

3179

REPORT ON A GEOCHEMICAL SURVEY
AND PRELIMINARY GEOLOGY
RELAY CREEK
A, B, C, X, Y, Z CLAIM GROUPS
LILLOOET MINING DIVISION
BRITISH COLUMBIA

ROBERT WOLFE, P. ENG.

CLAIMS:

A #1-12
B #1-12
C #1-12

X #1-12
Y #1-12
Z #1-12

LOCATION:

25 airmiles N. of Bralorne, B. C.
Lillooet Mining Division

51°10', 122°55' N. W. 920/2W

DATES:

August 21 to September 27, 1970

Department of Mines and Petroleum Resources ASSESSMENT REPORT

NO. 3179 MAP.....

August 6, 1971

Vancouver, B. C.

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SUMMARY AND CONCLUSIONS

A total of 34 line miles of geochemical survey were completed on the A, B, C and X, Y, Z claim groups during the summer of 1970.

A considerable portion of the claim groups is covered by overburden of shallow to moderate depth.

The geochemical survey was undertaken to test the groups for further anomalous geochemical values in copper, molybdenum and zinc. A preliminary geological survey was carried out at the same time along the established grid lines to correlate geochemical results with geology and mineralization.

Two large coincident Cu-Mo soil anomalies are outlined on the Relay Creek property. The zinc in the soil is anomalous on the edges of the Cu-Mo anomalies which is a typical feature of most Cu-Mo porphyry deposits. Interpretation of the geochemical anomalies is complex in that outcrop in the anomalous areas contains visible chalcopyrite in the western part (on line 66N) but not in some other sections. The pH determinations were inconclusive. Pyritization is extensive but other hydrothermal alteration appears weak. Chalcopyrite (up to 0.1%) was noted at several localities but not in any economic quantities.

122°55'



CLINTON M.D.
LILLOOET M.D.

Z ₁₂	Z ₁₀	Z ₈	Z ₆	Z ₄	Z ₂
Z ₁₁	Z ₉	Z ₇	Z ₅	Z ₃	Z ₁
Y ₁₂	Y ₁₀	Y ₈	Y ₆	Y ₄	Y ₂
Y ₁₁	Y ₉	Y ₇	Y ₅	Y ₃	Y ₁
X ₁₂	X ₁₀	X ₈	X ₆	X ₄	X ₂
X ₁₁	X ₉	X ₇	X ₅	X ₃	X ₁

Prentice
Lake

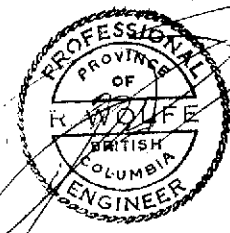
Relay Creek

50 Air miles to
Lillooet, B.C.

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3179 MAP
A11

		B ₁	A ₂	A ₁	
C ₂	C ₁	B ₂	B ₃	A ₄	A ₃
C ₄	C ₃	B ₄	B ₅	A ₆	A ₅
C ₆	C ₅	B ₆	B ₇	A ₈	A ₇
C ₈	C ₇	B ₈	B ₉	A ₁₀	A ₉
C ₁₀	C ₉	B ₁₀	B ₁₁	A ₁₂	A ₁₁
C ₁₂	C ₁₁	B ₁₂			

40 miles to
Goldbridge, B.C.



TO ACCOMPANY GEOCHEMICAL REPORT BY R. WOLFE, P. ENG.
ON THE X,Y,Z AND A,B,C CLAIM GROUPS, RELAY CREEK
LILLOOET MINING DIV. DATED AUGUST 5, 1971

FIGURE 1
SHEBA SYNDICATE
RELAY CREEK CLAIMS
LOCATION MAP
LILLOOET MINING DIVISION, B.C.



INTRODUCTION:

During the month of September, 1970, geochemical and preliminary geology surveys were completed on a ground control grid established on the A, B, C and X, Y, Z claim groups located about 25 air miles North of Bralorne, B. C. The claim groups are situated in the Lillooet Mining Division.

The claims were staked during August, 1970 by a crew employed under the Sheba Syndicate, a joint venture exploration group financed by Home Oil Company Limited, United States Smelting Refining and Mining Company and Transcontinental Resources Limited.

Geochemical results of silt and soil sampling done during the early summer of 1970 indicated anomalous values in copper and molybdenum. Purpose of the geochemical survey was to determine extent and magnitude of the geochemical anomaly. Geological reconnaissance mapping was carried out in conjunction with the soil sampling and completed over the same grid.

Geological mapping was conducted by J. McLeod, B. Sc., a Geologist employed by the Sheba Syndicate. His work in the field was supervised by the writer.

CLAIMS:

The claim groups each consist of 36 full sized contiguous mineral claims acquired in the late summer of 1970 and recorded in Lillooet, B. C. on August 24, 1970.

Claim names and record numbers are given below:

<u>Claim Name</u>	<u>Record Number</u>
X#1 - 12	33622 - 33
Y#1 - 12	33634 - 45
Z#1 - 12	33682 - 93
A#1 - 12	33646 - 657
B#1 - 12	33658 - 669
C#1 - 12	33670 - 681

LOCATION AND ACCESS:

The property is located approximately 25 air miles North of Bralorne, B. C. Access is from the Lillooet-Bralorne road and thence North via the Tyax Lake road. A four-wheel drive vehicle is necessary to negotiate the final 20 miles beyond Tyax Lake. The area is mountainous with relief of approximately 1500 feet occurring across the claim groups. Access on the property is good and the group is easily traversed by foot.

PURPOSE OF GEOCHEMICAL SURVEY

The purpose of the geochemical soil survey was to determine the areal extent and magnitude of anomalous copper, molybdenum and zinc values.

METHOD:

A total of 1360 soil samples were collected on an E. W. grid on 200 foot stations along lines spaced 400 feet apart. Samples were collected, placed in envelopes and delivered to Vancouver Geochemical Laboratories. In the lab samples were sifted to 80 mesh, treated with hot HCl₁₀₄ - HN 03 for extraction, and analyzed by Atomic Absorption.

SOIL DEVELOPMENT:

Soil development is highly immature, lacking proper differentiation into the Ao, A1 and B horizons. Most of the soil samples consist of young talus derived soil. Overburden cover does not show any evidence of glacial till although the area was probably subjected to continental glaciation. It seems probable that erosion has been sufficiently rapid during the post-pleistocene period (11,000 years) to remove all evidence of pleistocene deposits.

DISCUSSION OF RESULTS

Statistical treatment of the geochemical data gave the following results:

	N	$\sum X$	$\sum X^2$	\bar{X}	S	Bar Interval
Mo	1,360	4,403	32,836	3.24	4.57	2 ppm
Cu	1,360	124,675	36,006,376	91.67	162.49	50 ppm
Zn	909	15,876	19,368,779	17.00	145.00	50 ppm

Where N is the number of samples

\bar{X} is the mean defined as $\frac{\sum X}{N}$

$\sum X$ is the sum of the metal values in ppm

S is the standard deviation calculated from the formula $S = \sqrt{\frac{\sum X^2 - N\bar{X}^2}{N - 1}}$

The bar interval is chosen between 1/4 S and 1/2 S

Frequency distribution graphs using the above bar interval show the following division of values by visual inspection:

	Regional background	Local background	Anomalous	Highly anomalous
Cu	0-50 ppm	50-150 ppm	150-350 ppm	over 350 ppm
Mo	0-2	2-6	6-16	over 16 ppm
Zn	0 -----	200	200-350 ppm	over 350 ppm

Distinct anomalous areas about 6,000 x 3,000 feet have been outlined. The areas are about 2 miles apart. The Mo anomalies are coincident with, but smaller in area, than the Cu anomalies. Values up to 1,240 ppm Cu and 46 ppm Mo have been obtained. The Zn anomalies occur peripherally to the Cu-Mo anomalies, a typical feature of porphyry Cu-Mo deposits. Outcrop from the anomalous areas was found to contain chalcopyrite on line 66N towards the western end of Anomaly A, whereas outcrop from other parts of the anomalous areas appears barren. Interpretation of the geochemical anomalies is therefore complex and more detailed work will be necessary to fully comprehend the geochemical situation.

Re: pH Determinations

pH data is inconclusive. Soil samples in the anomalous areas are practically neutral, silt samples neutral to slightly basic. A slightly acidic environment exists in the rest of the sampled area.

Comparison with the pH ranges of the Arizona porphyry deposits is difficult due to extreme arid conditions in those areas. The Casino deposit in the Yukon showed Canadian Creek (pH 6.5-7) to be only moderately anomalous in Cu and only anomalous in Mo in the upper section of its tributary Patton Creek (which drains the ore-body area). Canadian Creek flows through a permanently frozen valley.

Another creek draining the mineralized area is more acidic (pH5) due to introduction of ground water through windows in the permafrost (one spring had pH 2.6). This creek, Casino Creek, shows Cu anomalous in silt, and water up to 3 miles downstream whereas Mo is only anomalous in silts towards the source. Mean annual precipitation is between 8 and 14 inches (half as snow).

Again comparisons are difficult to make due to lack of permafrost in the Relay area and increased precipitation. It appears plausible that the heavy precipitation, steep slopes, rapid erosion, porous talus, etc. all contribute to the near neutral pH readings.

GEOLOGY

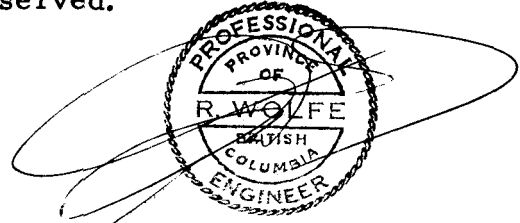
Geological reconnaissance work by Jim McLeod has indicated that both of the main anomalous zones encountered on Relay Creek occur essentially in a medium-coarse grained dacite porphyry which is in places rhyolitic in composition. The "A" anomalous area cut in places by finer grained dyke rocks exhibiting a tuffaceous texture, some of which are rhyolitic in composition. The "B" anomalous area is cut in many places by dyke rocks with similar textural and compositional features as those found in the "A" anomalous area. Both anomalous areas are rimmed on the north by occurrences of sedimentary rocks (generally a distinctly bedded, coarse grained pebble conglomerate), the strikes of the bedding at these outcrops are different (see Figure 18) suggesting possibly a pivoting about the Prentice Lake fault. On the south

side of Relay Creek in "A" area are several occurrences of basalt and numerous basalt float trains suggesting possibly a basalt zone or capping in the higher reaches of this area. Alteration, although widespread, tends to be rather weak, being mild argillic in form (i. e. kaolin after plagioclase) in the porphyritic intrusive rocks. Some sericitization of feldspars was noted in one basalt thin section. In one mildly kaolinitized dacite porphyry specimen, quartz-calcite welded fractures occurred.

Generally hydrothermal alteration must be considered weak, while pyritization is pervasive and widespread.

MINERALIZATION:

An impressive feature of the Relay Creek Area is the widespread and pervasive pyrite (and pyrrhotite) mineralization which extends over some 6 - 7 miles. The sulphides occur mostly disseminated but in places accompanying coarse grained veinlets are evident. Chalcopyrite was found in several localities and identified in the field and under the binocular microscope, but in no instance would the visually estimated grade exceed 0.1% Cu. No visible molybdenum or zinc minerals were observed.



Robert Wolfe, P. Eng.

Vancouver, B. C.
August 6, 1971

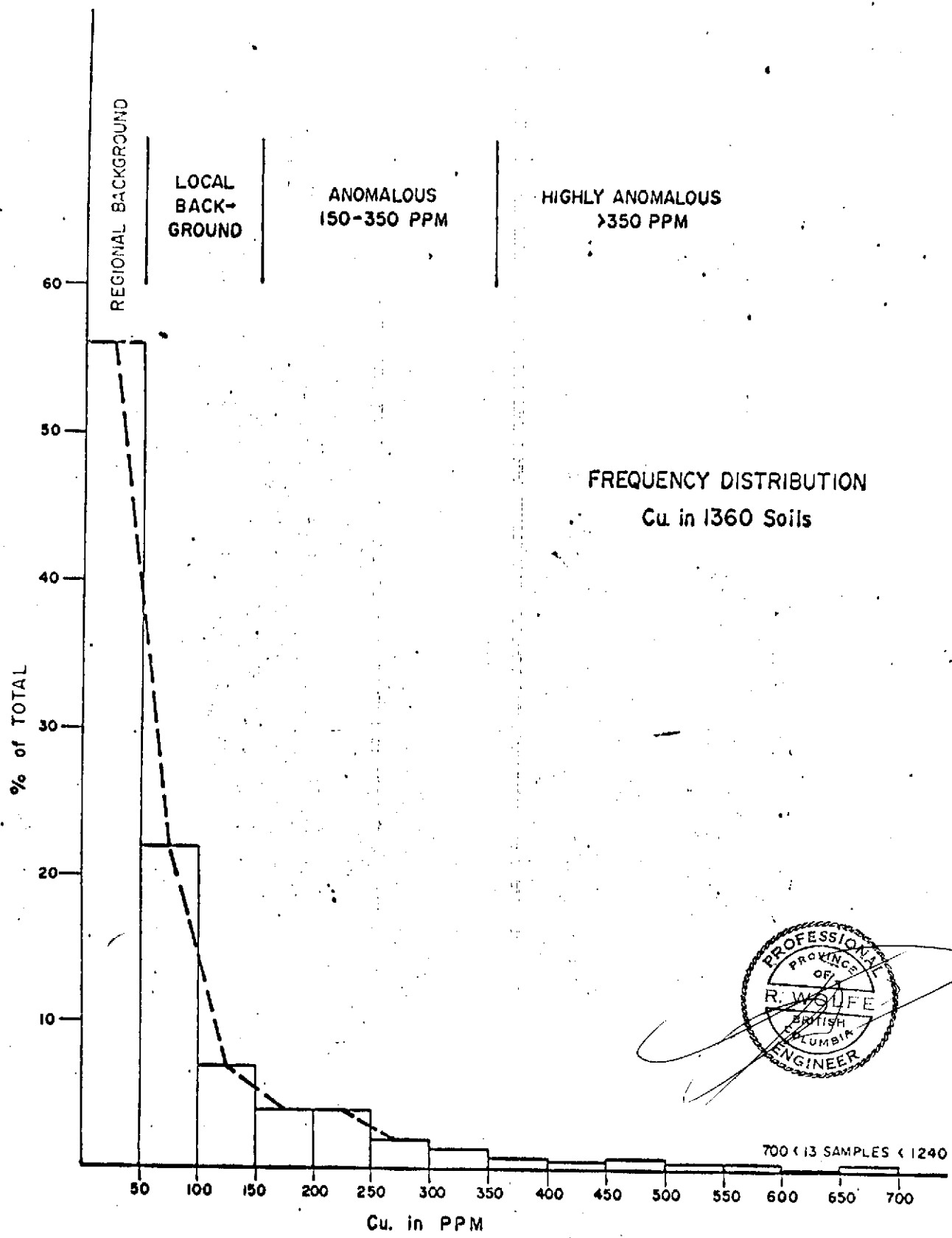


FIGURE 2
SHEBA SYNDICATE

TO ACCOMPANY GEOCHEMICAL REPORT BY R. WOLFE, P. ENG.
ON THE X, Y, Z AND A, B, C CLAIM GROUPS, RELAY CREEK
LILLOOET MINING DIV. DATED August 5, 1971

**RELAY CREEK
ANOMALIES**
LILLOOET MINING DIVISION, B.C.

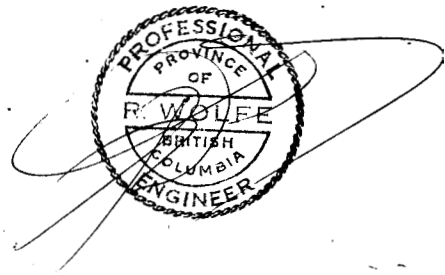
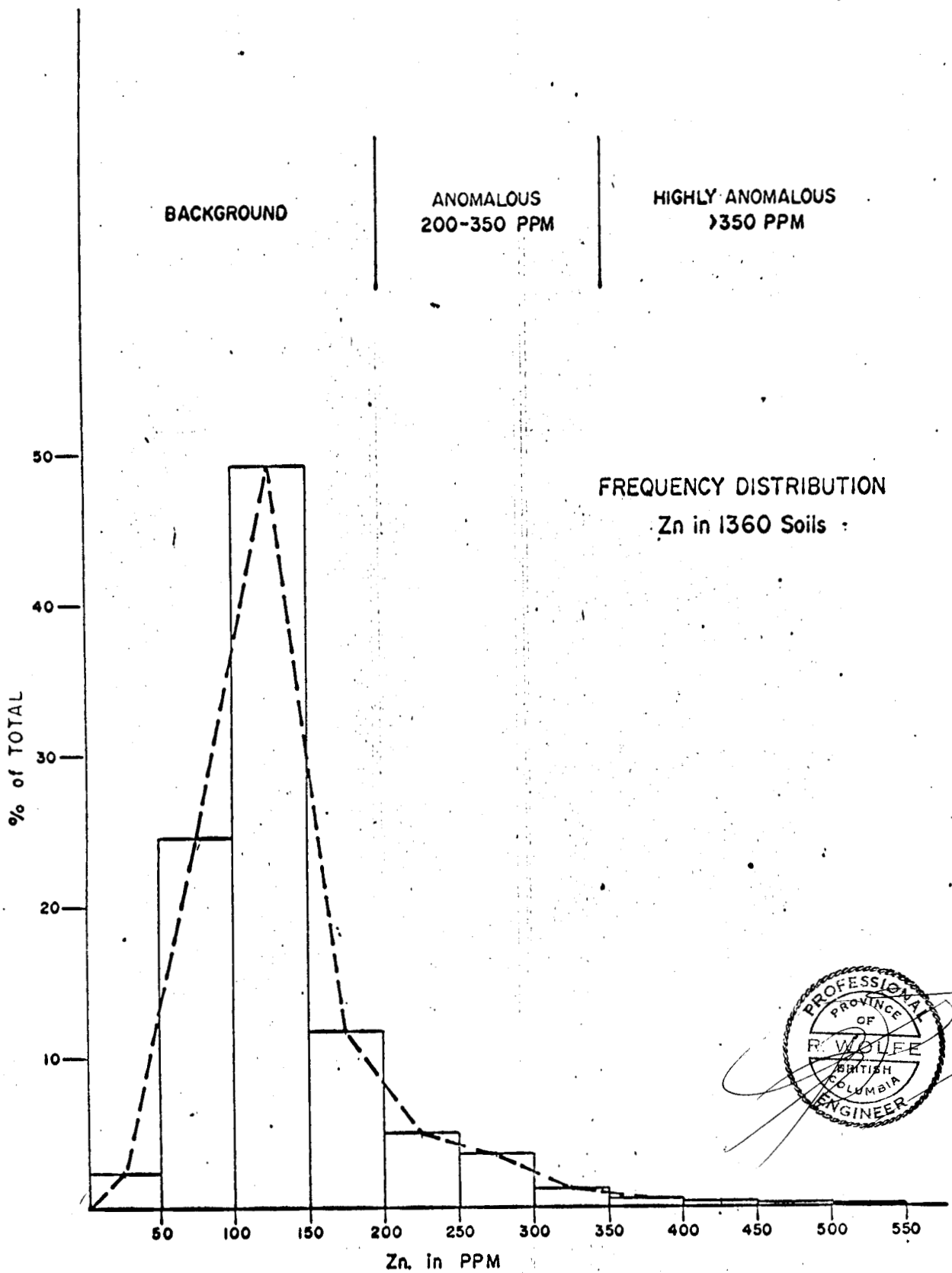


FIGURE 4
 SHEBA SYNDICATE

TO ACCOMPANY GEOCHEMICAL REPORT BY R. WOLFE, P. ENG.
 ON THE X, Y, Z AND A, B, C CLAIM GROUPS, RELAY CREEK
 LILLOOET MINING DIV. DATED AUGUST 5, 1971

RELAY CREEK
ANOMALIES
 LILLOOET MINING DIVISION, B.C.

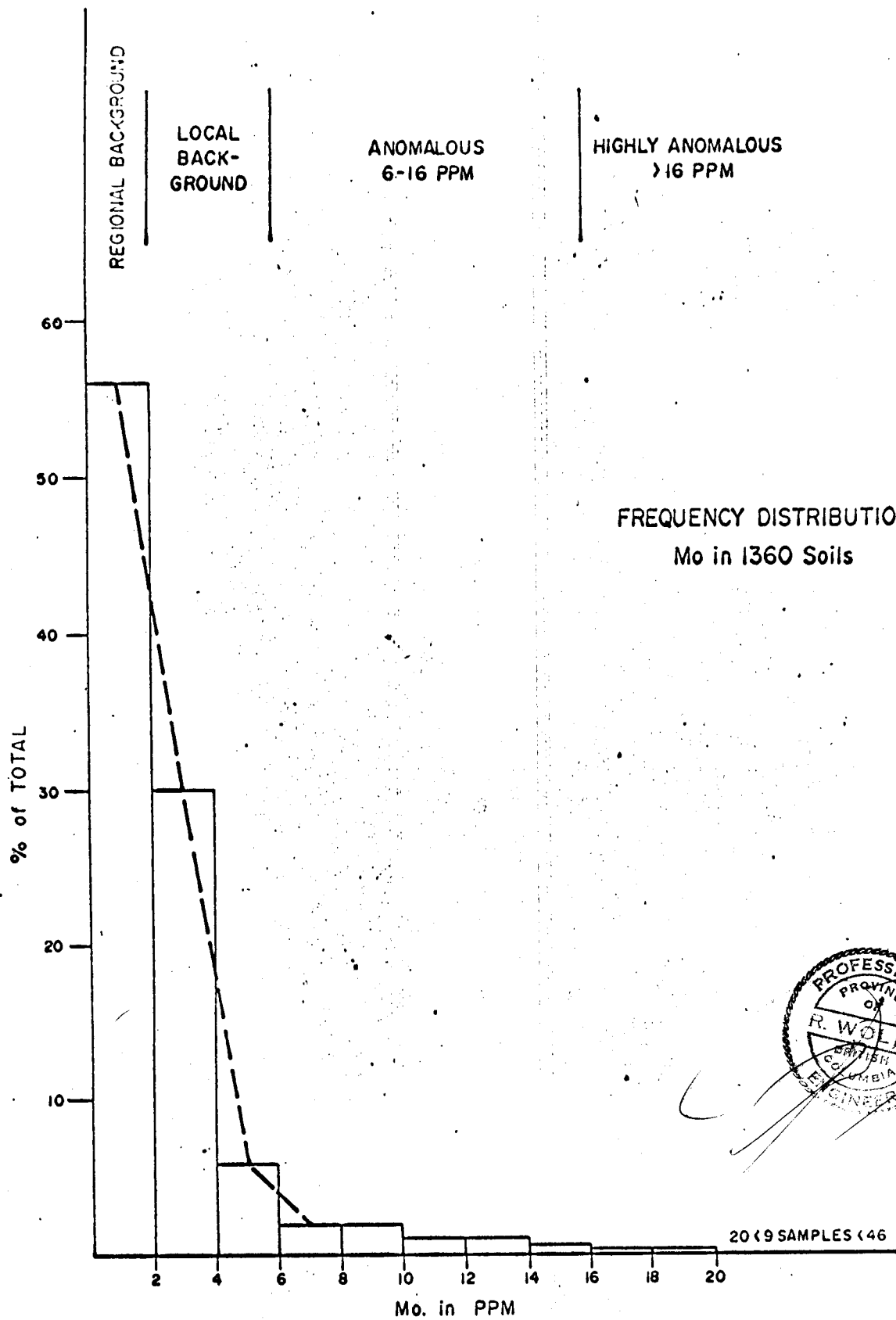


FIGURE 3
SHEBA SYNDICATE

TO ACCOMPANY GEOCHEMICAL REPORT BY R. WOLFE, P. ENG.
ON THE X, Y, Z AND A, B, C CLAIM GROUPS, RELAY CREEK
LILLOOET MINING DIV. DATED AUGUST 3, 1971

**RELAY CREEK
ANOMALIES**
LILLOOET MINING DIVISION, BC


APPENDIX "A"

DECLARATION OF COSTS

Salaries:	Geochemical survey	\$ 1,570
	Geological Mapping & supervision	840
Board:	91 mandays @ \$7/day	637
Geochemical Analyses:	680 samples @ \$2.50	1,700
	Ph Determinations 80 @ \$0.50	40
Transportation:	One 4-wheel Drive Truck 1 month @ \$500/mo.	500
	7 thin sections @ \$3.00	21
	TOTAL	\$ 5,308

I, Robert Wolfe, hereby declare that the information contained in the above schedule is true to the best of my information, knowledge and belief and I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act".

DECLARED before me at the City)
of Vancouver in the Province of)
British Columbia, this 16 day of)
August, A. D. 1971)


A Commissioner for taking Affidavits
for British Columbia)

Sub-mining Recorder



Robert Wolfe

XYZ CLAIMS

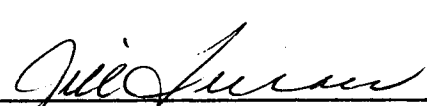
APPENDIX "B"

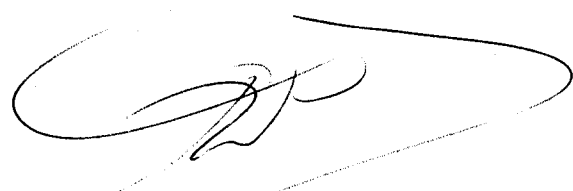
LIST OF PERSONNEL AND SALARIES

<u>Name</u>	<u>Category</u>	<u>Daily Rate</u>	<u>No. of Days</u>	<u>Period</u>	<u>Total</u>
D. Hocking	Soil Sampler	25	5-1/2	8/21 - 8/27	\$ 137.50
M. Crocker	" "	25	5-1/2	8/21 - 8/27	137.50
P. Wallin	Line Cutter	20	6	9/16 - 9/21	120.00
N. Zwager	" "	20	16-1/2	8/26 - 9/10	330.00
J. Hopko	" "	20	6	9/16 - 9/21	120.00
G. Bowes	Soil Sampler	25	10	8/27 - 9/5	250.00
John McLeod	" "	25	19	8/21 - 9/9	475.00
Jim McLeod	Geologist	35	19	8/21 - 9/9	665.00
J. H. Montgomery	Ph. D., P. Eng. Consulting Petrologist	50	1/2	10/11	25.00
R. Wolfe	P. Eng. Consultant	50	3	9/22 - 9/24	150.00
			91		\$2410.00

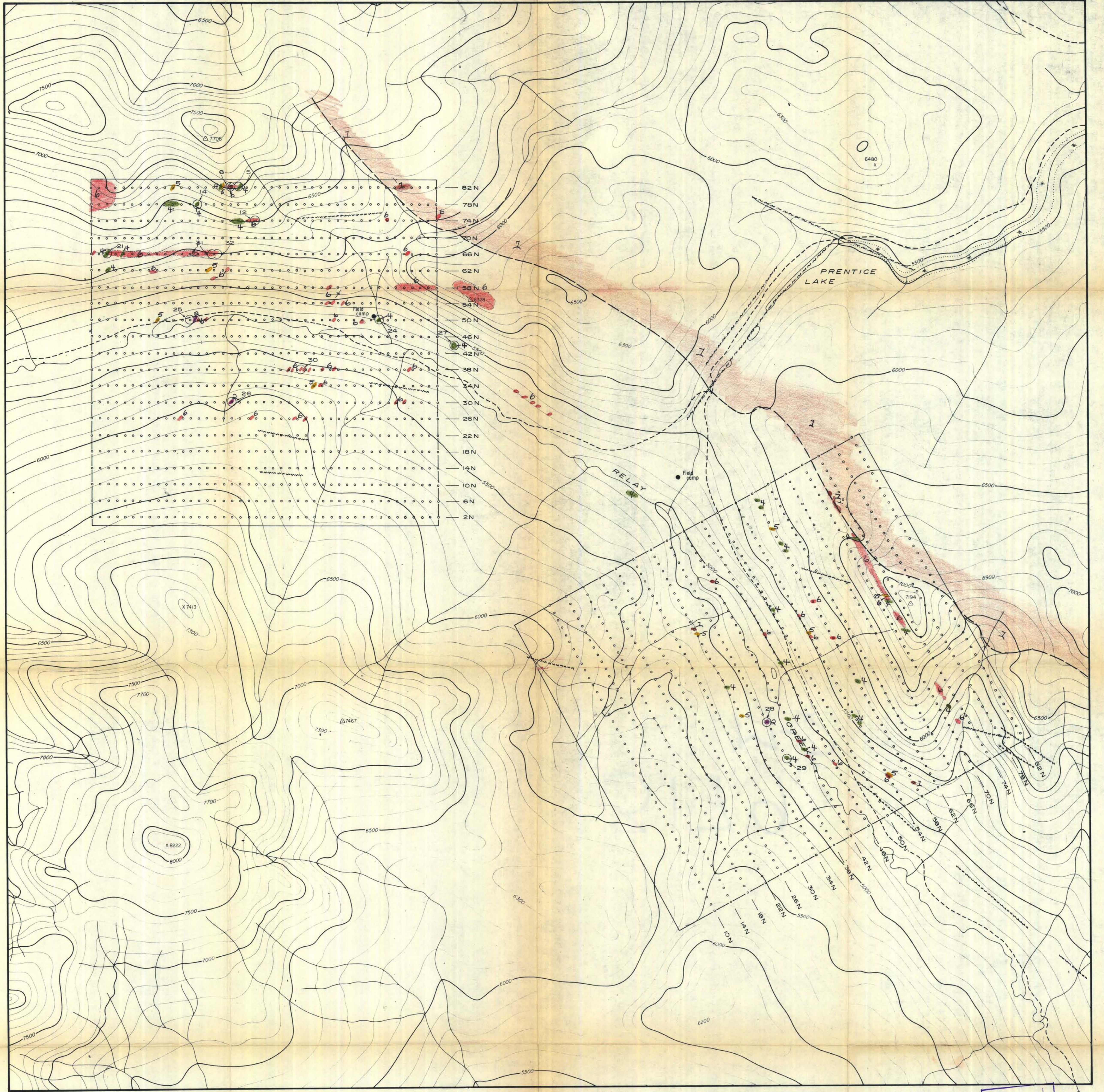
I Robert Wolfe, hereby declare that the information contained in the above schedule is true to the best of my information, knowledge and belief and I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act".

DECLARED before me at the City)
of Vancouver in the Province of)
British Columbia, this 16 day of)
August, A. D. 1971)


A Commissioner for taking Affidavits)
for British Columbia Sub-mining Recorder



Robert Wolfe



TO ACCOMPANY GEOCHEMICAL REPORT BY R. WOLFE PENG.
ON THE A.B.C. I.V.Z. CLAIM GROUPS, RELAY CREEK
LILLOOET MINING DIV. DATED AUGUST 5, 1971



GEOLOGY:	
6	DACITE PORPHYRY & ANDESITE Porphyritic intrusive rocks with a wide range of textures, mineralization and alteration.
5	RHYOLITE Fine grained intrusive rock, probably dykes exhibiting a wide range of mineralization and alteration.
4	TUFF Lithic, crystal, banded and some rhyolitic varieties sometimes containing quartz, plagioclase and carbonate matrix. Some specimens contain pyrite and chalcocite.
3	BASALT Considerable variation of composition, one specimen essentially an olivine basalt.
1	SEDIMENTS Pebble conglomerate and travertine?

SYMBOLS:	
—	Assumed contact
—	Fault as inferred from airphoto interpretation
—	Bedding strike and direction
—	Fracture strike and direction
—	Claim boundary
○	Thin section location

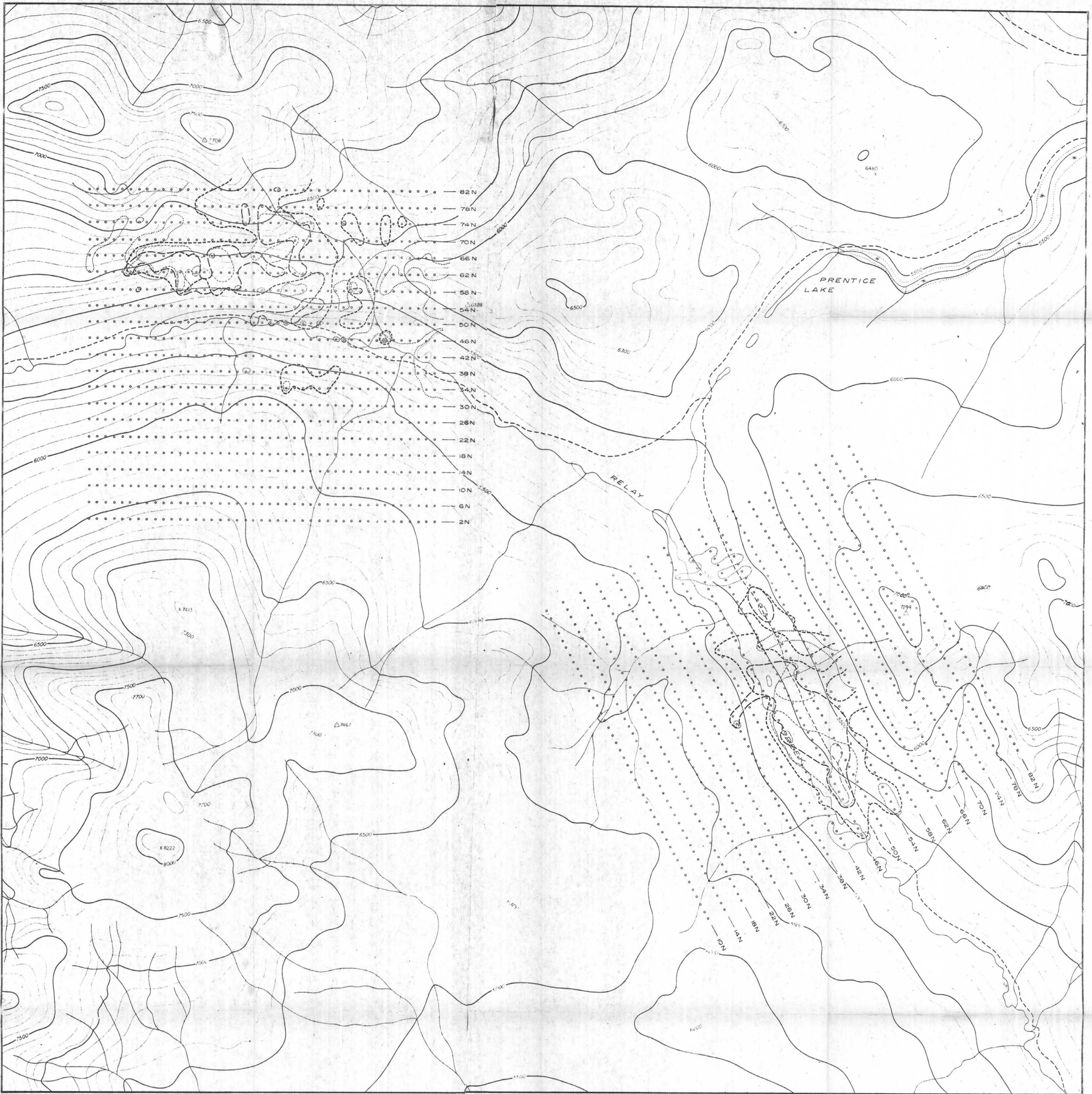


Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3179 MAP #2

32 miles to
Bridge Lillooet
Road

FIGURE 5
CHEBA SYNDICATE
PRELIMINARY GEOLOGY
RELAY CREEK AREA
LILLOOET MINING DIVISION, B.C.
SCALE 1" = 1000'
SEPTEMBER, 1970

3179
M-2



TO ACCOMPANY GEOCHEMICAL REPORT BY R. WOLFE, P. ENG.
 ON THE A.B.C. X.Y.Z. CLAIM GROUPS ON RELAY CREEK
 LILLOOET MINING DIV. DATED AUGUST 8, 1971



LEGEND

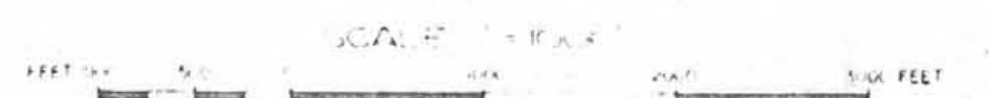
- | | |
|-------------------|-----------------|
| ----- Cu - medium | ----- Cu - high |
| ----- Mo - medium | ----- Mo - high |
| ----- Zn - medium | ----- Zn - high |

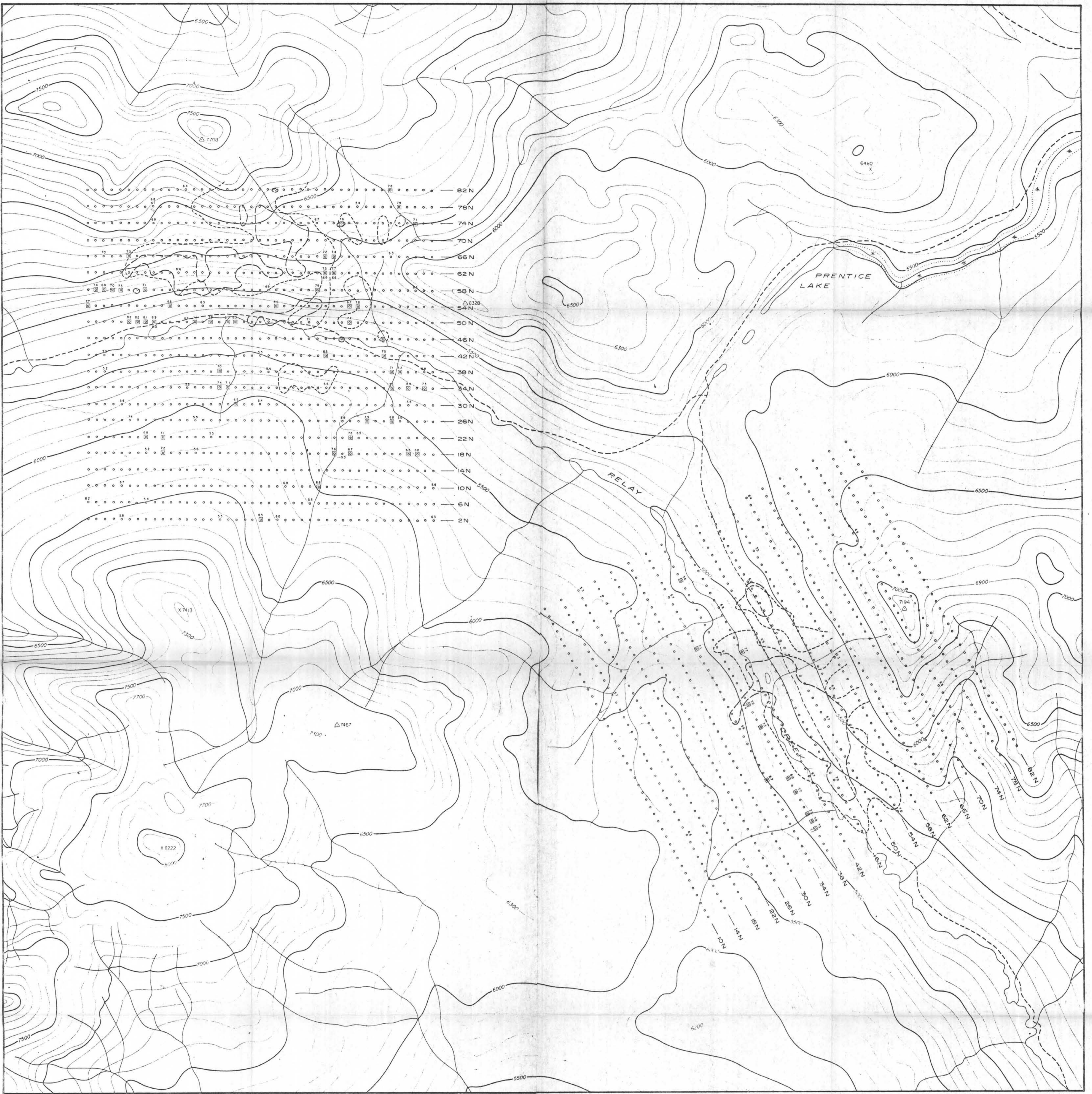


Department of
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 ASSESSMENT REPORT
 NO. 3179 MAP #3

FIGURE 6
 SHEGA SYNDICATE

RELAY CREEK AREA
 LILLOOET MINING DIVISION, B.C.





TO ACCOMPANY GEOCHEMICAL REPORT BY R. WOLFE, F.E.M.G.
 ON THE A.B.C. S.V.Z. CLAIM GROUPS, ON RELAY CREEK
 LILLOOET MINING DIV., DATED AUGUST 5, 1971

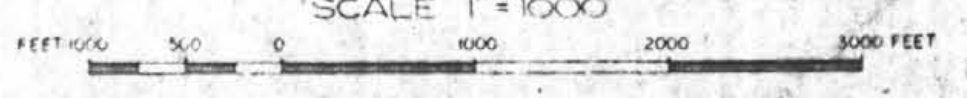


LEGEND

- 74 Silt
- 64 Soil
- Cu Anomaly
- Mo Anomaly

PROFESSIONAL
 R. WOLFE
 Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 3179 MAP 4/4

FIGURE 7
 SHEBA SYNDICATE
 -PLAN SHOWING-
 pH PLOT &
 CU-MO ANOMALY OUTLINES
 RELAY CREEK AREA
 LILLOOET MINING DIVISION, B.C.
 SCALE 1"=1000'

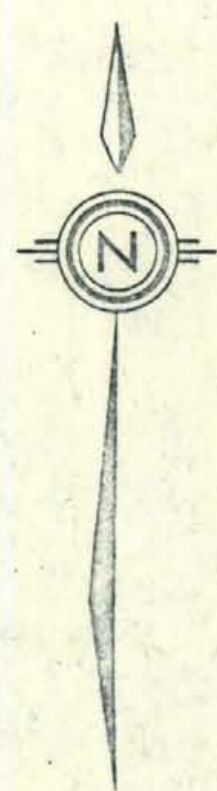




TO ACCOMPANY GEOCHEMICAL REPORT BY R. WOLFE, P. ENG.
 ON THE A.B.C. X.Y.Z. CLAIM GROUPS, ON RELAY CREEK
 LILLOOET MINING DIV. DATED AUGUST 5, 1971



Department of
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 ASSESSMENT REPORT
 NO. 3179 MAP #5



LEGEND

- 150 - 350 ppm. Copper
- > 350 ppm. Copper

FIGURE 1
 SHEBA SYNDICATE
 GEOCHEMICAL SURVEY
 (COPPER IN PPM.)
 RELAY CREEK AREA
 LILLOOET MINING DIVISION, B.C.

SCALE 1" = 1000'
 FEET 0 500 1000 2000 3000



TO ACCOMPANY GEOCHEMICAL REPORT BY R. WOLFE, T. ENG.
 ON THE A.B.C. I.V.Z. CLAIM GROUPS, ON RELAY CREEK
 LILLOOET MINING DIV. DATED AUGUST 5, 1971



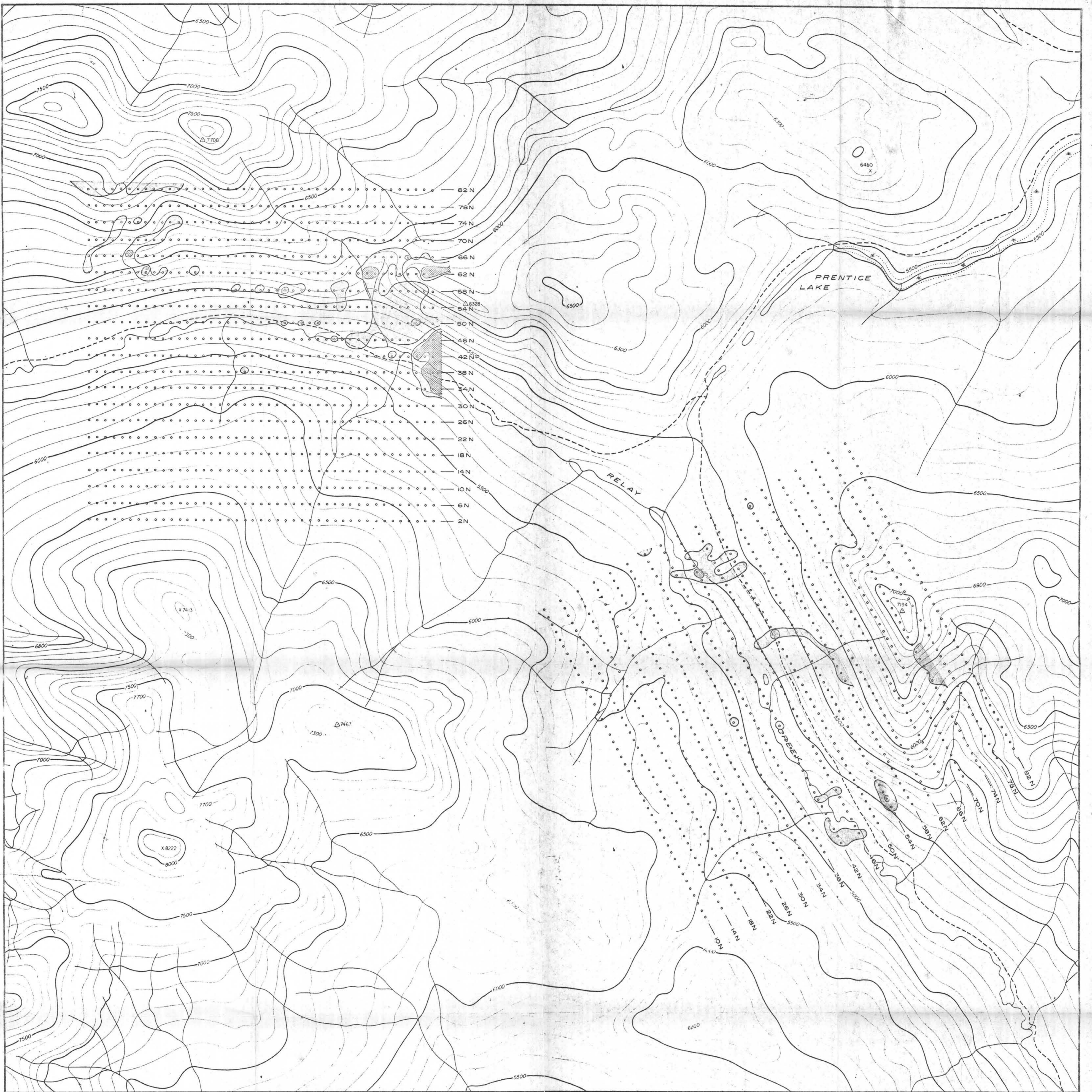
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 ASSESSMENT REPORT
 NO. 3177 MAP #16

LEGEND

- 6 - 16 ppm. Molybdenum
- > 16 ppm. Molybdenum

FIGURE 7
 SHEBA SYNDICATE
 GEOCHEMICAL SURVEY
 (MOLYBDENUM IN PPM.)
 RELAY CREEK AREA
 LILLOOET MINING DIVISION, B.C.

SCALE 1" = 1000'
 0 500 1000 2000 3000 FEET



TO ACCOMPANY GEOCHEMICAL REPORT BY R. WOLFE, P. ENG.
 ON THE A.B.C. X.Y.Z. CLAIM GROUPS, ON RELAY CREEK
 LILLOOET MINING DIV. DATED AUGUST 5, 1971

Department of
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 ASSESSMENT REPORT
 NO. 3679 MAP #7



LEGEND
 ○ 200 - 350 ppm. Zinc
 ● > 350 ppm. Zinc

FIGURE #8
 SHEBA SYNDICATE
GEOCHEMICAL SURVEY
 (ZINC IN PPM.)
 RELAY CREEK AREA
 LILLOOET MINING DIVISION, B.C.
 SCALE 1" = 1000'
 FEET 0 500 1000 2000 3000