

81-#70-#9087

A REPORT ON THE RESULTS  
OF THE 1980 RECONNAISSANCE GEOLOGY  
AND GEOPHYSICAL SURVEY ON THE  
GROUSE MOUNTAIN COPPERHILL PROPERTY

THE PROPERTY COMPRISES CROWN-GRANTED MINERAL CLAIMS:  
LAKEVIEW L. 6284, MAYFLOWER L. 6471, COPPER CROWN  
L. 6472, EUREKA L. 6473, RUBY L. 6474, GRANDVIEW  
L. 6475, CARIBOO L. 6476, LOWER L. 6477, MAISIE  
L. 7254 AND METRIC CLAIM GROUSE MNT. (2561 - MARCH)

MINING DIVISION: OMINECA  
N.T.S. LOCATION: 93L/10b  
LATITUDE: 53° 33' N  
LONGITUDE: 126° 44' W

OWNER: NORTHERN COPPER RIDGE MINES LTD.

OPERATOR: RAMM VENTURE CORPORATION

CONSULTANT/AUTHOR: I. BOROVIC, P.ENG., IGNA ENGINEERING & CONSULTING LTD.

DATE OF SUBMISSION: FEBRUARY 24, 1981

REVISED AND RESUBMITTED ON SEPTEMBER 9, 1981,  
IN RESPONSE TO M.M. LETTER DATED AUGUST 11, 1981

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(I) INTRODUCTION

Claims

The property is composed of 9 Crown-granted mineral claims and 2 recently (November, 1980) staked and recorded claims.

Following is the list of Crown granted and located mineral claims:

	<u>Rec.No</u>	<u>Type of Claim</u>	<u>Anniversary</u>
Eureka	6473	Crown Granted	July 2
Copper Crown	6472	Crown Granted	July 2
Cariboo	6476	Crown Granted	July 2
Mayflower	6471	Crown Granted	July 2
Ruby	6474	Crown Granted	July 2
Maisie	7254	Crown Granted	July 2
Grandview	6475	Crown Granted	July 2
Lakeview	6284	Crown Granted	July 2
Lower	6477	Crown Granted	July 2
Ramm 1 (18 units)	3403	Located	Dec. 8
Ramm 2 ( 4 units)	3404	Located	Dec. 8

Location (54°33' N Lat. and 126°44' W Long. NTS 93 1/10)

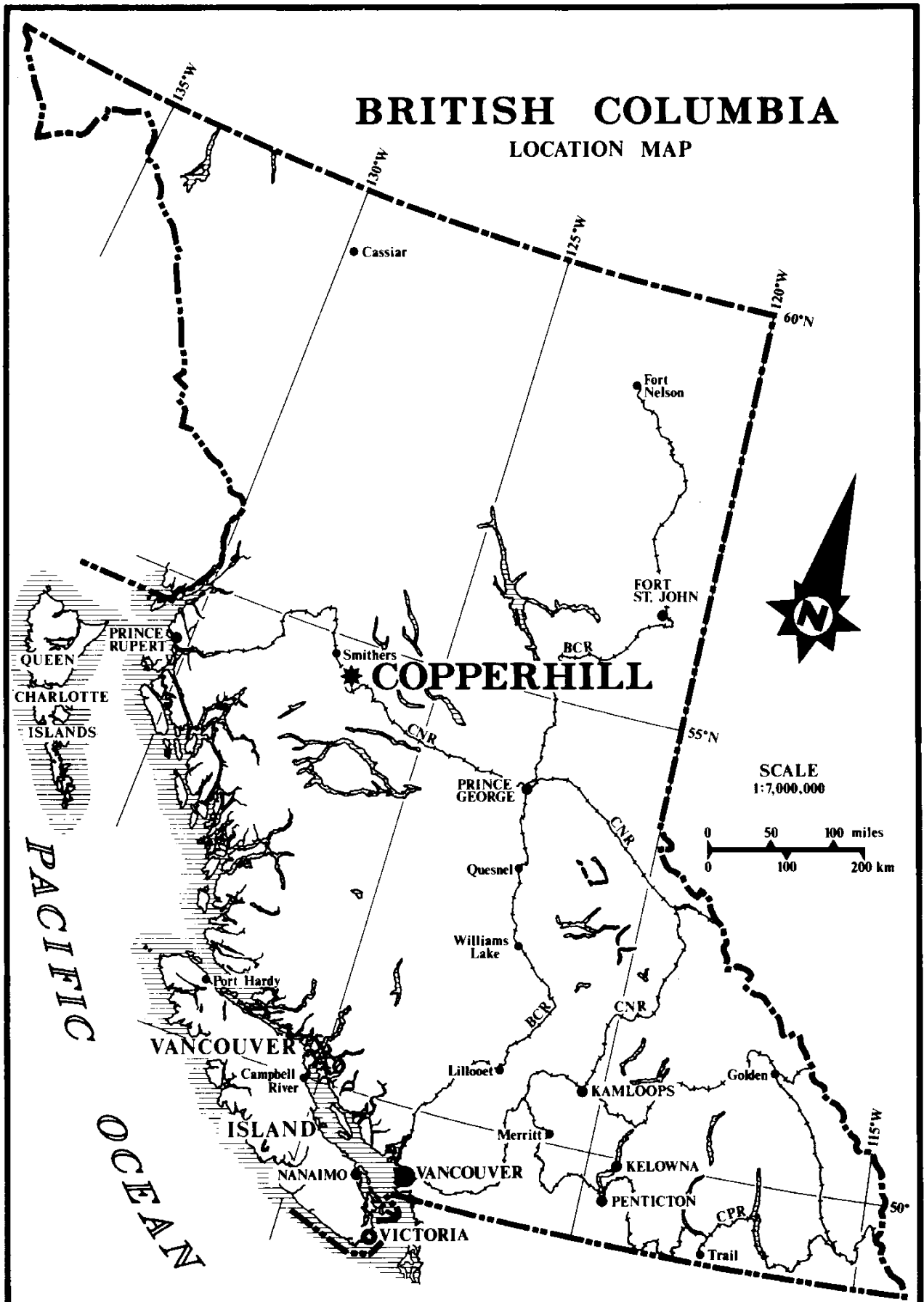
The Copperhill property (known also as "The Grouse Mountain" and "Copper Ridge") is located near the top of Grouse Mountain, approximately 8 road kilometres north of Highway #16, some 20 km north of Houston and 27 km southeast of Smithers, B.C.

Access

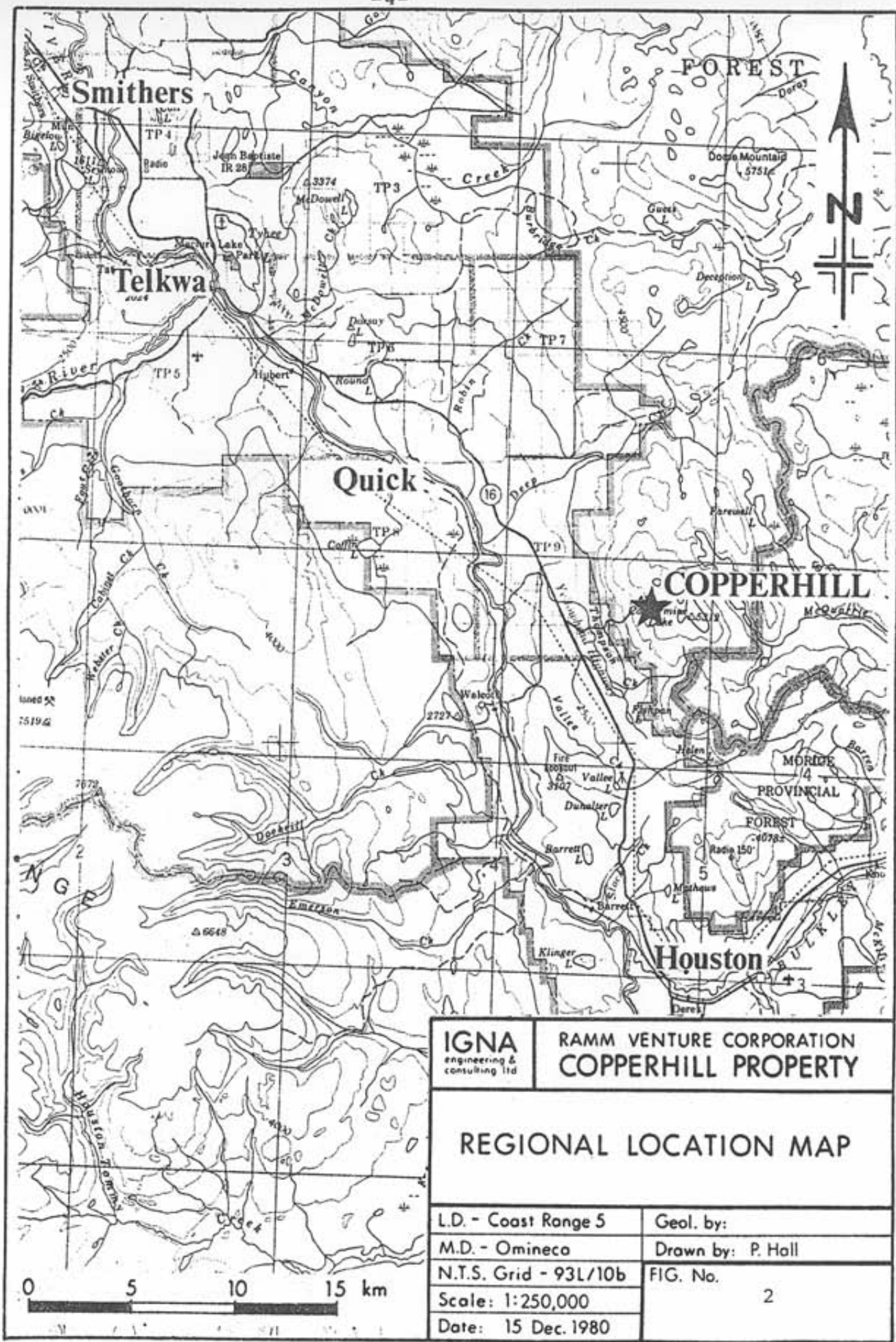
Highway #16 passes about three miles south-southwest of the property and at mile 17 east of Telkwa, (27.4 km) a 3.7 mile (6 km) 4x4 tote road branches off and leads to the property.

On C.N.R.'s northern line, in the Bulkley Valley, the station at Quick is only 7.7 miles (12.4 km) away. Daily service at this station used to be provided.

P.W.A. has a daily flight by 737 Boeing Jet into Smithers, a distance of only 27 miles (43.5 km) N.W. from the property.



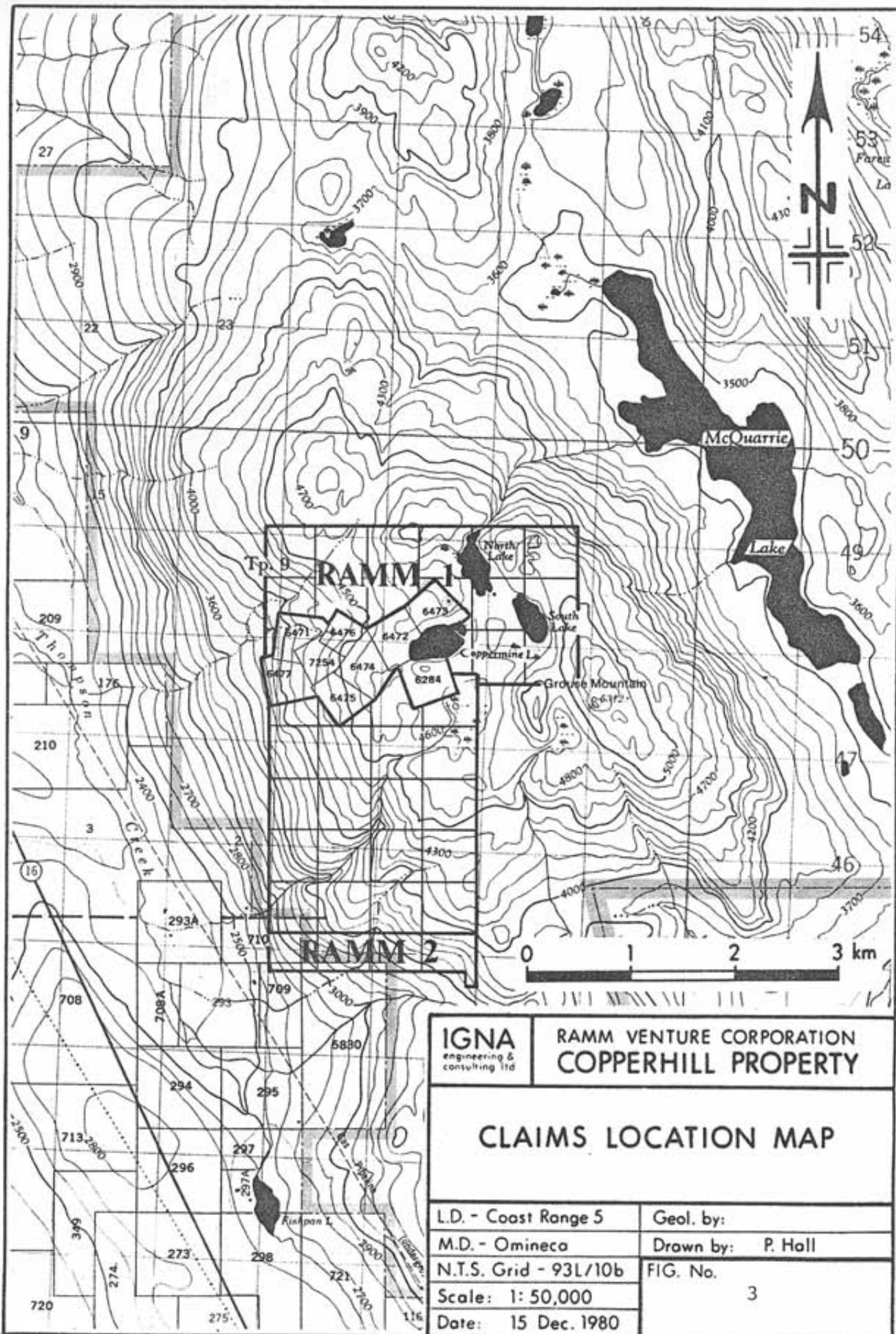
<b>IGNA</b> engineering & consulting ltd.	RAMM VENTURE CORPORATION	DATE
	<b>COPPERHILL PROPERTY</b>	FIG. No. 1



<b>IGNA</b> engineering & consulting ltd	<b>RAMM VENTURE CORPORATION</b> <b>COPPERHILL PROPERTY</b>
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## REGIONAL LOCATION MAP

L.D. - Coast Range 5	Geol. by:
M.D. - Omineca	Drawn by: P. Hall
N.T.S. Grid - 93L/10b	FIG. No. 2
Scale: 1:250,000	
Date: 15 Dec. 1980	



<b>IGNA</b> engineering & consulting ltd	<b>RAMM VENTURE CORPORATION</b> <b>COPPERHILL PROPERTY</b>
<b>CLAIMS LOCATION MAP</b>	
L.D. - Coast Range 5	Geol. by:
M.D. - Omineca	Drawn by: P. Hall
N.T.S. Grid - 93L/10b	FIG. No.
Scale: 1: 50,000	3
Date: 15 Dec. 1980	

(II) GEOLOGY

General Geology (Tipper, H.W. and Richards, T.A., 1976)

Grouse Mtn. area is underlain by the rocks of Babine Shelf facies, Telkwa Formation, Hazelton Group, ranging in age from Simenurian to Callovian (Middle Lower Jurassic to Upper Middle Jurassic). Predominantly subaqueous and subaerial pyroclastic rocks are intercalated with marine sediments and intravolcanic non-marine sediments. As exposures are poor, stratigraphic relations are conjectural.

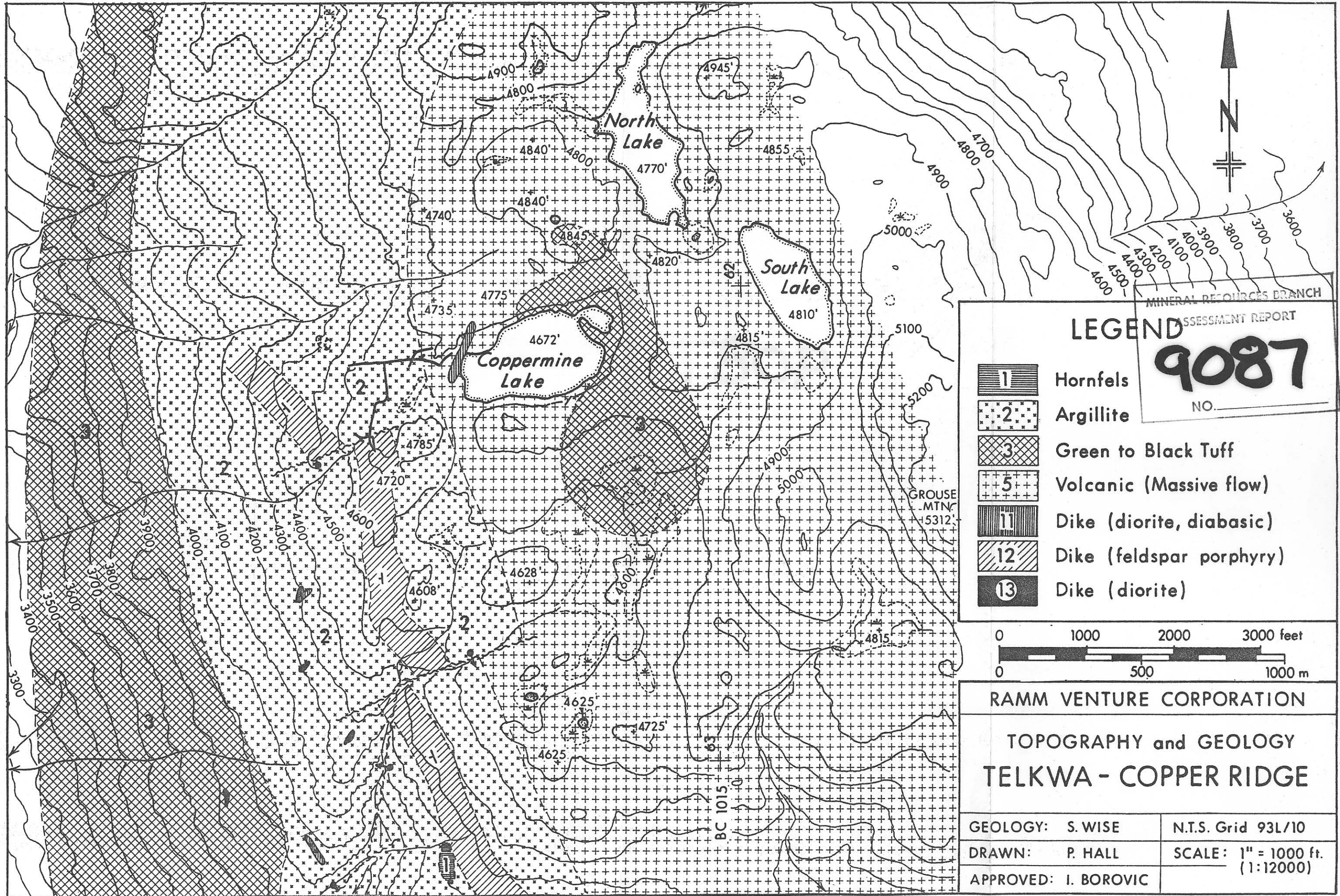
The Babine Shelf facies is better understood in the area of Dome Mtn. and can be applied to the area of Grouse Mtn.

Dome Mtn. Area

Two volcanic members may be present. A lower assemblage combines interbedded, red, maroon, purple, grey and green tuff and breccia with interbeds of shale and grey-wacke. Discontinuous limestone beds and lenses in places with a pelecypod and ammonite fauna, are common. This unit is overlain by about 100 m of black shale, separating it from a second volcanic member estimated to be 900 m thick, of mainly green aquagene tuff, breccia and flows at the base, grading upward into a mainly subaerial assemblage of reddish coloured lapilli tuff and fine to medium-grained (basaltic to rhyolitic) breccia and flows. Elsewhere, the separation of the volcanics into two members is not possible.

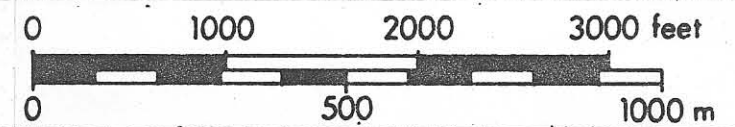
The transition zone between the Howson subaerial facies to the west, and the Babine Shelf facies is a broad (5 km) arcuate belt





MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT  
**9087**  
NO. \_\_\_\_\_

- |  |                             |
|--|-----------------------------|
|  | 1 Hornfels                  |
|  | 2 Argillite                 |
|  | 3 Green to Black Tuff       |
|  | 5 Volcanic (Massive flow)   |
|  | 11 Dike (diorite, diabasic) |
|  | 12 Dike (feldspar porphyry) |
|  | 13 Dike (diorite)           |



RAMM VENTURE CORPORATION

TOPOGRAPHY and GEOLOGY  
TELKWA - COPPER RIDGE

GEOLOGY: S. WISE	N.T.S. Grid 93L/10
DRAWN: P. HALL	SCALE: 1" = 1000 ft. (1:12000)
APPROVED: I. BOROVIĆ	

with limestone reef and reefoid bodies, marine sediments with shell coquinas and minor aquagene tuff interfingered with the prominent reddish coloured volcanics typical of the subaerial facies. This belt defines the western-most extent of Sinemurian marine advance in the Hazelton Trough.

Property Geology (Geological Map 1" = 100 feet, by  
S. Wise Canex Aerial Exploration Ltd.,  
Placer Development Ltd.)

Thinbedded "massive" sediments of Babine Shelf facies are cut by numerous dykes and sills of the probable Lower Cretaceous Bulkley Formation.

The sediments are grey and green tuffs, sandstones, argillites and agglomerates.

Two larger Feldspar porphyry dykes outcrop and were drilled through at the south end of the Ruby Zone. Several lamprophyre dykes were encountered underground.

### Structure

The sediments dip to the south and southwest at about 15°. Fracture cleavage is well developed. There are many small faults with minor displacement but a major fault runs through the Number 2 level for about 500 feet and could have a major displacement role.

### Mineralization

Mineralization occurs in well-bedded, green tuffs. The tuffs have been intruded by parallel Feldspar porphyry dykes.

Mineralization consists in some places mainly of chalcopyrite, in some mainly of sphalerite. Moderate silver values are present.

The mineralization veins are from a few inches to several feet wide and often pinch out. The strike of the veins is from E to NE with dips from 50 to 70 degrees. Vein paragenesis is quartz, calcite, sphalerite, pyrite, chalcopyrite and galena. Disseminated sulphides occur between the veins. Ruby Zone mineralization appears to be open to the NE and at depth.

### (III) EXPLORATION HISTORY

#### Work Done in the Past

Some 15,000 feet of diamond drilling and 3700 feet of underground work was done on the Copperhill Property from 1914 until 1951.

#### Drilling Summary:

Schorn	300 feet in 3 holes
Lakeview	1545 feet in 14 holes
Eureka	306 feet in 3 holes
Cariboo	182 feet in 2 holes

(1) Ruby Zone

Most of the work has been done on this zone. The zone consists of many nearly parallel veins with sphalerite, chalcopyrite and galena. Drilling has proved the ore-body of 360,000 tonnes containing 0.88 oz/t Ag, 0.38% Cu, and 4.23% Zn.

(2) Copper Crown Zone

Chalcopyrite is more abundant in this zone which appears to be NE extension of the Ruby Zone.

(3) Schorn Zone

The zone is located at the west end of Coppermine Lake and appears to be narrower than Ruby.

(4) Lakeview Zone

The zone is located on the south shore of the Coppermine Lake, 900 feet E of the Schorn Zone. Two parallel zones, about 50 feet apart, were explored by an adit and 14 drill holes. Ore grade (?) mineralization was indicated.

MINERALIZATION RESERVES

Mineralization reserves were calculated only for Ruby Zone.

Hill and Starck (1961):

In 1952, staff of Copper Ridge Silver Zinc Mines Ltd. estimated total of 323,000 tons of drill-indicated mineralization with average grade of 1.06 oz/t silver, 0.44% copper and 4.45% zinc. Possible mineralization totalled an additional 60,000 tons.

Recoverable reserves were estimated at:

	<u>TONS</u>	<u>oz/t Ag</u>	<u>% Cu</u>	<u>% Zn</u>
Open Pit	176,705	0.74	0.31	4.44
Underground	51,115	0.78	0.36	4.01
Combined Totals	227,820	0.75	0.32	4.35

L. G. White (1965):

From diamond drill sections made every 50 feet underground and every 100 feet on the surface; two underground levels and raises, an estimated 232,900 tons was blocked out. The average grade was 0.73 oz/ton Ag, 0.31% Cu, and 4.25% Zn.

I. Borovic (1979):

Combining 13 cross sections and eight 25 foot benches in calculating mineralization reserves of the Ruby Zone, the following results were obtained:

<u>BENCH</u>	<u>oz/t Ag</u>	<u>% Cu</u>	<u>% Zn</u>	<u>TONNAGE</u>
4575'	0.58	0.32	4.49	12,500
4550'	0.82	0.41	4.68	42,000
4525'	0.91	0.45	4.68	52,500
4500'	0.88	0.39	4.45	50,000
4475'	0.87	0.33	4.37	52,500
4450'	0.70	0.26	4.17	50,000
4425'	0.80	0.38	3.65	42,000
4400'	1.78	0.60	2.64	21,000
<u>Average grade:</u>	<u>0.88</u>	<u>0.38</u>	<u>4.23</u>	
			<u>TOTAL:</u>	<u>322,500</u>

This total of 322,500 tons includes drilled, indicated, proven, and probable reserves.

In the writer's opinion, only about 60,000 tons of the total could be classified as probable. Additional tonnage is expected at depth and to the northeast toward Copper Crown Zone.

Assuming an 85% recovery and today's prices of \$10.00/oz. of Ag, \$0.80/lb of Cu, and \$0.60/lb of Zn, the value of one ton of ore is \$55.82.

I. Borovic (1980):

As a result of new information, additional tonnage of about 8 - 10,000 tons of ore grade material was added to the original 1979 estimate.

(IV) 1980 EXPLORATION PROGRAMME

Work Done in 1980 (see Location of Workings Map)

Exploration work started late in the season and was successful in completing only part of the author's 1979 recommended programme.

The following work was done:

(1) Line Cutting:

Three exploration grids were cut by Ramm's personnel.

Number 1 Base line parallels the Ruby Zone orebody structure.

Number 2 Base line was cut over the Lakeview Zone  
(Area "A", see 1:5000 map)

Number 3 Base line is located at the northeast extension of the Ruby Zone and is offset to the east for 60 m. The base line is parallel to Number 1 Base line and covers area "B" on the map.

(2) Detail geological mapping was done on the area "A" and "B". All mineral showings were examined (see detail maps for areas "A" and "B").

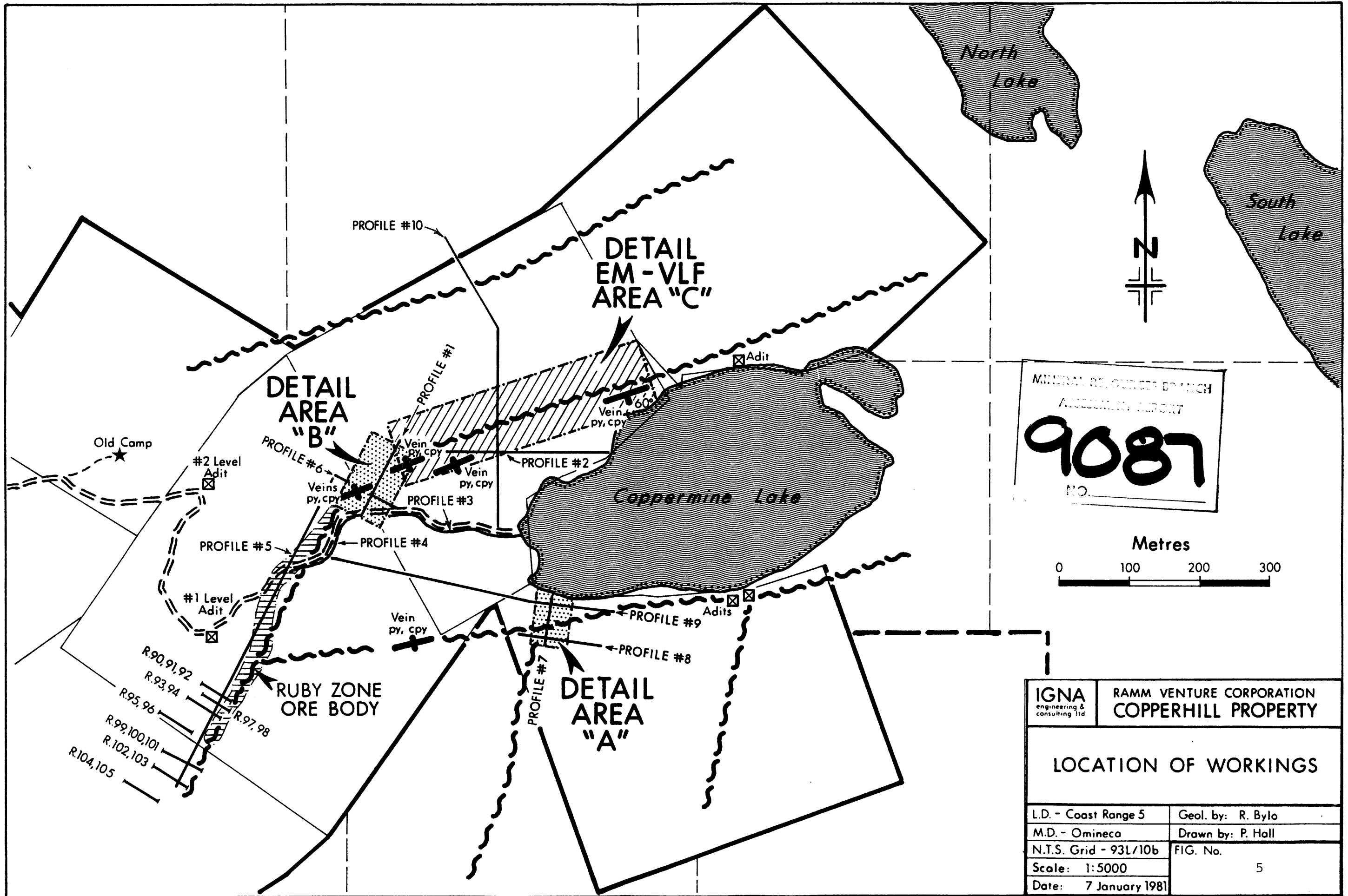
(3) Crone RADEM-EM-VLF unit was run over a portion of the property (see Location of Workings Map), and Hawaii was elected as the best station for this particular property.

Ten profiles were run and a total of 215 readings were taken at 10 m intervals. About 2.0 km of reconnaissance

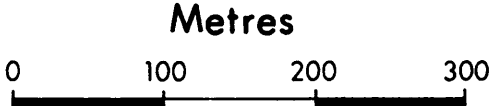
survey was accomplished. The Fraser Filtration Technique was used to assist in filtering out geological noise. The peaks found represent distinct conductors, very possibly mineralized.

- (4) Adits #1 and #2 were opened and secured for inspection and evaluation.

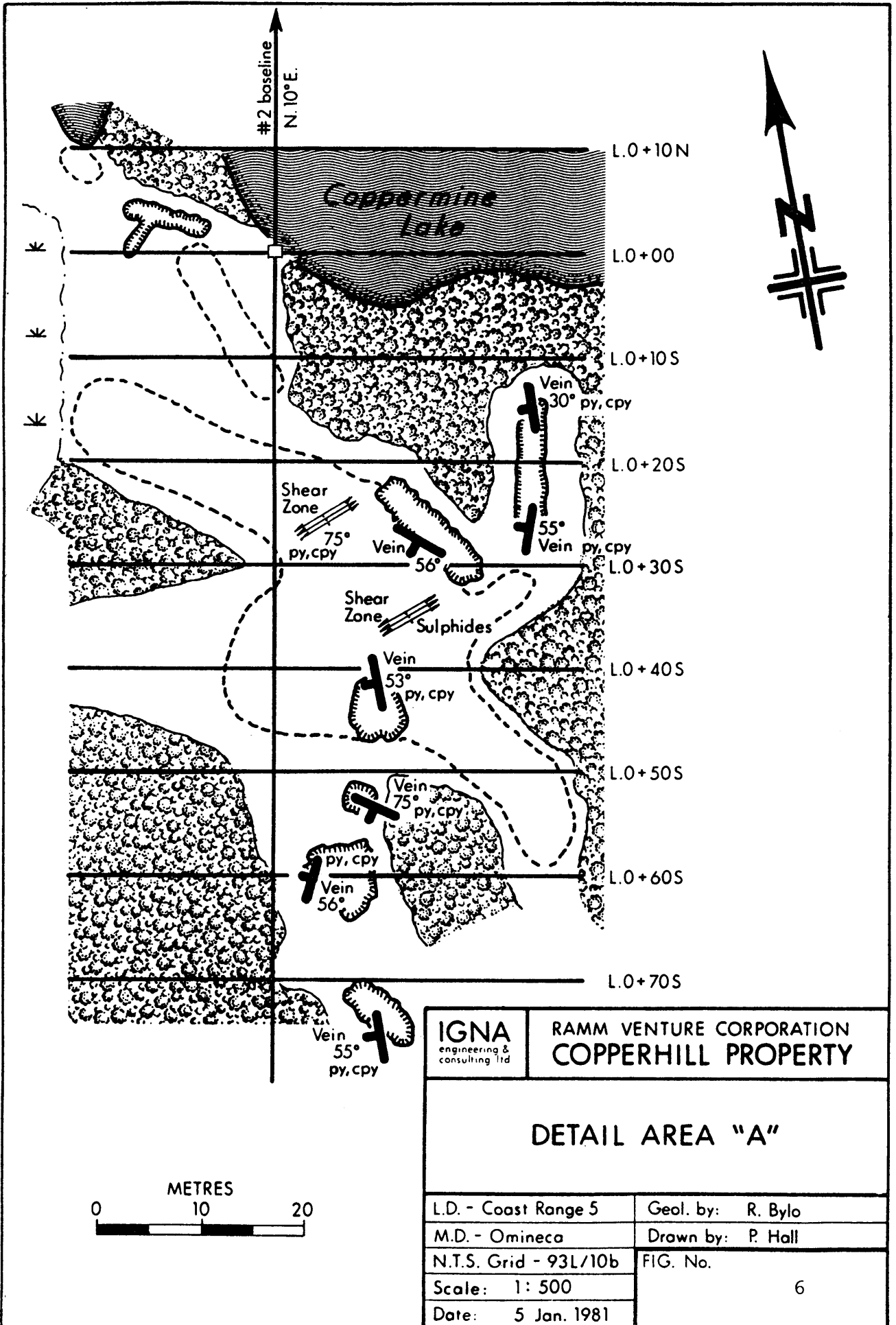


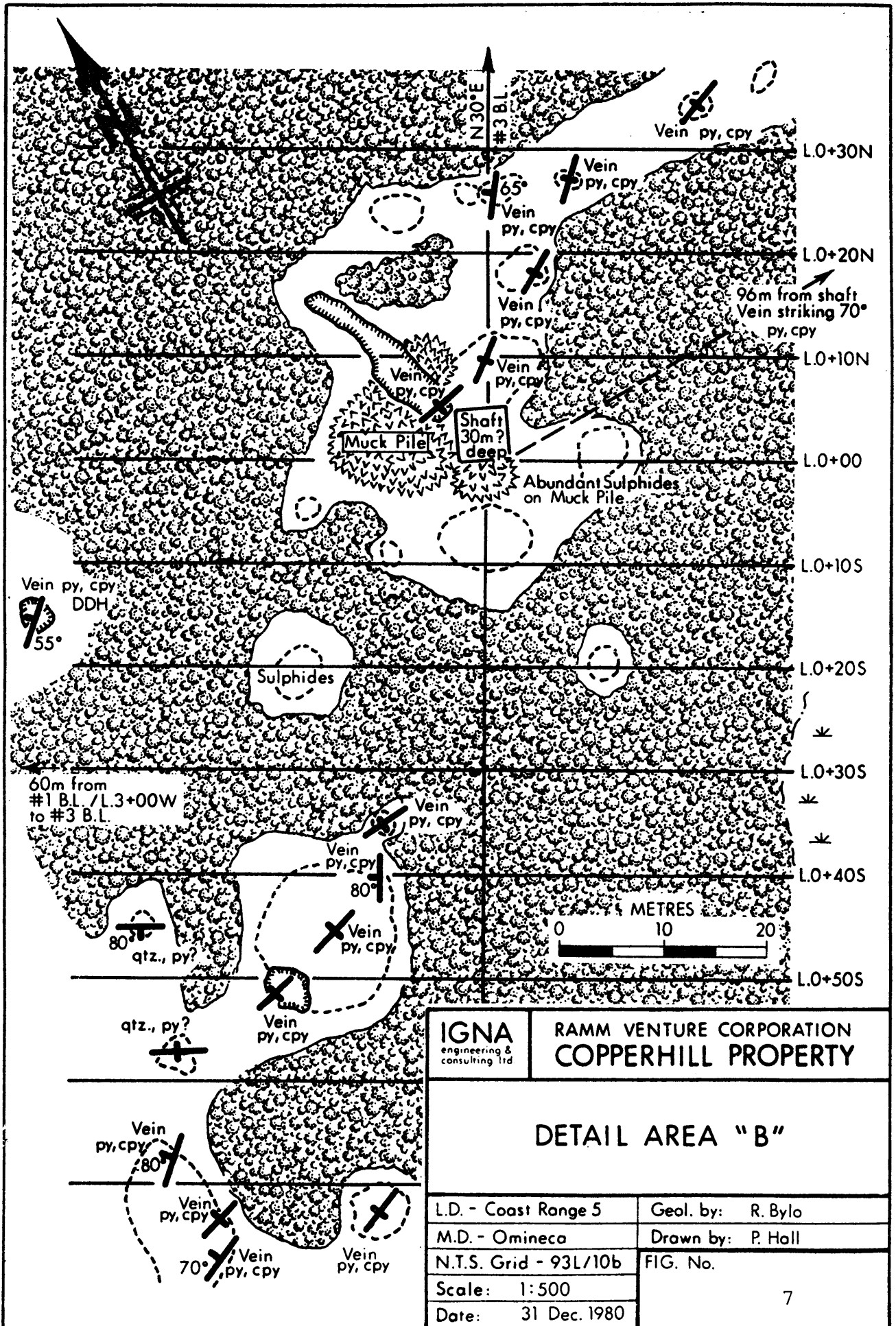


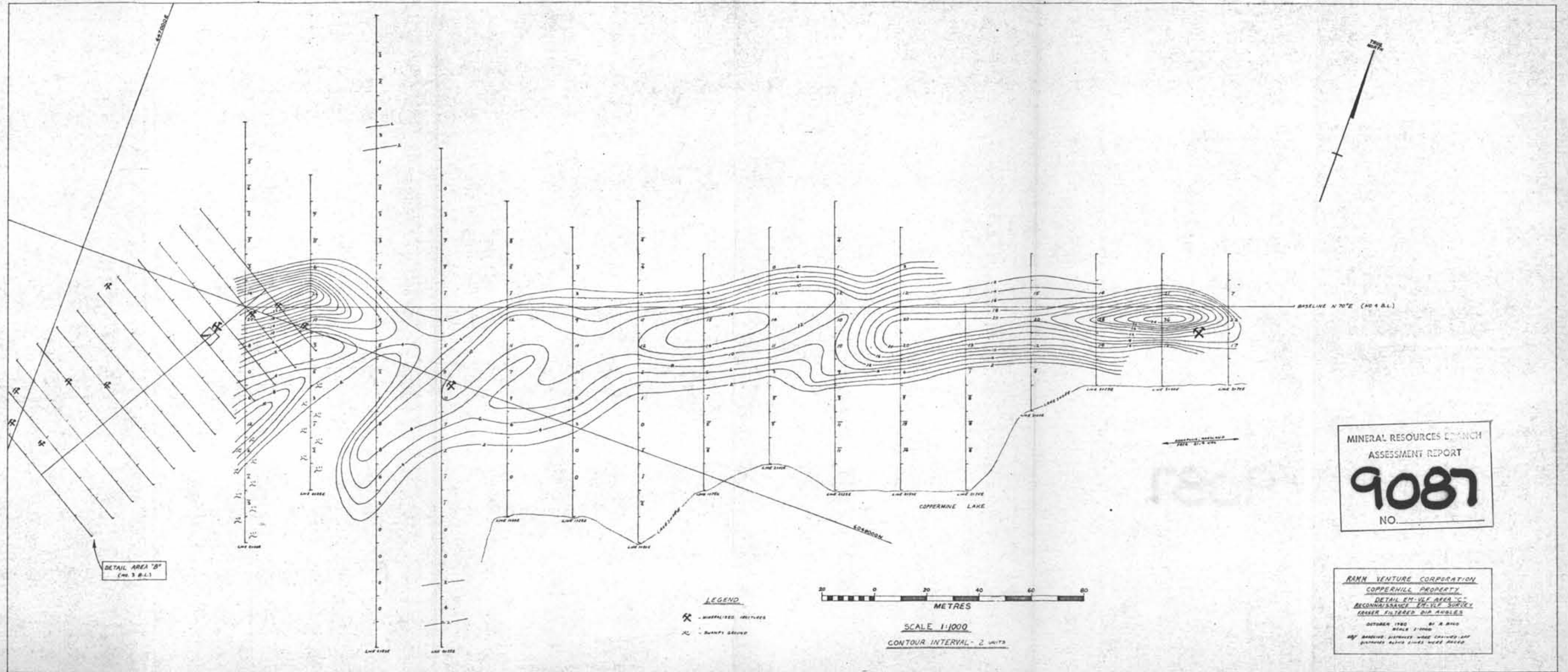
MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT  
**9087**  
NO.



IGNA engineering & consulting ltd	RAMM VENTURE CORPORATION COPPERHILL PROPERTY
LOCATION OF WORKINGS	
L.D. - Coast Range 5	Geol. by: R. Bylo
M.D. - Omineca	Drawn by: P. Hall
N.T.S. Grid - 93L/10b	FIG. No.
Scale: 1:5000	5
Date: 7 January 1981	







MINERAL RESOURCES BRANCH  
 ASSESSMENT REPORT  
**9087**  
 NO. \_\_\_\_\_

RAMM VENTURE CORPORATION  
 COPPERMINE PROPERTY  
 DETAIL EM-VLF AREA "C"  
 RECONNAISSANCE EM-VLF SURVEY  
 CROSS FILTERED DIP ANGLES  
 OCTOBER 1980 BY A. BIRD  
 SCALE 1:1000  
 ALL DISTANCE MEASUREMENTS WERE CHECKED AND  
 DISTANCES BEYOND LINES WERE PAGED

## GEOLOGICAL FINDINGS

### Geology of the Recently Staked and Crown Granted Claims

Reconnaissance mapping by I Borovic (1980) confirmed earlier geological work done by S. Wise (1960) and N. C. Carter (MMR 1970), and is detailed as follows:

Copper-zinc showings are located around three lakes at the top of the Grouse Mtn. and occur as breccia fillings in a light-green fossiliferous tuff sequence (see details A and B). These rocks include fine-grained crystal tuffs, lapilli tuffs, and coarser tuff breccias. Some horizons are fossiliferous, containing belemnites and ammonites of Lower Jurassic Age. The rocks are striking north and gently dipping west-southwest. They overlie red tuffs and breccias which occur on the north end of Grouse Mtn. The green tuffs in turn are overlain by massive andesite to the south, (outside the map area).

The volcanic rocks are intruded by dykes and small stocks of monzonite porphyry. The dykes are generally 60 m wide and strike north westerly with moderate dips to southwest. There are three different intrusive varieties:

- (1) The most prominent is a bladed feldspar porphyry (#12 on S. Wise's map), with phenocrysts of plagioclase (oligoclase-andesine) of 3 cm in length, oriented in sub-parallel fashion.
- (2) A fine-grained porphyritic (#11 on S. Wise's map) variety contains randomly oriented 5-10 mm euhedral phenocrysts.
- (3) The third variety are dykes and small stocks of an equigranular variety. Some fine-grained monzonite were also noted.

### Mineralization

Mineralization consists of fine-grained sphalerite and chalcopyrite as breccia fillings in several east-northeast trending zones subparallel to the strata of the green fossiliferous tuff sequence.

The mineralized zones are known from north to south as the Rainstorm-Hidden Treasure Zone, the Ruby-Copper Crown Zone, and the Schorn and Lakeview Zones. Only the Rainstorm-Hidden Treasure Zone is outside the Crown Grants and is now covered with recent staking.

Mineralogically, all zones are similar. Some banding was noted in the massive sulphide ore from the Ruby Zone.

The monzonite porphyry dykes are of post-mineral age, with a definite cross-cutting relationship being observed at the Ruby and Schorn Zones.

Because of adverse weather conditions, further work was suspended until Spring, 1981.

### Findings

- (1) Geological reconnaissance and detail mapping has confirmed an important fact; that extending between mineralized high grade vein structures is disseminated lower grade mineralization. This factor indicates a strong possibility of finding larger tonnages of lower grade material on the property.

- (2) EM-VLF survey confirms existing mineralized structures and also shows the possibility of much larger potentially mineralized areas.

This is very much evident in the surveyed Area "C", where a strike of 375 m and an average conductor width of 30 m show the possibility of more than 3,000,000 tons of mineralized rocks to 100 m depth.

#### (V) CONCLUSIONS

##### Recent Exploration Work:

Reconnaissance and detailed geological mapping and EM survey confirmed:

- (1) Existence of disseminated sulphides lying between the massive sulphide showings in the Ruby Zone.
- (2) Existence of more wide-spread sulphide mineralization on the property.
- (3) Existence of sizeable continuous conductors on the property indicating the possible presence of further mineralized bodies.

(VI) RECOMMENDATION

On the basis of previous and recent exploration work, continuation of EM-VLF survey coverage over the whole enlarged property is recommended.

It is also recommended that a diamond drilling programme start as soon as possible in 1981 by testing the north-eastern extension of the Ruby Zone ore body, as suggested and recommended in my report of August, 1979. At the same time, it is encouraged to continue testing on the recently found EM-conductors in the same area.



BUDGET ESTIMATE (1981)

Stage 1 & 2

Geology

Mapping, Logging, Supervision, Report  
45 days at \$200.00 \$ 9,000.00

Diamond Drilling

2000 m BQ/WL at \$75.00/m \$150,000.00

Trenching (Ruby Zone primarily)

300 x 50 x 1m area \$ 24,000.00

EM-VLF Survey

1 man - 30 days at \$125.00/day \$ 3,750.00  
Instrument rental \$500.00/month 500.00

Food and Shelter

315 man days at \$50.00/day \$ 15,750.00

Transportation

Truck, Airplane \$ 4,000.00

Office Supplies

\$ 500.00

TOTAL: \$207,500.00

Administration (10%)

\$ 20,750.00

GRAND TOTAL: \$228,250.00

(VII) ITEMIZED COST STATEMENT (1980)

EQUIPMENT RENTAL:

(1) VLF CRONE RADEM unit #187 from Crone Geophysics, Oct. 15 - Nov. 15, 1980 Inv. #6633	\$ 370.00
(2) Truck rental (4x4 P.U.) from Halmark Resources Ltd. Oct. 1 - Nov. 15, 1980	\$ 1,500.00
TOTAL	<u>\$ 1,870.00</u>

TRAVEL AND TRANSPORTATION:

(3) Shipping costs for VLF unit from and back to Mississagua, Ontario	\$ 68.70
(4) Fuel for rented truck	\$ 132.36
(5) Air fares from Vancouver (2x \$183.60)	\$ 367.20
TOTAL:	<u>\$ 568.26</u>

WAGES:

I. Borovic, Consulting Geologist Field Work: Oct. 16-19, Nov. 15-19 9 days @ \$200.00/day	\$ 1,800.00
Report writing: Nov. 27-28 2 days @ \$200.00/day	\$ 400.00
R. Bylo, Geologist/Geophysicist Field work: Sept. 29-30; Oct. 1-3, 6-10 Oct. 14-17, 20-24, 27-31, Nov. 3-7, 10-14, $\frac{1}{2}$ x15 34 $\frac{1}{2}$ days @ \$125.00/day	\$ 4,312.50
J. Hambleton, Project Manager Field work: Sept. 29-30; Oct. 1-3, 6-10, 14-17 Oct. 20-24, 27-31; Nov. 3-7, 10-14 34 days @ \$275.00/day	\$ 9,350.00

WAGES CONTINUED:

B. Witham, Field Assistant  
Field Work  
Oct. 7-11, 13-19, 29-30  
Nov. 2, 10  
203½ hours @ \$10.00/hr. \$ 2,035.00

TOTAL: \$ 17,897.50

FOOD AND ACCOMMODATION:

I. Borovic \$ 234.43  
R. Bylo \$ 683.50

TOTAL: \$ 917.93

MAPPING REPROGRAPHICS AND SUNDRIES:

- (1) Topographic map(1:5000 scale)  
McElhanney Surveying and  
Engineering Ltd.  
Inv. #9022438 - Job No. 06731-2 \$ 2,115.00
- (2) Airphoto purchase  
B.C. Gov't. invoices C3501/C3267 \$ 17.82
- (3) Airphoto purchase  
McElhanney Surveying  
Inv. # 9022391 \$ 137.00
- (4) Flagging tape, chaining twine,  
markers, etc.  
Neville Crosby Inc.  
Inv. # 14075 \$ 98.74
- (5) Reprographics, etc. \$ 219.30

TOTAL: \$ 2,587.86

OVERALL TOTAL: \$ 23,841.55

(VIII) REFERENCES

- (1) Assessment Report #726
- (2) G.S.C. Bulletin 270
- (3) G.S.C. (1915) - Summary Report pp 65-67
- (4) Hill, M. & Starck, L. - Report on Copper Ridge Silver Zinc  
(1961) Mines Ltd., Telkwa, B.C.
- (5) Minister of Mines, - 1925 - p 141  
B.C., Annual Reports 1926 - pp 135, 136  
1928 - pp 169, 170  
1937 - pp C11, C12  
1951 - pp 113 - 117  
1970 - pp 158 - 159
- (6) Tipper, H.W. & - Jurassic Stratigraphy and History  
Richards, T.A. (1976) and History of North-Central B.C.
- (7) White, L.G. (1965) - Report on Grouse Mountain group of  
Mineral Claims, Telkwa, B.C., for  
Copper Ridge Mines Ltd., 174 East  
Pender Street, Vancouver, B.C.



I. Borovic, P.Eng.

February 24, 1981

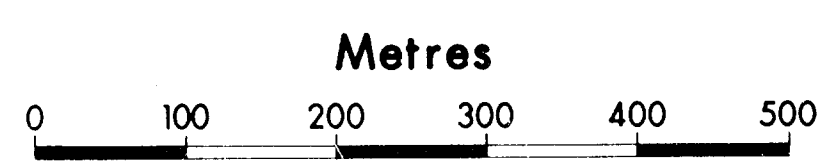
CERTIFICATE

I, Ignacije Borovic, of the city of Vancouver, B. C., do hereby certify that:

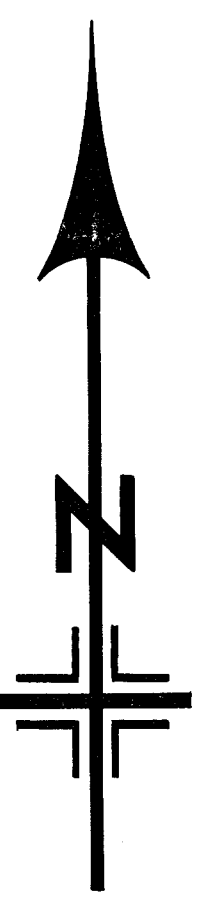
- 1) I am a member of the Association of Professional Engineers in the Province of British Columbia.
- 2) I am employed by Igna Engineering & Consulting Ltd. with office at 4258 West 10th Avenue, Vancouver, B. C.
- 3) I am a graduate of the University of Zagreb and I have practiced continuously as a geologist and graduate geological engineer since 1962.
- 4) I have personally supervised the exploration work referenced in this report.
- 5) The expenditures claimed for the performance of the exploration work are correct.

  
I Borovic, P. Eng.

Vancouver, B. C.  
February 24, 1981

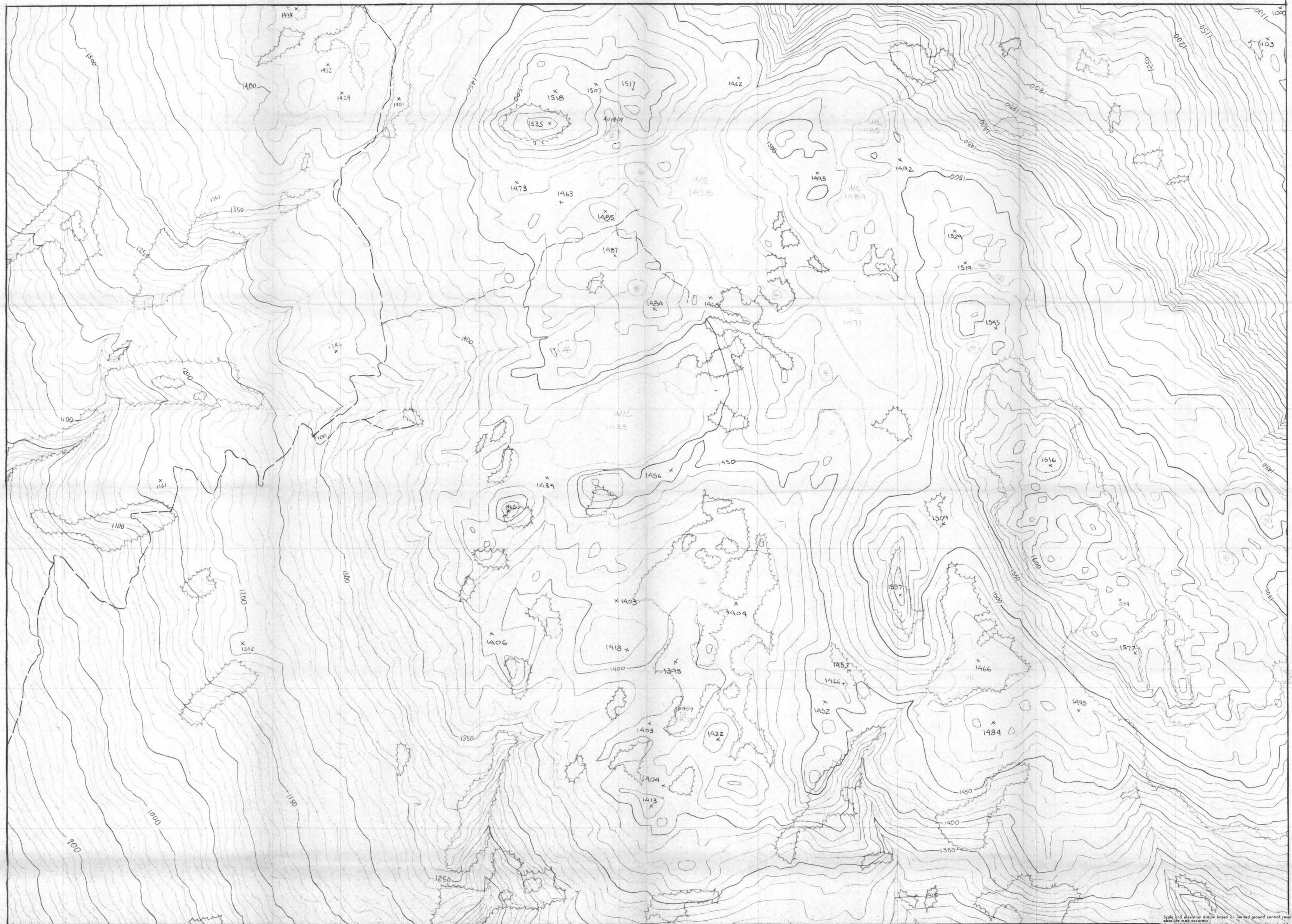


Figures shown are metric conversions of Imperial measurements from original Crown Granted M.C. plans.



MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT  
**9087**  
R.D.

RAMM VENTURE CORPORATION COPPERHILL PROPERTY	
<b>CLAIMS MAP</b>	
L.D. - Coast Range 5	M.D. - Omineca
N.T.S. Grid - 93L/10b	Scale - 1:5000
Base - 24 June 1980	
Date -	



Scale and elevation datum based on limited ground control resulting in good relative, but uncertain absolute map accuracy. Compiled from aerial photography at an approximate scale of 1:50 000.

INGA ENGINEERING & CONSULTANTS LTD.

**GROUSE MOUNTAIN**

PRELIMINARY RECONNAISSANCE TYPE MAPPING

MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT  
**9087**  
NO.

**McElhenny**  
McElhenny Surveying & Engineering Ltd.  
1200 West Pender Street, Vancouver, B.C., Canada

Scale 1:5000  
Contour Interval 10 metres  
Date SEPTEMBER, 1980  
Job No. 08731-2  
Sheet No. 1