

86-949-15470

11/87

ASSESSMENT REPORT

GEOLOGY OF THE COVE 2 & 4 MINERAL CLAIMS

ALBERNI MINING DIVISION

N.I.S. 92 F 5/W

Lat. 49° 17.8' 19"

Long. 125° 55' 45" 57.6'

Registered Owner: R.H. JANES (Cove 2)
W.G. BOTEL (Cove 4)

Operator: R.H. JANES, W.G. BOTEL, J.E. MULLER, H. VEERMAN

Prepared by: J.E. MULLER Ph.D. and W.G. BOTEL P.Eng.

December 1986

GEOLOGICAL BRANCH
ASSESSMENT REPORT

15,470

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SUMMARY

Recognition of Sicker Group rocks composed of extensive beds of rhyolite breccias of the Myra Formation in the Bedingfield Range on Catface Peninsula led to the staking and subsequent optioning of the Cypre claims to Cominco in 1985. Subsequent literature research indicated a geochemically interesting area on the south shore of Whitepine Cove. This area was staked in 1985 as the Cove claims more claims being added in 1986.

Geological reconnaissance revealed several outcrops consisting of limestone, chert, argillite and diabase accompanied in some cases with mineralization of pyrite, chalcopryrite, magnetite and malachite. One 2 foot diameter boulder consisting of massive sulphides - pyrrhotite, pyrite, chalcopryrite and trace sphalerite was particularly encouraging.

Further work by the operators showed the claim area to be underlain by the Sediment-Sill unit of the Buttle Lake Formation.

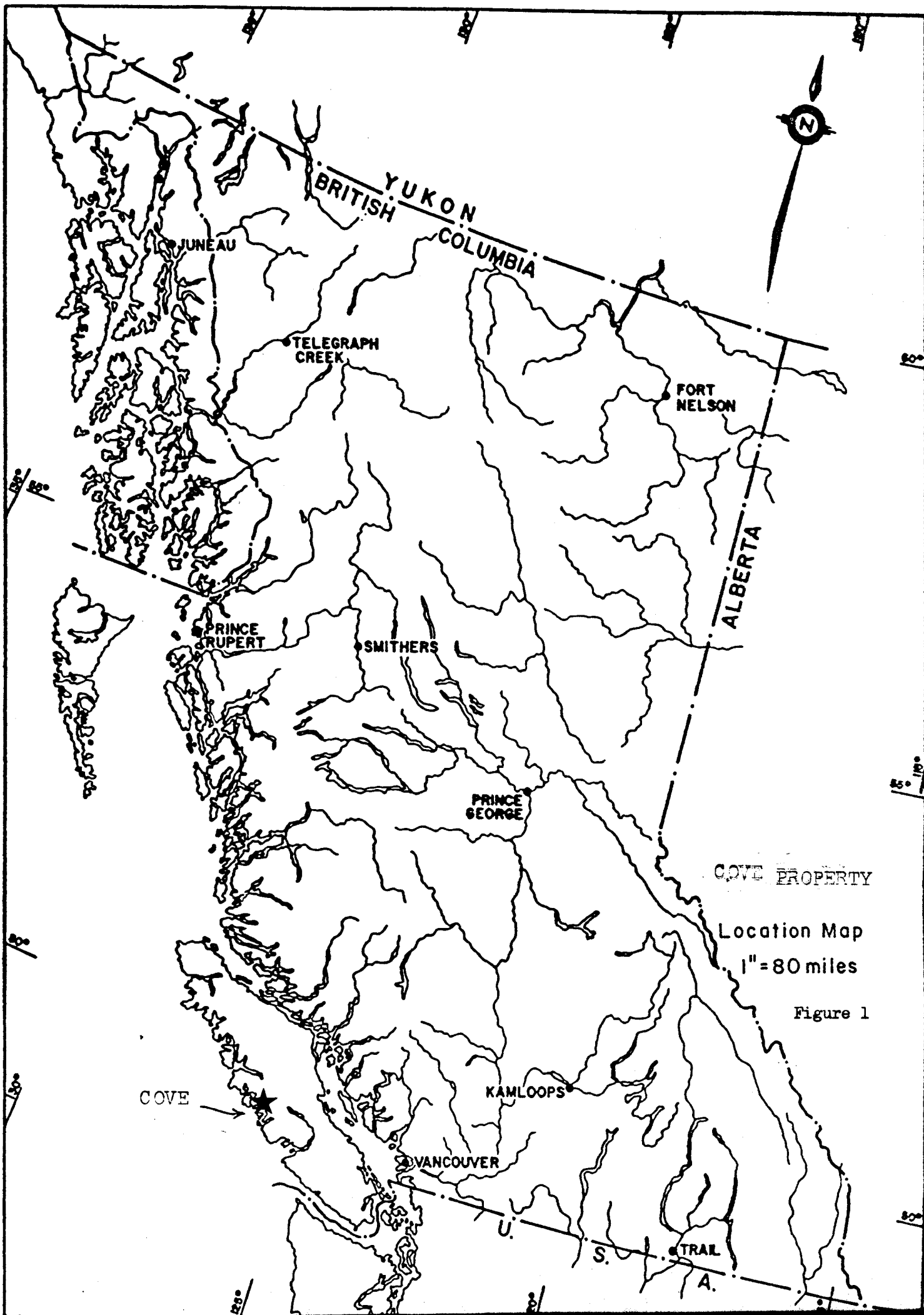
INTRODUCTION

The claims COVE 2 and COVE 4 are situated on tidal water on the west coast of Vancouver Island. They cover low hills between Catface Mountain to the south and Bedingfield Range to the northeast, on the peninsula between Herbert Inlet and Bedwell Sound. Access is by water from Tofino, 16km to the south of the claims and connected via the Alberni - Tofino highway with the main population centres of Vancouver Island.

Directly south of the claims, on Catface Mountain, is the Catface Copper-Molybdenum property, at present owned by Falconbridge Ltd. To the north are the the Cypre and Bedingfield claims, staked on the basis of extensive outcrops of rhyolite and rhyolite breccia in the Myra Formation of the Sicker Group. These claims are under option to Cominco Ltd.

The claims roughly coincide with PW and RW claims of Fort Reliance Minerals Ltd., staked in 1968 and 1969 and subsequently abandoned. Of the present claims Cove 2 was staked November 6, 1985 and recorded November 28, 1985. Claims Cove 1 and Cove 3, staked and recorded together with Cove 2 are being abandoned. Cove 4 was staked March 15, 1986 and recorded April 7, 1986. W.G. Botel, R.H. Janes, J.E. Muller and H. Veerman have equal interests in the claims.

The work done by the partners to date was of a geological reconnaissance nature, augmented with spot sampling of mineralized rock. Botel and Janes each worked March 11 to March 16, 1986, one fourth of the time being spent for staking Cove 4. Botel and Veerman worked again April 15 to April 17 and Janes and Muller April 27 to April 28. Botel spent two days and Muller four days preparing maps and report.



YUKON
BRITISH COLUMBIA

JUNEAU

TELEGRAPH
CREEK

FORT
NELSON

PRINCE
RUPERT

SMITHERS

PRINCE
GEORGE

ALBERTA

COVE PROPERTY

Location Map
1" = 80 miles

Figure 1

COVE

KAMLOOPS

VANCOUVER

U.S.
A.
TRAIL

GEOLOGY

Figure 2 is a map on scale 1 : 10,000 of the two claims with geological data collected by Botel, Janes, and Veerman, together with assay results of grabsamples of mineralized rock.

Figure 3 is a geological map on scale 1 : 20,000 of the claims and part of the Cypre River drainage area to the north. The map is a new interpretation of field data of Muller, Cominco geologists, and the data of figure 2.

The formation may be briefly described as follows (for more detail see Muller, 1980).

The Myra Formation is composed of varied, mainly volcanoclastic rocks, mainly of rhyolitic to dacitic composition. They range from fine grained, well bedded cherty tuffs to coarse breccias. Locally they contain interbeds of black argillite. The Myra Formation contains the massive sulphide orebodies of Western Mines (Westmin) at Buttle Lake and those of the Mount Sicker area near Duncan. It is possible that the extensive rhyolite tuffs and breccias of the Beddingfield area to the north of the Cove claims may be associated with similar orebodies.

The late Paleozoic Buttle Lake Formation forms the top of the Sicker Group and is composed of bedded, mainly clastic limestone interbedded with greywacke and siltstone. In the claim area the sediments are in many places intruded by intertonguing sills and dykes of metabasalt and diabase.

The Sediment-Sill unit is a stratigraphic unit composed predominantly of diabase sills with minor "interbedded" layers of, commonly silicified siltstone and/or limestone of the Buttle Lake Formation. The sills are thought to be comagmatic with the succeeding Upper Triassic Karmutsen basalts. Contacts between this unit and the Buttle Lake Formation are arbitrarily drawn on the basis of predominance of either diabase or sedimentary rock.

The Karmutsen Formation is the major succession of Upper Triassic basaltic rocks present in all parts of Vancouver Island. The rocks south of an inferred fault, just south of the claims and on the North face of Catface Mountain were earlier mapped by Muller (Muller and Carson, 1968) as part of the Sicker Group. These rocks are in part foliated amphibolite, suggestive of the lower part of the Sicker Group, but McDougall (1976) considered them more likely to be part of the Karmutsen Formation. That interpretation is adopted in this report on the basis of lithology of outcrops just south of the claims.

STRUCTURE

The structure of the claim area and the region as a whole must be considered in the light of recent interpretations viewing all of Vancouver Island as a major thrust-plate, underthrust first by the late-Mesozoic Pacific Rim Complex and subsequently by another complex of Tertiary volcanic and sedimentary rocks. The Westcoast Fault at the base of that thrust plate passes just south of Catface Mountain and the area under discussion is therefore near the edge of that plate.

The claim area is here considered to be a thrust-slice composed of sediment-sill, Buttle Lake, and perhaps Myra Formation rocks, positioned between two northeast dipping, possibly low-angle, thrusts, subsidiary and subparallel to the Westcoast Fault. The fault to the south of the claims carries Buttle Lake and Sediment-Sill rocks over the Karmutsen Formation and Catface Intrusions of Catface Mountain; the fault to the north carries the Myra Formation of Bedingfield Range over the rocks of the claim-block. Two major northeast striking cross-faults slice across the thrust-block to the northeast but do not affect the claim area. The rocks, in particular the bedded limestones, are commonly closely folded and the basic sills are severely fractured.

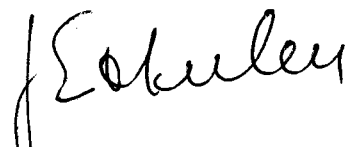
MINERALIZATION

Some sulphide mineralization with low but significant values in Au, Ag, Cu and Zn may well be located on thrustfaults. Of most interest is the location of samples 18205, 18206 and 18207. Sample 18205 yielded 0.1 g/tonne of Au, 3.8 g/tonne Ag, 0.54% Cu and 0.19%Zn. The location lies within a southeast trending zone of soils anomalous in copper, detected by the geochemical survey of Westervelt and Saleken (1970). The zone marks the trace of an inferred southeast striking fault.

An attractive, but somewhat far-fetched hypothesis might be that the Myra Formation with mineralization of polymetallic sulphides is present at depth and that some of the ore has been moved hydrothermally along the fault. On that premise further geochemical and geophysical exploration may be warranted.

CONCLUSIONS

Work to date has revealed some massive sulphide mineralization in a Sediment-Sill unit. The geochemical anomaly of Hirst (1969) and Westervelt and Saleken (1970) has not been definitely explained but may be due to leakage of metal rich fluids along a northwest trending fault zone. Future work should be concentrated in this area.


J.E. Muller, Ph.D


W.G. Botel, P.Eng.

Statement of Expenditures - Cove Claims APPENDIX A
NOV. 5-7, 1985

Food	91.10	
Lodging	79.65	Field Expenses of
Car	109.75	
Ferries	46.00	R.H. Janes, P.Eng.
Watertaxi	160.00	W.G. Botel, P.Eng.
Wages 2 men 3 days	1200.00	
Total	1686.50	

Field expenses 2/3 staking 1/3 geological	\$562.17
14, Dec. 85 assays	48.00

March 11-16, 1986

Food	214.68	
Lodging	48.15	Field Expenses of
Car	124.50	R.H. Janes, P.Eng.
Ferries	46.00	W.G. Botel, P.Eng.
Watertaxi	140.00	
Maps, supplies	27.45	
Wages 2 men 6 days	4800.00	
Total	5400.78	
Field expenses 1/4 staking, 3/4 geological	\$4050.58	

Mar 19, 1986 rock cutting and polishing	\$27.75
April 15, 1986 Copy work	\$34.36

April 15-17, 1986

Food	43.53	
Lodging	48.15	Field expenses of
Car	124.50	H. Veerman, P.Eng.
Ferries	46.00	W.G. Botel, P.Eng.
Watertaxi	150.00	
Telephone	12.00	
Wages 2 men, 3 days	2400.00	
Total	2824.18	\$2824.18

Mar 17 1986 rock cutting	\$4.75
April 26, 1986 report copy	\$1.12

April 27-28, 1986

Food	42.89	
Lodging	48.15	Field expenses of
Car	109.50	R.H. Janes, P.Eng.
Ferries	42.00	J.E. Muller, Ph.D.
Watertaxi	150.00	
Wages 2 men, 3 days	1600.00	
Total	1992.54	\$1992.54

Total expenses Cove claims 1985-1986	\$10983.28
Map and Report preparation by Muller, Janes and Botel 6 days at 400.00	\$2400.00

Total	\$13383.28
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Appendix C

STATEMENT OF QUALIFICATIONS

I, William G. Botel of Maple Ridge, British Columbia, do hereby certify:

1. That I am an independent qualified exploration geologist with an office at 307 - 402 West Pender Street, Vancouver, B.C.
2. That I am a registered Professional Engineer in the Province of British Columbia and a fellow of the Geological Association of Canada.
3. That I have practiced my profession for twenty eight years.



W.G. BOTEL, P.Eng.

APPENDIX B

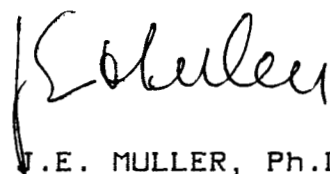
STATEMENT OF QUALIFICATIONS

I, Jan E. Muller of Vancouver, British Columbia certify that:

1. I am a geologist residing at 4692 Elm Street, Vancouver, B.C. and am currently working as a consultant.

2. I obtained my Bachelors Degree in Geology in 1938, University of Groningen, my Masters Degree in 1940, University of Leiden, the Netherlands, and my Doctorate Degree in 1942, University of Groningen, The Netherlands.

3. I was employed as a geologist with the Netherlands State Collieries, 1941 - 1945 and with Royal Dutch Shell Oil Company, 1945 - 1948. I was a geologist and research scientist with the Geological Survey of Canada 1948 to my retirement December 1981. My later work with the Geological Survey since 1963 consisted of reconnaissance mapping of all of Vancouver Island on a scale of 1 : 250,000 and publication of all maps and reports was completed in 1981.

A handwritten signature in cursive script, appearing to read 'J.E. Muller', with a vertical line extending downwards from the end of the signature.

J.E. MULLER, Ph.D.

APPENDIX D

REFERENCES

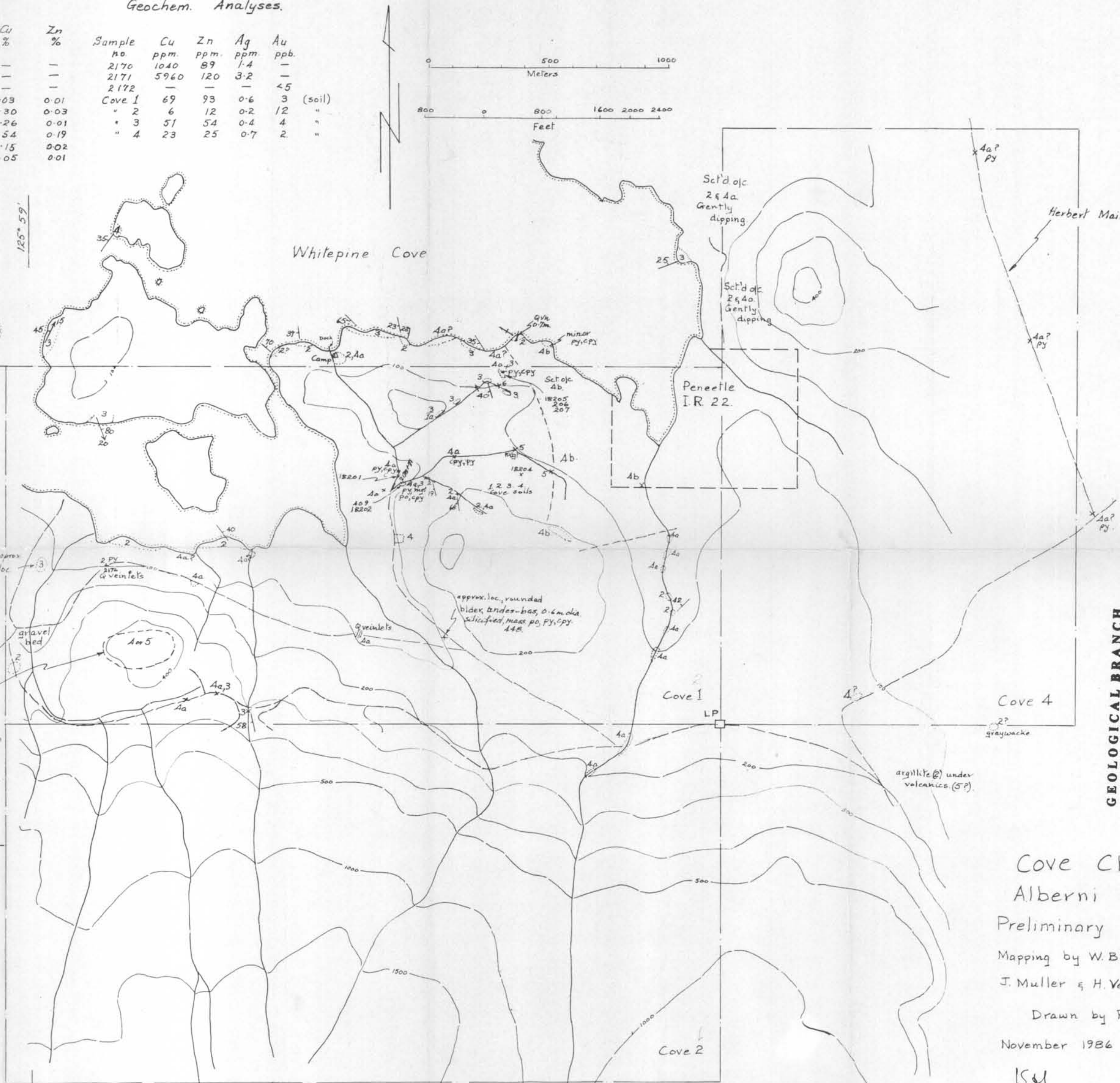
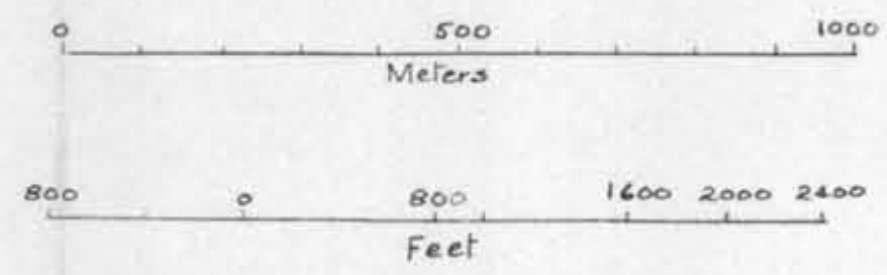
- Hirst, P.E.
1969: Geological and geochemical report, PW, RW, JB, RH, and W claims. British Columbia Department of Mines and Petroleum Resources, Assessment Report #2116.
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1976: Catface; in: A. Sutherland Brown, Editor; Porphyry Deposits of the Canadian Cordillera; Canadian Institute of Mining and Metallurgy, Special Volume #15.
- Muller, J.E.
1980: The Paleozoic Sicker Group of Vancouver Island, British Columbia; Geological Survey of Canada, Paper 79-30.
- Muller, J.E. and Carson, D.J.T.
1969: Geology and mineral deposits of Alberni map-area British Columbia (92f); Geological Survey of Canada, Paper 68-50.
- Sutherland Brown, A. and Yorath, C.J.
1985: Lithoprobe profile across southern Vancouver Island: geology and tectonics; in: Field guides to geology and mineral deposits in the southern Canadian Cordillera; Geological Society of America. Cordilleran Section Meeting, Vancouver, B.C., May '85. 1, p.8-1 -8-23.
- Westervelt, R.D. and Saleken, L.W.
1970: Magnetometer and geochemical report, Catface Claims - PW, RW, JB, RH & W Claims. B.C. Department of Mines and Petroleum Resources, Assessment Report 2454.

Rock & soil samples.

Assays.

Geochem. Analyses.

Sample no.	Au G/Tonne	Ag G/Tonne	Cu %	Zn %	Sample no.	Cu ppm	Zn ppm	Ag ppm	Au ppb
447	0.03	0.3	—	—	2170	1040	89	1.4	—
448	0.01	4.7	—	—	2171	5960	120	3.2	—
449	0.02	1.3	—	—	2172	—	—	—	<5
18201	0.03	0.7	0.03	0.01	Cove 1	69	93	0.6	3 (soil)
18202	0.03	3.4	0.30	0.03	" 2	6	12	0.2	12
18204	0.07	2.7	0.26	0.01	" 3	51	54	0.4	4
18205	0.10	3.8	0.54	0.19	" 4	23	25	0.7	2
18206	0.03	0.7	0.15	0.02					
18207	0.03	0.7	0.05	0.01					



Sill(4) or Karmutsen
Volcs. nests on seeds.
Contact at low angle,
sheared-faulted.

Legend

- 3 Butte Lk limestone
- 2 Argillite, siltstone, often pyritic, minor andes. volcs.
- 4b Metachertite sill
- 4a Fine to medium grained basic sill.
- 6 Dyke, gray, porphyritic.
- 5 Basalt (Karmutsen).
py pyrite, mgst magnetite.
cpy chalcopyrite, po pyrrhotite.

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**
15,470

Cove Cls. 1-4.
Alberni M.D., B.C.
Preliminary Geology.

Mapping by W. Botel, R. Janes,
J. Muller & H. Veerman.

Drawn by R. Janes.

November 1986 92F-5.

[Handwritten signature]

FIGURE 2

15,470

Figure 3
GEOLOGY OF COVE CLAIMS AND
ADJACENT BEDINGFIELD AREA

Tk Karmutsen Formation (pillow basalt, basaltic breccia, tuff; diabase)

PBL Buttle Lake Formation: bedded limestone (in part silicified, minor siltstone, argillite) (diabase sills)

PMss Sediment-Sill Unit: argillite, siltstone (2) diabase, metadiabase, amphibolite (4)

PM Myra Formation: dacite, rhyodacite, tuff and breccia, quartz-chlorite schist (argillite)

--- Geological Contact

- - - Fault

~ Bedding Plane

~ Schistosity

~ Fold axis, lineation

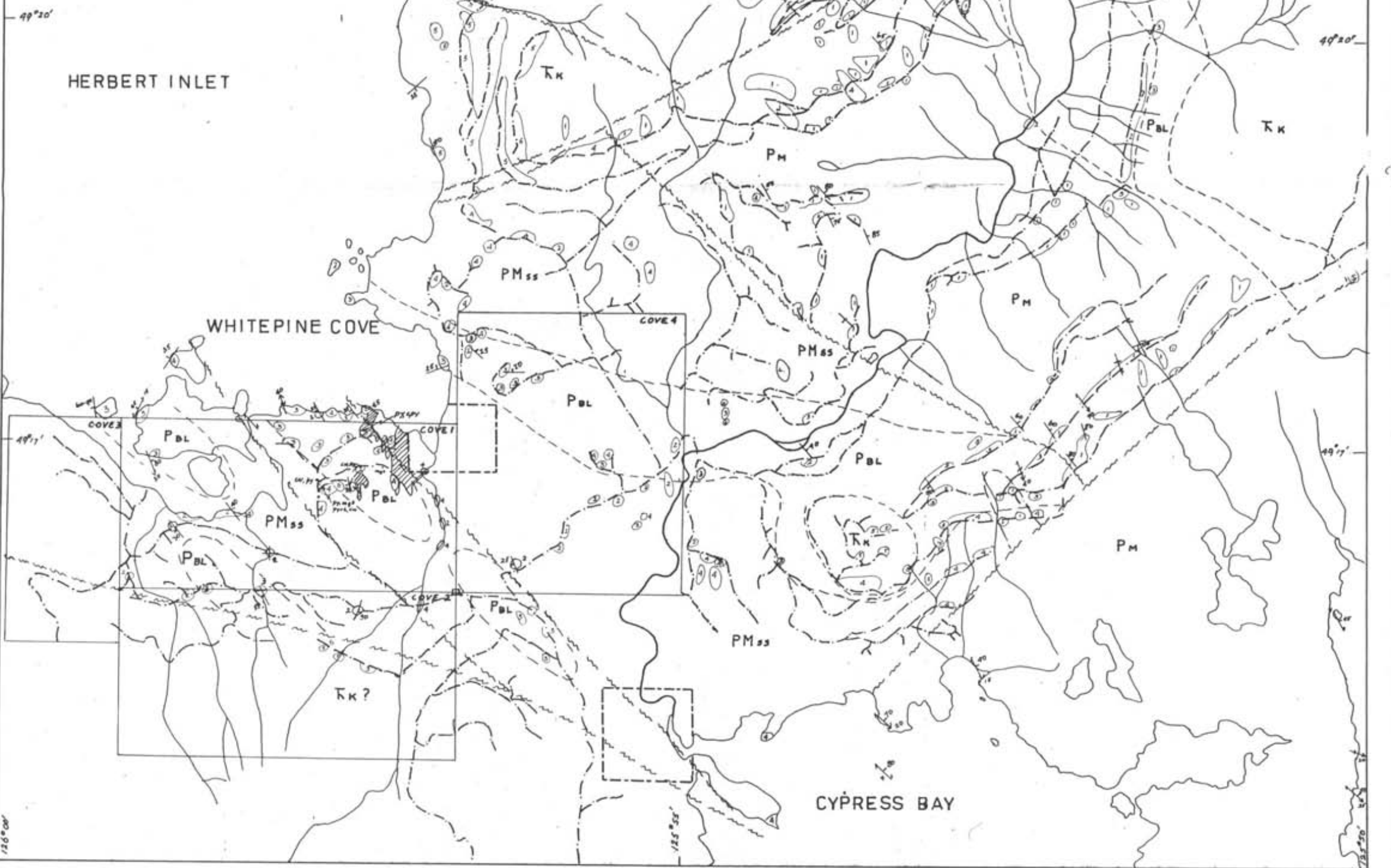
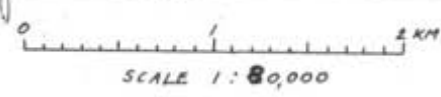
~ Coastline, stream

~ Logging road

○ CU > 100 ppm

compiled by J.E. Miller, 1988
 Available: A. Frazar, 1985
 P.O. Box 72, 1989
 W. Bore, R. W. Jones, 1988
 J. E. Miller, 1984, 1987, 1988, 1989

Est. 1988



HERBERT INLET

WHITEPINE COVE

CYPRESS BAY