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ARCHER, CATHRO

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GEOCHEMICAL REPORT

on the

BOB 1, BOB 2, BOB 3, BOB 4, BOB 7 and HAWK CLAIMS

LIARD MINING DIVISION

N.T.S. 94F/13W and 94K/4W

Latitude: 58°02'N

Longitude: 125°50'W

by

R.C. Carne

ARCHER, CATHRO & ASSOCIATES LIMITED

for

WELCOME NORTH MINES LTD. (Owner)

and

GATAGA JOINT VENTURE (Operator)

Submitted March 3, 1981

9394

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LIST OF CLAIMS

<u>Claim</u>	<u>Record Number</u>	<u>Number of Units</u>	<u>Record Date</u>	<u>Expiry Date</u>
Bob 1	289	12	April 28, 1977	April 28, 1985
Bob 2	290	20	April 28, 1977	April 28, 1985
Bob 3	291	20	April 28, 1977	April 28, 1981
Bob 4	292	16	April 28, 1977	April 28, 1981
Bob 7	295	6	April 28, 1977	April 28, 1981
Hawk	282	12	April 20, 1977	April 28, 1981

GEOLOGICAL AND GEOCHEMICAL REPORT

on the

BOB 1, BOB 2, BOB 3, BOB 4, BOB 7 and HAWK CLAIMS

Introduction

The Bob 1-4, Bob 7 and Hawk claims were staked in 1977 by Gataga Joint Venture in the name of Welcome North Mines Ltd. to cover a possible strike extension of stratiform lead-zinc mineralization on the nearby Driftpile Creek property (P, D, and Goof claims). Gataga Joint Venture (GJV), formed in 1977 to explore for lead-zinc in northeast British Columbia, is a syndicate composed of Aquitaine Company of Canada Ltd., Chevron Canada Limited, Getty Mines Limited, Welcome North Mines Ltd. and Castlemaine Exploration Ltd. The program was managed by Archer, Cathro & Associates Limited and was directed in the field for the fourth successive season by R.C. Carne.

About 1,830 soil samples were taken at roughly 50 m x 100 m intervals on a grid located over the central part of the claim block. Topographic control for the geochemical survey was established with the aid of a contoured 1:5,000 scale orthophoto map produced from aerial photography flown by GJV in 1979. The 1980 work was carried out in the period July 7 to August 12.

Location and Access

The Bob 1-4, Bob 7 and Hawk claim group is located about 12 km northwest of Gataga Lakes on NTS map sheets 94F/13W and 94K/4W (Figure 1). The centre of the group is located at latitude 58°02'N and longitude 125°50'W.

Access is by float-equipped, fixed-wing aircraft from Watson Lake, Yukon Territory, about 310 km to the northwest, to Gataga Lakes and by helicopter from that point to the property. The nearest large town, 210 km to the east, is Fort

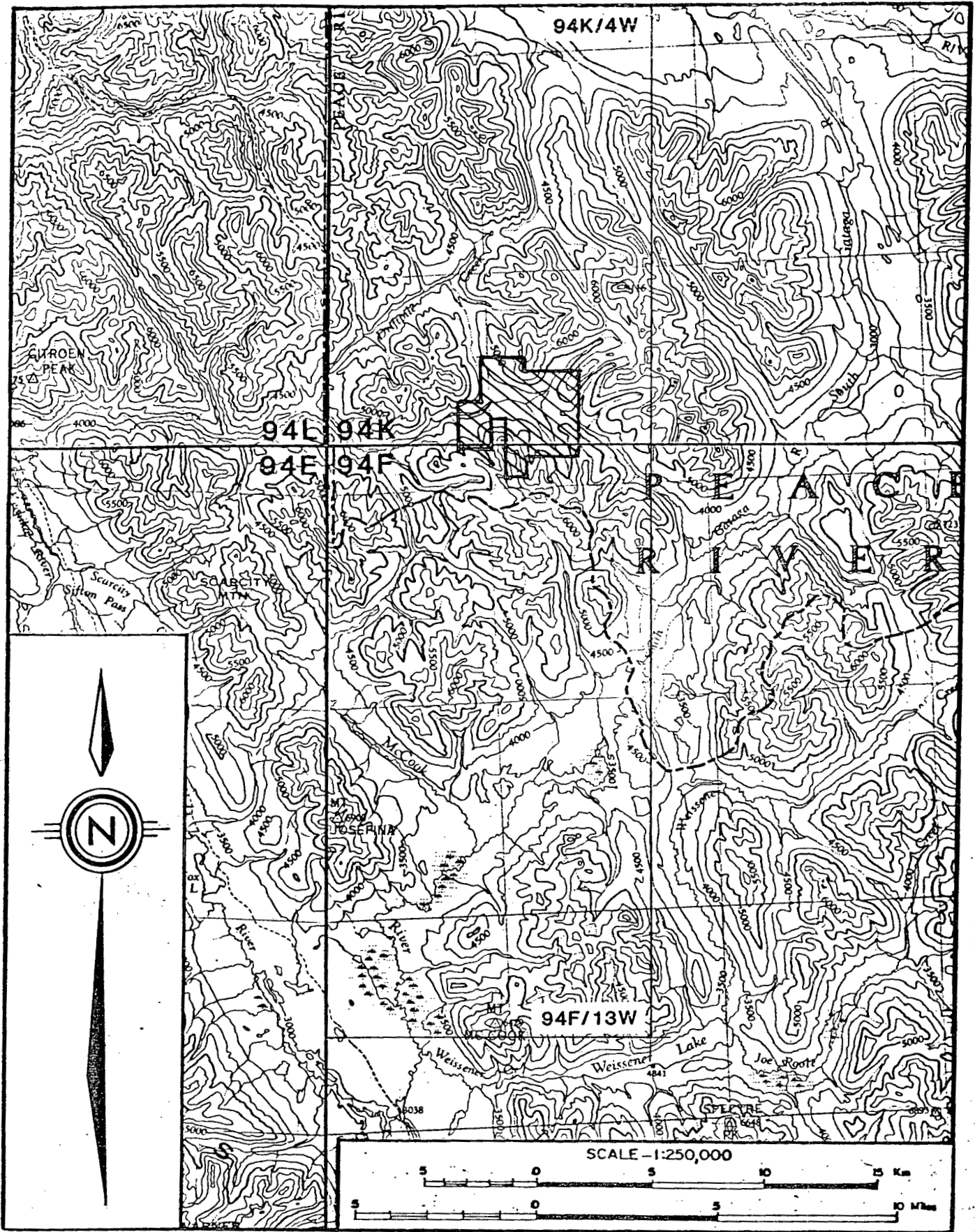


Figure 1: Location of Bob 1-4, Bob 7 and Hawk claim group.

Nelson which does not have a float plane base. Fuel and camp supplies used for the 1980 program were trucked 300 km from Watson Lake to Muncho Lake (Km 747 on the Alaska Highway) and ferried 100 km during mid-April, 1980 by ski-equipped, single Otter aircraft to Mayfield Lake, located about 20 km north of the claim group. Field work was conducted with a helicopter supported program based at a permanent field camp located on Driftpile Creek, about 7 km to the northwest.

Regional Geology

The Gataga Lakes area lies within Kechika Trough, a southeasterly extension of the much larger Selwyn Basin. Sedimentary rocks range in age from Cambrian to lower Mississippian. Prior to upper Devonian, easterly derived clastic sedimentary assemblages reflect normal sedimentation patterns while the westerly derivation of upper Devonian to Mississippian sedimentary rocks resulted from block faulting and uplift along the continental margin. Regional stratigraphic relationships are summarized on Figure 3.

Structural geology of the area is dominated by northwesterly trending, easterly directed thrust faults. Pelitic sedimentary rocks within thrust sheets are complexly deformed into upright to slightly overturned isoclinal folds cut by numerous near-vertical shear zones. A penetrative axial plane foliation is commonly well developed. Structural geology is complicated by deformation initiated prior to deposition of middle Devonian clastic rocks above a pronounced unconformity.

Upper Devonian siliceous and pyritic black shales are host to numerous stratiform barite and barite-lead-zinc deposits in the area, notably those at Driftpile Creek some 7 km along strike to the northwest and at Cyprus Anvil's Cirque claims, located about 115 km southeast of the area.

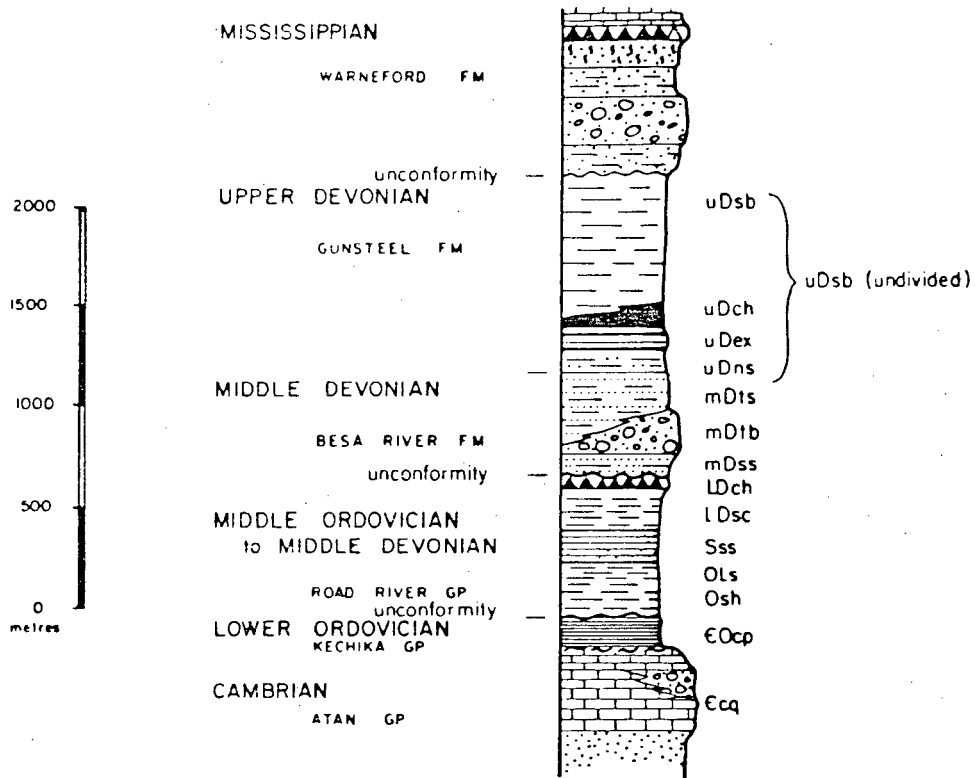


FIGURE 3

ARCHER, CATHRO & ASSOCIATES LTD

STRATIGRAPHY
GATAGA LAKES AREA
GATAGA JOINT VENTURE

Geochemical Survey

During the 1980 field season, 1829 grid soil samples were taken on the Bob 1-4, Bob 7 and Hawk claims. The area, shown in Figure 2, was sampled to test a possible along-strike projection of lead and zinc mineralization on the nearby D, P and Goof claims. Soil samples were taken every 50 metres along traverse lines spaced approximately 100 metres apart. Samples, taken from the "B" soil horizon where possible, were located with the aid of a Hip Chain measuring device and a contoured 1:5,000 scale orthophoto. Sample locations were marked in the field with orange survey flagging. All samples were shipped air freight to Chemex Labs Ltd., North Vancouver, B.C. where they were dried, screened to a minus 80 mesh fraction and analyzed routinely for copper, lead and zinc using a nitric-perchloric acid extraction and atomic absorption spectrometry. Samples which contained a high barium content required redigestion due to barium interference with lead analysis. A portion of the minus 80 mesh fraction from each sample was stored at the lab.

Background levels for the four metals have been established statistically on results of grid soil geochemical surveys carried out by GJV over known mineralization at Driftpile Creek. Results are tabulated below:

	<u>Threshold Value (ppm)</u>	<u>Moderately Anomalous (ppm)</u>	<u>Strongly Anomalous (ppm)</u>
Cu	75	150	300
Pb	175	700	3,000
Zn	700	3,000	10,000

Copper anomalies are rare in the area, only minor copper values have been recorded from known mineralization. Lead geochemistry has proven to be the most

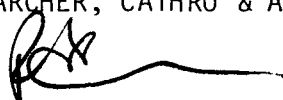
valuable tool for both regional and detailed exploration for shale hosted massive sulphide deposits. Lead distribution in both soil and silt is not as erratic as that for zinc which has a high mobility in locally acid ground waters. Exotic zinc soil geochemical anomalies resulting from dispersion in acid springs can range up to several percent.

Copper, lead and zinc geochemistry of the Bob 1-4, Bob 7 and Hawk claims and the surrounding area is shown at 1:5,000 scale on Figures 4, 5 and 6, respectively. Both copper and zinc values from the grid soil sampling are within background variations established on the nearby Driftpile Creek property (P, D and Goof claims). Moderately strong lead values (up to 950 ppm) from the sampling program define a 1.5 km long anomaly which is open to the southeast in unsampled terrain. No visible signs of either baritic or pyritic mineralization were noted during the course of sampling in the overburden-covered area. The elongate northwest-trending shape of the lead anomaly, however, suggests that it may represent underlying, straitform mineralization.

Conclusions and Recommendations

About 1830 soil samples were taken in the 1980 field season at roughly 50 m x 100 m intervals on a grid located in the central part of the Bob 1-4, Bob 7 and Hawk claim group. Samples were analyzed for Cu, Pb and Zn. Results were generally negative except for lead which outlines a 1.5 km long, northwest-trending elongate anomaly of moderate strength (up to 950 ppm). The anomaly is open to the southeast in unsampled ground. Geochemical sampling should be extended to close off this anomaly. Geological mapping in conjunction with a program of test pitting and prospecting should be carried out to discover the source of anomalous lead soil geochemistry.

Respectfully submitted,
ARCHER, CATHRO & ASSOCIATES LIMITED


R.C. Carne.

APPENDIX I

STATEMENT OF QUALIFICATIONS

I, Robert C. Carne, geologist, with business and residential addresses in Vancouver, British Columbia, hereby certify that:

- 1) I graduated from the University of British Columbia in 1974 with a B.Sc. and in 1979 with an M.Sc. majoring in Geological Sciences.
- 2) I am a member of the Geological Association of Canada.
- 3) From 1974 to the present, I have been actively engaged as a geologist in mineral exploration in British Columbia and Yukon Territory.
- 4) I have personally participated in or supervised the field work reported herein and have interpreted all data resulting from this work.



Robert C. Carne

SUMMARY OF COSTS

on work performed on the

BOB 1, BOB 2, BOB 3, BOB 4, BOB 7 and HAWK CLAIMS

between July 7 and August 12, 1980

Salaries and Wages

F. Gish (Sr. Assistant)	July 7 and July 14	2 days @ \$109/day-	\$218.00	
T. Sandberg (Assistant)	July 7,14,15,16,22 24,25,26, and August 12	9 days @ \$ 77/day-	693.00	
D. Hamilton (Assistant)	July 14,15,24 August 5,6,8	6 days @ \$ 77/day-	462.00	
K. Kauppi (Assistant)	July 22,29 and August 10	3 days @ \$ 71/day-	213.00	
J. Forrest (Assistant)	July 7,15,16,25,26 29, August 8, 10 11 and 12	10 days @ \$ 71/day-	710.00	
T. Paulson (Draftsman)		4 days @ \$ 62/day	<u>248.00</u>	
				\$2,544.00

Geochemical Analyses

Analysis of 1829 soil samples for Cu, Pb and Zn @ \$2.84	5,194.36
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Camp Maintenance (includes fixed wing aircraft costs)

34 mandays @ \$35/day	1,190.00
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Helicopter (includes fuel costs on site)

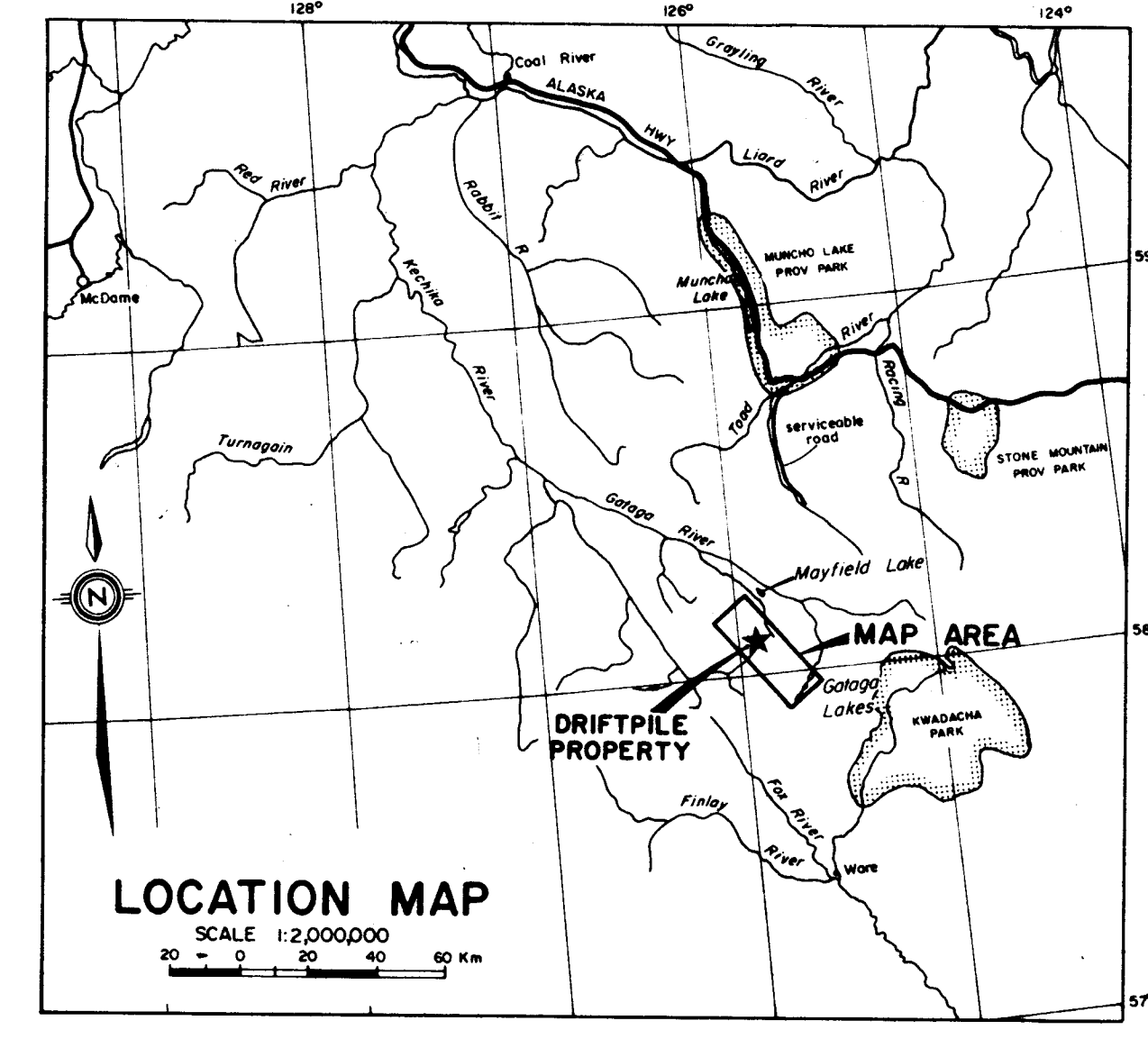
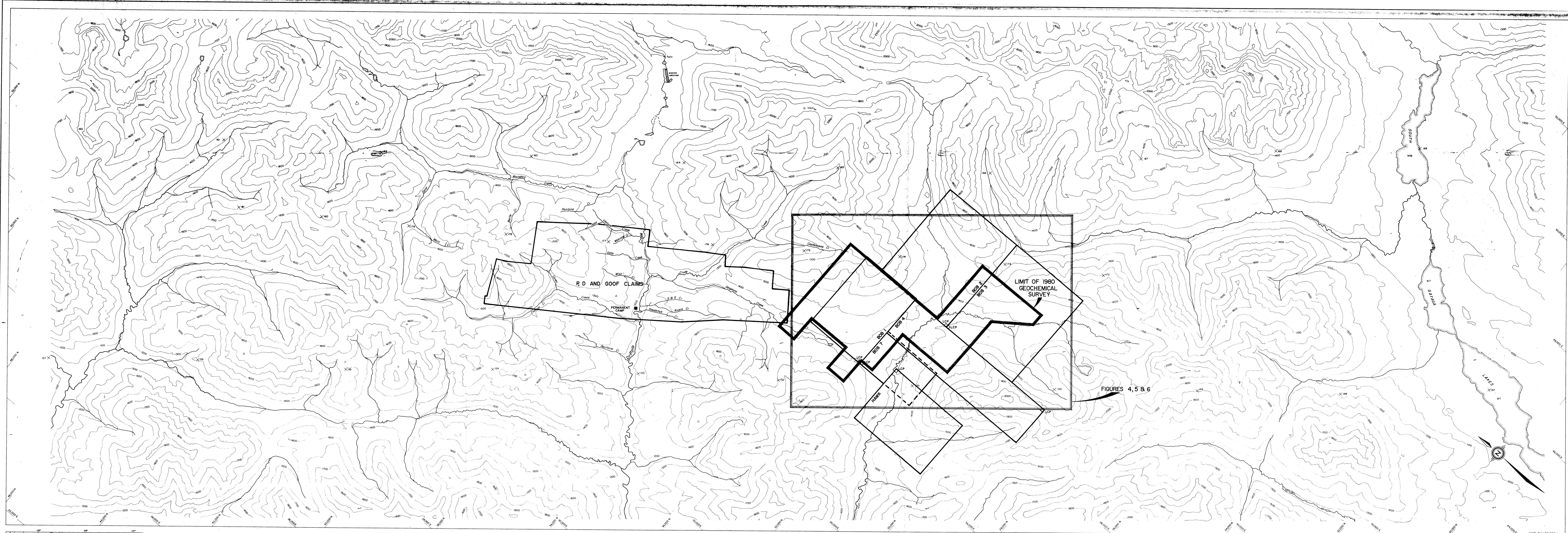
Northern Moutain Helicopters Ltd. Bell Jet Ranger 206B @ \$406/hr x 5.3 hours	<u>2,150.80</u>
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\$11,080.16

Report Preparation and Administration

@ 10% of program costs	<u>1,108.02</u>
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TOTAL EXPENDITURES	<u><u>\$12,188.18</u></u>
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COMPILED FROM AERIAL PHOTOGRAPHY
TAKEN AUGUST 6, 1979 AT A SCALE OF 1:24,000

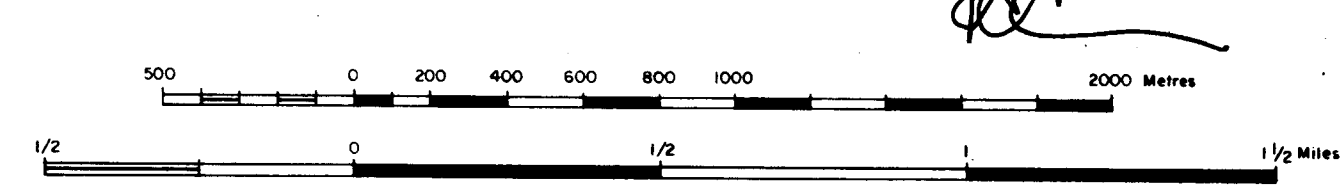
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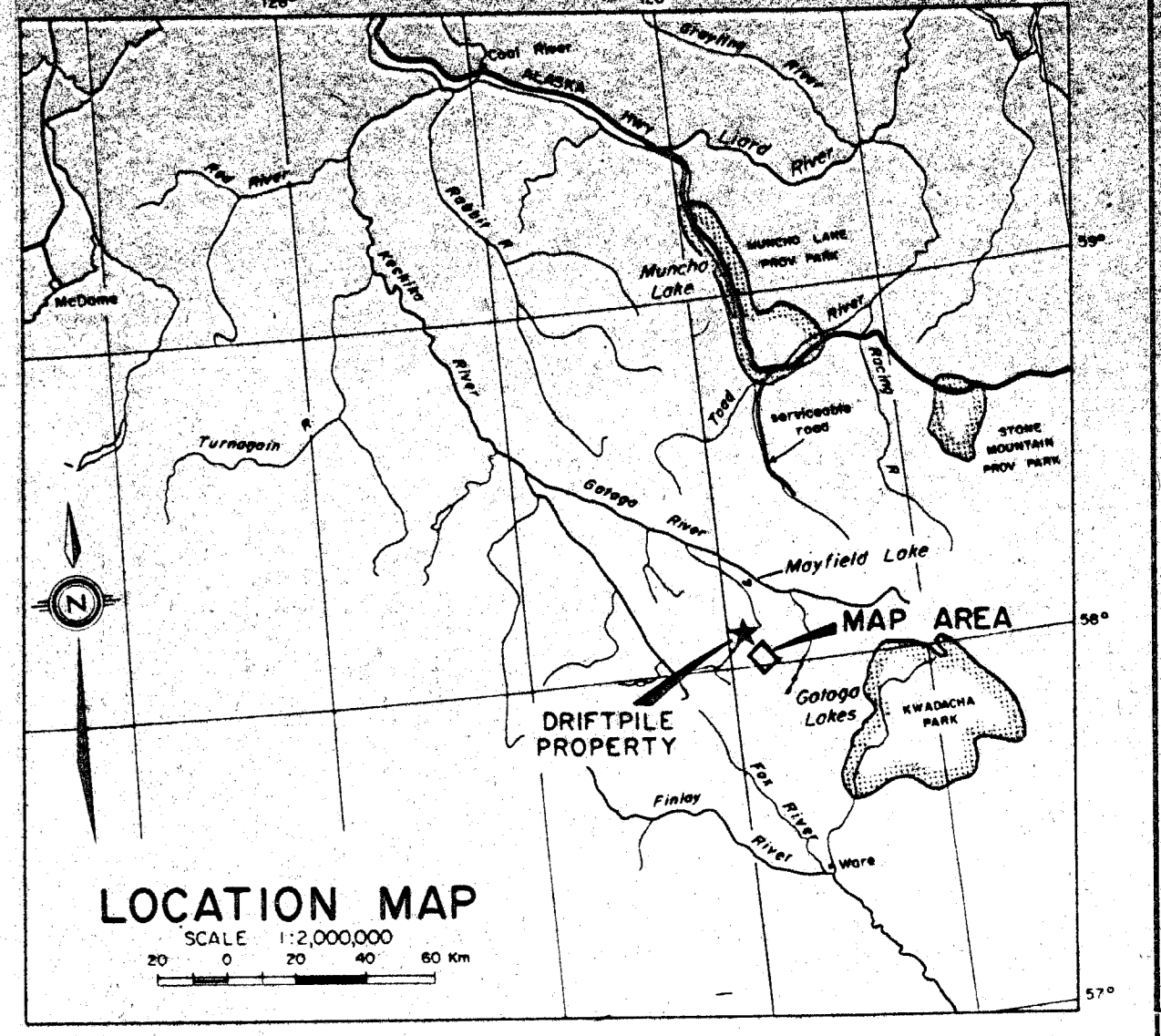
FIGURE 2
ARCHER, CATMO & ASSOCIATES LTD

LOCATION PLAN

BOB 1-4, BOB 7 AND HAWK CLAIMS

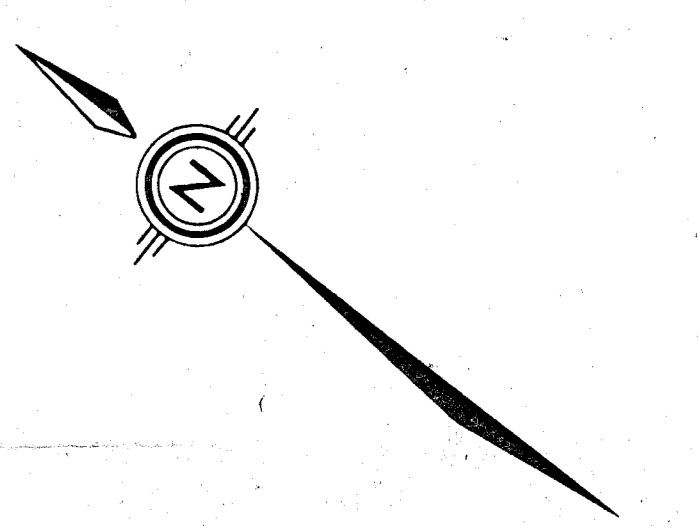
GATAGA JOINT VENTURE
SCALE 1:20,000





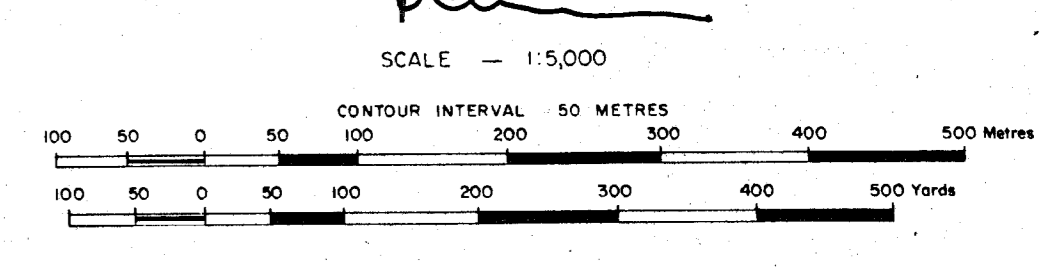
- LEGEND**
- X - air sample (ppm Cu)
 - - soil sample (ppm Cu)
 - - rock sample (ppm Cu)
 - ▲ - grass sample (ppm Cu)
 - claim boundary

- CONTOUR INTERVALS**
- 75 ppm Cu
 - 75 - 149 ppm Cu
 - 150 - 299 ppm Cu
 - 300 ppm Cu

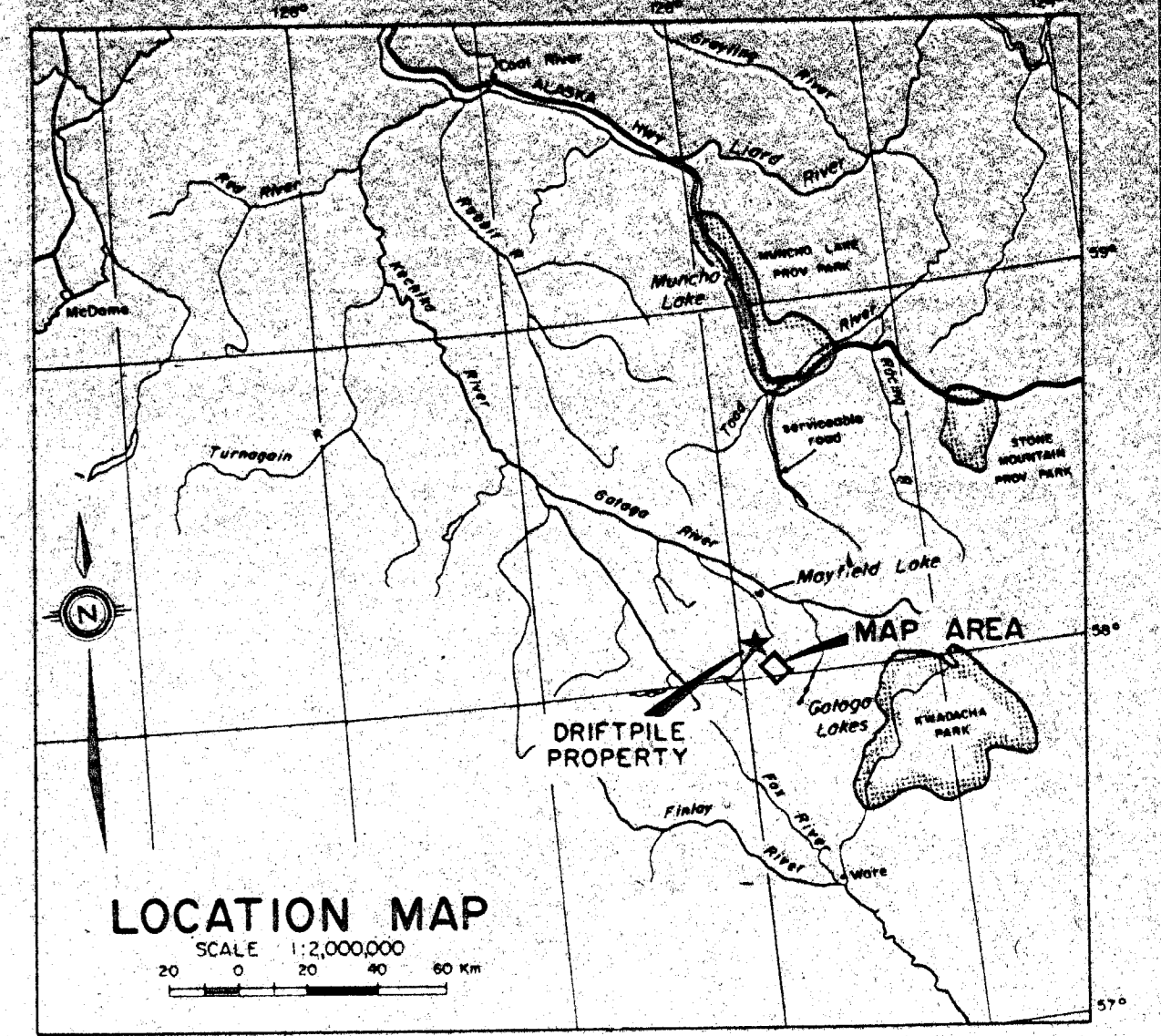
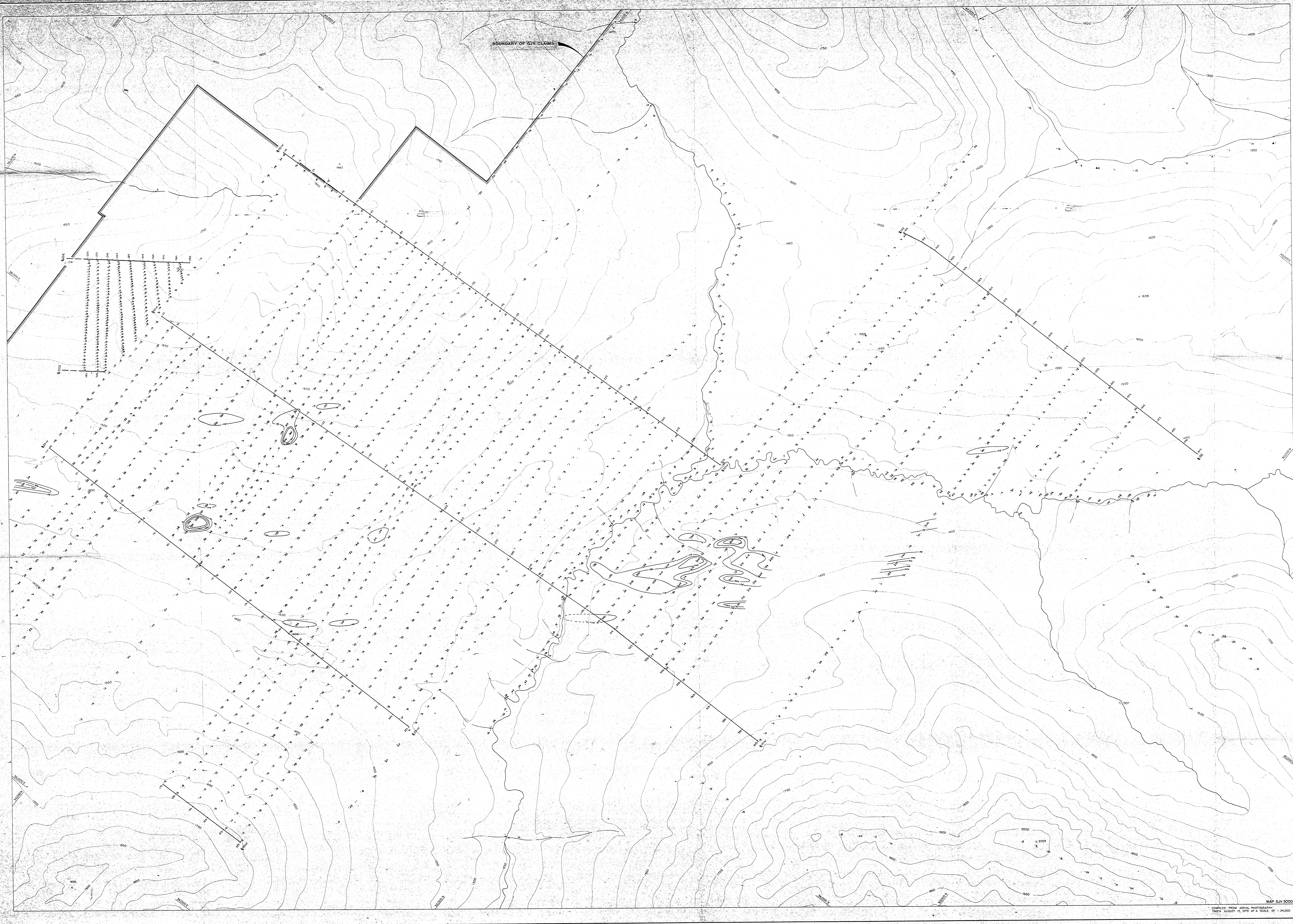


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FIGURE 4
 ARCHER, CATHRO & ASSOCIATES LTD
COPPER GEOCHEMISTRY
 BOB 1-4, BOB 7 AND HAWK CLAIMS
 GATAGA JOINT VENTURE
lca



MAP GUY 5000-2
DERIVED FROM AERIAL PHOTOGRAPHY TAKEN AUGUST 15, 1979 AT A SCALE OF 1:24,000

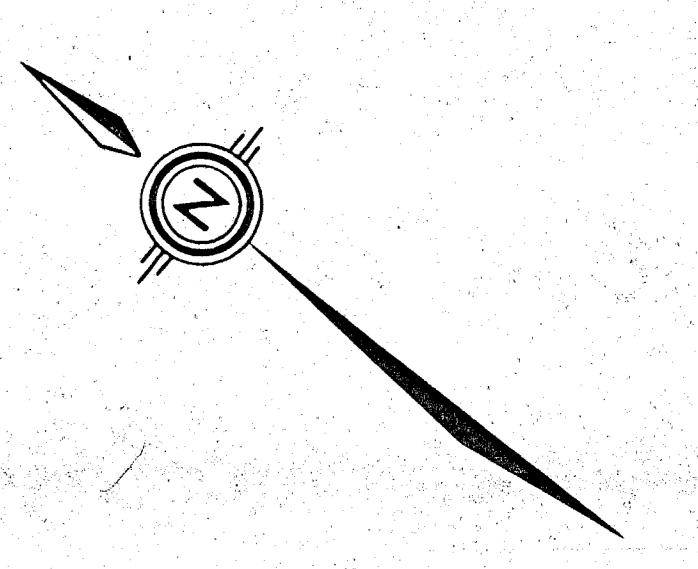


LEGEND

- Geo. data
- Stream
- Contour
- Boundary

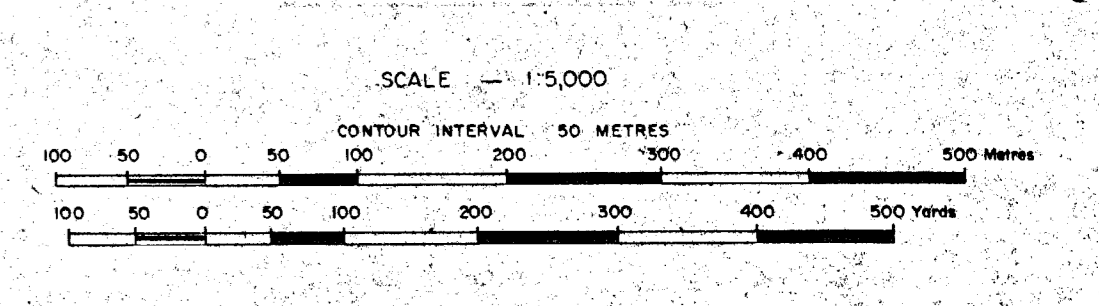
CONTOUR INTERVALS

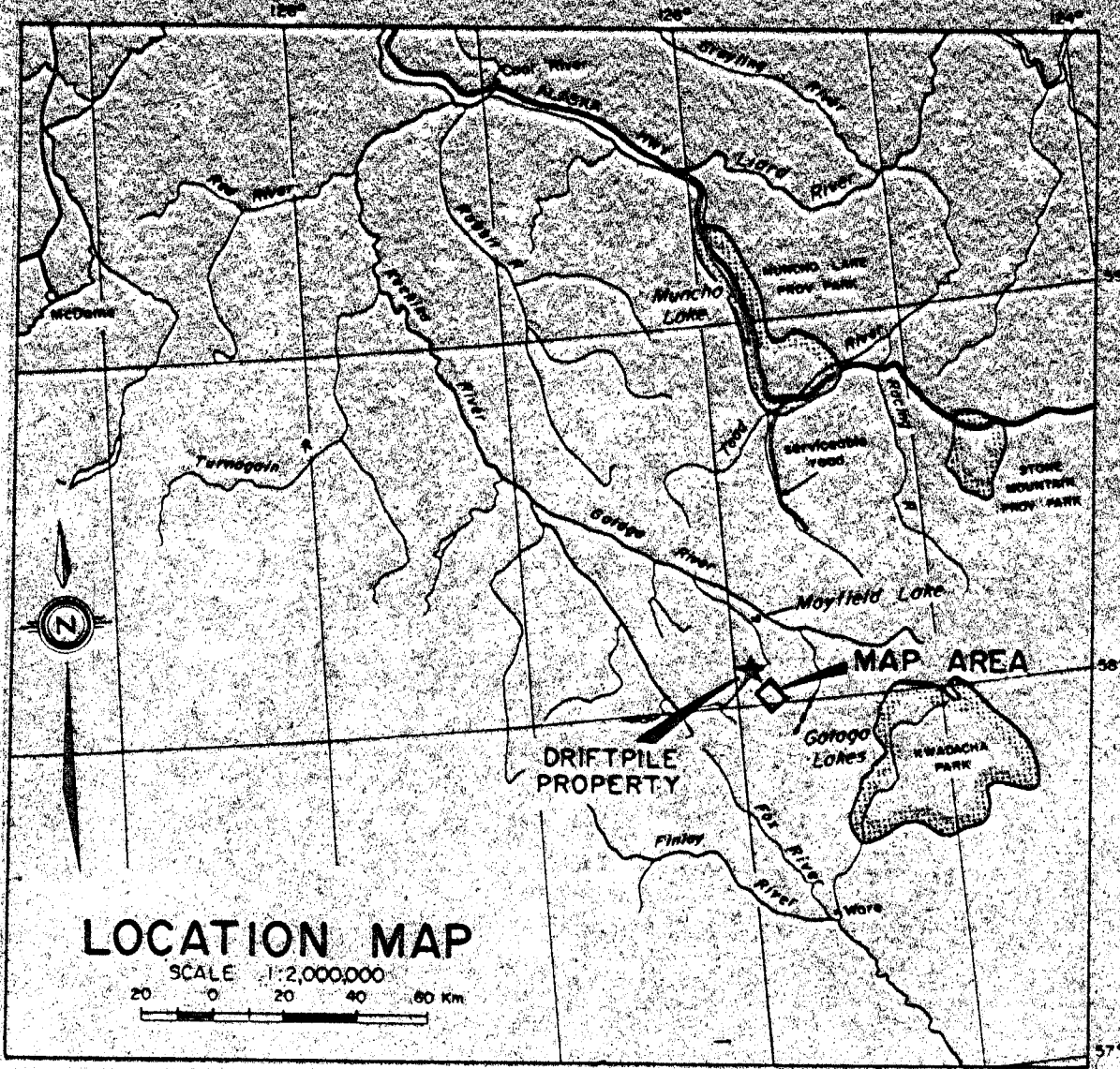
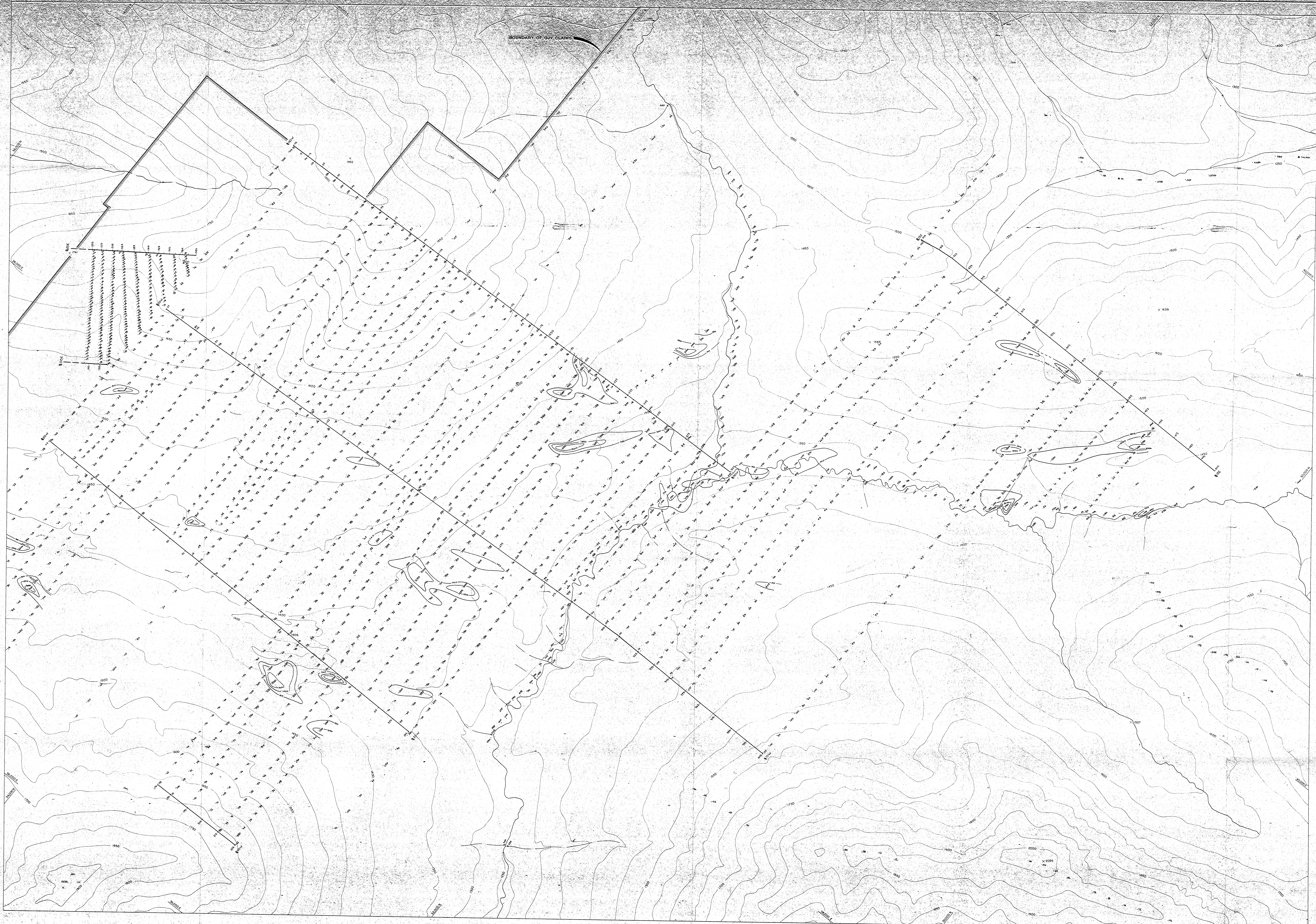
- 100
- 200
- 300
- 400
- 500
- 600



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FIGURE 5
 ARCHER, CATMO & ASSOCIATES LTD
LEAD GEOCHEMISTRY
 BOB 1-4, BOB 7 AND HAWK CLAIMS
 GATAGA JOINT VENTURE



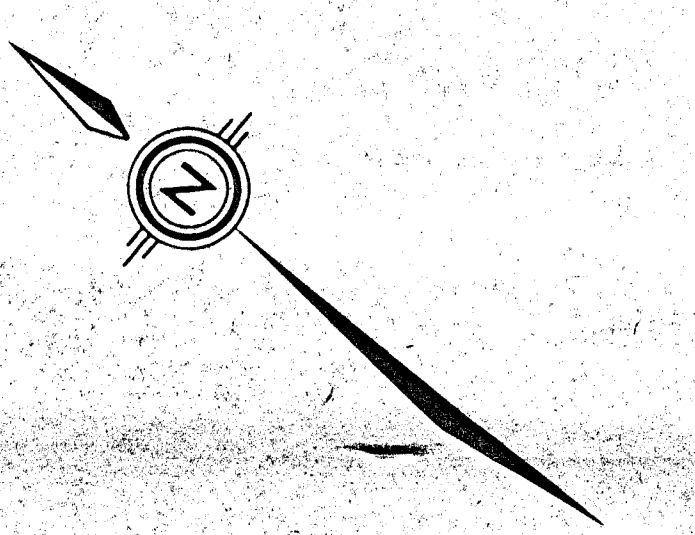


LEGEND

•	1st sample (see 21)
•	2nd sample (see 21)
•	rock sample (see 20)
•	grass sample (see 20)
---	claim boundary

ELEVATION INTERVALS

1000-1499m	1:1000
1500-1999m	2:1000
2000-2999m	2:1000
3000-3999m	2:1000
4000-4999m	2:1000



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FIGURE 6
 ARCHER, CATMO & ASSOCIATES LTD
ZINC GEOCHEMISTRY
 BOB 1-4; BOB 7 AND HAWK CLAIMS
 GATAGA JOINT VENTURE
 SCALE - 1:5000
 COMPILED FROM AERIAL PHOTOGRAPHY
 DATE: AUGUST 1979 AT A SCALE OF 1:25000
 MAP GUY 5000-2