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4227

REPORT ON THE
GEOLOGY, GEOCHEMISTRY AND MAGNETICS
PRINCETON CLAIMS: SOUTH MDA - RCS &
NORTH MDA - CORB CLAIM GROUPS

92H/10E, 15E

FOR
SHEBA COPPER MINES LTD.

BY
L.W. SALEKEN, B.Sc.

LOCATION: Nicola & Similkameen M.Ds., B.C.
Approximately 21 miles north of
Princeton, B. C.
[49° 45' - 120° 33' - 92H/NE]

REPORTED BY: L. W. SALEKEN, B.Sc.
Consulting Geologist

CLAIM OWNER: Sheba Copper Mines Ltd.

DATE OF WORK: September 20 to October 23, 1972

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 4227 MAP

November 16, 1972

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SUMMARY AND RECOMMENDATIONS

Sheba Copper Mines Ltd. hold 66 full-sized and fractional claims in two contiguous claim groups in the Princeton area, Nicola - Similkameen M.D.'s., B.C.

An exploration programme conducted in September-October, 1972 on the two claim groups established the occurrence of copper mineralization [oxides and sulphides] with coincident magnetic highs and weak copper soil anomalies.

A second phase programme totalling \$5,400.00 is recommended to further evaluate the anomalies. The programme will consist of detailed geological mapping with fill-in geochemistry and magnetics. Depending upon the results of this stage, further exploration would entail induced polarization and/or percussion drilling.

INTRODUCTION

A field programme consisting of line cutting, claim surveying, geological mapping, soil sampling and fluxgate magnetometer surveying was simultaneously performed on Sheba's two claim groups - North MDA-Corb and South MDA-RCS claims, Nicola and Similkameen M.Ds., B.C. Work was conducted between September 20th and October 23rd, 1972, by Geotec Consultants Ltd., Vancouver, B.C., under the field supervision of L. W. Saleken, Consulting Geologist. Geochemical analysis of the soil samples was done by Bondar-Clegg, North Vancouver, B.C. L. W. Saleken interpreted the results of the surveys.

This report describes the details and results of the 1972 field work.

CLAIMS

Sheba Copper Mines Ltd. hold 66 full-sized and fractional claims in two contiguous claim groups in the Princeton Area: Nicola-Similkameen Mining Divisions, B.C. [Fig.1]

South MDA-RCS Claim Group [Similkameen M.D.] - 33 claims

<u>Claims</u>	<u>Tag Nos.</u>	<u>Record Nos.</u>	<u>Expiry Dates</u>
MDA 201-207	-	36653-36659	July 14, 1973
MDA 208	289330M	-	Sept. 25, 1973
MDA 209,215	-	36660,36663	July 14, 1973
RCS 1 - 4	372201M-04M	-	Aug. 25, 1973
RCS 6 - 20	372206M-22M	-	Aug. 25, 1973
RCS 21, 22, 23	148708M-10M	-	Sept. 25, 1973
RCS 1 Fr.	372448M	-	Oct. 13, 1973

North MDA-Corb Claim Group [Nicola-Similkameen M.Ds.] - 33 claims

<u>Claims</u>	<u>Tag Nos.</u>	<u>Record Nos.</u>	<u>Expiry Dates</u>
MDA 84, 86	-	56459-56461	July 14, 1973
MDA 154, 156,158	-	36648,50,52	July 14, 1973
MDA 167 - 174	-	56511-18	July 14, 1973
Corb 1, 3	372449M-51M	-	Oct. 16, 1973
Corb 7 - 9	372455M-57M	-	Oct. 16, 1973
Corb 10, 14	372701M,372705M	-	Oct. 16, 1973
Corb 16 - 19	372707M-372710M	-	Oct. 16, 1973
Corb 22 Fr.			
23 Fr.	372713M & 14M	-	Oct. 16, 1973
Corb 24 - 30	372715M-21M	-	Oct. 16, 1973

LOCATION, ACCESS & PHYSIOGRAPHY

The claim blocks [49⁰, 45' - 120⁰, 33' - 92H/NE] are approximately 21 miles north of Princeton, B. C., situated west of Summers Creek and Missezula Lake. Access is off the Princeton-Merritt Highway. The North MDA-Corb claim group is reached by the Kentucky Lake-Ketchan Meadows logging road located 10 miles south of Aspen Grove. Access to the South MDA-RCS claim group is by the B. C. Telephone microwave tower road situated two miles north of Allison Lake [Fig. 1].

Relief on the two groups is moderate with elevations ranging from 4,000 to 4,800 feet ASL.

HISTORY & REGIONAL GEOLOGY

To the best of the writer's knowledge, previous work has not been performed on the two claim groups although extensive exploration has occurred in the area.

Sheba's claim groups are some thirty miles north of the producing Copper Mountain and Ingerbelle copper deposits owned by Newmont Mining. Both of these ore deposits are spatially and genetically related to a number of quartz-poor plutons, collectively known as the Copper Mountain intrusives, that cut fractured and altered Nicola rocks. Copper mineralization is in part, controlled by major fault structures and locally occurs as fracture fillings and fine disseminations. Chalcopyrite, bornite and pyrite are typical sulphides.

Adonis Mines, which holds claims immediately south of the South MDA-RCS claim group, has been actively drilling

over the past year with encouraging results. A zone of low grade copper mineralization has been proven. Chalcopyrite, bornite and chalcocite are reported occurring within fractured and altered Nicola rocks. Indications are that copper mineralization is closely associated with magnetite and epidote alteration that accompanies intrusive dioritic-monzonitic dykes. The intrusives are in turn related to major structural trends.

Trenching by Amax Explorations on the Rum claims to the north of Sheba's South group and adjoining Sheba's North MDA-Corb claim group has exposed several mineralized areas in fractured Nicola rocks that are related to intrusives. Exploration work by Plateau Metals on claims adjoining the Sheba's North group on the west located copper mineralization closely associated with epidote-magnetite alteration. Recent discoveries to the east of Sheba's North group by Belcarra Explorations indicates similar copper mineralization zones. Several other copper discoveries with similar geologic conditions have been reported in the general vicinity.

FIELD PROGRAMME - 1972

A 500 foot chain and compass grid was established on both claim groups. Work was conducted between September 20th to October 23rd, 1972 on the following claims:

South MDA-RCS Group - 33 claim total

MDA 201-208, 209, 215

RCS 3, 4, 6-10, 19-23

RCS 1 Fr.

North MDA-Corb Group - 33 claim total

MDA 84, 86, 167-174

Corb 23 Fr., 25, 27

Geological mapping was done along the grids and from air photos. Soil samples were taken at 100 foot intervals from the B horizon and analyzed for Cu ppm. Magnetic readings were also taken at 100 foot intervals using a Scintrex MF-1 fluxgate magnetometer. The results of the surveys appear on the maps accompanying this report [Pocket].

GEOLOGICAL SURVEY

South MDA-RCS Group [Fig. 4a]

The claims are covered by relatively uniform mantle of glacial debris. Outcrops are best exposed along ridges and account for about 15 percent exposure. Drainage patterns are locally controlled but regionally drain southeasterly. The ground is well drained to the east of the baseline where slope is generally steep to the east. Several large swampy areas occur west of the baseline.

The claims are underlain by volcanogenic Nicola Group and Coast Range intrusives. Several small dyke-like diorite intrusives cut the Nicola on the claims. The Nicola consists of undivided flows, pyroclastic and epiclastic sediments. The lavas are generally of andesitic composition and almost entirely comprise the rocks of the area. Minor occurrences of sediments were noted.

Coast Range intrusive occurs along the southeastern edge of the claims [L60S-L75S] as an irregular tongue-like body trending northeasterly. The intrusive is a dioritic-granitic medium to coarse grained rock. The magnetics along the eastern edge of the claims suggest that the intrusive irregularly underlies the Nicola rock and extends in a northeasterly direction.

Several smaller, dyke-like bodies of fine-grained dioritic intrusives occur on the northeastern part of the claims. The bodies contain magnetite and generally trend northwesterly. Copper mineralization was noted associated with the bodies. A feldspar porphyry was located at BL 39 + 50S and contained abnormally high magnetite [magnetometer reading, + 13,200 gammas]. The relationship of the fine-grained dioritic dykes and the coarser grained intrusives is not clearly understood.

A major north-south fault structure occurs on the claims along 8E. Several other north-south faults were noted.

Alteration and mineralization are controlled by fractures and are commonly associated with the finer grained intrusives. Magnetite and epidote were observed, often carried with copper mineralization either as disseminations or fracture fillings. Mineralization on the property is spotty and sparsely distributed.

North MDA-Corb Group [Fig. 4b]

The claims are extensively covered with glacial overburden with outcrops occurring along ridges. The overburden varies in thickness but generally thins to the northwest. Drainage is east to northeast with varying local conditions. Poor drainage occurs in the south as evidenced by swamp development.

The claims are underlain by volcanogenic Nicola Group consisting of undivided complexly bedded flows, pyroclastic and epiclastic sediments. The lava flows are of andesitic composition.

Intruding the Nicola and occurring on L35S, 18E is a fine-grained dioritic intrusive containing magnetite-epidote alteration and associated copper mineralization. The dyke appears to trend northwest as suggested by the magnetics.

Several small north and northwest trending faults were mapped.

Alteration and mineralization are similar in character to the South Group. A poorly defined but extensive area of epidote alteration occurs west of BL-2 between L15S and L40S and appears related to the dioritic intrusive occurring at L35S, 18E and north-northwest magnetic trends.

GEOCHEMICAL SURVEY

The geochemical environment on the two claim groups is generally favorable. The soils in the area are glacial and contain calcareous layers within the eluvial horizon. The "B" horizon is located from 3 to 12 inches below the surface in well drained areas and ranges in color from brown-orange to rust. The "A" horizon has a varied thickness and is dark-coloured and peaty in poorly drained areas. The soils are taxonomically classified as brunisolic to podzolic.

DISCUSSION OF RESULTS

South MDA-RCS Group [Fig. 2a]

N = 883 sample, log interval = 0.1
 b = 26 ppm Cu
 s' = 1.69 [standard deviation]
 t = 74 ppm Cu
 [refer to Cumulative Frequency graph]

The low background values are generally attributed to the presence of caliche deposits in the soils that are known to inhibit the mobility of copper. This factor alone explains the poor secondary dispersion of copper from known copper occurrences such as L10S, 21W. In view of this, values of greater than 50 ppm Cu were considered anomalous.

Several low order anomalies are outlined on Fig. 2a. The high Cu values occurring at L55, 30W; L10S, 13E; L15S, 7E and L40S, 30W are due to organic rich soils and swamp conditions. The four anomalies centered around L10S, 13E in the northeast portion of the grid fall on a major drainage. Known copper occurrences up-slope and off the property are attributed to their presence.

The two significant anomalous areas on the property are on MDA 215 and MDA 204-RCS 1 Fr. - RCS 20 respectively termed anomalies L5-10S, 20-30W and L40-60S, 2-8E.

Anomaly L5-10S, 20-30W [Fig. 4a]

The averaged Cu value for the area is 145 ppm or five times background. The area contains some weak copper mineralization as well as a coinciding northwest magnetic trend. Dioritic intrusive was mapped to the northeast of the anomaly. Additional investigation is warranted for the area.

Anomaly L40-60S, 2-8E [Fig. 4a]

The averaged Cu value for this 2,000 by 400 foot zone is 73 ppm or three times background. The anomaly parallels a major north-south fault and coincides with a northwest

magnetic trend. A feldspar porphyry that outcrops to the north and upslope from the zone contains an abundant amount of magnetite. The cause of the anomaly is not known and further investigation is required.

North MDA-Corb Group [Fig. 2b]

N = 430 samples, Log interval 0.1

b = 13 ppm Cu

s' = 1.69

t = 27 ppm Cu

[refer to Cumulative Frequency graph]

Mobility conditions similar to the South grid apply in the north, hence the consideration of 25 ppm Cu as being anomalous is warranted. The five clustered anomalies occurring on claims MDA 84, 86, 173 and 173 termed anomaly L15-40S, 18-31E are significant. Other anomalies on the property are generally too erratic and lack magnetic and geologic expression to be of immediate interest.

Anomaly L15-40S, 18-31E [Fig. 4b]

The averaged Cu value for the area 60 ppm or four times background. The area contains a poorly defined epidote alteration zone containing some weak copper mineralization. The dioritic intrusive as well as the coincidental northwest magnetic trends, enhance the potential of the anomaly; further investigation is required.

MAGNETIC SURVEY

The magnetometer survey outlined a regional northwest magnetic fabric of the area and was useful in differentiating rock types and lineaments. Intrusive bodies generally contained greater amounts of magnetite and responded with higher magnetic values. Nicola rocks tended to have low gamma counts and were responsible for the overall magnetic background of the properties.

South MDA-RCS Group [Figs. 3a & 4a]

Background:	4,600 - 5,200 gammas
Relief:	2,000 gammas
Mag. High:	13,200 gammas [BL 39 & 50S]
Anomalous:	greater than 5,600 gammas

The magnetics outlined three prominent northwest trends of which two are related to dioritic intrusives [LO-15S, 17-21W and LO-15S, 26-29E]. The third trend is not as strong by definition but contains the property magnetite high which in turn is associated with a magnetite bearing feldspar porphyry.

North MDA-Corb Group [Fig. 3b & 4b]

Background:	4,400 - 7,400 gammas
Relief:	3,000 gammas
Mag. High:	7,400 gammas
Anomalous:	greater than 5,600 gammas

Magnetic relief is greater on the North claims than on the South claims. A total of five north and northwest magnetic trends were outlined. The trend occurring at L25-40S, 20-27E is related to a dioritic body containing

copper mineralization. The remaining trends are related to magnetite and suggest near surface intrusives not yet exposed. The consistently higher magnetic reading to the north suggested a sub-surface intrusive complex as opposed to dyke-like features.

CONCLUSIONS

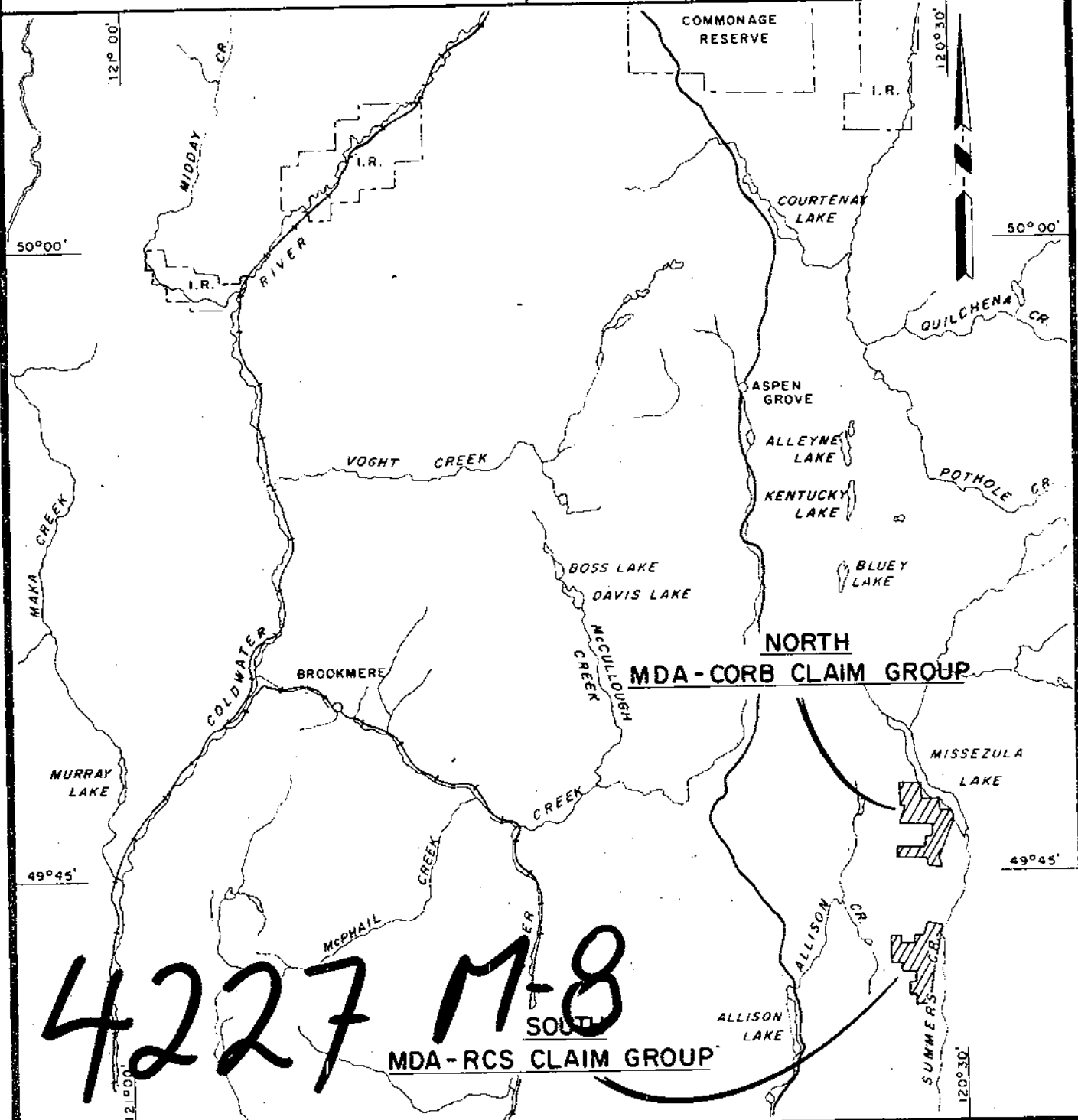
- 1] The copper mineralization on the property is weak and occurs as erratic disseminations and as fracture fillings associated with dioritic intrusives; magnetite and epidote commonly accompanying the mineralization.
- 2] The magnetics were useful in differentiating rock-types and lineaments as well as defining contacts and projecting sub-surface dyke structures.
- 3] Three copper anomalous areas were located. The anomalies are of a low order and consist of several zones. The coincident geology and magnetic trends greatly enhance their significance and exploration potential.

Anomalies [decreasing order of importance]

- 1] South Group - L40-60S, 2-8E
- 2] North Group - L15-40S, 18-31E
- 3] South Group - L5-10S, 20-30W

Further work is recommended.

A P P E N D I X



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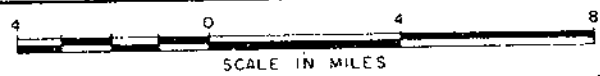


SHEBA COPPER MINES LTD.

LOCATION MAP

PRINCETON-CLAIMS

NICOLA & SIMILKAMEEN MINING DIVISIONS, BRITISH COLUMBIA



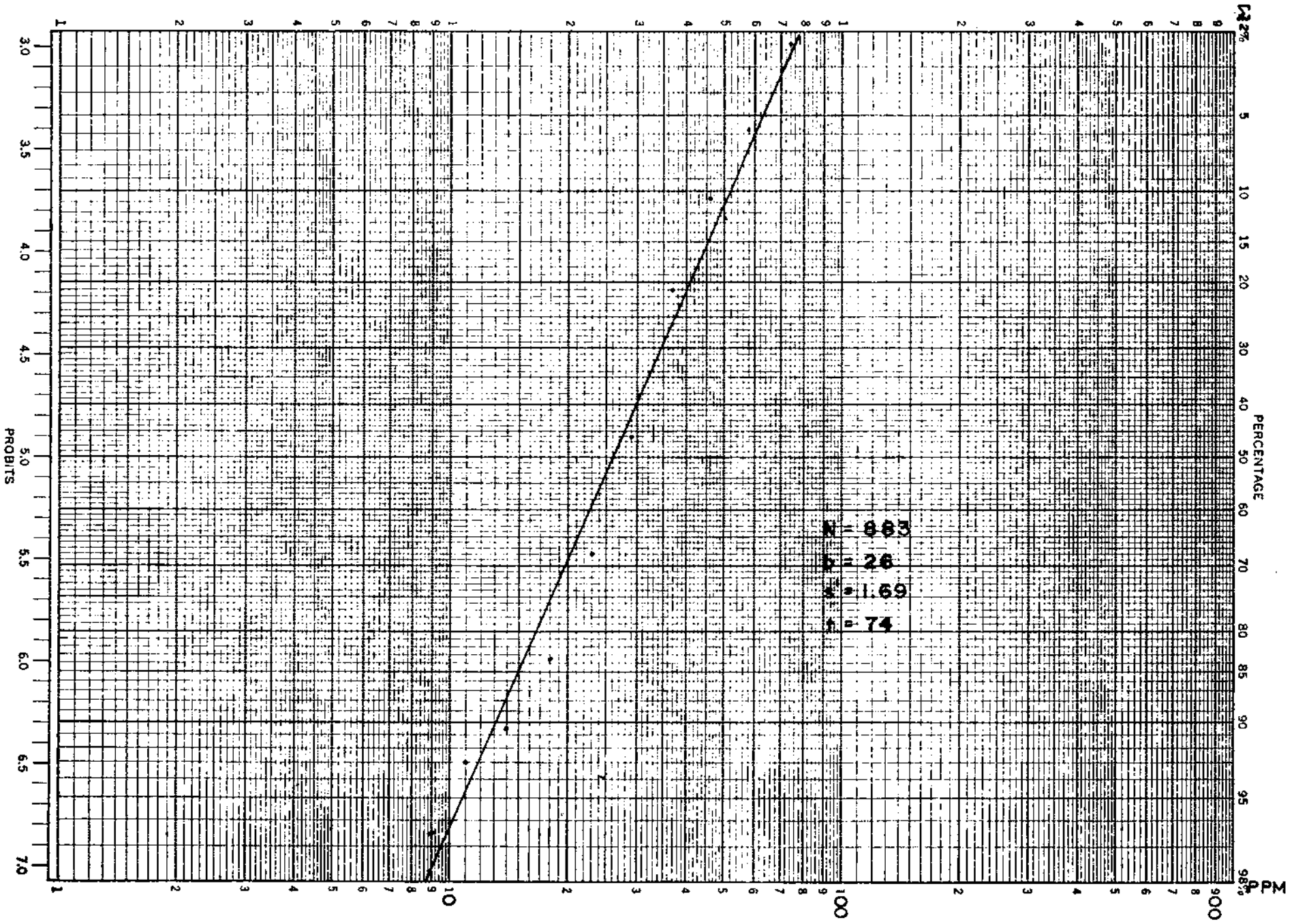
LOCATION APPROXIMATE

NOVEMBER 10, 1972

Department of
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ASSESSMENT REPORT

NO. 4227 MAP # 8

7224

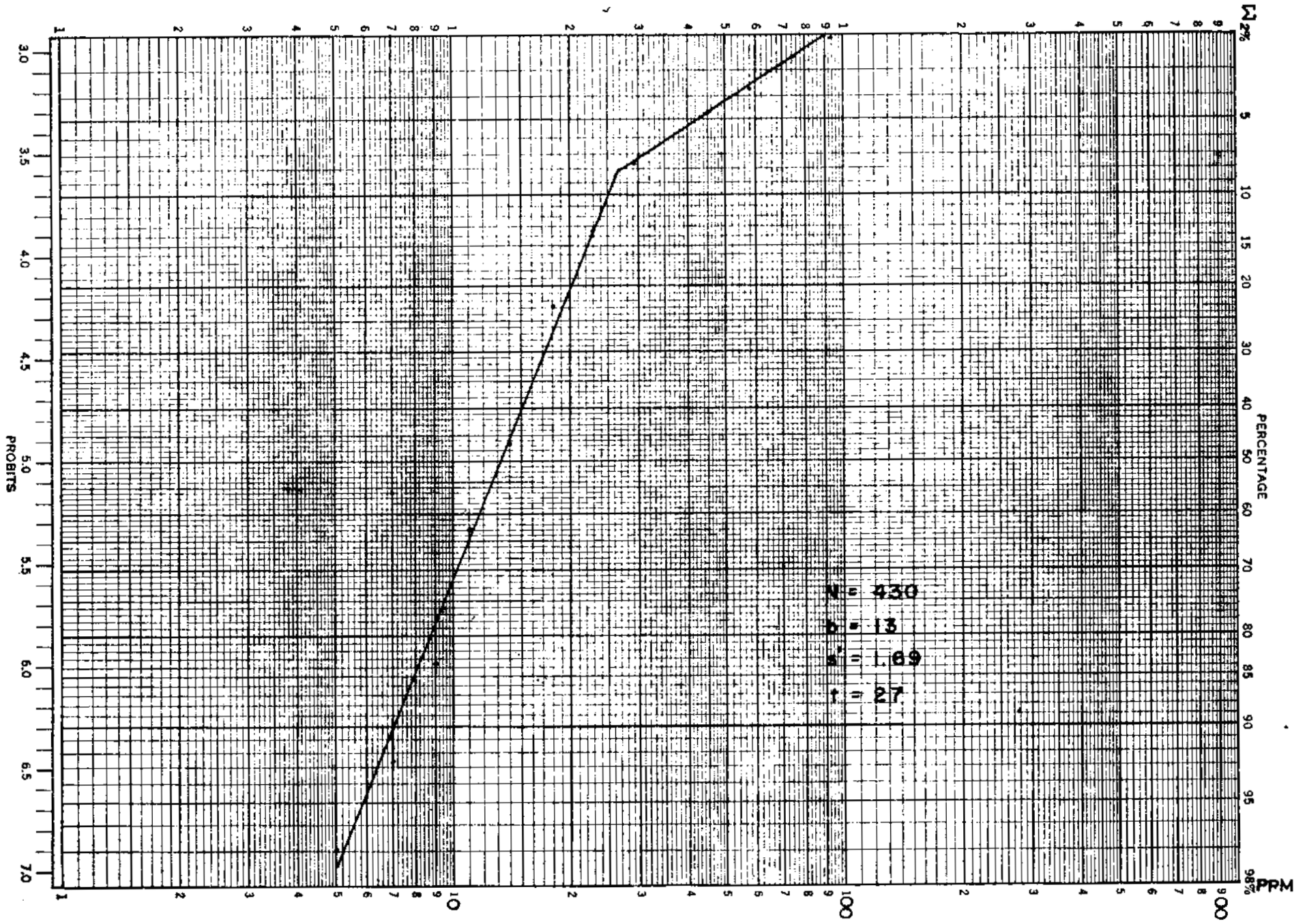


CUMULATIVE FREQUENCY DISTRIBUTION - Cu Soils South Group

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NO. 4227 MAP #9



CUMULATIVE FREQUENCY DISTRIBUTION - Cu Soils North Group

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NO. 4227 MAP #10

STATEMENT OF EXPENDITURES

Salaries

<u>Name</u>	<u>Category</u>	<u>Rate</u>	<u>Days Worked</u>	<u>Period</u>	<u>Total</u>
L. W. Saleken	Consulting Geologist	\$100/day	31	Sept.20 - Oct.23	\$ 3,100.00
D. Porter	Field Technician	40/day	26	Sept.22 - Oct.20	1,040.00
B. Mynatt	do.	40/day	26	Sept.22 - Oct.20	1,040.00
J. E. Sladen	do.	40/day	9	Sept.28 - Oct. 6	360.00
G. Crooker	do.	40/day	13	Oct. 10 - Oct.22	520.00
Total Salaries					\$ 6,060.00

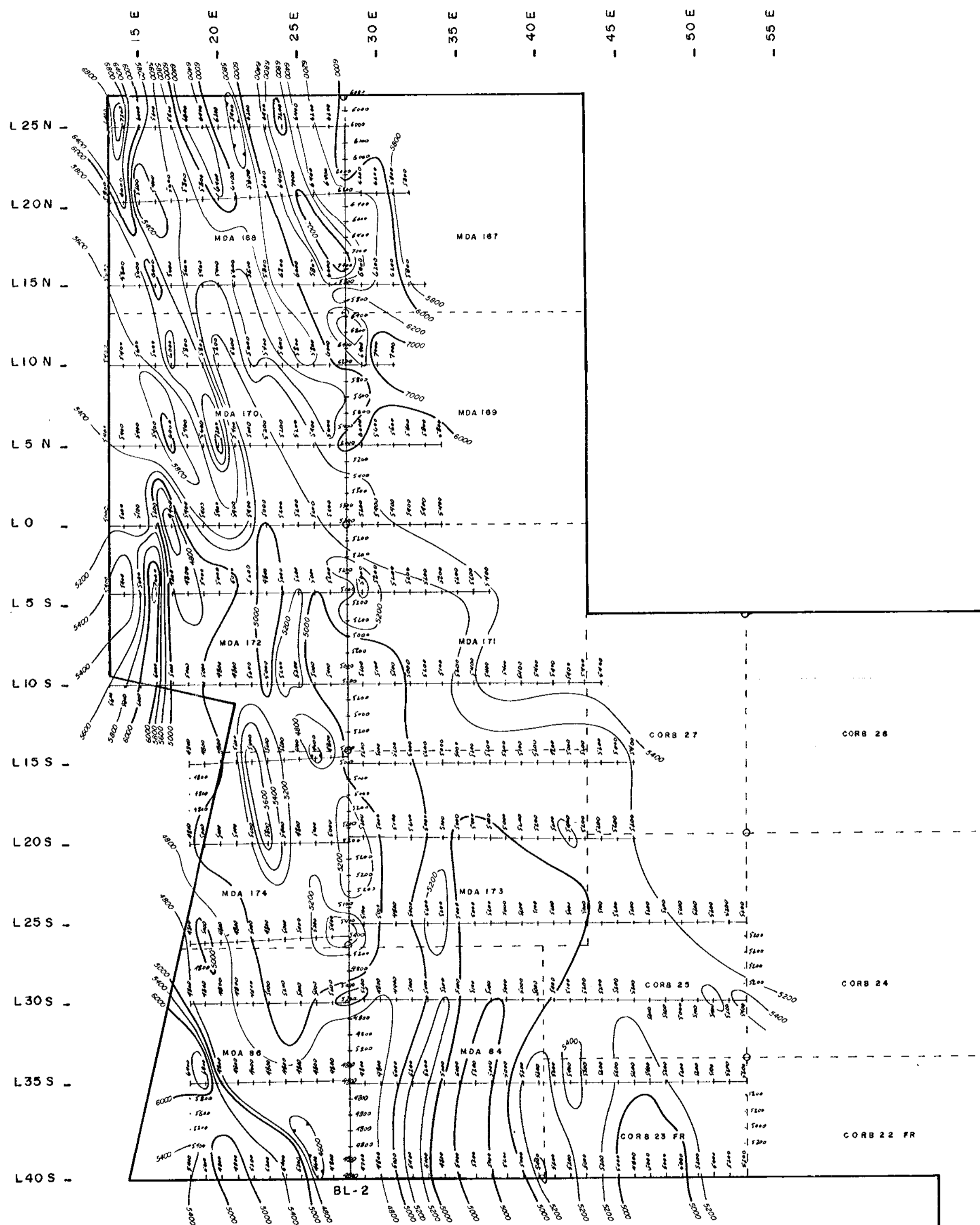
Expenses

Magnetometer Rental 31 days @ \$12.00/day	\$ 372.00
Geochemical Analysis 1,313 samples @ \$1.20/sample	1,575.60
Assaying	25.00
Room & Board	836.80
Equipment & Vehicle Rental	977.90
Engineering Supplies and field office	119.60
Report Costs	1,500.00
Total	<u>\$11,466.90</u>

Declared before me at the *City*
of *Vancouver*, in the
Province of British Columbia, this *30th*
day of *March, 1973*, A.D.

Robert Spall
P. Eng.

Jean Paul SUB-MINING RECORDER
A Commissioner for taking Affidavits within British Columbia
A Notary Public in and for the Province of British Columbia



LEGEND

CONTOUR INTERVAL 200 #
MAGNETIC LOW

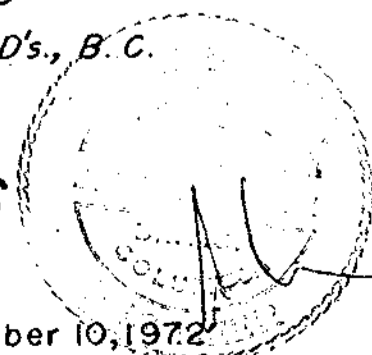
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NO. **4227** MAP #5

SHEBA COPPER MINES LTD.
PRINCETON CLAIMS
Nicola & Similkameen M.D.s, B.C.
NORTH GROUP

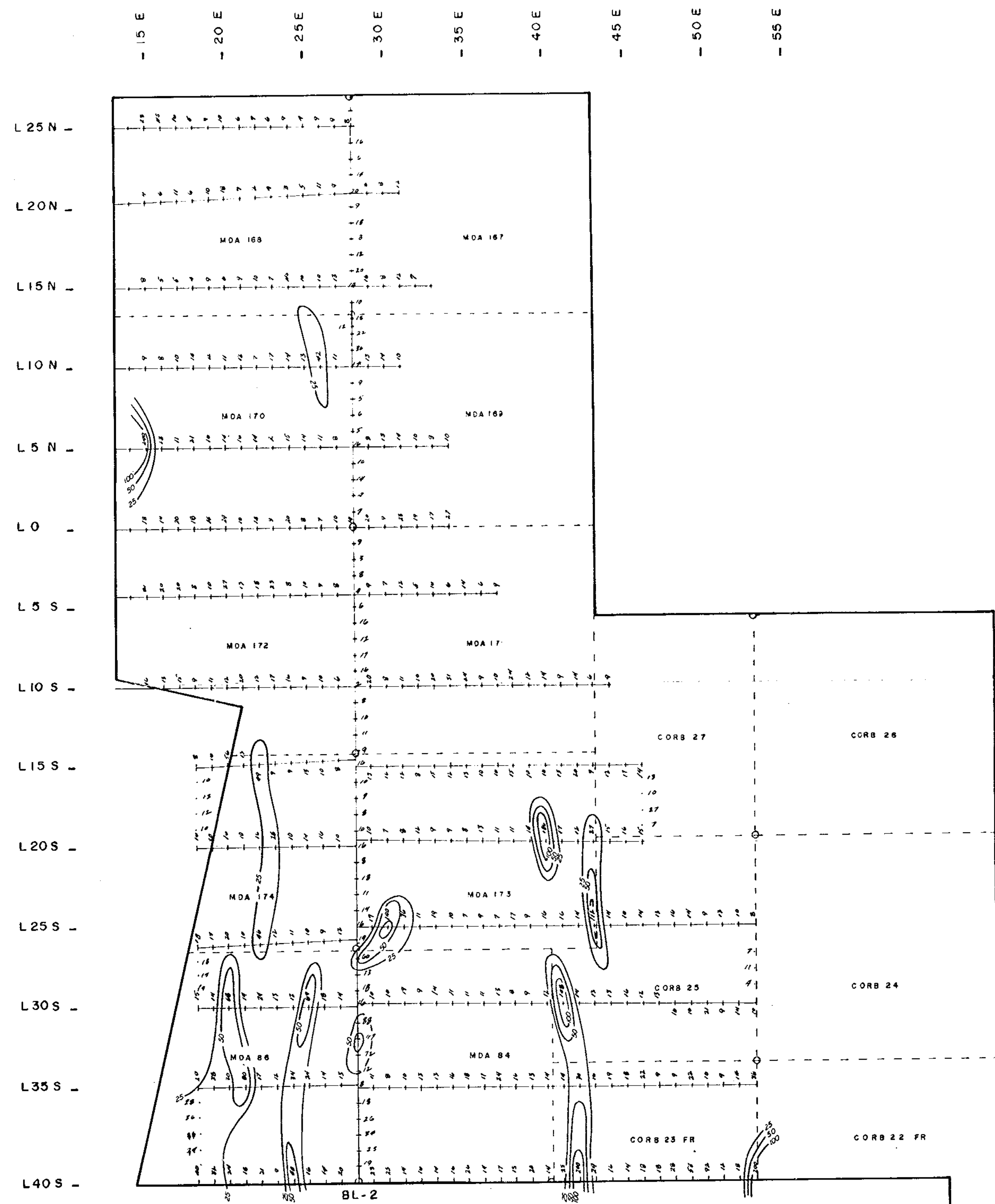
MAGNETICS

Scale: 1 in. = 500 ft.

November 10, 1972



Lu Salcher



LEGEND
 BACKGROUND - 13 ppm
 THRESHOLD - 27 ppm
 CONTOUR INTERVAL - 25 ppm

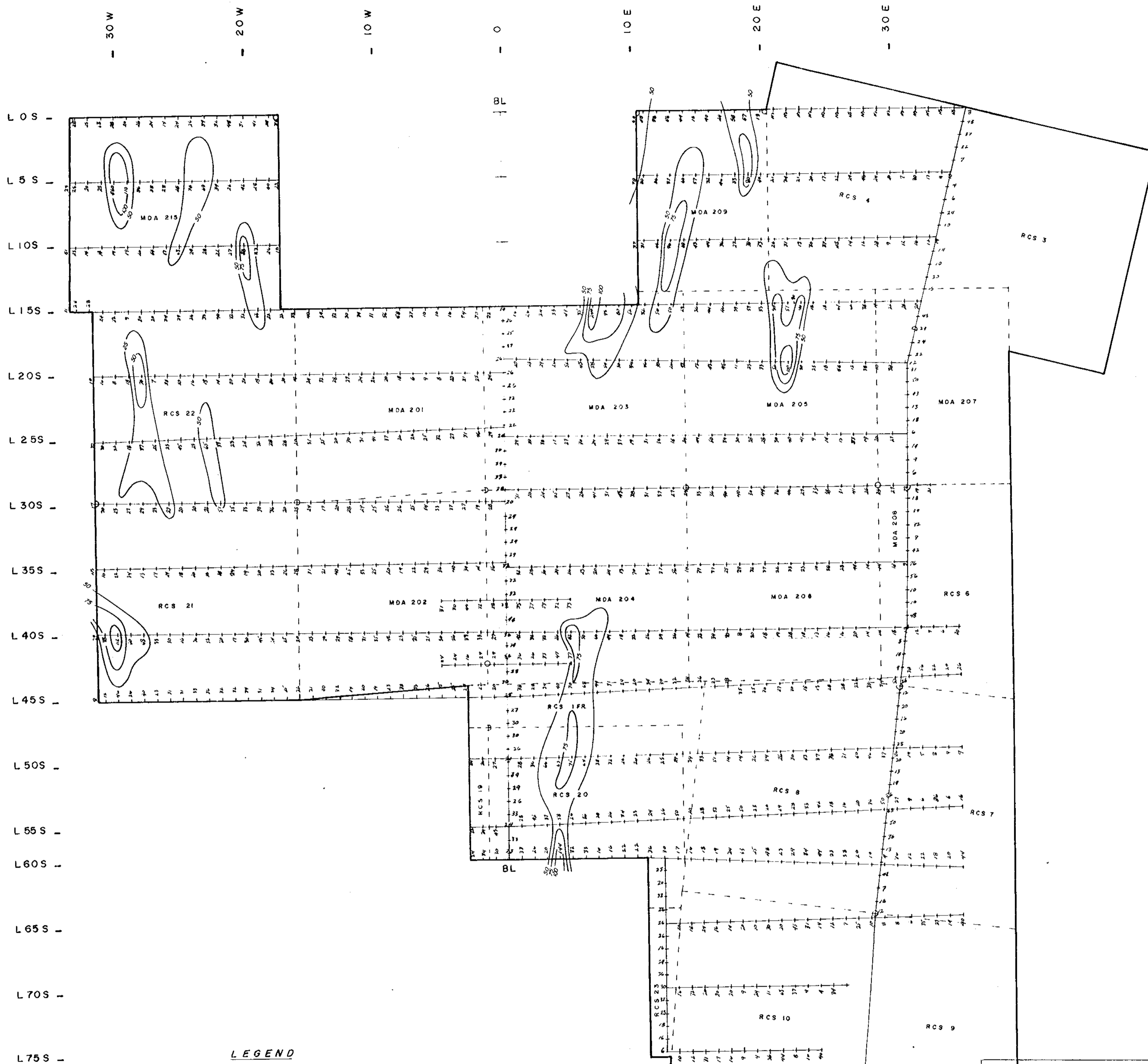
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 NO. 4227 MAP #3

SHEBA COPPER MINES LTD.
 PRINCETON CLAIMS
 Nicola & Similkameen M.D's, B.C.
 NORTH GROUP

Cu GEOCHEMISTRY

Scale: 1 in. = 500 ft. November 10, 1972

Lu Saleh



LEGEND
 BACKGROUND - 26 ppm
 THRESHOLD - 74 ppm
 CONTOUR INTERVAL - 25 ppm

Department of
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 NO. 4227 MAP #2

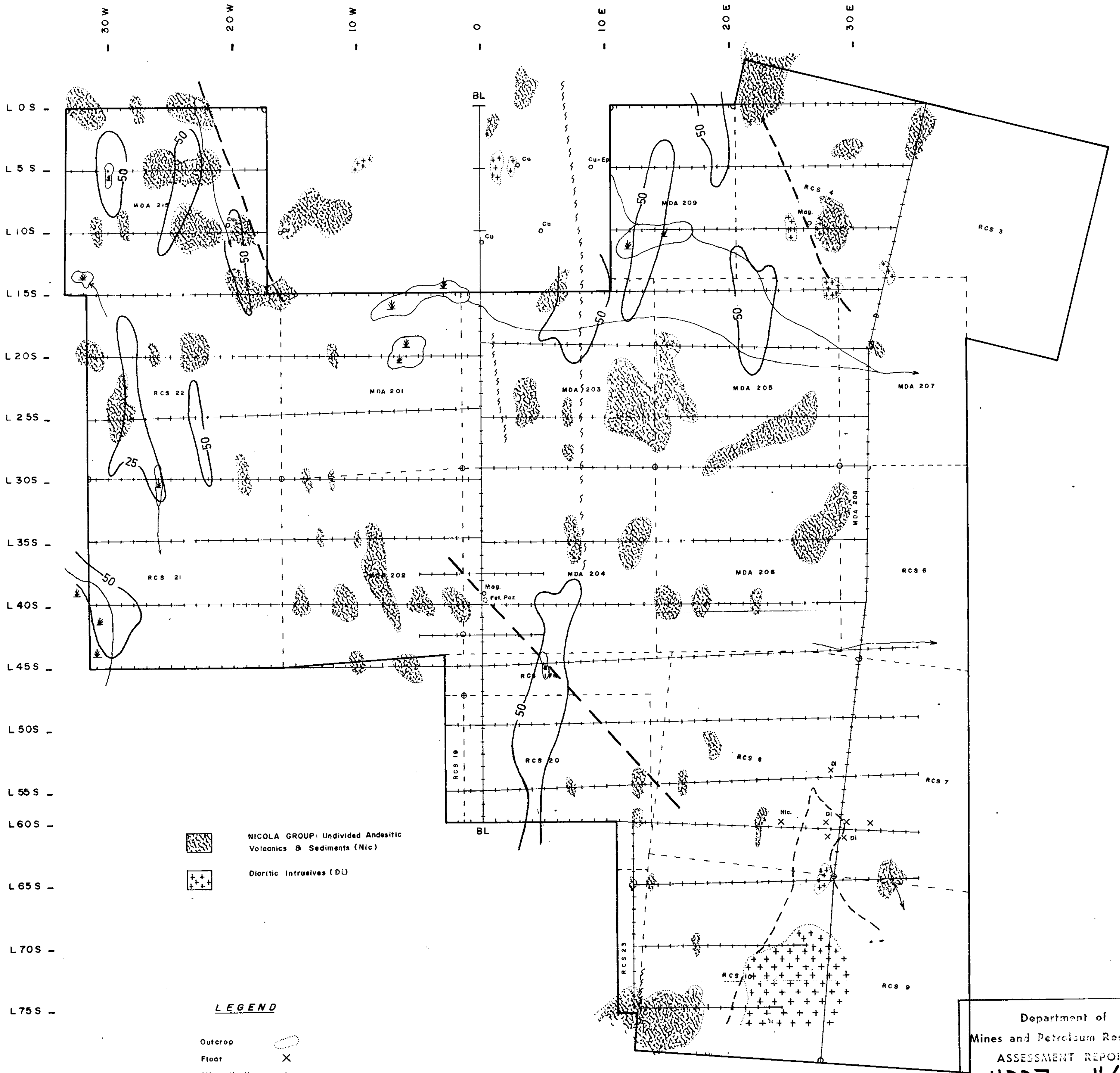
SHEBA COPPER MINES LTD.
 Princeton Claims - Similkameen M. D., B.C.
 SOUTH GROUP



CU GEOCHEMISTRY

Scale: 1 in. = 500 ft.








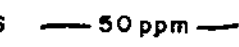
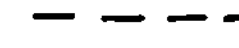
November 10, 1972

R. S. S. S.



 NICOLA GROUP: Undivided Andesitic Volcanics & Sediments (Nic)
 Dioritic Intrusives (Di)

LEGEND

- Outcrop 
- Floot 
- Mineralization 
- Geological Boundary 
- Swamp 
- Drainage 
- Fault 
- Cu ANOMALIES  50ppm
- MAG. TRENDS 

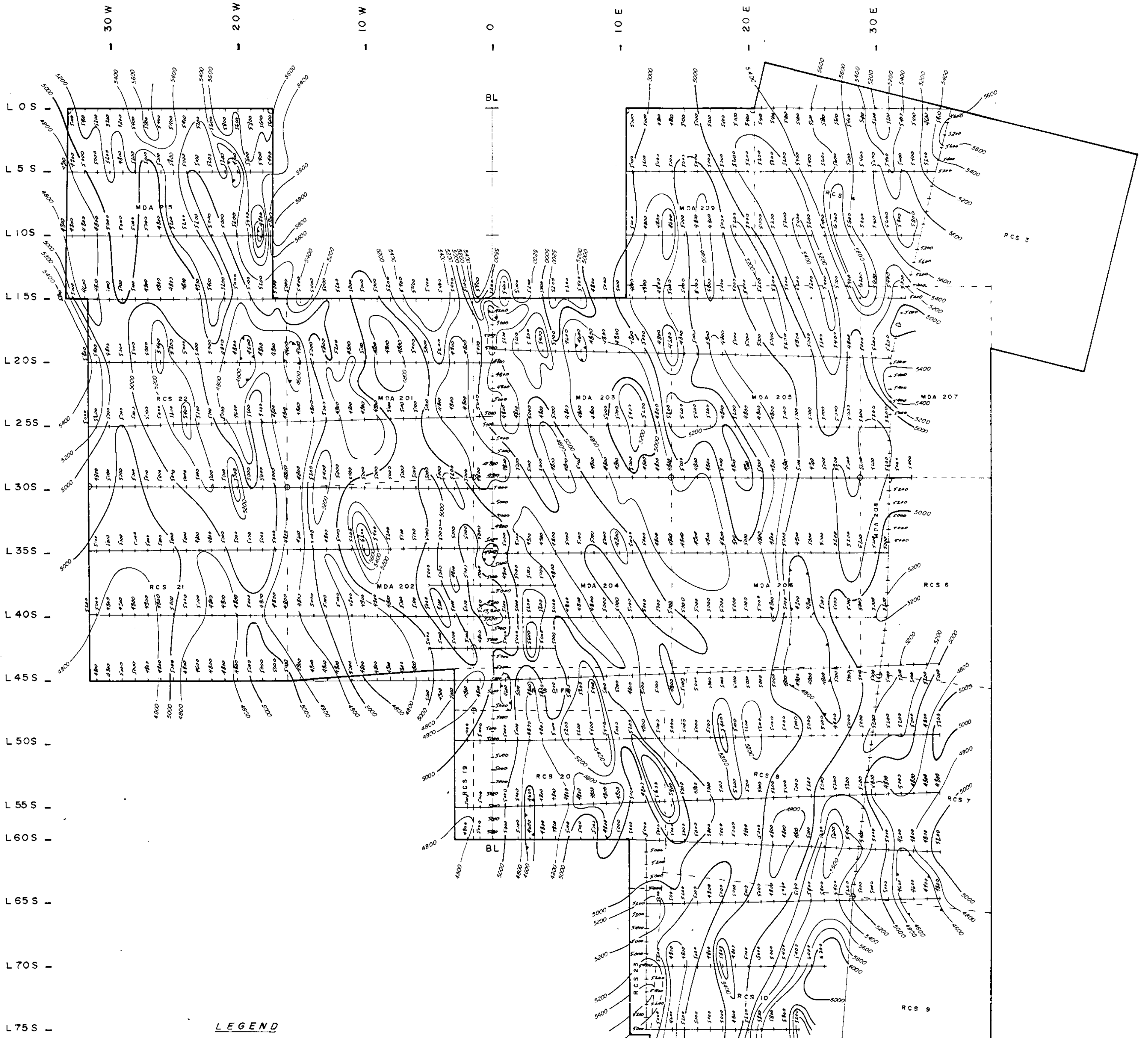
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 NO. 4227 MAP #6

SHEBA COPPER MINES LTD.
 Princeton Claims - Similkameen M. D., B.C.
 SOUTH GROUP

GEOLOGY

Scale: 1 in. = 500 ft. November 10, 1972

Lu Salomon

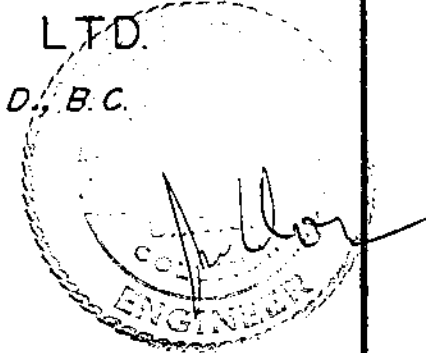


LEGEND
 CONTOUR INTERVAL 200 X
 MAGNETIC LOW

Department of
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 NO. 4227 MAP #4

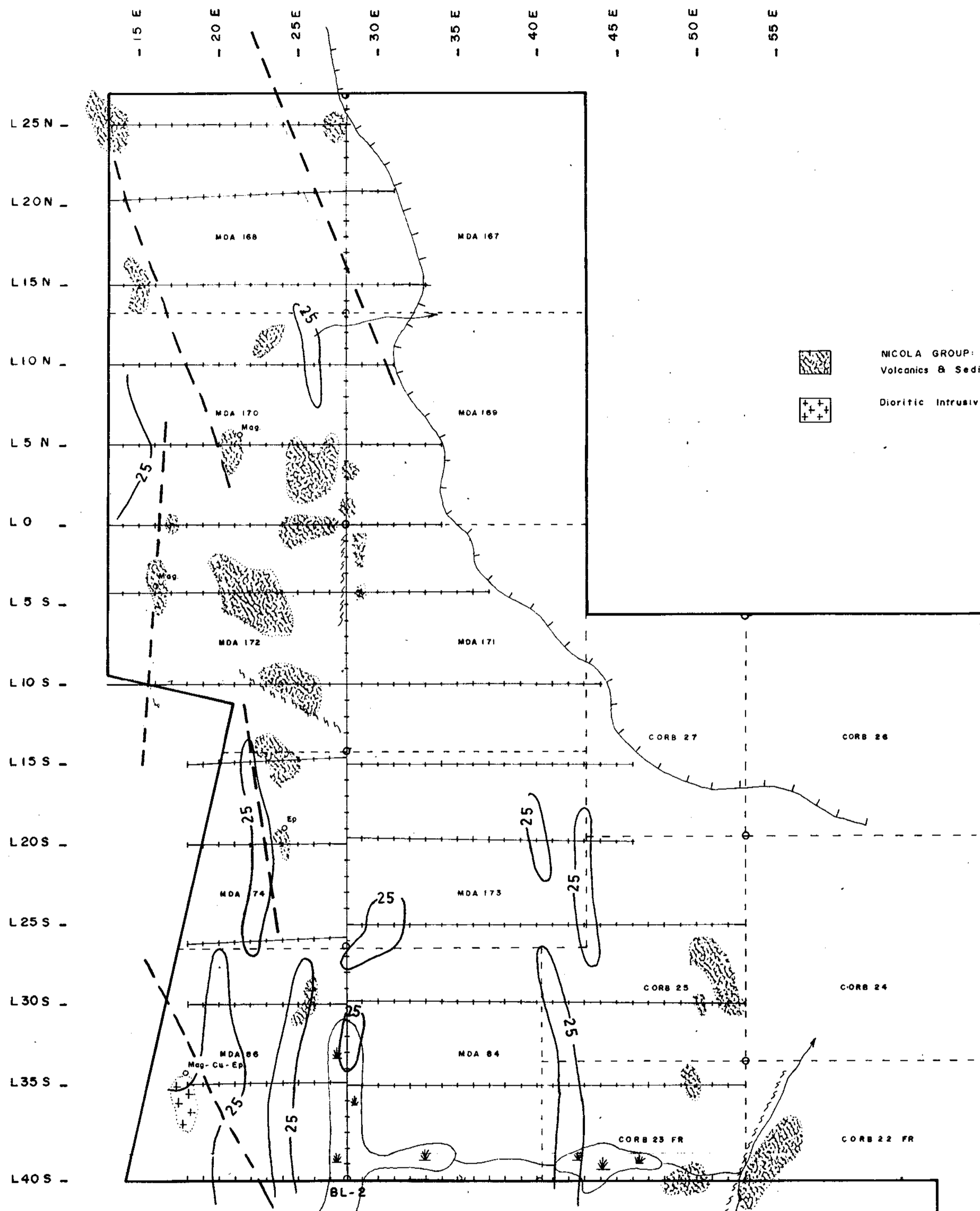
SHEBA COPPER MINES LTD.
 Princeton Claims - Similkameen M. D., B.C.
 SOUTH GROUP



MAGNETICS






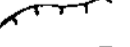





Scale: 1 in. = 500 ft. November 10, 1972

L. Saleh



 NICOLA GROUP: Undivided Andesitic Volcanics & Sediments
 Dioritic Intrusives

LEGEND

Outcrop 
 Float 
 Mineralization 
 Escarpment 
 Swamp 
 Drainage 
 Fault 
 Cu ANOMALIES — 25 ppm — 
 MAG. TRENDS - - - - - 

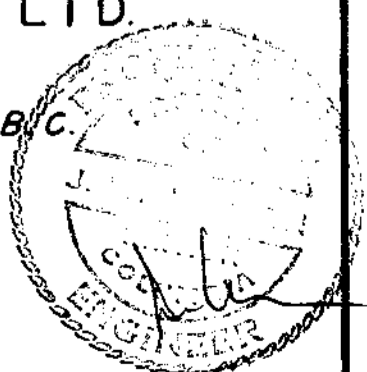
Department of
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 NO. 4227 MAP #7

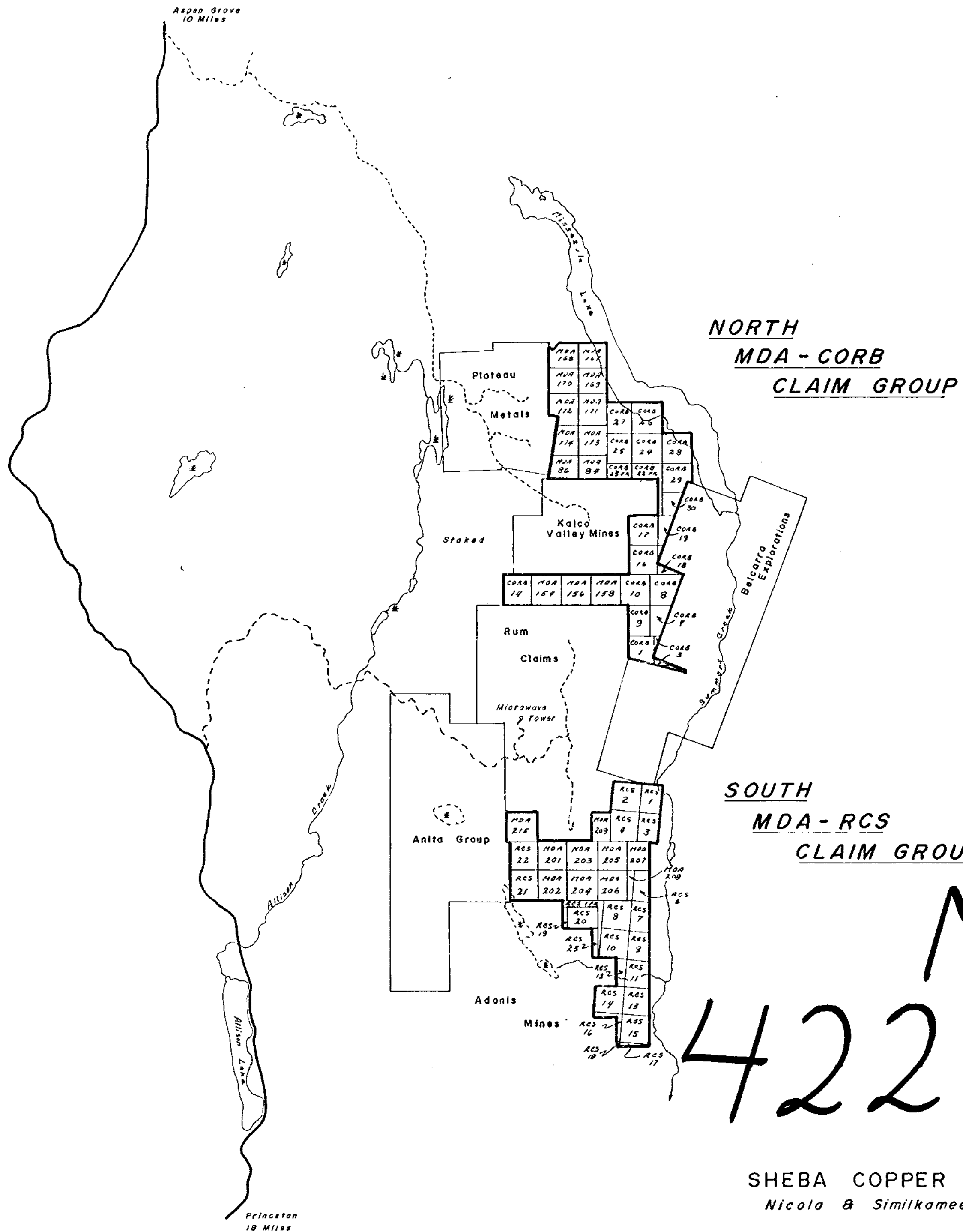
SHEBA COPPER MINES LTD.
 PRINCETON CLAIMS
 Nicola & Similkameen M.D.s, B.C.
 NORTH GROUP

GEOLOGY

Scale: 1 in. = 500 ft. November 10, 1972

Lu Salda





M-1
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SHEBA COPPER MINES LTD.
Nicola & Similkameen M.D's., B.C.

LOCATION MAP - PRINCETON CLAIMS

Scale: 1:50,000

November 10, 1972

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FIG. 1

No. 4227 MAP #1