

2116

GEOLOGICAL AND GEOCHEMICAL REPORT

PW, RW, JB, RH, AND W CLAIMS

LOCATION: Catface Range approximately 10
miles north-northwest of Tofino,
Vancouver Island, B. C.,
49° 125' SE

REPORT BY: P. E. Hirst, P. Eng.

CLAIM OWNER: Fort Reliance Minerals Ltd.

DATE OF WORK: July 13, 1969 to August 16, 1969

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 2116 MAP

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MAPS IN FOLDER

<u>Plate No.</u>	<u>Title</u>	<u>Scale</u>
#1 1	Property Location Map	1:50,000
#2 2	Geology	1" = 1,000 feet
#3 3	Stream Sediment Geochemistry	1" = 1,000 feet
#4A 4A	Copper-Molybdenum Soil Geochemistry (West Block)	1" = 400 feet
#4B 4B	Zinc-Arsenic Soil Geochemistry (West Block)	1" = 400 feet
#5A 5A	Copper-Molybdenum Soil Geochemistry (East Block)	1" = 400 feet
#5B 5B	Zinc-Arsenic Soil Geochemistry (East Block)	1" = 400 feet

* * * * *

SUMMARY:

The Catface properties of Fort Reliance Minerals Limited adjoin the important Falconbridge controlled Catface copper property on the north. Preliminary evaluation of the properties has indicated that the claims are mainly underlain by sediments and volcanics and their metamorphosed equivalents. Soil and stream sediment sampling has indicated a number of potential areas of interest whose significance remains to be determined by further work.

INTRODUCTION:

During November, 1968, Fort Reliance Minerals Ltd. staked claims on the north side of the Catface Range adjacent to the Catface copper property.

Subsequently, during the 1969 field season, these properties were assessed by geochemical stream sediment and soil sampling, geological mapping, and prospecting. Additional claims were staked during the 1969 field season, and nine claims were abandoned and re-staked.

This report describes the details and results of the 1969 field work which was done under the general supervision of P. E. Hirst, P. Eng., Consulting Geologist, in cooperation with Mr. J. Bucholz, Geologist, Mr. E. A. Ramsay, P. Eng., Geologist, and Mr. P.C.M. Roberts, P. Eng., Geologist.

PROPERTY:

The Catface property consists of 81 contiguous claims, PW 1-10 inclusive, PW 15-26 inclusive, PW 33-35 inclusive, PW 39-42 inclusive, PW 50-58 inclusive, RW 39-44 inclusive, RW 47-50 inclusive, JB 1-3 inclusive, JB 7-12 inclusive, W 1-12 inclusive, and RH 1-12 inclusive. Corresponding record numbers are 13504-13525 inclusive, 13532-13534, 15255-15267 inclusive, 15162-15167 inclusive, 15170-15173 inclusive, 13562-13564 inclusive, 13568-13573 inclusive, and 13538-13561 inclusive.

The above claims have been grouped into two groups as follows:

Catface #1 Group: 40 claims consisting of PW 1-10, PW 15-26, PW 33-35, PW 39-42, PW 50-55, PW 57 & 58, RW 39-41

Catface #2 Group: 40 claims consisting of JB 1-3, JB 7-12, W 1-12, RH 1-12, RW 42-44, and RW 47-50

The relationship of these claims to other claims in the area is imperfectly known at present.

LOCATION, ACCESS, PHYSIOGRAPHY:

The property is situated about ten miles north-northwest of Tofino in the Alberni Mining Division. Specific coordinates are latitude $49^{\circ} 17'$ North, longitude $125^{\circ} 57'$ West. Access is by boat or float plane from Tofino.

The claims are densely forested with considerable undergrowth of salal and other low bushes at the lower elevations. Elevations range between sea level and 2,000 feet above sea level.

HISTORY:

Parts of the claims have been previously held by other stakers, but there is no record or evidence of any physical work being done on the property.

DETAILS OF THE 1969 WORK PROGRAMME:

A topographic map on a scale of 1 inch to 1,000 feet was prepared by enlarging existing government 1:50,000 contour maps of the area. A tent camp was established on a small inlet adjacent to Whitepine Cove on claim RW-40 and served as a base camp for work on the property. Owing to the difficult topography and undergrowth, considerable use had to be made of motor boats for access to various parts of the property.

A series of cut and chained picket lines were established for geological mapping and soil sampling purposes. Soil samples were collected by auger from the "B" horizon, dried at base camp, and shipped to Bondar-Clegg Laboratories in North Vancouver, B. C., for analysis. Stream sediment samples were similarly treated and analysed.

DETAILS OF THE GEOCHEMICAL SURVEY:

(a) Stream Sediments:

Samples were collected of the finest material available from the active channel of most streams, generally the silt-sized fraction.

(b) Soils:

Samples were collected at intervals of 100 feet or 200 feet along picket lines at depths of 9 - 12 inches from the podzolic B horizon using a hand auger. All samples were placed in standard-sized heavy duty kraft envelopes.

METHOD OF GEOCHEMICAL ANALYSIS:

Samples were dried at the base camp prior to shipping to a commercial laboratory (Bondar-Clegg, North Vancouver, B.C.) for analysis.

Samples as received at the laboratory were screened to minus 80 mesh and a one gram sample was then digested in hot acid (HNO_3 - HCL) from which standard acid solutions were prepared. Separate aliquots of sample solution were analysed for copper, molybdenum, and zinc. A separate one gram sample was digested in hot acid (HNO_3 - HCLO_4) for arsenic determinations.

Arsenic was determined by a colorimetric procedure whereby a colored organic complex is formed that is indicative of the relative metal content. This is known as the Arsine method. The metal content of the colored organic complex was determined by using a spectrophotometer to obtain the light transmittancy and comparing the values with a standard graph to obtain the respective parts per million.

Copper, molybdenum, and zinc were determined by atomic absorption spectrophotometry. The atomic absorption unit consists of three major components, a hollow cathode lamp (separate lamps for each element), a burner-atomizer, and a monochromator. The test solution is aspirated directly into the burner atomizer, and the respective transmittancy is read directly on a scale expansion unit on the monochromator. The respective metal contents are calculated by comparing the transmittancy with standard curves.

CONCLUSIONS:

Stream sediment sampling may not adequately define mineral possibilities in parts of the claim block due to masking overburden and possibly insufficient density of sampling. Interpretation of the results indicates two areas of distinct arsenic anomalies which may form part of a zonal pattern around the Catface copper-deposit to the south. Weak copper in stream sediment anomalies in the 100 ppm copper range occurring in a number of streams draining the north slopes of Catface Mountain may be attributable to the known copper mineralization to the south, and if so, are illustrative of the low order of chemical dispersion from a major copper deposit.

A very strong molybdenum and arsenic in stream sediment anomaly on RH 3 claim may be derived from the Catface copper deposit to the south.

Limited soil sampling has defined a northerly trending zone of coincident zinc and copper anomalies on PW 17 and 18 claims with approximate dimensions of 1,000 feet long and 200 feet wide. Another zone of imperfectly defined copper in soil anomalies occurs about 700 feet to the east, and elsewhere there are a few isolated soil anomalies. As these anomalies occur in till-covered areas, further work will be necessary to determine their significance.

Respectfully submitted,

P. E. Hirst

P. E. Hirst, P. Eng.

December 2, 1969.

(i) Sedimentary and Volcanic Rocks:

Most of the eastern half of the property is underlain by an extensive tightly folded sequence of interbedded limestones, siliceous tuffs, and cherts with occasional thin andesite flows. This unit may be the correlative of the Quatsino formation. To the west, the sediments pass into more metamorphosed and migmatized equivalents and considerable meta diorite.

The southern part of the PW claims is mainly underlain by more massive pyroclastics of andesitic and dacitic composition and andesite flows, particularly at the higher elevations. These volcanics appear to overlie and may be younger than the carbonate unit.

(ii) Igneous Rocks:

Small dykes, sills, and irregular bodies of feldspar porphyry and andesite are fairly common. Some of the migmatites in the western part of the property contain small leuco quartz diorite sills and dykes. No major intrusive bodies have been located.

(c) Structure:

Bedding attitudes vary from east - west in the western part of the property to northerly or northwesterly trends in the east. Considerable tight folding of an isoclinal nature occurs in places.

Airphoto lineaments trend in several directions, particularly north-south.

(d) Mineralization:

Minor amounts of disseminated and locally fracture-filling pyrite and pyrrhotite are widespread in the meta diorite and migmatite. More abundant disseminated pyrite occurs in many of the siliceous tuffs and cherts in the limestone unit. Only a few traces of chalcopyrite were observed, principally in the meta diorites. Considerable float of pyritic leuco quartz diorite occurs near the mouth of a stream on claim RH 3.

RESULTS OF THE GEOCHEMICAL SURVEY:

Stream sediment results are plotted on the accompanying stream sediment Geochemistry map, Plate 3. Color-codes identify the samples and areas containing above background and possibly anomalous values. The respective anomalous values are approximately four times background and are 100 ppm copper, 6 ppm molybdenum, 200 ppm zinc, and 40 ppm arsenic.

Soil sample results are plotted on accompanying 1 inch to 400 feet Soil Geochemistry maps for the west and east blocks. Plates 4A and 5A respectively show the copper and molybdenum contents of the soils for the west and east blocks, and plates 4B and 5B respectively show the zinc and arsenic contents of the soils for the west and east blocks.

Areas of above background or anomalous copper, zinc, arsenic, and molybdenum in soil values are contoured and colored on the respective maps.

GEOLOGY:

(a) General Statement:

The Fort Reliance claims are immediately north of and adjacent to the Falconbridge-owned Catface Mines copper-molybdenum property which has undergone extensive diamond drilling and other exploration. Sulphide mineralization in the Catface Mines property is intimately associated with Tertiary quartz diorite and quartz monzonitic intrusives with related extensive intrusive breccia developments. Some of the sulphide mineralization is also reported to occur in the andesitic volcanic wall and roof rocks of probably Triassic age.

Regional G.S.C. mapping indicates that the area is situated within a broad northwest-trending belt of foliated and meta-volcanic and meta-sedimentary rocks of uncertain age.

(b) Local Geology:

The property contains a fairly high proportion of scattered outcrops in the western part, but elsewhere outcrops mainly occur along creeks. Nearly continuous outcrop occurs along the shoreline. Glacial overburden is extensive, though probably not very thick in most places.

APPENDIX "A"

STATEMENT OF COSTS OF THE GEOLOGICAL MAPPING & GEOCHEMICAL SURVEY

Salaries (as per Appendix "B") - includes supervision	\$ 6,972.67
Geochemical analysis - 357 samples @ \$4.50/sample	1,606.50
Groceries	1,488.41
Camp construction, supplies and equipment	1,789.57
Rental and maintenance of motor boats	338.00
Drafting and office work re map preparation	800.00
Typing	100.00
Overhead @ 0.2 (Salaries + Groceries)	1,692.21
Total	<u>\$ 14,487.36</u>

Apportionment of Costs:

Geological	-	\$ 2,025.00
Geochemical	-	12,462.36

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)
2 day of *Dec* A.D. 196*9*.)

P.S. Hist

John Surver
SUB-MINING RECORDER

APPENDIX "B"EVIDENCE OF EXPENDITURE INCURRED

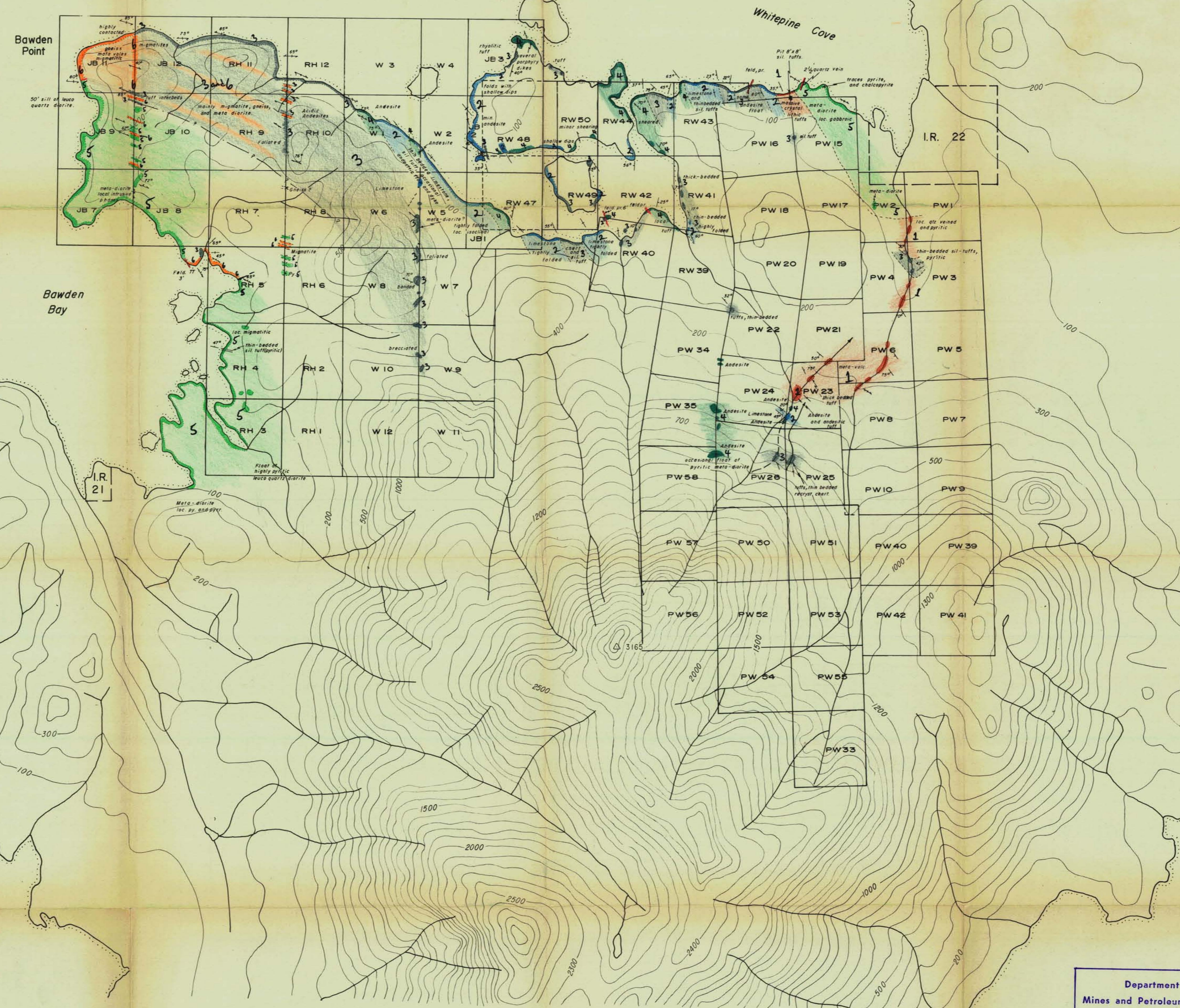
<u>Name</u>	<u>Category</u>	<u>Rate</u>	<u>Days Worked</u>	<u>Period</u>	<u>Total Wage</u>
P. E. Hirst	Consulting Geologist	\$ 90/day	9	July 17-July 25	810.00
J. Bucholz	Geologist	75/day	12	July 13-Aug. 16	900.00
P.C.M. Roberts	Geologist	70/day	16	July 24-Aug. 8	1,120.00
E. A. Ramsay	Geologist	75/day	11	July 13-25	825.00
H. Bucholz	Helper	550/mo.	34	July 13-Aug. 16	653.54
W. Gillies	Helper	600/mo.	34	July 13-Aug. 16	787.26
C. Teeple	Helper	450/mo.	35	July 13-Aug. 16	551.25
W. Raymond	Helper	550/mo.	26	July 13-Aug. 16	520.84
L. Yerks	Cook	550/mo.	8	July 13-July 20	159.48
O. Aasen	Cook	600/mo.	27	July 21-Aug. 16	645.30
Total					<u><u>\$6,972.67</u></u>

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)
2 day of *Dec* A.D. 1969.)

P. E. Hirst

John Sumner
SUB-MINING RECORDER



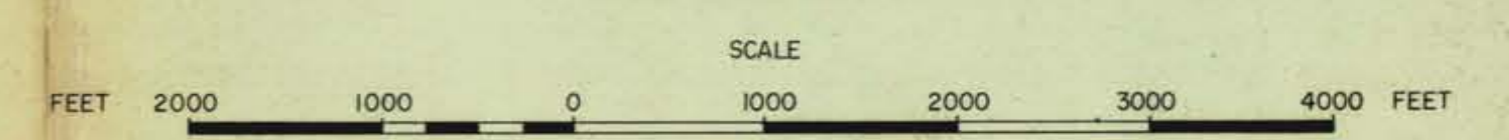
LEGEND

- 6 █ Migmatite and gneisses
- 5 █ Meta-diorite
- 4 █ Andesite (mainly), local tuff.
- 3 █ Siliceous tuffs and chert, mainly thin-bedded, pyritic.
- 2 █ Limestone, includes some thin-bedded siliceous tuff, and andesite flows, also andesite dikes and sills.
- 1 █ Undifferentiated Volcanics, mainly pyroclastics of andesitic and dacitic composition, some massive andesite.
- Feldspar Porphyry dyke
- Bedding, vertical, inclinal, overturned.
- Foliation, shearing, gneissic banding.

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ASSESSMENT REPORT
NO. 2116 MAP #2

FORT RELIANCE MINERALS LIMITED
CATFACE PROPERTY
ALBERNI M.D. B.C.
PW, RW, JB, RH & W CLAIMS
GEOLOGY



GEOLOGY BY P. C. M. ROBERTS & P. E. HIRST.

TO ACCOMPANY GEOLOGICAL & GEOCHEMICAL REPORT BY P. E. HIRST, P. ENG.
ON THE PW, RW, JB, RH & W CLAIMS
ALBERNI M.D. B.C. DATED DECEMBER 2, 1969



LEGEND

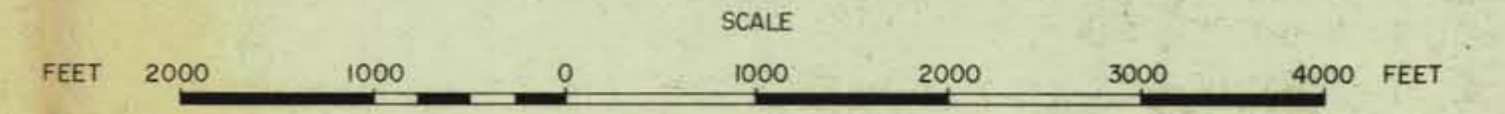
- STREAM SEDIMENT SAMPLE WITH ppm Cu, Zn, Mo, As
- > 100 ppm COPPER
- > 200 ppm Zinc
- > 6 ppm Molybdenum
- > 40 ppm Arsenic

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FORT RELIANCE MINERALS LIMITED
CATFACE PROPERTY
ALBERNI M.D. B.C.

PW, RW, JB, RH & W CLAIMS
STREAM SEDIMENT GEOCHEMISTRY



TO ACCOMPANY GEOLOGICAL & GEOCHEMICAL REPORT BY P.E. HIRST, P. ENG.
ON THE PW, RW, JB, RH & W CLAIMS
ALBERNI M.D. B.C. DATED DECEMBER 2, 1969

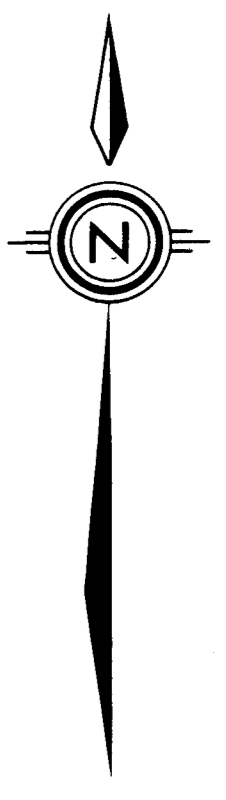
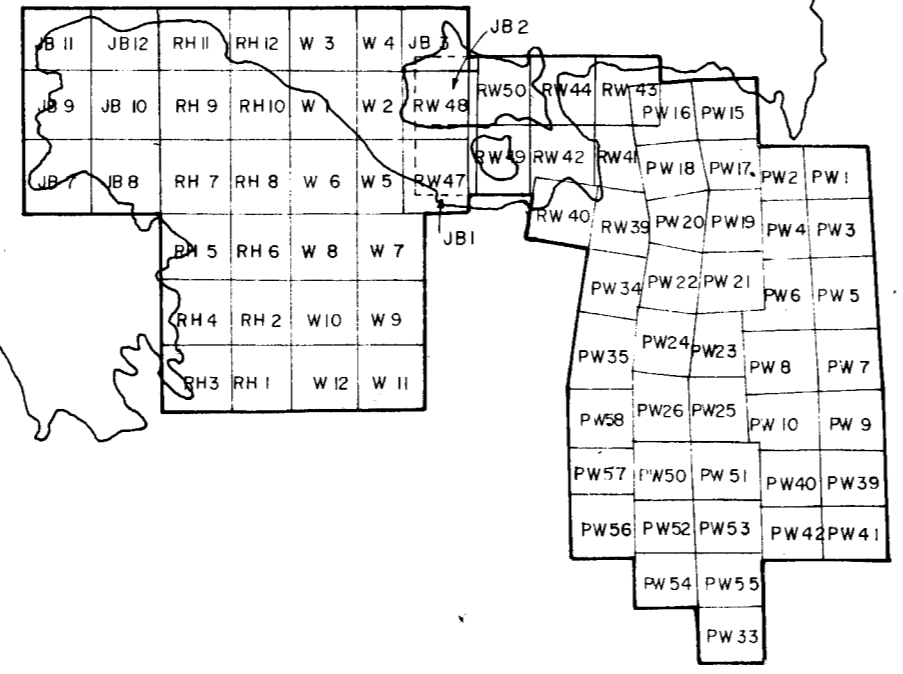
P.E. Hirst
Dec. 2, 1969

FLORES ISLAND

Ahousat

Marktosis

CATFACE PROPERTY



Sound
Bedwell

VARGAS ISLAND

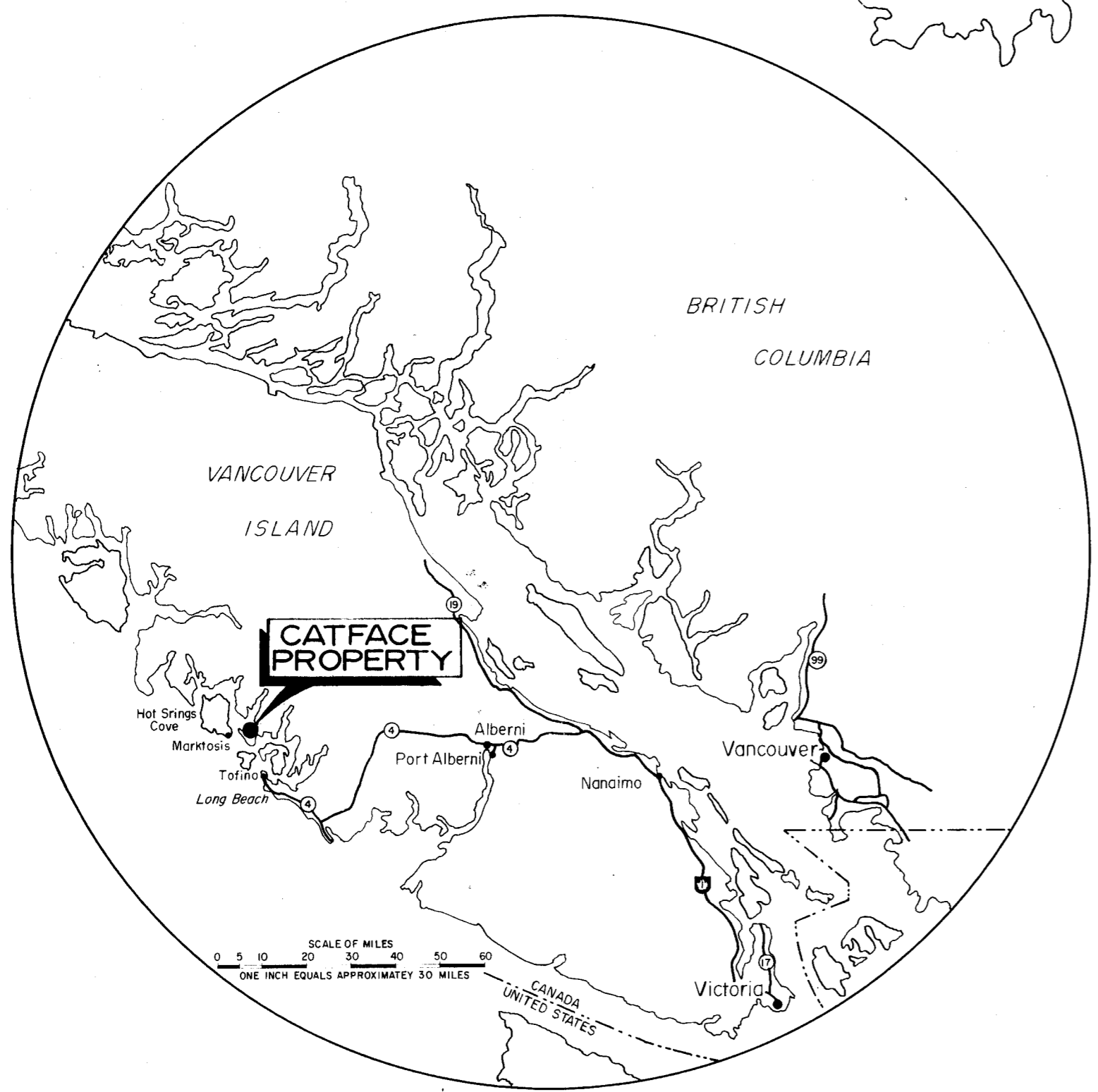
Yarksis

Opitsat

MEARES ISLAND

Clayquot

TOFINO

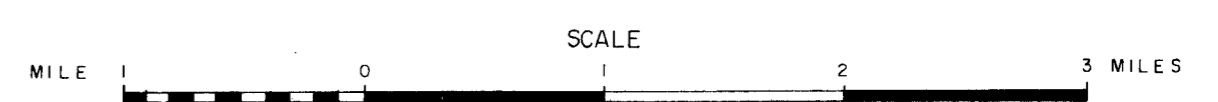


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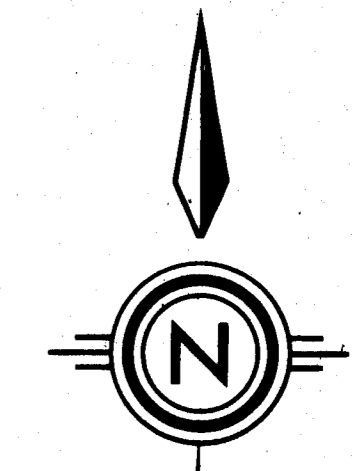
Department of
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ASSESSMENT REPORT
No. **2116** MAP # **1**

FORT RELIANCE MINERALS LIMITED
CATFACE PROPERTY
ALBERNI M.D. B.C.
PW, RW, JB, RH & W CLAIMS
PROPERTY LOCATION MAP

P.S. Hirst
Dec 2, 1969



TO ACCOMPANY GEOLOGICAL & GEOCHEMICAL REPORT BY P.E. HIRST, P. ENG.
ON THE PW, RW, JB, RH & W CLAIMS
ALBERNI M.D. B.C. DATED DECEMBER 2, 1969



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LEGEND

○ SOIL SAMPLE SITE WITH
14 ppm Zinc
9 ppm Arsenic

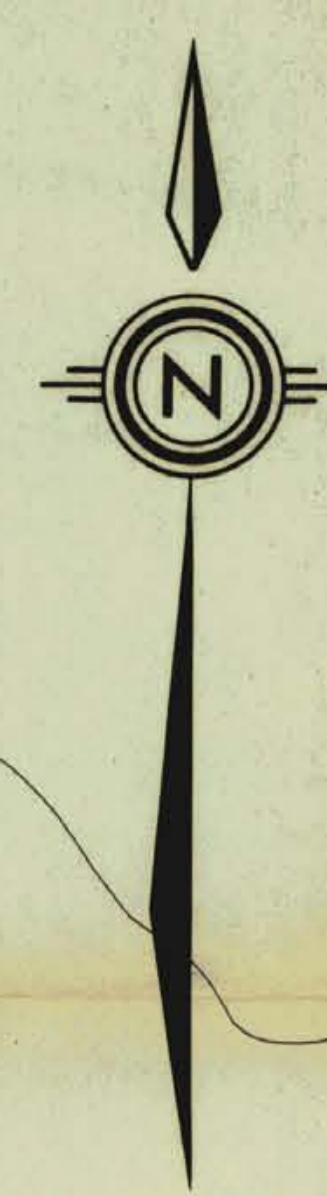
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NO. 2116 M.P. #4B

FORT RELIANCE MINERALS LIMITED
CATFACE PROPERTY
ALBERNI M.D. B.C.

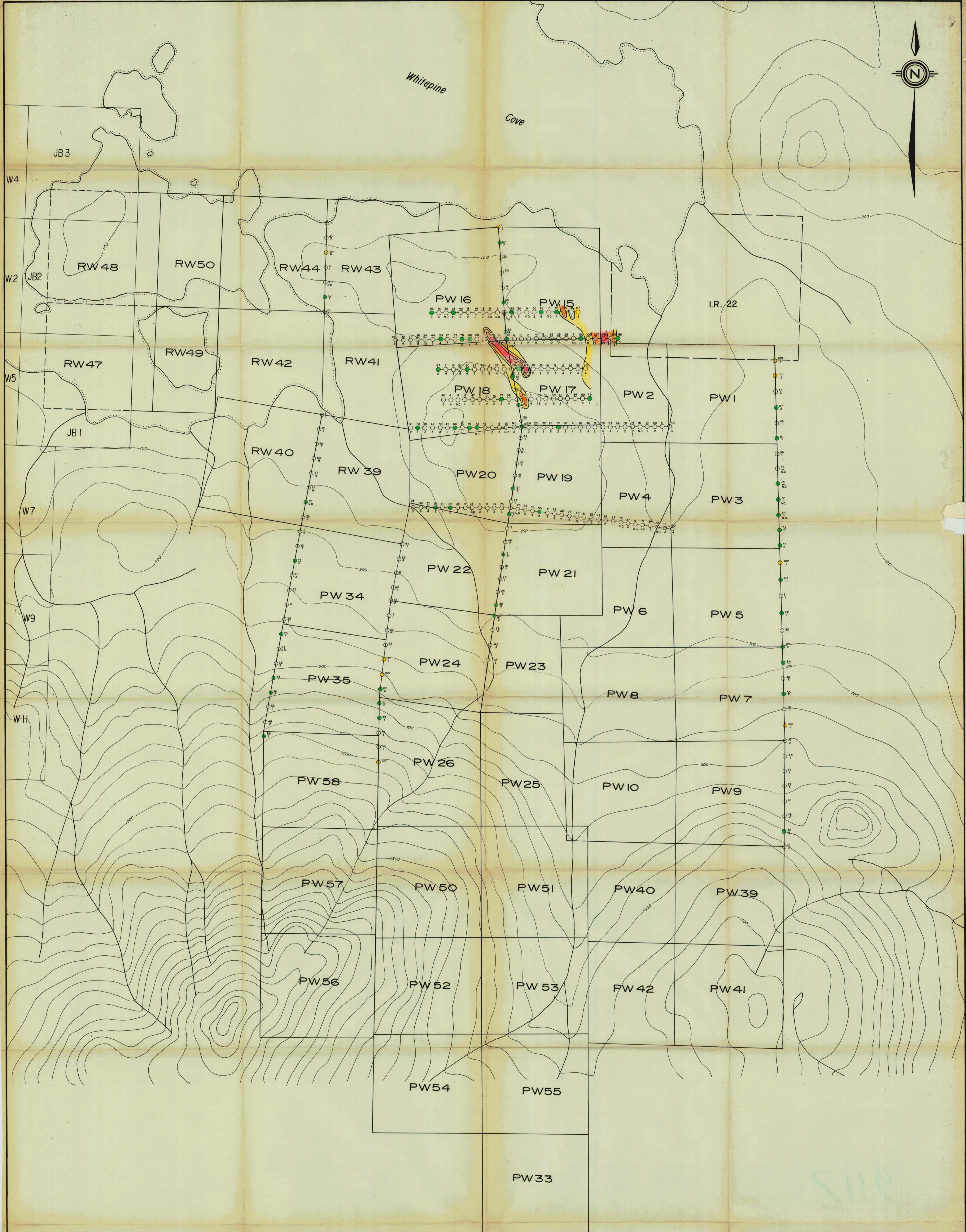
**PW, RW, JB, RH & W CLAIMS—WEST BLOCK
ZINC & ARSENIC SOIL GEOCHEMISTRY**

SCALE
FEET 800 400 0 400 800 1200 1600 FEET

TO ACCOMPANY GEOLOGICAL & GEOCHEMICAL REPORT BY P.E. HIRST, P. ENG.
ON THE PW, RW, JB, RH & W CLAIMS
ALBERNI M.D. B.C. DATED DECEMBER 2, 1969



Whitepine
Cove



LEGEND

- OP SOL SAMPLE SITE WITH 70ppm COPPER 2ppm MOLYBDENUM
- RANGE OF COPPER VALUES
- 0-50 ppm.
- 51-100 ppm.
- 101-200 ppm.
- 201-400 ppm.
- >400 ppm.

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FORT RELIANCE MINERALS LIMITED
CATFACE PROPERTY
ALBERNI M.D. B.C.

PW, RW, JB, RH & W CLAIMS—EAST BLOCK
COPPER & MOLYBDENUM SOIL GEOCHEMISTRY

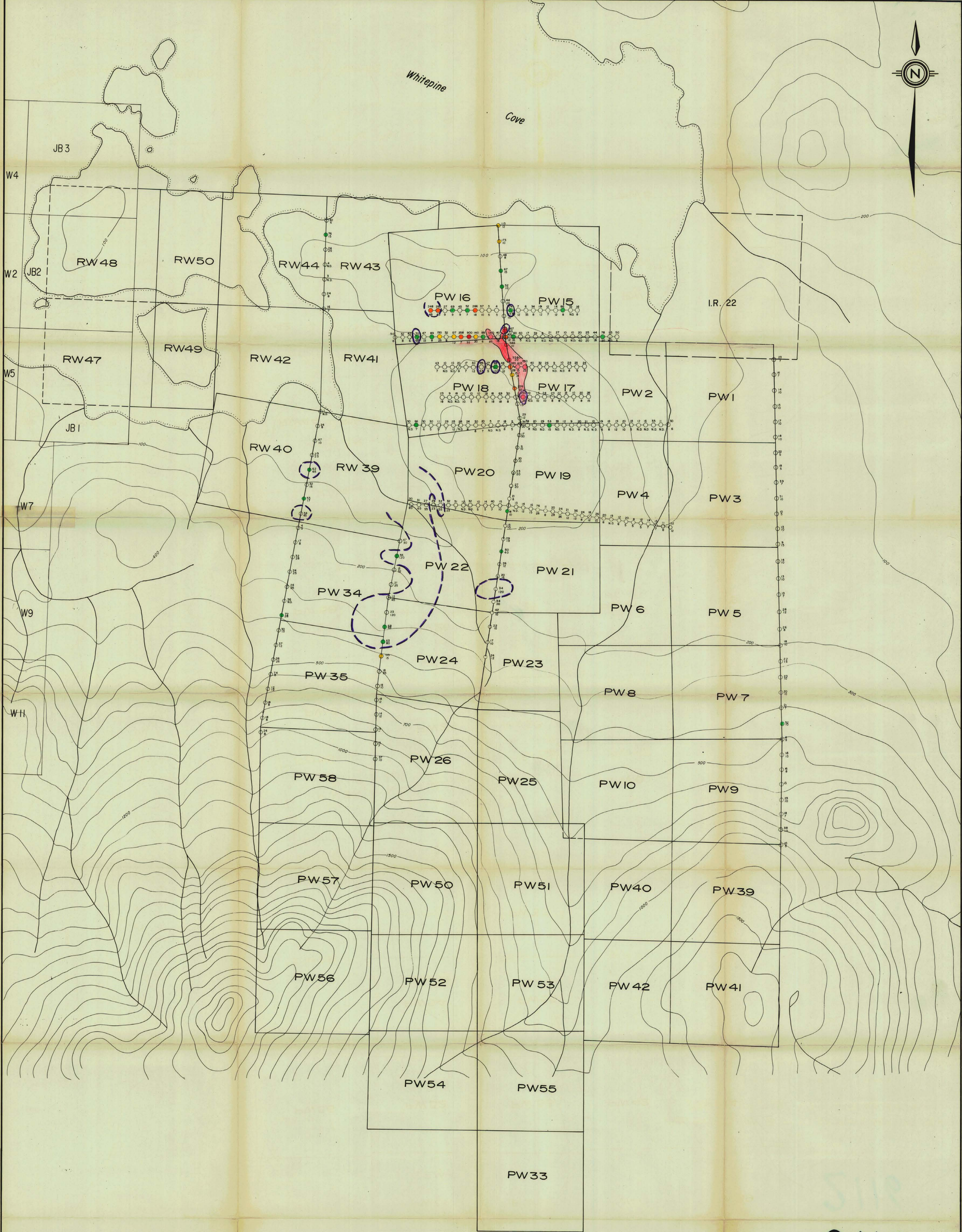
SCALE
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TO ACCOMPANY GEOLOGICAL & SEDIMENTOLOGICAL REPORT BY P.E. HIRST, P. ENG.
ON THE PW, RW, JB, RH & W CLAIMS
ALBERNI M.D. B.C. DATED DECEMBER 2, 1969



Whitepine

Cove



LEGEND

- SOL. SAMPLE SITE WITH 37 ppm Zinc 10 ppm Arsenic
- RANGE OF ZINC VALUES
- 0-50 ppm
- 51-100 ppm
- 101-200 ppm
- 201-400 ppm
- >400 ppm
- >40 ppm

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FORT RELIANCE MINERALS LIMITED
CATFACE PROPERTY
ALBERNI M.D. B.C.

PW, RW, JB, RH & W CLAIMS—EAST BLOCK
ZINC & ARSENIC SOIL GEOCHEMISTRY

SCALE
FEET 800 400 0 400 800 1200 1600 FEET

TO ACCOMPANY GEOLOGICAL & GEOCHEMICAL REPORT BY P.E. HIRST, P. ENG.
ON THE PW, RW, JB, RH & W CLAIMS
ALBERNI M.D. B.C. DATED DECEMBER 2, 1969



I.R.
21

2116

*J.S. Kirk
No. 2, 1969*

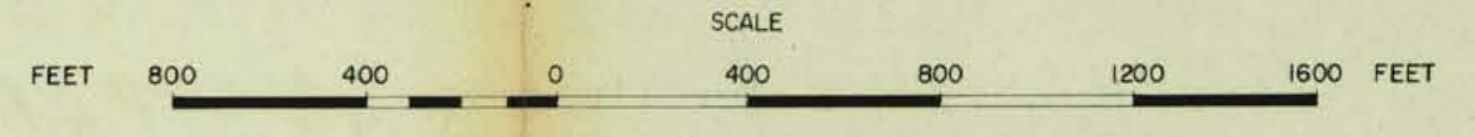
LEGEND

- ? SOIL SAMPLE SITE WITH 70 ppm. COPPER 2 ppm. MOLYBDENUM
- RANGE OF COPPER VALUES
- 0-50 ppm.
- 51-100 ppm.
- 101-200 ppm.
- SOIL SAMPLE CONTAINING > 12 ppm. Mo.

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FORT RELIANCE MINERALS LIMITED
CATFACE PROPERTY
ALBERNI M.D. B.C.

PW, RW, JB, RH & W CLAIMS—WEST BLOCK
COPPER & MOLYBDENUM SOIL GEOCHEMISTRY



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