the Hazelton Group include argillites (Unit 8) and a few beds of conglomerate (Unit 9).

The purplish red strongly oxydized argillites are usually thinly bedded. They often exhibit strong chloritization and/or epidotization.

The conglomerates are characterized by pebbles ranging from 1/3 to 1 inch in size. The material of these pebbles is usually Hazelton andesite lavas, but pebbles and subangular fragments of grey to red chert are also frequent. Some of the chert pebbles show rythmic deposition of silica.

Structure: a set of anticline-syncline characterize the area., south-west of the upper lake. On the eastern limb of the syncline, the beds are overturned. The syncline structure is localised only to the valley, whereas the anticline structure is regionally more extensive and can be traced on the eastern ridge.

c) Mineralization:

Several Cu-showings have been recognized within the general area. Only one type of mineralization appears to prevail:

-network of chlorite-epidote-calcite veinlets with dissemina-

ted to massive chalcocite, bornite, rarely chalcopyrite within red or strongly chloritized green andesite tuffs intercaled with minor siltstones.

The main showing is located in the canyon, near the #3-4 M.C. initial post. 150' upstream, mineralized fractures have also been observed. The mineralization is stratabound: overlying beds of argillites are not fractured and unmineralized.

6. GEOCHEMICAL SURVEY IN SOILS: Refer to the geochemical maps, Map #2 (Cu) and 3 (Zn) in pocket.

a) Survey method:

A 6,000' long base line was flagged along the M.C. location-line with crosslines on 800' intervals. Stations were marked at 100' intervals along base-line and crosslines. Surveying was carried out by using Silva Ranger Compass and Topofil. Elevations were noted with Thommen Altimeter.

A total of 3.4 miles of lines has been flagged.

b) Sampling method:

A total of 106 soil samples have been collected, along a 800'x200' grid.

Soil samples were taken, where possible, under the organic horizon. They were generally brown coloured, coarsely grained, from local origin.

c) Assay method:

Assays were run for Cu and Zn by Vancouver Geochemical Laboratories (Assay report # 73-79-023).

Samples were dried in a hot air drier, then ground to -80 mesh. 0.50 g. portions of the -80mesh fraction were weighted with a torsion balance.

Extraction was by hot $HClO_4$ and HNO_3 digestion and detection by using a Techtron AA5 and AA1000.

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d) Results and interpretation:

The range of Cu and Zn values for the 106 soil samples is as follows:

ppm	Cu	:	10 - 450	(760)	(900)
ppm	Zn	:	20 - 163		

Comparing with results gained by geochemical surveys in soils in the same region under similar conditions, an anomaly cut-off has been arbitrarely chosen at Cu = 300 ppm.

Two anomalous spots occur in relationship with the known showings.

Zn does not indicate any trend.

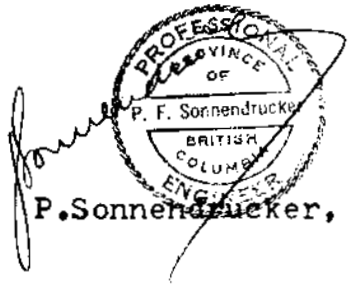
7. Conclusion and recommendations:

Several Cu-showings have been found in a particular volcanic environment. The mineralization seems to be stratabound.

Geochemical survey in soils was not very successful.

SEREM Ltd plans a reconnaissance sampling program by short holes drilling during the 1974 field season.

Respectfully submitted,



P.Sonnendrucker, P.Eng.

ANNEXE I

Statement of expenses.

The following is a breakdown of expenses incurred in carrying out the work on the LIZ GROUP in August 1973:

Field work:

Personel:	P. SONNENDRUCKER Senior Geologist	August 4-5	2 days	$ 140.00
	ARPAD FARKAS Junior Geologist	August 4-12	9 days	$ 360.00
	DAVID PATERSON Soil sampler	August 4-12	9 days	$ 270.00
Food expenses : ($6.00/man/day)			20 days	$ 120.00
Helicopter support: ($260.00/h.)			2 hours	$ 520.00
Geochemistry:	Assaying (V.G.C.) Soils: 106 samples at $1.65 each			$ 174.90

Office work:

Personel:	P. Sonnendrucker Interpretation, writing	5 days	$ 350.00
	D. Paterson Drafting	5 days	$ 150.00
		Total...	$ 2,084.90

Declared before me at the City of Vancouver, in the Province of British Columbia, this 17 day of July 1974 A.D.

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

Sub-mining Recorder

STATEMENT OF QUALIFICATIONS

I, PIERRE F. SONNENDRUCKER, with business address in VANCOUVER, B.C., hereby certify that:

1. I am a registered Professional Engineer in the Province of British Columbia;

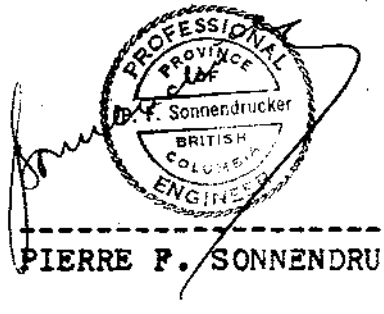
2. I am a graduate of the University of NANCY, FRANCE, with the diploma of Geological Engineer of the "Ecole Nationale Superieure de Geologie Appliquee et de Prospection Miniere" (Ingenieur-Geologue ENSG, Promotion 1954);

3. I have practised as a Geologist since 1957 in West Africa (Ivory Coast, Guinea), France and Canada (British Columbia);

4. I am employed by SEREM Ltd, 770-2100 Drummond Street, MONTREAL 107, Quebec, as a Senior Geologist. My residential address is 2021 West 59th Avenue, VANCOUVER 14, B.C.;

5. I have personally participated in the field work and supervised all the completed work included in this report. I have interpreted the data resulting from this work.

Respectfully submitted,



PIERRE F. SONNENDRUCKER, P.Eng.

5048
M3

SEREM LTD.
1973
COPPER PROJECT
'LIZ' CLAIM GROUP
(TARGET #12)
GEOLOGY

(1)

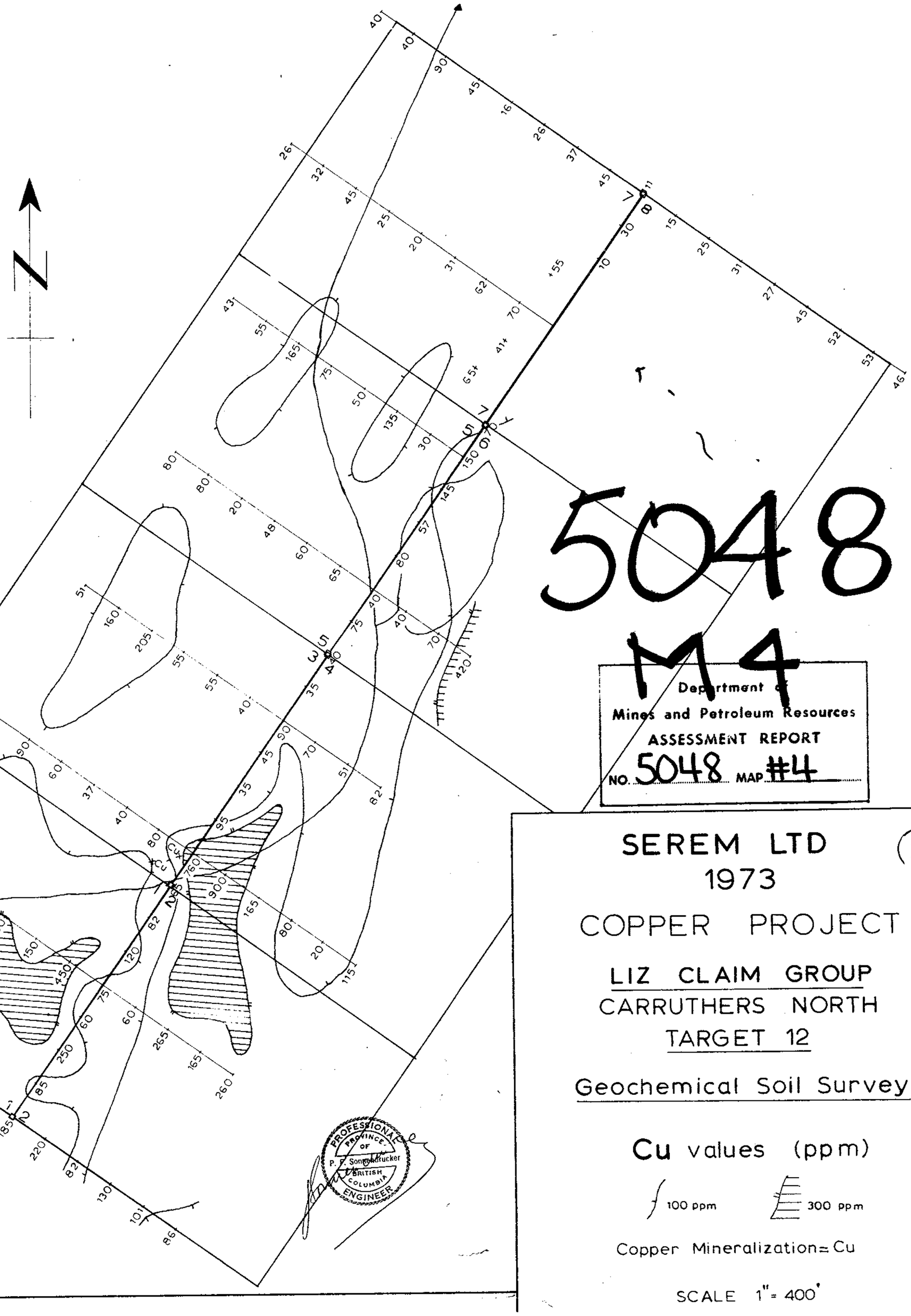
HAZELTON — TAKLA

- [1] Andesite lava
- [2] Basalt lava
- [3] Andesite tuff interbedded with laminated siltstone
- [3a] Andesite tuff interbedded with agglomerates (turbidite type)
- [4] Siliceous andesite breccia
- [5] Andesite lava
- [6] Andesite tuff
- [7] Andesite agglomerate
- [8] Argillite
- [9] Conglomerate

- Outcrop
- Contact (observed, assumed)
- Fault (interpreted)
- Strike and dip of bedding
- Strike and dip of jointing
- Axes of syncline
- Axes of anticline
- Copper mineralization
- Claim post with claim no.

400 300 200 100 0 400 800
SCALE (ft.)

CREEK
LAKE



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M4

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5048 MAP #4

SEREM LTD (2)

1973

COPPER PROJECT

LIZ CLAIM GROUP

CARRUTHERS NORTH

TARGET 12

Geochemical Soil Survey

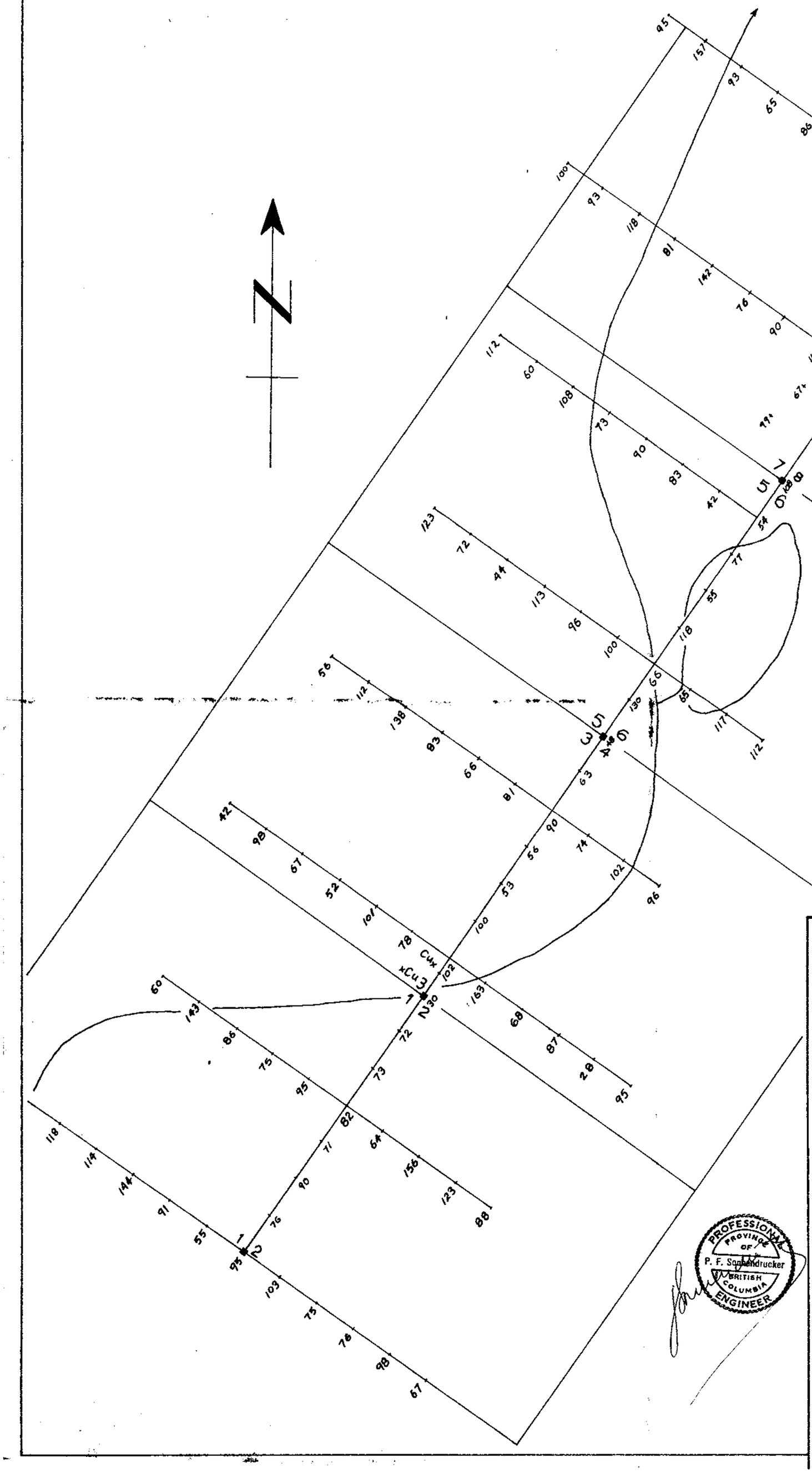
Cu values (ppm)

100 ppm

300 ppm

Copper Mineralization = Cu

SCALE 1" = 400'



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M5

SEREM LTD ③

1973

COPPER PROJECT

LIZ CLAIM GROUP
CARRUTHERS NORTH
TARGET 12

Geochemical Soil Survey

Zn values (ppm)

Copper Mineralization - Cu

SCALE 1" = 400'