

file Smithers - Lethbridge
COBRE EXPLORATION LTD.
REPORT-GEOLOGY & EXPLORATION
SUSKWA COPPER-MOLYBDENUM PROSPECT
MT. THOEN-OMINECA M.D.

March 1973. W. M. Sharp, P.Eng.

Top drawer # 2 file cabinet

801443

March 6, 1973

Cobre Exploration Ltd.,
c/o 2467 Kilmarnock Crescent,
North Vancouver, B. C.

Attention: Mr. M. J. Fitzgerald, P.Eng.

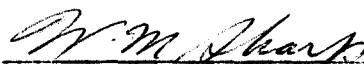
Gentlemen:

With this, the writer respectfully transmits his "Preliminary Report on the Geology & Exploration of the Suskwa Copper-Molybdenum Prospect, Mount Thoen Area, Omineca Mining Division, B. C.", as recently authorized by you.

The report content derives mainly from maps and reports resulting from exploration accomplished by your company during 1971-72 and, to a lesser extent, from my November, 1969 field examination and subsequent office studies and interpretation.

The provision of the Cobre data is hereby thankfully acknowledged.

Yours truly,


W. M. Sharp, P.Eng.

WMS:amo
Att.

March 6, 1973

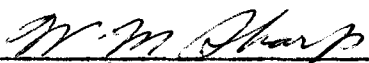
British Columbia Securities Commission,
Law Courts Building,
Victoria, B. C.

Dear Sirs:

RE: "PRELIMINARY REPORT ON THE GEOLOGY
AND EXPLORATION OF THE SUSKWA
COPPER-MOLYBDENUM PROSPECT, MOUNT
THOEN AREA, OMINECA MINING DIVISION, B.C."

With this, the undersigned consents to the use of the full report or, alternatively, of the sections "Summary and Conclusions", "Recommended Exploration Program", and "Estimated Cost of Program" by Cobre Exploration Ltd. for the purpose of providing public information on the property.

Respectfully submitted,


W. M. Sharp, P.Eng.

WMS:amo

PRELIMINARY REPORT

on the

GEOLOGY & EXPLORATION

of the

SUSKWA COPPER-MOLYBDENUM PROSPECT

situated north of

MOUNT THOEN

in the

OMINECA MINING DIVISION, B. C.

for

COBRE EXPLORATION LTD.
Vancouver, B. C.

by

W. M. Sharp, P.Eng., North Vancouver, B.C.

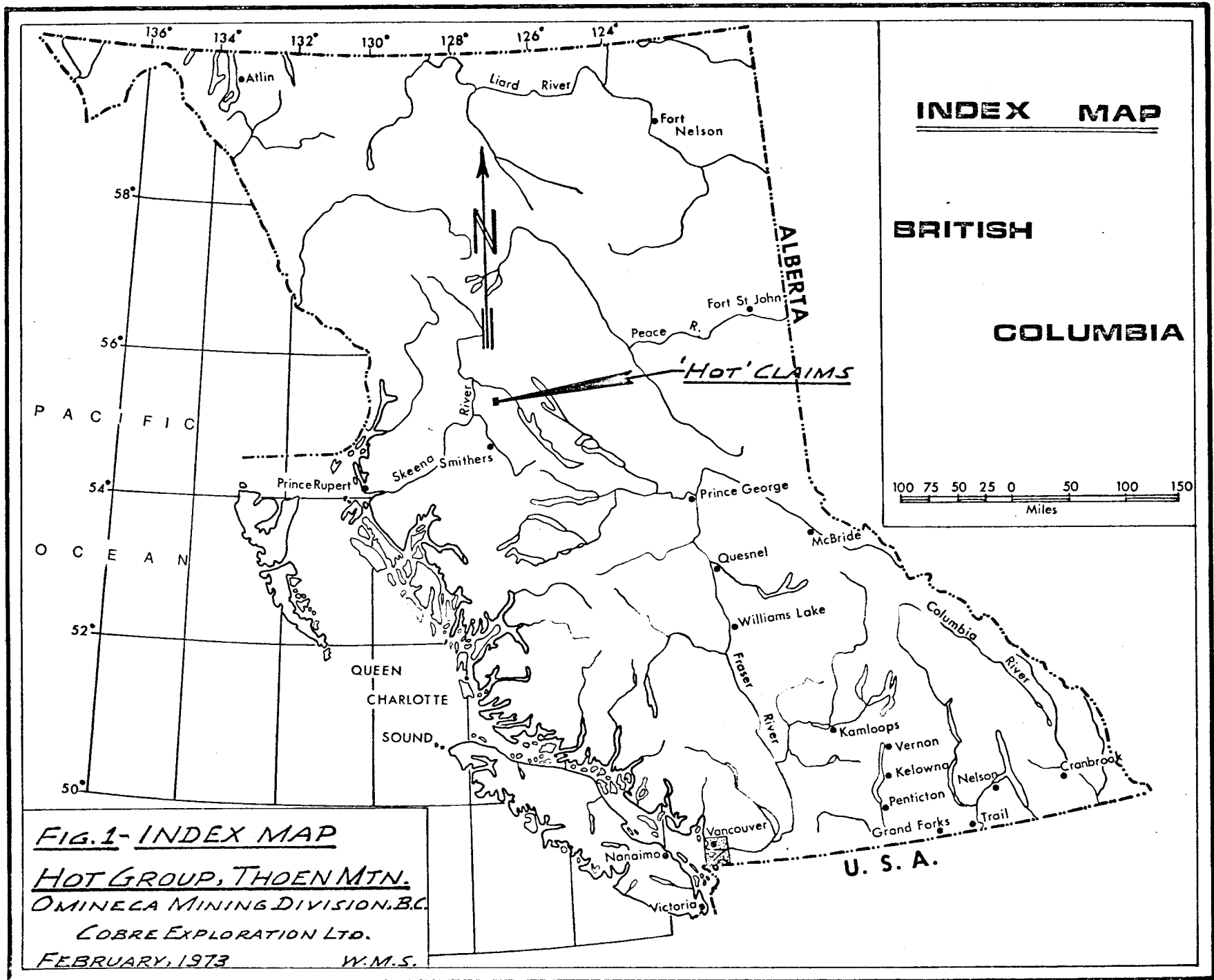
March 6, 1973

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DWG. NO. 2	- GEOCHEMICAL SURVEY, CU & MO	- " "
DWG. NO. 3	- SAMPLE PLAN	- " "



SUMMARY & CONCLUSIONS

The Suskwa prospect comprises a near-square block of 26 contiguous full-sized mineral claims which cover an area of about 2 square miles on a north-sloping shoulder of Mount Thoen. All claims situate in the Omineca Mining Division. Particulars of the claims are as follows:

<u>Claims</u>	<u>Record No's</u>	<u>Recording Date</u>	<u>Expiry Date</u>
Hot 1, 2	104607,-8	Sept. 20, 1971	Sept. 20, 1973
" 9,10	104615,-16	" " "	" " "
" 14-26 incl.	104620-32 incl.	" " "	" " "
" 3-8 incl.	104609-14 incl.	" " "	Sept. 20, 1974
" 11-13 incl.	104617-19 incl.	" " "	" " "

The above claims are wholly owned by Cobre Exploration Ltd. and are currently in good standing, as indicated.

The Suskwa prospect ('Hot' group) is located about 45 miles north of Smithers, and access is by helicopter from a Smithers base. The copper-molybdenum showings lie at an elevation of about 6000 ft.

The mineral showings presently covered by the Hot group were discovered and staked in 1968 by Mastodon Highland Bell Mines Ltd., who carried out a modest program of geological mapping and rock-trenching and sampling during the year they held the group. The property was staked by Manex Holdings Ltd. in 1969 who held the property, by re-location, for 2 years; during this period little new exploration, other than a brief examination by the writer, was accomplished and the claims were allowed to lapse.

Cobre Exploration Ltd. staked the Hot group in September, 1971 and made a preliminary geological examination of the ground. Follow-up exploration by Cobre in 1972 included a program of systematic geological mapping and geochemical sampling, supplemented by a field and office study of alterations in the wall rocks containing the copper-molybdenum showings.

The Mount Thoen area, lying within a south-central part of the Bowser Basin, is generally underlain by rocks of the Middle Jurassic to Lower Cretaceous Bowser Group - these locally

comprising argillite, sandstone, and greywacke, with minor intercalated tuffaceous sediments. On the property these are in contact with the Mount Thoen quartz diorite stock, but are also complexly intruded by offshoots of the main body. Near the contact the sediments have been metamorphosed to hornfelsic and quartzitic rocks; in addition, narrow contact sections of quartz diorite have been fractured and altered. Over the general area of the showings the sediments are additionally intruded by a younger (?) complex of quartz-biotite-feldspar porphyry dykes which have been rather similarly altered.

The showings of copper-molybdenum mineralization, with minor gold and silver values, occur in both hornfels and altered porphyry as fine disseminations and narrow veinlets along a portion of the contact zone. The constituent sulphides, in general order of abundance, comprise pyrite/pyrrhotite, chalcopyrite/bornite, molybdenite, and local chalcocite/covellite. The bulk of the mineralization is of primary origin. The evidence from the mapping and sampling accomplished, at a scale of 1" = 200' over a 4400' x 1600' gridded area, indicates that the mineralized complex of altered sediments and porphyry extends an appreciable distance outward of the area currently investigated. However, exploration, during 1972, of its obvious easterly extensions was curtailed due to the presence of a sharp and locally inaccessible gully. Also, detailed geological mapping of bedrock in westerly-adjointing, geologically-favourable areas was precluded by a general cover of rock rubble. However, it has been established that the favourable hornfelsic host rocks occur over widths ranging from 1/4 mile to 1 mile outward of the contact of the Mount Thoen stock.

The fine-grained nature of the mineralization, together with the masking effect produced by a pervasive quartz-biotite-chlorite alteration within the host rocks, makes it difficult to visually estimate its grade and extent. Consequently, a geochemical survey of the mineralized and potentially mineralized area was carried out for purposes of a general delineation. In view of the absence of soil, this was done by chip-sampling bedrock exposures within the

general exploration grid. The results, reported as total parts per million Cu and Mo, were plotted and contoured.

With the above, a petrographic study of bedrock alteration was performed. From this 'potassic', 'phyllic', and 'propylitic' alteration zones were delineated - these being typical of the 'alteration zoning' relating to other porphyry-type copper/molybdenum deposits in the general Smithers area. Studies of the Suskwa mineralization indicate that the highest grade copper-molybdenum mineralization occurs in the most intensely biotitized and silicified (fractured) host rocks or, at the 'heart' of the potassic zone.

The evidence from work to date indicates that the better grades of mineralization are roughly coincident with the zone of potassic alteration in areas of well fractured sediments and porphyry. The zone of geochemically-anomalous copper and potassic alteration is, in turn, closely related to zones of abundant and complex porphyry dyke intrusion and also to the density of northeast-striking fractures. Additionally, the observed and deduced geologic and geochemical trends strongly suggest that the main trend of mineralization is eastward and roughly normal to the contact of the quartz diorite stock, rather than along the contact of the stock as might generally be suspected.

In terms of the interpreted eastward trend of mineralization, the anomalous alteration-geochemical zone is approximately 2200 feet wide (N-S) by an average of 500 feet long, and generally open to the east - into, and across the previously-noted gully.

Preliminary sampling by the writer of an approximate 300 ft. by 500 ft. area within the general zone of copper-molybdenum mineralization produced an average grade of 0.24%Cu, 0.037%MoS₂ (Au & Ag not assayed). This, on the basis of a 2:1 ratio for MoS₂:Cu values may also be reported as 0.31%Cu-equivalent. The constituent samples were judged to contain mineralized rock of sub-average bedrock grade, in that natural covering since their excavation had left only the near-surface parts of their walls and questionable excavated material exposed and available for sampling. However, results to date indicate the probable occurrence of ore-grade mineralization within the covered area of well mineralized

but somewhat oxidized and leached bedrock containing the current showings and their indicated extensions.

Additional mineralized areas quite conceivably exist along the broad hornfelsed and pyritized zone which borders the Mount Thoen stock, and additional prospecting along the contact zone north and south of the presently explored area is also warranted.

RECOMMENDED EXPLORATION PROGRAM

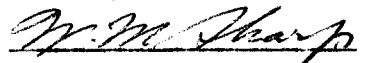
It is recommended that the following exploration be conducted on the Suskwa prospect of Cobre Exploration Ltd.:

PHASE I

1. Extend the present exploration grid into the covered area east of the cliff via a 4000' x 2000' addition with 200' x 200' survey control.
2. Carry out geologic mapping over the extended grid.
3. Conduct an Induced Polarization via 7 lines, each 2500' long, with line stations each 400', across the geochemically anomalous areas and the extended grid.
4. Perform reconnaissance geological mapping and geochemical sampling over the altered and pyritized zone along the east contact of the Mount Thoen stock over distances of 2 miles north and south, respectively, of the present grid.
5. Carry out bedrock-trench exploration within the area of coincident copper-molybdenum geochemical anomalies. It is estimated that this would comprise 15 trenches, excavated by 2 men using a Cobra-type drill.
6. Perform flux-gate magnetometer survey over entire grid.
7. Carry out preliminary x-ray drilling via series of short holes to test bedrock mineralization below zone of oxidation and leaching.

PHASE II - Diamond Drilling (contingent on Phase I results)

It is estimated that this would comprise a minimum of 1500' via 5 holes @ 300' each.


W. M. Sharp, P.Eng.

ESTIMATED COST OF PROGRAM


PHASE I

1) Geologist - 3 days @ \$175	\$ 525	
Assistant - 3 days @ \$ 40	120	\$ 645
	<hr/>	
2) Geologist - 8 field-days @ \$175	\$1,400	
Geologist - 5 office " @ \$150	750	
Assistant - 8 days @ \$ 40	320	
Drafting - provision	200	\$ 2,670
	<hr/>	
3) I.P., 3.3 line-miles @ \$600	\$1,980	
I.P. Report	450	
Mobilization	750	
Helicopter - 3 hours @ \$258	774	\$ 3,954
	<hr/>	
4) Geologist - 5 field-days @ \$175	\$ 875	
Assistant - 5 field-days @ \$ 40	200	\$ 1,075
	<hr/>	
5) (2 men for 30 days)		
Labour 60 man-days @ \$ 40	\$2,400	
Drill-rental, powder, etc.	1,500	\$ 3,900
	<hr/>	
6) Operator - 5 days @ \$125	\$ 625	
Report and maps	400	\$ 1,025
	<hr/>	
7) X-ray drilling: 500' @ \$13/ft., including sample-assays		\$ 6,500
		<hr/>
8) Miscellaneous:		
Helicopter - 10 hours @ \$258	\$2,580	
Camp cost - 125 man-days @ \$10	1,250	\$ 3,830
	<hr/>	
Sub-Total Phase I		\$23,599
Contingencies (15%)		3,540
Administration & Overhead (15%)		3,540
		<hr/>
TOTAL, PHASE I		\$30,679

PHASE II

a) Mobilization		\$ 4,000
b) 1500' B.Q.W.L. @ \$15 (including assays)		22,500
c) De-mobilization		2,500
		<hr/>
Sub-Total Phase II		\$29,000
Contingencies (10%)		2,900
Overhead (10%)		2,900
		<hr/>
TOTAL, PHASE II		\$34,800

Respectfully submitted,


WILLIAM M. SHARP, P.ENG. W. M. Sharp, P.Eng.

INTRODUCTION

The writer's personal knowledge of the Suskwa (Mount Thoen) copper-molybdenum prospect derives from his field examination of November 3, 1969 and subsequent office research pertaining to the prospect for Manex Holdings Ltd. (N.P.L.). The foregoing were incorporated into a report in which the writer drew attention to geological indications of a significant ore potential, and concerning which he made specific recommendations for systematic exploration and evaluation of the prospect. As the Manex group, during the two years they held the property, were not successful in their efforts to finance the recommended work or to attract a participating-major for this general purpose, they allowed the claims to lapse.

Preparation of this report was authorized by Mr. M.J. Fitzgerald. The data provided for this purpose comprise the writer's principal references, which include:

1. The December 15, 1972 "Report on Geology, Mineralization, and Alteration, Suskwa Prospect" by M. J. Fitzgerald, P.Eng.
2. The October, 1972 "Petrographic Report, Suskwa Prospect" by R. W. Woolverton, P.Eng.

The writer's preliminary reference comprises his original report -

"Preliminary Examination & Evaluation of the TH Copper-Molybdenum Prospect", March, 1970 for Manex Holdings Ltd. (N.P.L.)

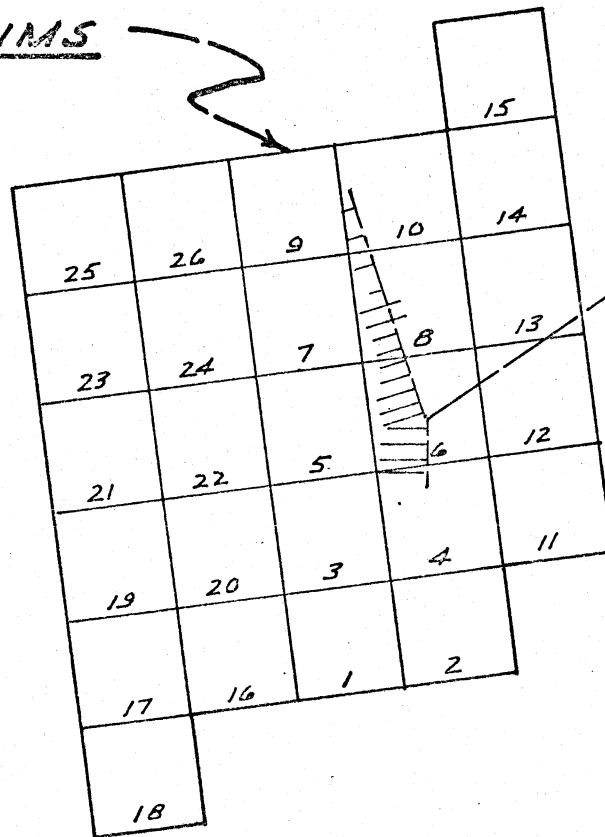
- for which formal authorization regarding its use in the preparation of this report has been kindly provided.

PROPERTY

Fig. 2 supplements the following text.

The 'Hot' claim group consists of the following 26 full-sized mineral claims in the Omineca Mining Division:

'HOT' CLAIMS



MAPPING AND
SAMPLING GRID
(DWG. No. 1)



FIG. 2

CLAIM MAP-HOT GROUP

COBRE EXPLORATION LTD.

OMINECA M.D.

SCALE: 1 IN. = 1/2 MI.

FEB., 1973

W.M.S.

	<u>Claims</u>	<u>Record No.</u>	<u>Recording Date</u>	<u>Expiry Date</u>
Hot	1, 2	104607,-8	Sept. 20, 1971	Sept. 20, 1973
"	9, 10	104615,-16	" " "	" " "
"	14, 26, incl.	104620-32, incl.	" " "	" " "
"	3-8, incl.	104609-14, incl.	" " "	Sept. 20, 1974
"	11-13, incl.	104617-19, incl.	" " "	" " "

All of the above claims are fully owned by Cobre Exploration Ltd.

The group comprises a near-square block which covers approximately 2 square miles. The location of the mapping-sampling grid with respect to the claim block is shown on Fig. 3.

LOCATION, ACCESS, & TERRAIN

The geographic location of the property is shown on Fig. 1.

Regionally, the property lies within the Babine Range. More locally, it situates on a north-sloping shoulder of Mount Thoen between the 4400-6700 foot elevations, and at approximately 45 miles north of Smithers, B. C.

The mineral showings herein described locate well above timberline at an elevation of approximately 6000 feet. Outcrops are plentiful on the steeper slopes, but elsewhere exposures are largely obscured by a frost-heaved rubble of locally dislodged bedrock fragments and talus.

Helicopters operating from a Smithers base provide relatively convenient and economical transportation in respect of preliminary exploratory work involving only small crews and light equipment. However, at such time as larger exploration crews and equipment are required substantial unit-cost reductions could be made by using truck transportation over logging roads along branches of the Suskwa River to a tentative freight depot, and using helicopter transportation for the remaining 6 to 8 miles to the property.

The region is one of high relief and rugged terrain. At the elevation of the showings climatic and topographic conditions are such that soil development has been minimal.

HISTORY

The local copper-molybdenum showings were discovered in 1968 by Victor Niedolin; he subsequently staked the 54-claim "Nick" group for Mastodon Highland Bell Mines Ltd. During the balance of the 1968 field season this company carried out a preliminary program of geological mapping and rock-trenching and sampling within the general discovery area. In spite of the significant results which accrued from this work, Mastodon apparently made no serious attempt to extend exploration over the 2-mile length of favourable sedimentary-intrusive contact within the 'Nick' group - or to continue exploration of other attractive prospects that they held within the Smithers region during this period. Several of the prospects dropped by Mastodon have reached advanced stages of exploration following their acquisition by other mining companies.

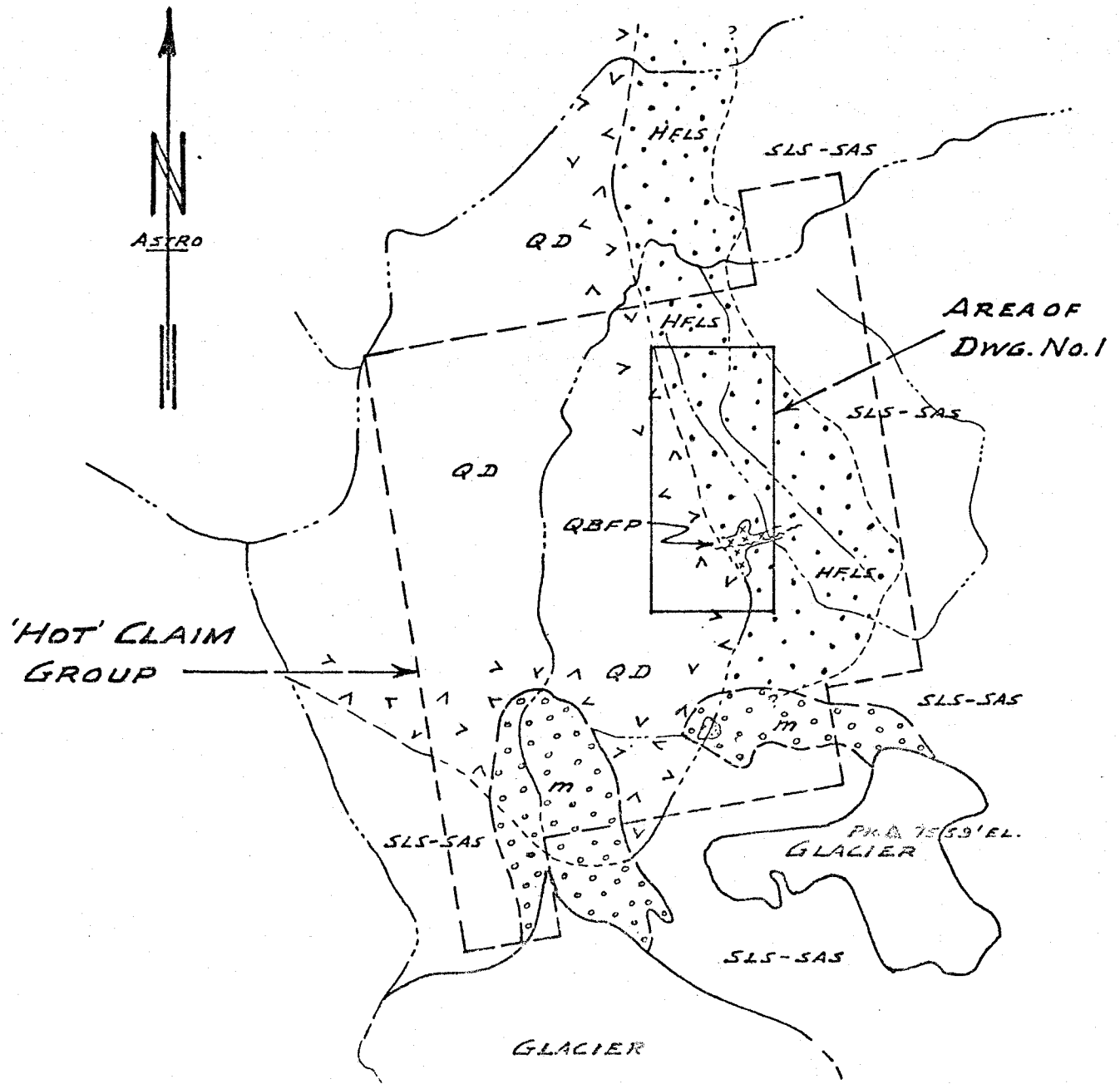
Between 1969-71 the prospect was held by Manex Holdings Ltd.; however, for reasons previously noted little or no exploratory work, other than that done by the writer, was accomplished by the Manex group.

Cobre Exploration Ltd. located the 'Hot' claim group on September 16, 1971 to cover the copper-molybdenum showings and adjacent ground. Early snowfalls limited 1971 work to a brief geologic examination. However, during 1972 Cobre conducted a program of geologic mapping, geochemical sampling, and petrographic studies - all of which were subsequently described in Mr. Fitzgerald's December 15, 1972 report. This report was submitted to the B.C. Dept. of Mines as evidence of exploration expenditures made on the property during the 1972 season.

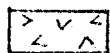
REGIONAL GEOLOGY

Fig. 3 supplements the following text.

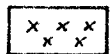
The Smithers region occupies part of the south flank of the Skeena Arch - a regional geological feature which has been traced from the Coast Range into the central interior, and which appears



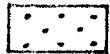
LEGEND



QUARTZ DIORITE QD.



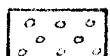
QUARTZ BIOTITE FELDSPAR PORPHYRY QBFP.



HORNFELS HFLS.



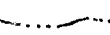
SILTSTONE-SANDSTONE SLS-SAS.



MORaine M



FAULT



DRAINAGE

FIG. 3

COBRE EXPLORATION LTD.

GENERAL GEOLOGY

SUSKWA PROSPECT, ONTARIO, CANADA

SCALE: 1 IN. = 1/2 MI.

FEB., 1973

W.M.S.

to have been the locus of igneous intrusive activity and related ore deposition over much of its length. Economically, it is characterized by the presence of numerous small Tertiary stocks of intermediate composition intruding rocks ranging from Triassic to Cretaceous in age. Many of the copper-molybdenum deposits of the district are found within or adjacent to the Tertiary stocks and are largely of the 'porphyry' type.

Hydrothermal alteration associated with the regional porphyry-type deposits is often characterized by (a) an inner zone containing secondary biotite, quartz and, often, secondary potash feldspar, and (b) a composite outer zone with quartz veining, sericite, carbonates, chlorite, and pyrite. The alterations are essentially typical of this variety of mineral deposit; the highest grade primary ore frequently occurs within the inner alteration zone.

The Mount Thoen area also lies within a south-central part of the Bowser Basin, with the underlying rocks comprising units of the Middle Jurassic to Lower Cretaceous Bowser Group. In the vicinity of Mount Thoen these comprise argillites, quartzose and arkosic sandstones, greywackes, and minor intercalated volcanic flow and fragmental rocks. North of the Suskwa River, the Bowser assemblage is intruded by an east-southeasterly trending group of equigranular to porphyritic intermediate intrusives. The Mount Thoen stock lies midway along the trend and, at 6 miles by 2 miles in extent, is one of the largest of the group. Six porphyry copper prospects are associated with this group, and two of the six are related to the Mount Thoen stock.

The Suskwa prospect, which has one of the more outstanding showings of the six prospects, also lies along the north extension of a N.N.W.-trending zone of faulting and intrusion with which three other porphyry-type prospects are associated. Intersections of N.N.W. and E.N.E.-trending zones of faulting and intrusion appear to comprise a dominant structural feature of the orebodies of the region, and the Suskwa prospect appears to lie within one of these.

GEOLOGY OF PROSPECT

Dwg. No. 1 supplements the following text.

Within the property Bowser sediments have been rather complexly intruded by the Mount Thoen stock and, within general contact zones, have been rather uniformly metamorphosed to siliceous-quartzitic and hornfelsic rock types. The known showings of copper-molybdenum mineralization occur largely within rocks of this type flanking the east contact of the stock.

A relatively fresh medium-grained, equigranular granodiorite comprises the main mass of the Mount Thoen stock. However, a narrow band near its east contact with the sediments is weakly altered, with a minor development of chlorite and sericite and widely-spaced quartz veining. Although the quartz diorite does not appear to comprise the source of the exposed copper-molybdenum mineralization, a separate mappable porphyritic unit locally exposed along and near the eastern contact of the stock appears to be closely associated with it.

The porphyritic unit, identified as quartz-biotite-feldspar porphyry, is significantly altered and occurs as an elongated, irregular mass along the eastern contact of the stock, and also as numerous dykes intruding the adjoining hornfelsed sediments. Whether the porphyry represents a border phase of the quartz diorite body or is a younger intrusive is not known at this time. Currently, it has been mapped between 2N and 8S and from the grid-baseline to 6W; its general range of widths is between 10 and 150 feet.

On the basis of the mapping and sampling accomplished to date it is apparent that the mineralized complex of altered sediments and porphyry extends well beyond the limits of the current detailed mapping; however, exploration of its evident easterly extensions was curtailed by a sharp and locally inaccessible N-S trending gully. Also, more comprehensive mapping of an evident complex or swarm of porphyry dykes in the area between 0-14N and west of the baseline was precluded by the generally uninterrupted cover of rock rubble.

DETAILED PETROGRAPHY, ALTERATION ZONING

Twenty-four representative outcrop samples from exposures in the grid area were taken for petrographic examination. Thin sections of these, with the corresponding hand specimens, were sent to R. W. Woolverton, P.Eng., of Smithers for examination. Mr. Woolverton was asked, on the basis of his considerable experience with the porphyry deposits of the Babine Lake area, to compare the evident alteration with that present in orebodies within the region. His petrographic analyses were compared with the field descriptions, and plotted on an overlay to the geologic map. The plotted detail indicated the following alteration zoning:

Potassic or Core Zone	-	Characterized by the presence of secondary biotite and quartz.
Phyllic or Intermediate Zone	-	Characterized by the presence of sericite.
Propylitic or Peripheral Zone	-	Characterized by the presence of chlorite.

The plotted data (Dwg. No. 1) reveal the presence of a broad potassic zone which extends from 16N to 10S, which averages about 600 feet in width, and is open to the east (locally inaccessible gully). The potassic zone is bounded on the west and north by a zone of propylitic alteration and, locally, on the east by phyllic zone alteration.

Although unusual in the sense of classic porphyry-type 'alteration models', the abrupt change from potassic to propylitic alteration on the west side of the mapped area is not surprising in view of the generally unfractured nature of the quartz diorite. Less easy to explain is the abrupt change, within hornfelsed rocks, of the potassic zone; this, however, may be due to faulting or, more likely, to a lateral or vertical change in the lithology of the bedded rocks.

The limited areas of phyllic zone alteration on the east side of the potassic zone may or may not indicate narrowing of the latter,

but examination of the pattern, with reference to the geochemical results, suggests that the heart of the currently-delineated potassic zone lies between 4N and 10S.

The assemblage of argillaceous-arenaceous sediments bordering the east side of the Mount Thoen stock has been altered to fine-grained hornfelsic and quartzitic rocks over widths ranging from 1/4 mile to 1 mile. Within this, a zone of more intense metasomatism and hydrothermal alteration roughly centers on the area of the grid where quartz-biotite-feldspar porphyry is most abundant.

The quartz diorite (main) unit of the Mount Thoen stock is generally massive, relatively unaltered and, except for a narrow, erratically quartz-veined, sericitized, and chloritized selvedge at its east contact, is practically unmineralized.

Along with a number of samples taken by Manex the writer was shown one which was conspicuously different from the rest. This one appeared to be a strongly metasomatically altered, fractured, quartz diorite (or coarse hornfels?). The general mass of the partly weathered specimen appeared to have been biotitized and sericitized (and kaolinized?). In addition it contained a vug or part of an irregular fracture which was partly filled with black tourmaline clusters and rather coarsely crystalline quartz and chalcopyrite (plus?). The texture and mineralogy could be indicative of the presence of a relatively higher temperature zone of metasomatic or pneumatolytic alteration of either minor or major importance. The writer received the impression that the sample was taken from an area situating some 500-600 feet south of the center of the south limit of the currently mapped (Dwg. No. 1) area; however, the source locality of this sample is by no means certain.

MINERALIZATION & SAMPLING

The hornfels and quartzite which border the quartz diorite are generally pyritized and, in the more intensely altered area centering on the quartz-biotite-feldspar porphyry intrusives, significant amounts of copper-molybdenum mineralization occur in

both sediments and porphyry. The economic sulphides include chalcopryrite, molybdenite, and local bornite together accompanied by various amounts of pyrite and pyrrhotite - all usually very fine grained, and present as disseminations with lesser amounts filling fractures. The strongest copper-molybdenum mineralization is evidently associated with the more strongly biotitized and silicified (altered) sediments - particularly near the previously-noted areas of porphyry intrusion and more intense fracturing.

The main copper-molybdenum showings, as indicated by the limited extent of surface exploration thus far accomplished, occur on the steep nose which pitches northward through the Hot 6 claim, and which centers on the bend in the baseline. From here the mineralization becomes more pyritic over a distance of 400-600 feet south of ON cross-line; northward, the indicated copper-molybdenum content appears to decrease less rapidly.

The following notes concerning the polished-section analyses (for Mastodon) of (a), a high-grade specimen of the local mineralization with bornite and covellite of doubtful origin and (b), a representative sample of mineralized biotite hornfels:

- (a) The predominant sulphide is chalcocite with a film of covellite; bornite is a minor constituent. A dark crystalline mineral was identified as tourmaline. The mineralization was judged to be almost entirely of primary origin.
- (b) Chalcopryrite and chalcocite (dark specks) are present in about equal amounts, and the pyrite has been altered to limonite.

A number of showings situating outside of the Hot group, and occurring in sediments surrounding the Mount Thoen stock, suggest that mineral zoning typical of many porphyry copper deposits occurs outward of the Suskwa prospect area. The True Fissure-O.K. showings, lying about one mile southeast of Mount Thoen, consists of vein-filling argentiferous lead and zinc sulphides in a siliceous breccia gangue containing considerable rhodonite. Showings in Bergsten Basin, about one mile northeast of Mount Thoen are similar, except that the quartzitic host rocks contain appreciable disseminated

chalcopyrite, while rhodonite occurs in veins cutting these rocks. Showings within the Copper Basin locality, at about one mile southwest of Mount Thoen, consist of chalcopyrite replacements within sheared granodiorite dykes which intrude Bowser sedimentary rocks. At the Babine prospect, roughly 1-1/2 miles southwest of Mount Thoen, a narrow vein contains gold-bearing arsenopyrite in quartz.

A rather analagous arrangement of mineralogically-similar deposits is present on Hudson Bay Mountain, just west of Smithers and where American Metal Climax have a major porphyry molybdenum deposit.

During his inspection of the property, the writer took six chip samples of the mineralization exposed by the Mastodon trenching. The samples were judged to contain material of probable sub-average bedrock grade, in that most of the trenches were filled by slide rock - leaving only near-surface (partly weathered) mineralized bedrock and questionable excavated material available for sampling. Sampling also had to be done in a rather hurried way in view of the limited amount of helicopter stand-by time left for this work. The area sampled comprises a centrally located fraction of the total area of the showings. The straight average grade of the six (20') samples is 0.24%Cu, 0.037%MoS₂ (Au and Ag not assayed). With the value of MoS₂ being about double that of Cu, the above grade may be alternatively given as 0.31%Cu-equivalent, which is considered conservative when compared with some averages (unofficially) reported by Mastodon.

GEOCHEMICAL SURVEY

Dwg. No. 3 shows the position and results of all samples.

The very fine grained nature of the sulphide mineralization, together with the masking effect of the associated alteration, made it difficult to visually estimate its grade and extent. Consequently, it was thought that a geochemical survey might provide semi-quantitative data that would make it possible to outline areas with

potentially economic grades of mineralization. A general absence of soil precluded this type of sampling, so it was decided to carry out a rock-chip sample survey. These were taken from bedrock exposures at, or as close as possible to grid stations. Chips within a radius of 10-15 feet were collected; with this, all significant features of the local bedrock were noted. A total of 63 samples was analyzed at Crest Laboratories in Vancouver; total copper and molybdenum were reported in ppm (parts per million).

The results were plotted so as to delineate the following ranges of concentrations. Copper: 100-299 ppm, 300-499 ppm, 500-999 ppm, and >1000 ppm. Molybdenum: 10-49 ppm, 50-99 ppm, and >100 ppm.

With respect to copper, the plotted results show that the area within the 100 ppm contour is generally coincident with the zone of potassic alteration. Similarly, the strongest copper values (300 to +2000 ppm) are seen to lie in the area between 6N and 4S, which is generally coincident with the apparent heart of the potassic alteration zone. It should be noted, however, that as most surface exposures are somewhat oxidized (and leached) the area of strongest copper values may be of greater north-south extent than is indicated by the survey.

With respect to the molybdenum survey, values over 10 ppm are considered anomalous. Hence, the gross molybdenum anomaly is smaller than that for copper, so that it lies entirely within the potassic alteration zone. In summary, the major molybdenum anomaly is coincident with the 'heart' of the major copper anomaly which, in turn, is generally coincident with the apparent heart of the potassic alteration zone.

Respectfully submitted,

North Vancouver, B. C.
March 6, 1973


W. M. Sharp, P. Eng

APPENDIX

CREST LABORATORIES (B.C.) LTD.B.C. REGISTERED ASSAYERS
INDUSTRIAL and RESEARCH CHEMISTS1068 HOMER STREET
VANCOUVER 3, B.C.
August 25, 1972Cobre Exploration Ltd.,
2467 Kilmarnock Crescent.,
North Vancouver, B.C.
Lab 902G

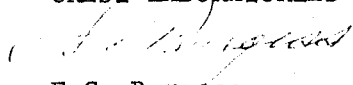
Attn: Mr. M.J. Fitzgerald

Geochemical analysis for molybdenum and copper

Mesh Size:		- 100	
Analytical Method:		Atomic Absorption + Colorimetric	
Digestion Method:		HClO ₄ + HNO ₃	
Sample Marked:		Molybdenum ppm	Copper ppm
RC	2+00N OW	395	2000
	2+00N 2 + 00W	260	813
	4+00N 0 + 00W	13	1338
	4+00N 2 + 00W	185	590
	6N OW	4	165
	6N 2 + 60 W	25	225
	8N OW	4	275
	8N 2 W	7	410
	10N OW	4	120
	10N 2 W	5	540
	12N OW	4	420
	12N 2 W	18	330
	14N OW	3	380
	2S OW	100	385
	4S 0 + 85 E	3	140
	4S 2 + 40 W	58	705
	6S 2 + 40 W	44	195
	6+45S OW	8	148
	8S OW	8	605
	8S 2 + 35 W	-2	95
	10+50S OW	3	125
	11S 0 + 40 E	4	155

Yours truly,

CREST LABORATORIES (B.C.) LTD.,


F.C. Burgess


Chief Assayer

CREST LABORATORIES (B.C.) LTD.B.C. REGISTERED ASSAYERS
GEOCHEMISTS1068 HOMER STREET,
VANCOUVER 3, B.C.
September 26, 1972Mr. Michael J. Fitzgerald,
2467 Kilmarnock Crescent,
NORTH VANCOUVER, B.C.Lab 922G Geochemical analysis for molybdenum and copperMesh Size: - 100
Analytical Method: Atomic Absorption + Colorimetric
Digestion Method: $\text{HClO}_4 + \text{HNO}_3$

Sample Marked:	Moly ppm	Copper ppm	Sample Marked:	Moly ppm	Copper ppm
0N 2W	14	1200	20N 0W	9	260
4 W	93	680	20N 2 W	3	25
0N 5 W	380	810	22N 0W	3	44
2N 4 W	225	1350	22N 2 W	2	220
6 W	32	600	24N 2 W	2	105
4N 4 W	110	1750	24+45N 0-W	-2	15
5+50W	440	380	26N 0W	10	57
4+75N 4 W	11	690	26N 2 W	-2	95
6N 4 W	80	530	28N 0W	4	68
8N 3+50 W	14	2000	28N 2 W	4	83
10N 2+65W	53	88	30N 0W	4	100
12N 3+40W	10	335	32N 0W	± 2	12
12N 3+80W (INT)	11	47	2S 2 W	550	+2000
14N 1+75 E	8	57	2S 4 W	43	320
16N 1+80 E	4	16	2S 6W (INT)	-2	62
16N 0W	2	180	3+50S 4 W	195	+2000
16N 2+25 W	2	680	4S 5 W (POR)	8	940
16N 4 W	2	45	6S 4 W	6	300
18N 0W	5	93	6S 5+50 W	56	+2000
18N 2 W	2	153	8S 5 W	22	540
20N 0-W (Dike)	3	9			

Yours truly,

CREST LABORATORIES (B.C.) LTD.,



F.C. Burgess
Chief Assayer

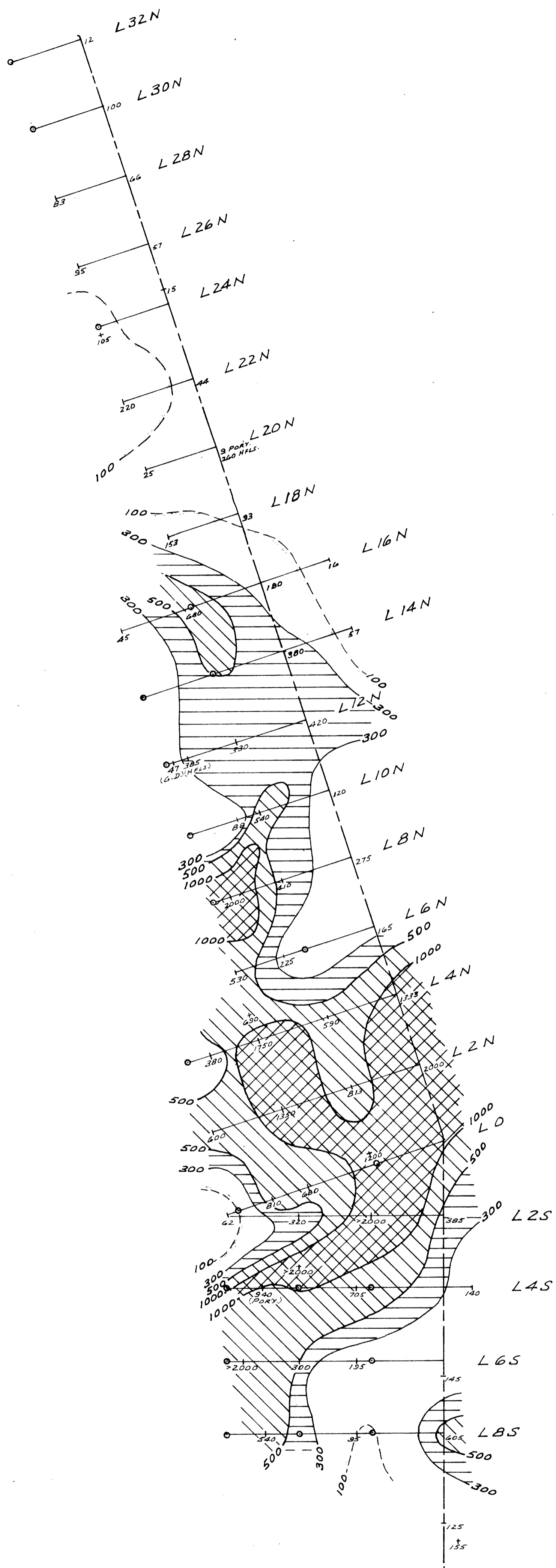
CERTIFICATE

I, WILLIAM M. SHARP, with business and residential addresses in North Vancouver, British Columbia, DO HEREBY CERTIFY THAT:

1. I am a graduate of the University of British Columbia with a M.A.Sc.(1950) degree in Geological Engineering.
2. I am a registered Professional Engineer in the Province of British Columbia.
3. I have practised my profession since 1950 and as a consultant since 1964.
4. I have personally examined the Suskwa prospect of Cobre Exploration Ltd. and all available reference material prior to preparing this report on the geology and exploration of this prospect.
5. I have no direct or indirect interest in the properties or securities of Cobre Exploration Ltd. nor do I expect to acquire any such interest.
6. I have not directly inspected the staking, of the key claims of the prospect but would judge, from my personal knowledge of the usual high quality of his field work, that Mr. M. J. Fitzgerald, P.Eng., has carried out this staking in full accordance with the requirements of the British Columbia Mineral Act.

March 6, 1973
North Vancouver, Canada.

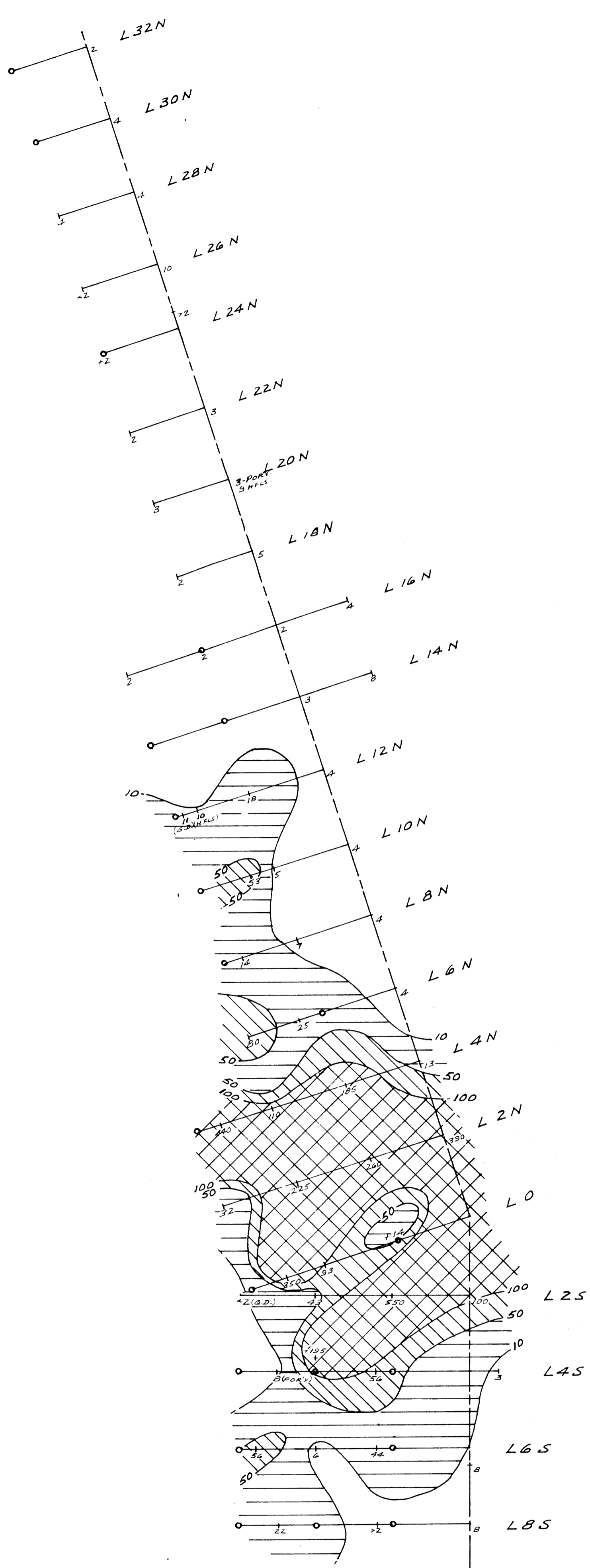

W. M. Sharp, P.Eng.



COPPER

LEGEND

- 300-400 P.P.M. --- 3RD-ORDER ANOMALY
- 500-999 " --- 2ND- " "
- > 1000 " --- 1ST- " "
- 540 LOCATION OF ROCK-CHIP SAMPLE WITH COPPER @ 540 P.P.M.
- GRID STATION



MOLYBDENUM

LEGEND

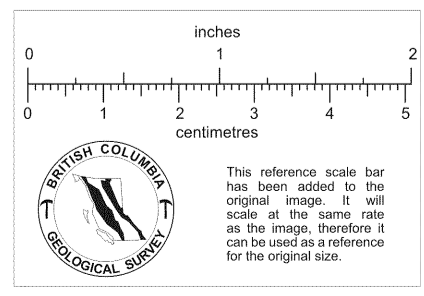
- 10-50 P.P.M. --- THRESHOLD
- > 50 " --- ANOMALOUS
- > 100 " --- STRONGLY ANOMALOUS
- 110 LOCATION OF ROCK-CHIP SAMPLE WITH MO @ 110 P.P.M.
- GRID STATION

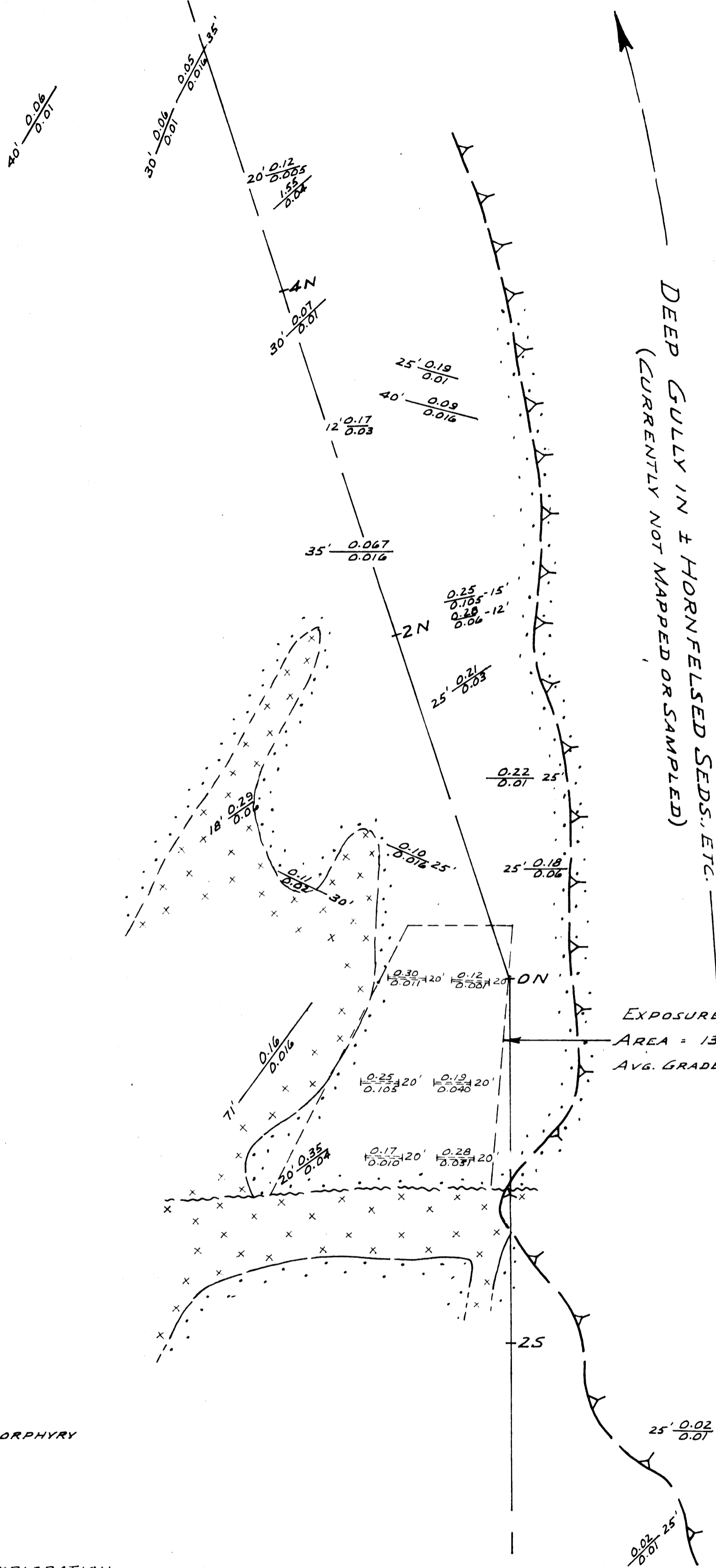
W. M. SHARP, P.Eng. CONSULTING GEOLOGICAL ENGINEER
NORTH VANCOUVER, B.C.

COBRE EXPLORATION LTD.

SUSKWA PROSPECT-OMINECA MIN. DIV.

COMPOSITE SURFACE MAP
GEOCHEMICAL SURVEY-CU & MO



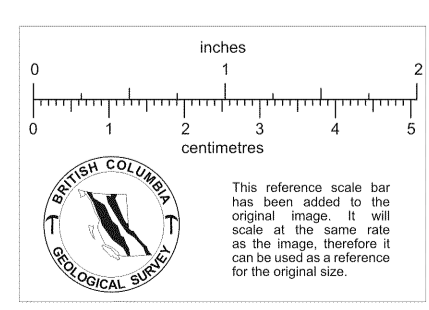


DEEP GULLY IN 7 HORNFELSED SEDS, ETC.
(CURRENTLY NOT MAPPED OR SAMPLED)

EXPOSURES: LIGHTLY-WEATH. MIN. HFLS.
AREA = 13,000 SQ. FT. → ±1100'/VERT.-FT.
AVG. GRADE = 0.24% CU, 0.037% MoS₂
= 0.31% CU-EQUIVALENT.

LEGEND:

- QUARTZ-BIOTITE-FELDSPAR PORPHYRY
- HORNFELS (HFLS)
- FAULT
- ROCK-TRENCH OR OUTCROP
- SAMPLED SECTION - COBRE EXPLORATION
- " " - W.M. SHARP
- LENGTH $\frac{\% \text{CU}}{\% \text{MoS}_2}$ SAMPLE-ASSAY DATA
- BROW OF STEEP SLOPE



W. M. SHARP, P.Eng.		CONSULTING GEOLOGICAL ENGINEER NORTH VANCOUVER, B.C.	
COBRE EXPLORATION LTD.			
SUSKWA PROSPECT - OMINECA MIN. DIV.			
SAMPLE PLAN			
Scale: 1 IN. = 50 FT.	Dwn. by: <i>W.M. Sharp</i> Date: FEB. 1973	Revision:	Dwg. No. 3.