

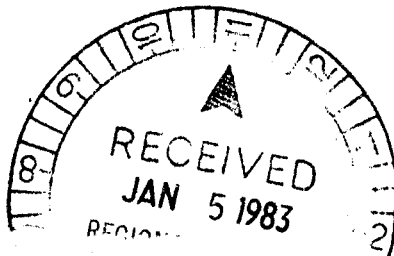
MAP No. **RELEASED**
106-C-10,11

ASSESSMENT REPORT
N. M. E. A. P.
CONFIDENTIAL
OPEN FILE

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TYPE OF WORK: Geol. Geochem.

REPORT FILED UNDER	Bow River Res. L. & Highhawk Ms. L.	DOCUMENT NO. 061490
DATE PERFORMED	August 3 & Sept. 11, 1974	DATE FILED: May 28, 1975
LOCATION	LAT. 64°40'N LONG. 133°00'W	AREA: Corn Creek, Yukon
CLAIM NO.	PING 1-26 (see report)	
	PONG 1-40	
	BAT 1-24	
VALUES	HW 1-40	
	CAN 1-24	
WORK DONE BY	J.W. MacLeod	
WORK DONE FOR	Bow River Resources Ltd. & Highhawk Mines Ltd.	
REMARKS	Mapping and soil geochem. located 2 zones of high-grade lead-zinc mineralization and an area of high-grade float on the PING Gp.	



061490

PING, PONG, AND BAT CLAIMS
CORN CREEK AREA, YUKON TERRITORY
106 C 10 AND 11

FOR

BOW RIVER RESOURCES LTD.
AND
HIGHHAWK MINES LTD.

BY

J. W. MacLeod, P. Eng.

Vancouver, B. C.

February 10, 1975

NMEAP
Received
May 28, 1975.

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APPENDIX

- I Zinc Indicator Solution
- II Engineer's Certificate

ILLUSTRATIONS

	<u>SCALE</u>
Location Map	1" = 50 miles
Property Map (1)	1" = 2 miles
General Geology (2)	1:50,000
Detail - Geology and Geochemistry (3)	1" = 200'

PING, PONG, AND BAT CLAIMS
Corn Creek Area, Y. T.

BOW RIVER RESOURCES LTD.
AND
HIGHHAWK MINES LTD.

INTRODUCTION

The following report is compiled from a review of reports prepared by C. Ikona and T. L. Sadlier-Brown, geologists with Harman Management Ltd., a company which carried out a program of geological and geochemical work on the Ping, Pong, and Bat Claims during the 1974 field season.

Property examinations were carried out by the writer on August 3 and September 11, 1974 while employed by Bow River Resources Ltd. as a consultant.

SUMMARY

The program of geological, geochemical, and prospecting work on the Ping, Pong, and Bat Claims during the 1974 season established the presence of a dolomitic horizon favorable for the deposition of lead-zinc deposits and located two zones of high-grade mineralization. Geochemical work indicates lateral extent to the mineral exposure and a probable source to high-grade float located in the vicinity of Zones 1 and 2.

While a considerable portion of the property still requires detailed investigation by prospecting and geochemical means, the discoveries to date require follow-up by means of diamond drilling and trenching to determine their tonnage potential.

A program involving the expenditure of \$75,000.00 is required to properly follow-up the results of the 1974 season.

The probability of finding further mineralization appears excellent, and it would be in order to provide additional funds for follow-up, particularly any geochemical indications on the Pong Claims.

HISTORY

During the 1973 field season, crews employed by Barrier Reef Mines and Cypress Explorations located significant occurrences of zinc mineralization in the Bonnet Plume area. A review of available geological data suggested that similar dolomitic horizons to those hosting the Barrier Reef-Cypress occurrences would be found in the Corn Creek area, and on this basis the Ping, Pong, and Bat Claims were staked in January, 1974. The premise was justified by the discoveries made by Harman Management crews under the direction of C. Ikona.

PROPERTY

The property under consideration is made up of the following groups totaling 154 claims.

By Location

<u>CLAIMS</u>	<u>RECORD NUMBERS</u>	<u>DATE OF RECORD</u>
Ping 1-24	Y86146-Y86169	Jan. 18, 1974
Ping 25-26	Y97027-Y97028	Sept. 24, 1974
Pong 1-40	Y86170-Y86209	Jan. 18, 1974
Bat 1-24	Y86210-Y86233	Jan. 18, 1974

By Option

<u>CLAIMS</u>	<u>RECORD NUMBERS</u>	<u>DATE OF RECORD</u>
HW 1-40	Y87798-Y87837	April 1, 1974
CAN 1-24	Y87838-Y87861	April 1, 1974

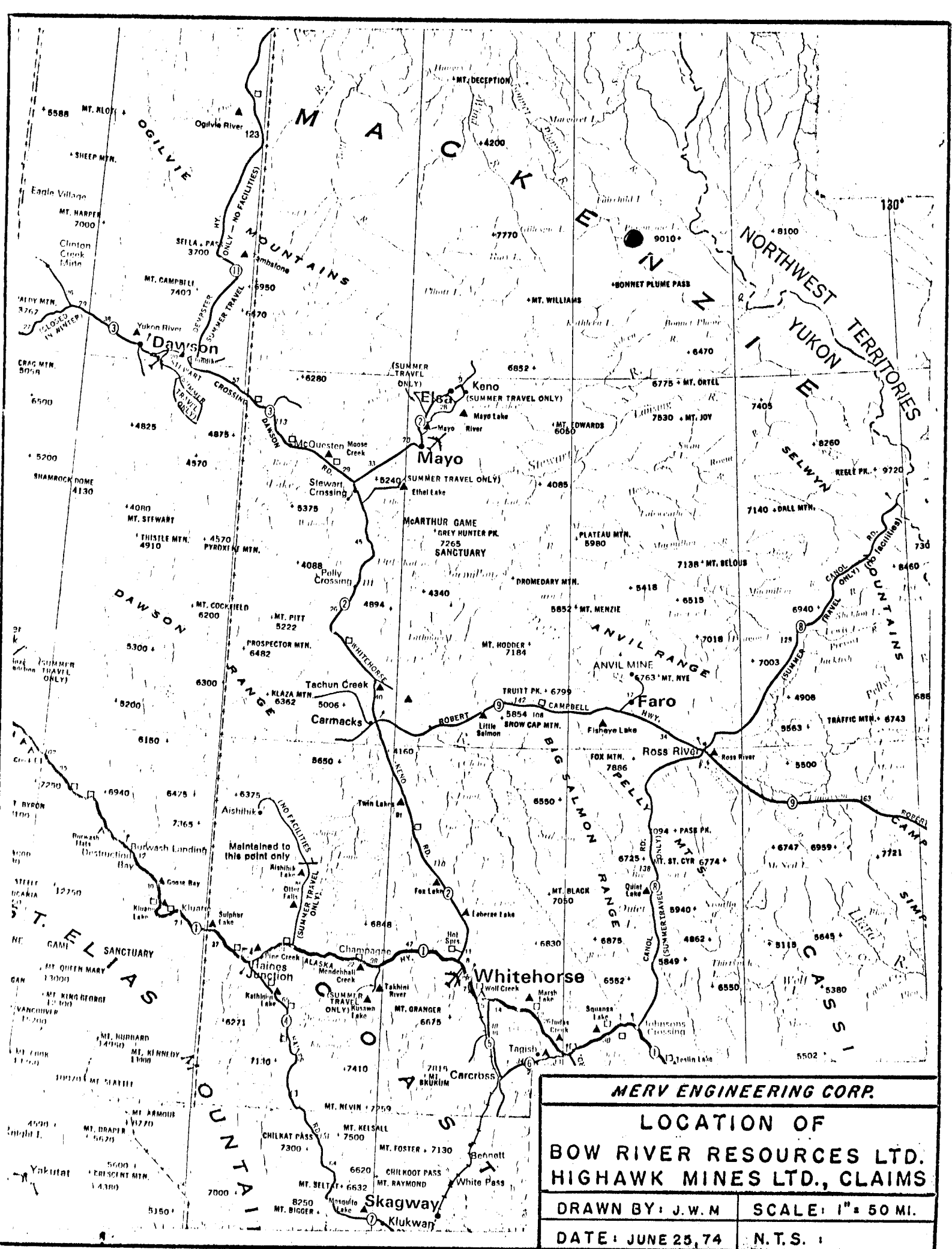
The option on the HW and CAN Claims calls for a payment of \$10,000.00 by September 28, 1975, and the issue of 25,000 shares each of Bow River Resources and Highhawk Mines Ltd. by March 28, 1976.

Two years work has been recorded on Ping 1-24, HW 1-40, and CAN 1-24. One years work has been recorded on Pong 1-40 and Bat 1-24.

LOCATION

The Corn Creek area is located along Corn Creek, a small tributary of the Bonnet Plume River in the northeastern part of the Yukon.

Co-ordinates of the property are $64^{\circ} 40'$ North and $133^{\circ} 00'$ West. The claims are shown on N.T.S. Sheets 106 C 10 and 106 C 11 in the Mayo Mining District.



MERV ENGINEERING CORP.

**LOCATION OF
BOW RIVER RESOURCES LTD.
HIGHAWK MINES LTD., CLAIMS**

DRAWN BY: J.W.M	SCALE: 1" = 50 MI.
DATE: JUNE 25, 74	N.T.S. :

GENERAL

The claims are located in an area of rugged topography with elevations ranging from 3500 to 6000 feet. The tree line is approximately at the 4000 ft. level and above this outcrop is extensive.

Although a temperature range from -51° to $+27^{\circ}$ can be expected at this latitude, such temperatures are not uncommon to a number of Canadian mining communities.

Annual precipitation approximates 20-25 inches.

The mineral occurrences located to date on the Ping Group are found on a saddle between two small creeks which will provide ample water by gravity for any preliminary exploration program; year round water is available from Black Canyon Creek 1500 ft. to the north, with a maximum lift of 500 ft.

Although outcrop is extensive above timberline, prospecting is made difficult by the lack of a gossan or alteration zone associated with the target lead-zinc mineralization in the carbonate rocks.

GENERAL (continued)

For example, it would be very easy to walk past the high-grade surface exposure and not note the Ping No. 1 Zone. Industry has adapted to this problem by the use of a zinc indicator spray (see Appendix for details). Mr. Ikona, with considerable experience in this area, has no faith in stream silt results, but soil sampling is effective below timberline where there is little outcrop.

(10)

GEOLOGY

The results of regional mapping of this area by the G. S. C. are available in Paper 53-7, Report of Activities 70-1 Part A, and Open Files 205 and 206.

The general area is underlain by sedimentary rocks ranging in age from Precambrian to Triassic. Of particular interest within this thick sequence are three carbonate horizons which are known to host strata-bound zinc deposits - these are the Lower Cambrian Sekwi and Backbone Ranges Formations and the unnamed dolomite horizon near the top of the Hadrynian. The Cambrian and Hadrynian carbonates are separated by a recessive black slate known as the Sheepbed Formation.

The distribution of these units as they occur in the Corn Creek area is shown on the accompanying Map 2. The spatial relationship between lead-zinc showings and the upper Hadrynian dolomite horizon is obvious on this map.

GEOLOGY (continued)

Detailed mapping by Mr. Ikona in the vicinity of the Ping Zones 1 and 2 has attempted differentiation within the dolomite horizon and considerable variation in color and grain size is evident, but these units lack continuity as shown on Map 3.

In general, the formations strike north to northeast and dip to the east at 10 to 40 degrees. In the vicinity of Corn Creek there is a swing to the east with the suggestion of a synclinal axis trending northwest. This area is interrupted by a number of northwest trending faults with considerable displacement.

MINERAL OCCURRENCES

Exploration during the 1974 season resulted in a number of significant lead-zinc discoveries in the Corn Creek area, apparently confined to a specific dolomitic horizon (Map 2). In addition to approximately 4 miles of this horizon held by Bow River-Highhawk, mineral occurrences were also located on the same horizon by Canwex (Cominco option), Spectroair (Cominco option), and Consolidated Coast Silver.

The most promising occurrences located to date are found on the Ping Group and have been designated Zone 1 and Zone 2, as shown on Maps 2 and 3.

ZONE 1

This zone consists of high-grade primary lead-zinc mineralization exposed along a steep slope for 125 feet. Here massive galena and sphalerite have been brecciated and cemented with secondary dolomite. The mineralization is terminated in a north and south direction by minor linears which could represent faults. The dip is not obvious, but if the Zone is

ZONE 1 (continued)

conformable to the bedding, that is N 20° E - 35° E, then the thickness would be 35-40 feet. A chip sample, taken by C. Ikona, along 100 feet of the exposure assayed 24% Pb, 11.3% Zn, and 4.4 oz. Ag.

ZONE 2

This zone occurs on the northeast slope of the ridge and some 150 feet stratigraphically above Zone 1, or is the faulted extension of Zone 1.

Here mineralization consists of pods of galena and sphalerite distributed along the regional attitude of the dolomitic horizon, so Mr. Ikona concluded this to be strataform mineralization. A sample along 50 feet of talus below this exposure taken by Mr. Ikona assayed 15.8% Pb, 4.7% Zn, and 3.05 oz. Ag.

Considerable high-grade lead-zinc float occurs at 8+00 E on the baseline, which, in view of topography, could not have come from Zones 1 or 2. This source of the float is likely another high-grade zone, overburden covered to the southwest and indicated by high

ZONE 2 (continued)

lead-zinc soils in this area.

Lead-zinc mineralization is reported 4000 feet east of Zones 1 and 2 and also in the same dolomite unit on the optioned CAN Claims. These occurrences were not seen by the writer.

A quartz vein 7 feet wide and carrying 2-3% copper is reported in the older black shales about 1 to 3 miles northeast of Zones 1 and 2.

GEOCHEMISTRY

Soil samples were taken over an area 1400 feet by 5800 feet, and the anomalous results obtained are shown on Map 3.

Although the effects of migration are not determined, the geochemistry indicates considerable lateral extent to the mineralization and provides a number of drill targets.

CONCLUSIONS AND RECOMMENDATIONS

Preliminary investigation of the Ping, Pong, and Bat Claims has resulted in the discovery of two zones of high-grade lead-zinc mineralization and an area of high-grade float on the Ping Group. Control for this mineralization has not been defined, but the grade indications of surface exposure and the lateral extent of geochemical indications require detailed follow-up by drilling and trenching.

The geological work on the Pong Group indicates that the favorable dolomitic horizon will be located below timberline, a generally overburdened area. Therefore, this area will have to be investigated by geochemical and geophysical means.

The geological mapping carried out on the Bat Group indicates that the claims are not underlain by the favorable dolomite and may be allowed to lapse.

Therefore, to establish continuity and potential tonnage, a program of diamond drilling and trenching is recommended for the area of Zones 1 and 2 and the geochemical anomalies. The approximate one mile

CONCLUSIONS AND RECOMMENDATIONS (continued)

of dolomite horizon extending south from Zone 1 and 2 area on the optioned HW Claims will have to be prospected in detail, as will the other two areas indicated by Map 2 to be underlain by this horizon to the east on the HW and CAN Claims.

Samples taken at 100 foot intervals on lines 400 feet apart would require the collection of 600 samples to test the potential overburdened area on the Pong Claims.

COST ESTIMATE

Diamond Drilling - 1500 ft. @ \$20	\$ 30,000.00
Trenching and Prospecting - 2 men 2 months	6,000.00
Geochemistry - 600 samples @ \$10	6,000.00
Supervision and Reports	6,000.00
Camp Construction and Cook	5,000.00
Mobilization and Demobilization	5,000.00
Service (Helicopters)	5,000.00
Overhead and Contingency	<u>12,000.00</u>
	\$ 75,000.00

Respectfully submitted,



J. W. MacLeod, B. Sc., P. Eng.

APPENDIX I

ZINC INDICATOR SOLUTION

A - 3% potassium ferric cyanide

B - 3% oxalic acid
0.5% diethyl analine

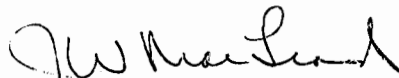
Mix equal portions of A and B. On application to oxidizing zinc, a red orange stain results. Mix only as required since the resulting solution deteriorates on exposure to light.

APPENDIX II

CERTIFICATE

I, James W. MacLeod, of 1220 Arbutus Street, in the City of Vancouver, in the Province of British Columbia, DO HEREBY CERTIFY:

1. That I am a Consulting Engineer, with a business address at 335 - 885 Dunsmuir Street, in the City of Vancouver, in the Province of British Columbia.
2. That I am a graduate of the University of Alberta with the degree of B. Sc. in Mining Engineering.
3. That I have actively practiced my profession in mineral exploration since graduation in 1946.
4. That I am a registered Professional Engineer in the Province of British Columbia.
5. That this report on the Ping, Pong, and Bat Claims is compiled from data supplied by Harman Management Ltd., which company managed the 1974 field program and property examinations made by the writer on August 3 and September 11, 1974.
6. That I have no interest in the property with which this report is concerned, nor do I expect to receive any such interest. I have no interest in the securities of Bow River Resources Ltd. or Highhawk Mines Ltd.



J. W. MacLeod, B. Sc., P. Eng.

Dated at the City of Vancouver, Province of British Columbia, this 10th day of February, 1975.

BOW RIVER RESOURCES LTD.
&
HIGHHAWK MINES LTD. (N.P.L.)

PROPERTY LOCATION MAP

BONNET PLUME AREA, Y. T.

DRAWN BY: J.W.M.

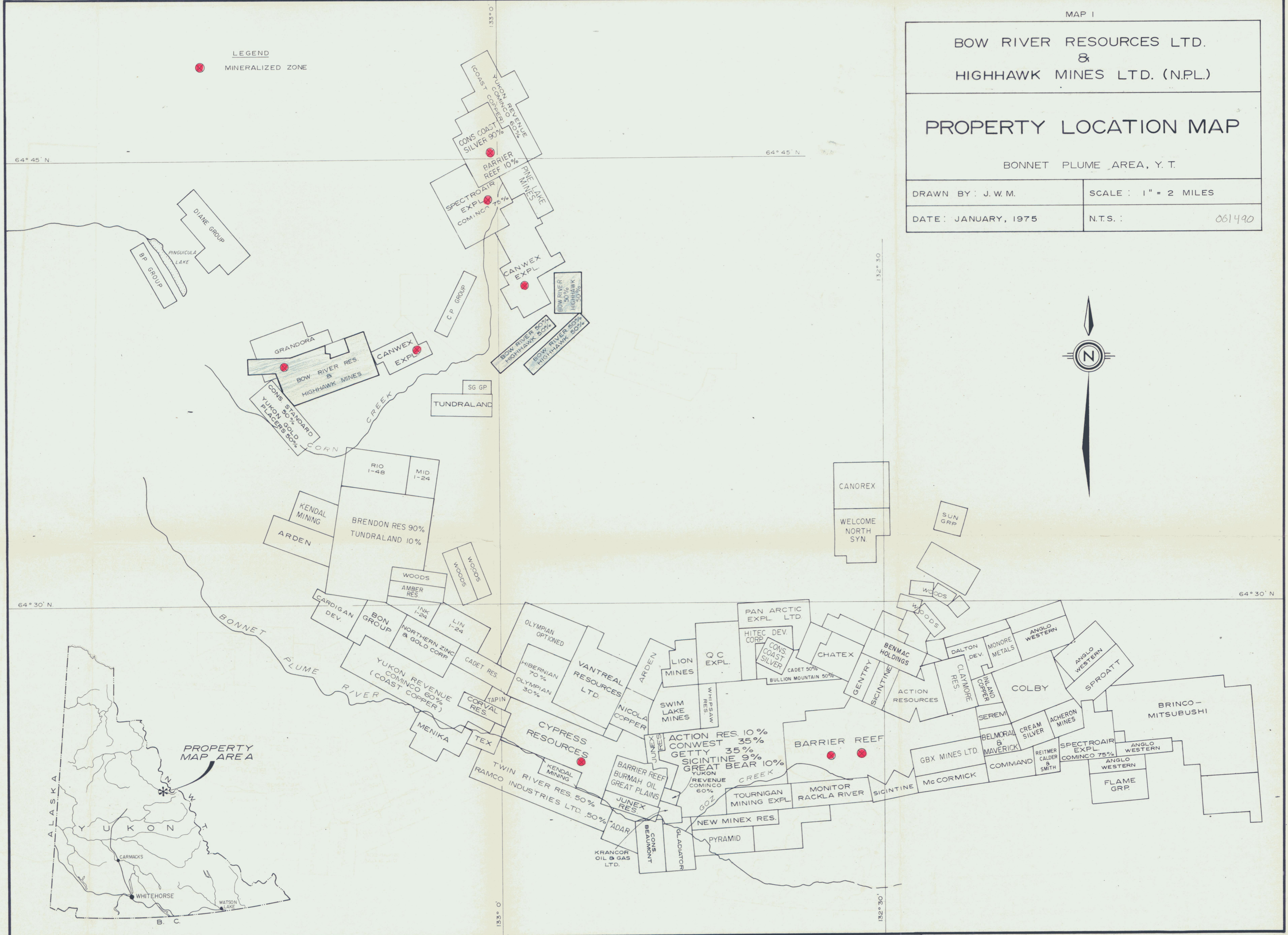
SCALE: 1" = 2 MILES

DATE: JANUARY, 1975

N.T.S.:

061490

LEGEND
● MINERALIZED ZONE



64° 45' N

64° 30' N

ALASKA

PROPERTY MAP AREA



133° 0'

133° 0'

132° 30'

132° 30'



LEGEND

- DOLOMITE - (BACKBONE RANGES Fm.)
- SHALE - (SHEEPBED Fm.)
- DOLOMITE - (UPPER HADRYNIAN)
- MINERALIZED SHOWING

MAP 2

BOW RIVER RESOURCES LTD.
&
HIGHHAWK MINES LTD. (N.P.L.)

GENERAL GEOLOGY

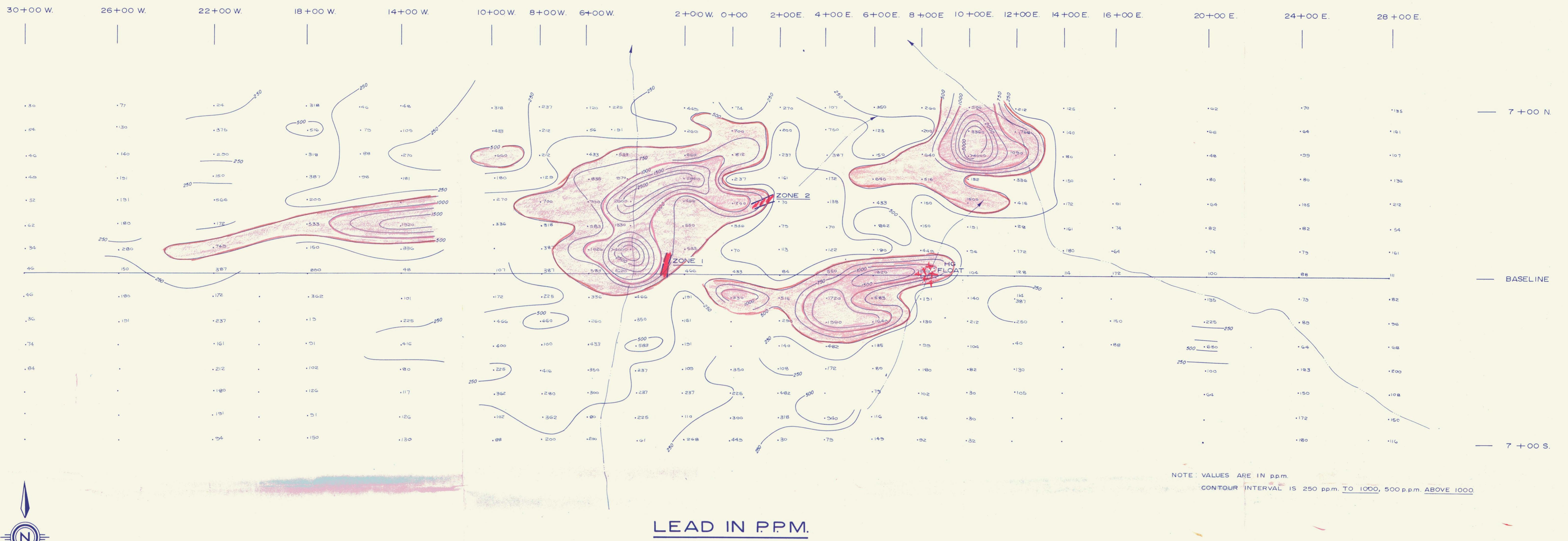
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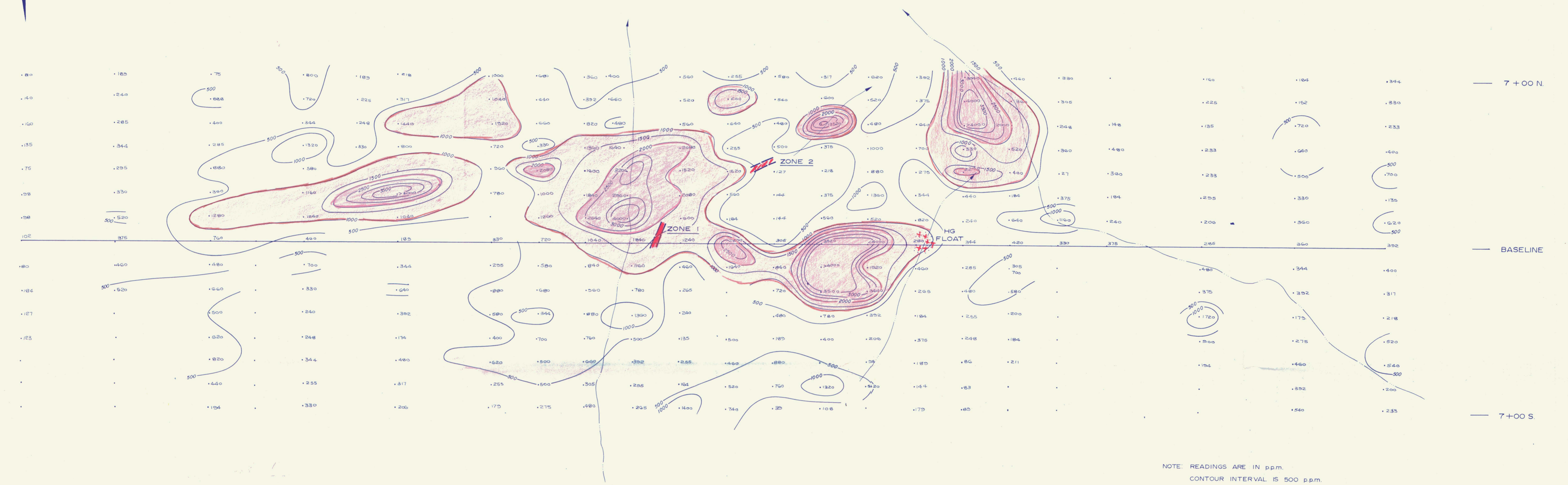
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DATE: JANUARY, 1975

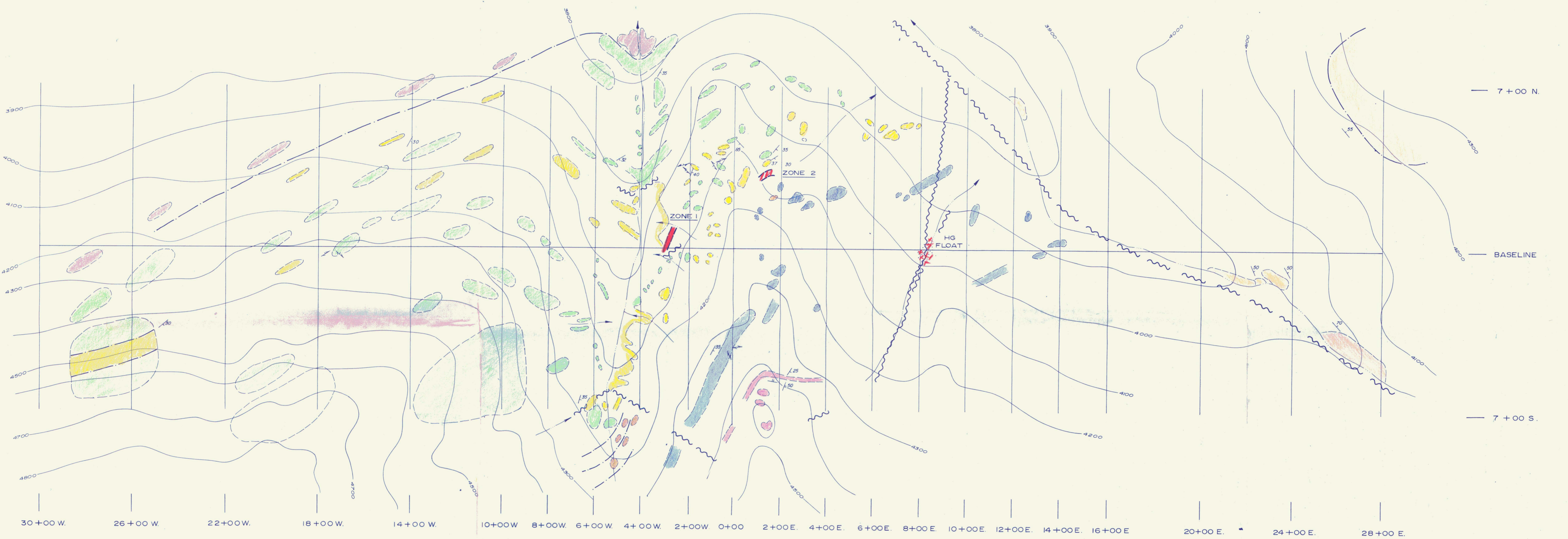
N.T.S.: 106 C 10 & 11



LEAD IN PPM.



ZINC IN PPM.



LEGEND

- Creek
- Massive mineralization
- Mineralized float
- Bedding striae and dip
- Shears
- Fault
- Contact
- Light grey, buff weathering siliceous dolomite fine grained, thinly bedded
- Dark grey to tan crystalline dolomite buff weathering, blocky
- Siltstone, Gtz pebble conglomerate and clayey dolomite, highly limonitic
- Dark semi-banded, marbled dolomite same limey fr filling, minor Pb, Zn fractures
- Banded dolomite, white to light grey
- Massively bedded crystalline dolomite white-tan-grey in colour
- Thinly bedded siltstones and grey, buff weathering microcrystalline dolomite
- Dolomites, limestones and shales of possible lower Proterozoic age

MAP 3

**BOW RIVER RESOURCES LTD.
&
HIGHHAWK MINES LTD. (N.P.L.)**

**MAP SHOWING
LEAD-ZINC IN PPM.
AND DETAIL GEOLOGY
PING CLAIM GROUP
CORN CREEK AREA, Y.T.**

DRAWN BY: J.W.M.	SCALE: 1"=200'
DATE: JANUARY, 1975	N.T.S.: 106 C II

NOTE: FIELD WORK BY HARMAN MANAGEMENT LTD. DIRECTED BY C. KONIA

APPENDIX "A" TO THE APPLICATION OF BOW RIVER RESOURCES LTD.
AND HIGHHAWK MINES LTD., EXECUTED ON 12TH JULY, 1974.

Report On

PING, PONG & BAT CLAIMS
Bonnet Plume Area, Yukon Territory
106 C 10 & 11

For

BOW RIVER RESOURCES LTD.

&

HIGHHAWK MINES LTD.

By

J.W. MacLeod, P.Eng.

Vancouver, B.C.

June 26, 1974

*NMEAD
Received Ottawa
Oct 10/74.*

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COST ESTIMATE	7

APPENDIX

ENGINEER'S CERTIFICATE

ILLUSTRATIONS

	<u>SCALE</u>
LOCATION MAP.....	1" = 50 miles
GEOLOGY - PING, PONG & BAT CLAIMS.....	1" = 50,000 ft.
PLAN - PING, PONG & BAT CLAIMS.....	1" = 2,640 ft.

PING, PONG & BAT CLAIMS
Bonnet Plume Area, Y.T.

BOW RIVER RESOURCES LTD.

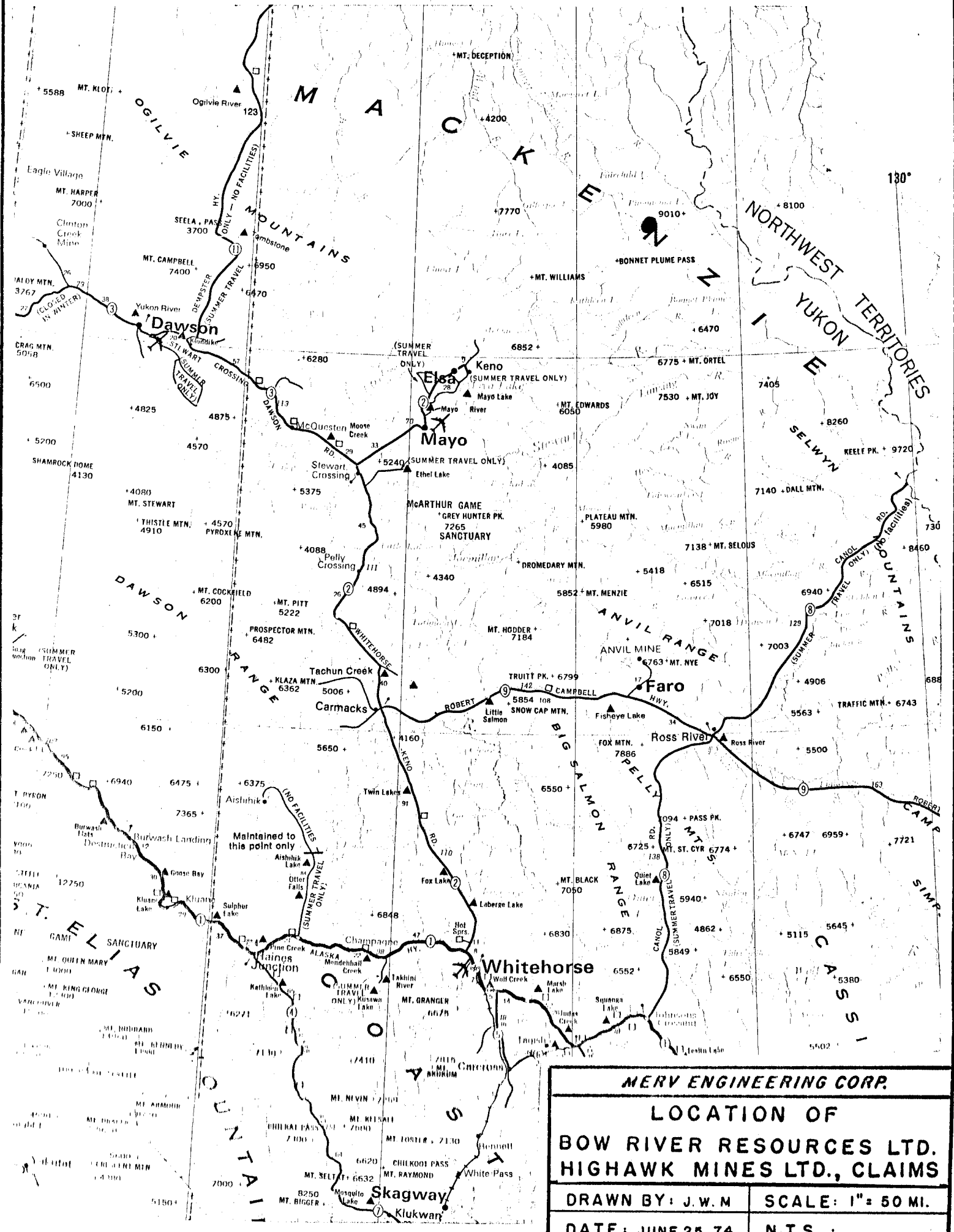
&

HIGHHAWK MINES LTD.

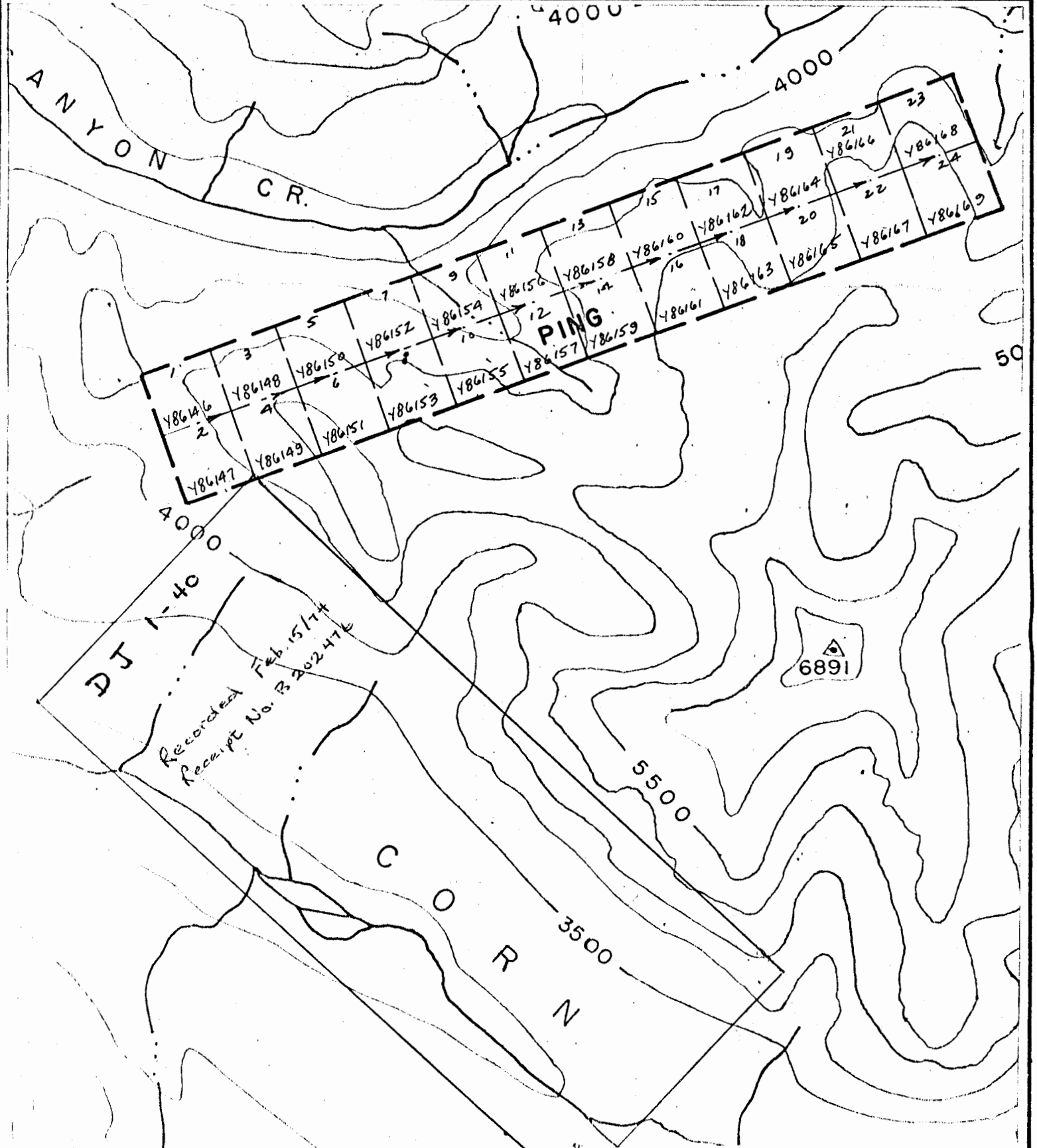
INTRODUCTION:

The following report is compiled from a review of available data and verbal communication with people who have worked in the area.

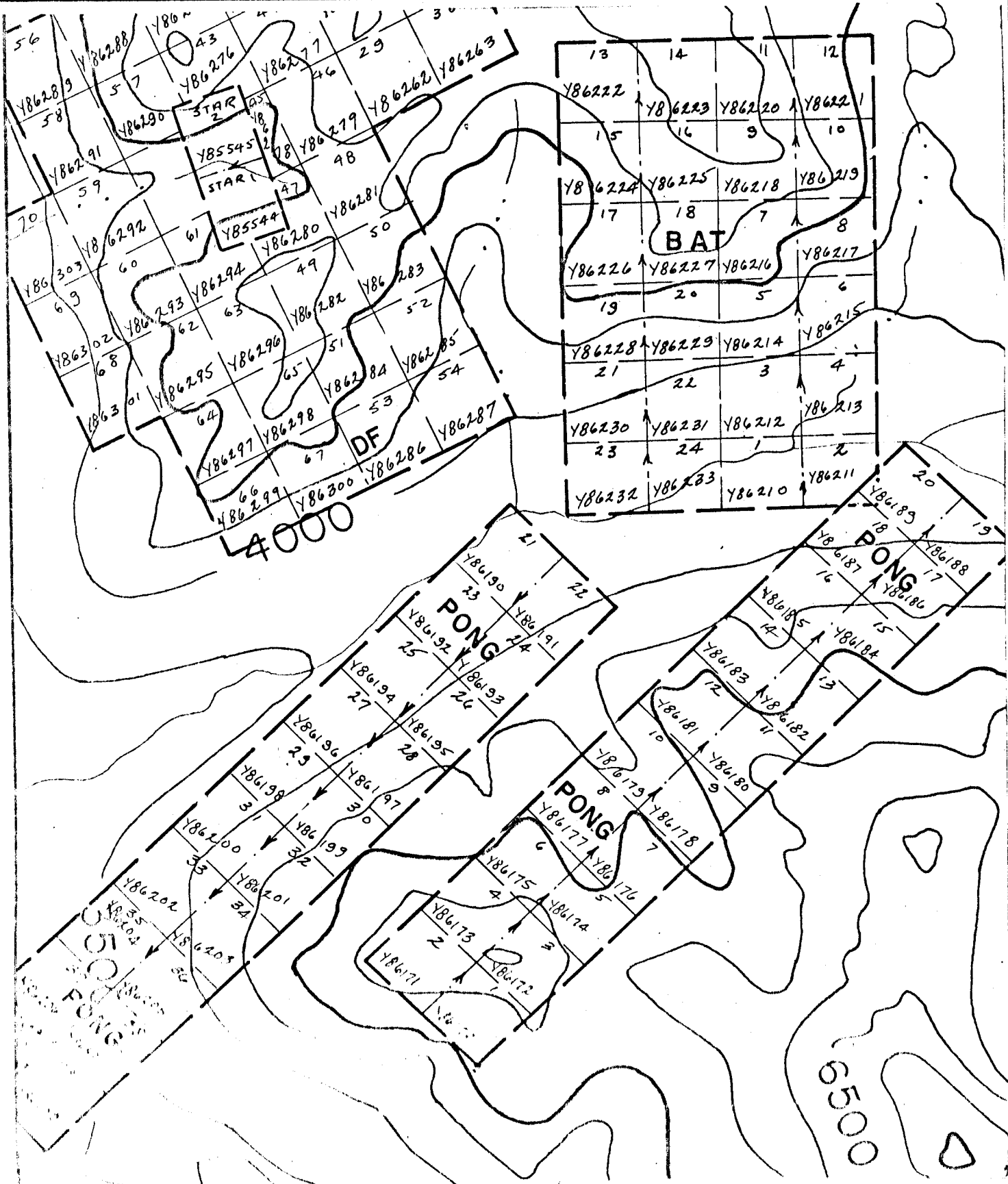
Recommendations are based on the indications that a portion of the PING, PONG and BAT claims are underlain by formations favourable to the deposition of stratabound mineral occurrences.



MERV ENGINEERING CORP.	
LOCATION OF BOW RIVER RESOURCES LTD. HIGHAWK MINES LTD., CLAIMS	
DRAWN BY: J.W.M	SCALE: 1" = 50 MI.
DATE: JUNE 25, 74	N.T.S. :



MERV ENGINEERING CORP.	
PLAN OF BOW RIVER RESOURCES LTD. HIGHAWK MINES LTD., CLAIMS	
DRAWN BY: J.W.M	SCALE: 1" = 2640'
DATE: JUNE 25, 74	N.T.S. : 106 0 11



SUMMARY & CONCLUSIONS

During the 1973 field season crews employed by Barrier Reef Mines and Cypress Explorations located significant occurrences of zinc mineralization in the relatively isolated section of the Yukon known as the Bonnet Plume Area. The initial reports on the discoveries suggest the presence of a tonnage potential which would justify a smelter to overcome the adverse location.

The PING, PONG and BAT claims are a result of the staking rush following the Barrier Reef discovery and since there is evidence of favourable geological conditions, detailed investigation of the claims is warranted.

PROPERTY:

The property under consideration is made up of the following groups totaling 88 claims.

<u>CLAIMS</u>	<u>RECORD NO.'S</u>	<u>DATE OF RECORD</u>
PING 1-24	Y86146-Y86169	Jan. 18, 1974
PONG 1-40	Y86170-Y86209	Jan. 18, 1974
BAT 1-24	Y86210-Y86233	" " "

LOCATION:

The Bonnet Plume Area is located in the north-eastern part of the Yukon near the headwaters of the Bonnet Plume River.

Some 60 miles of the mapped favorable carbonate horizons has been staked and the PING, PONG and BAT claims are centrally located on this belt, in the vicinity of Black Canyon and Corn Creeks. They are shown on sheets 106 C 10 and 11 in the Whitehorse Mining District.

Co-ordinates of the property are $64^{\circ}40'$ North and $133^{\circ}00'$ West.

ACCESS:

The community of Mayo, 120 miles to the southwest of the property, is serviced by scheduled flights from Whitehorse. Mayo is also accessible by road 170 miles from Whitehorse.

The initial exploration of the claims will require servicing from Mayo to Pinguicula Lake by float aircraft, then by helicopter the remaining 5 to 15 miles east to the claims.

GENERAL:

The claims are located in an area of rugged topography with elevations ranging from 3500 to 6000 feet. The tree line is approximately the 4000 ft. level. Outcrop is extensive, particularly in areas underlain by the carbonate rocks.

Although a temperature range from -60°F to $+80^{\circ}\text{F}$ can be expected at this latitude, such temperatures are not uncommon to a number of Canadian mining communities.

Precipitation approximating 20-25 inches is sufficient to maintain any anticipated mining operations.

GEOLOGY:

The results of regional mapping of this area by the G.S.C. are available in Paper 53-7, Report of Activities 70-1 Part A and O.F. 205 and 206.

The general area is underlain by sedimentary rocks ranging in age from Precambrian to Triassic. Of particular interest within this thick sequence are three carbonate horizons which are known to host strata bound zinc deposits. These are the Lower Cambrian Sekwi and Backbone Ranges Formations and the dolomite horizon near the top of the Hadrynian. The Cambrian and Hadrynian carbonates are separated by a recessive black slate known as the Sheepbed Formation.

MINERAL OCCURENCES:

Significant occurrences of strata bound zinc mineralization have been located on the Barrier Reef and Cypress Resources properties some 20 miles to the east of the PING, PONG and BAT claims. Available geology suggests that the horizons that host the Barrier and Cypress occurrences are to be found on the PING, PONG and BAT claims.

RECOMMENDATIONS:

The geological indications on the PING, PONG and BAT claims justifies a program of detailed prospecting, geological mapping and geochemical investigation.

COST ESTIMATE:

<u>Wages</u>	1 geologist	\$2,000.00	
	1 geologist assistant	1,200.00	
	1 prospector	2,000.00	
	1 prospector assistant	<u>1,000.00</u>	\$6,200.00
<u>Camp</u>	equipment	800.00	
	supplies - 100 man days		
	@ 15.00	<u>1,500.00</u>	2,300.00
<u>Mobilization and Demob.</u>		2,000.00	
<u>Service Aircraft</u>	fixed wing	1,000.00	
	helicopter	<u>2,000.00</u>	3,000.00
<u>Consulting</u>			1,000.00
<u>Assaying</u>			500.00
<u>Contingency @ 20%</u>			<u>3,000.00</u>
	TOTAL		<u>\$18,000.00</u>

Respectfully submitted

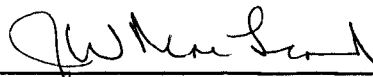


J.W. MacLeod, B.Sc., P.Eng.

CERTIFICATE

I, James W. MacLeod, of 1220 Arbutus Street, in the City of Vancouver, in the Province of British Columbia, DO HEREBY CERTIFY:

1. That I am a Consulting Engineer, with a business address at 335-885 Dunsmuir Street, in the City of Vancouver, in the Province of British Columbia.
2. That I am a graduate of the University of Alberta with the degree of B.Sc. in Mining Engineering.
3. That I have actively practiced my profession in mineral exploration since graduation in 1946.
4. That I am a registered Professional Engineer in the Province of British Columbia.
5. That this report of the PING, PONG & BAT CLAIMS of Bow River Resources Ltd. and Highhawk Mines Ltd. is based on a review of available data on the general area and verbal communication with personnel active in the area.
6. That I have no interest in the property with which this report is concerned, nor do I expect to receive any such interest. I have no interest in the securities of Bow River Resources Ltd. or Highhawk Mines Ltd.



J.W. MacLeod, B.Sc., P.Eng.

Dated at the City of Vancouver, Province of British Columbia, this 26th day of June, 1974

