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106 D 1 PROSPECTUS X  
CONFIDENTIAL X  
OPEN FILE

DOCUMENT NO: 092796  
MINING DISTRICT: Mayo  
TYPE OF WORK: Geology, Geochemistry

REPORT FILED UNDER: NDU Resources Ltd.

DATE PERFORMED: July 18-August 25, 1989

DATE FILED: December 27, 1989

LOCATION: LAT.: 64° 01'N

AREA: Wernecke Mountains

LONG.: 134° 15'W

VALUE \$: 5200.00

CLAIM NAME & NO.: ELIXIR 1-52 YB 02767-818

WORK DONE BY: Archer, Cathro and Associates (1981) Ltd.

WORK DONE FOR: NDU Resources Ltd.

DATE TO GOOD STANDING:

REMARKS: #96 ELIXIR Ten kilometres east of the Marg volcanogenic polymetallic sulphide deposit several gossanous zones were sampled for zinc. The majority of these gossans returned soil and stream sediment with anomalous zinc values. The highest zinc value was 3890 ppm and the highest copper value was 536 ppm. Silver values were up to 14.6 ppm.

# ARCHER, CATHRO

• ASSOCIATES (1981) LIMITED

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FINAL REPORT  
1989 FIELD PROGRAM

092796



NDU RESOURCES LTD.

ELIXIR PROPERTY, YUKON

Latitude 64°01'N; Longitude 134°15'W

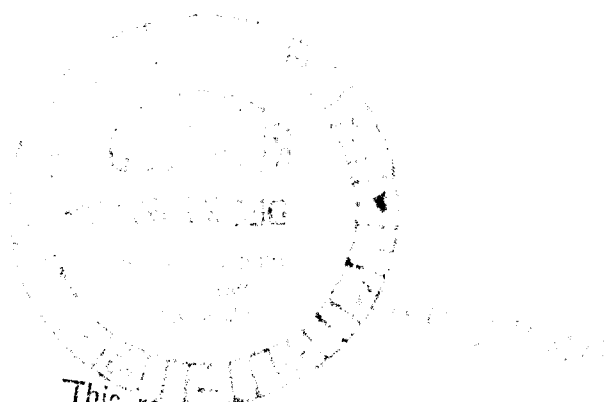
NTS 106D/1

M.L. MacLellan, B.Sc., M.Sc.

R.C. Carne, B.Sc., M.Sc.

December, 1989

Work performed between July 18 and August 25, 1989



This report has been examined by  
the Geological Evaluation Unit  
under Section 53 (4) Yukon Quartz  
Mining Act and is allowed as  
representation work in the amount  
of \$ 5200.00

*W. H. Bage*  
Regional Manager, Exploration and  
Geological Services for Commissioner  
of Yukon Territory.

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INTRODUCTION

The Elixir claims were staked in September, 1988 by NDU Resources Ltd. to cover the source of a number of Geological Society of Canada (GSC) stream sediment zinc anomalies and several gossanous seeps that lie 10 km west of the Marg volcanogenic polymetallic massive sulphide deposit.

In 1988, soil and stream sediment samples were taken in the vicinity of each of the gossans and the majority of these samples returned anomalous values for zinc.

The 1989 exploration program was conducted between July 18 and August 25 and consisted of claim tagging, geological mapping and soil sampling. The work was done under the authors' supervision by Archer, Cathro & Associates (1981) Limited personnel based at the Marg camp, 10 km to the west. Appendix A gives the authors' Statements of Qualifications and Appendix B lists the personnel who worked on the claims.

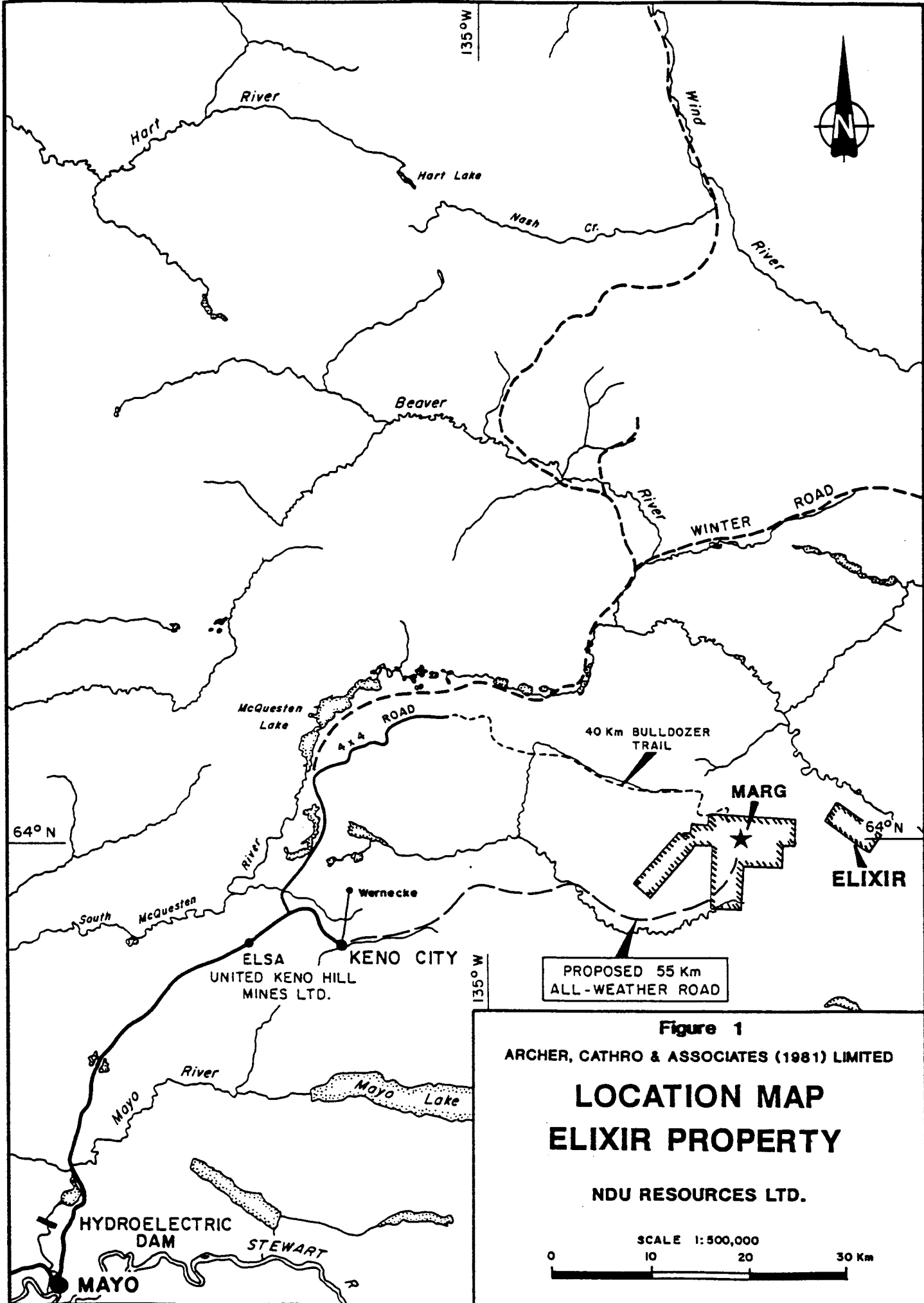
PROPERTY, LOCATION AND ACCESS

The property consists of fifty-two claims registered with the Mayo Mining Recorder as follows:

<u>Claim Name</u>	<u>Grant Number</u>	<u>Expiry Date</u>
Elixir 1-52	YB02767-YB02818	September 8, 1990

The expiry date shown above includes 1989 field costs that have been filed for assessment credit but are not yet approved by the Mining Recorder.

The claims are located approximately 50 km east of Keno City and approximately 10 km east of the Marg exploration camp at latitude 64°01'N and longitude 134°15'W on NTS sheet 106D/1 (Figures 1 and 2). Access in 1989 was by Bell Jet Ranger 206B helicopter operating from an Archer, Cathro basecamp at the abandoned town of Wernecke approximately 7 km from Keno City.



**Figure 1**  
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED  
**LOCATION MAP**  
**ELIXIR PROPERTY**  
 NDU RESOURCES LTD.  
 SCALE 1:500,000  
 0 10 20 30 Km

### HISTORY

Anomalous metal values in stream sediments in the Elixir area were first recognized by the GSC during a regional stream sediment sampling survey (Operation Keno) conducted in 1964. Several streams draining the area returned anomalous zinc values (up to 5240 ppm).

The area was first staked as the Jab claims in February, 1965 by Arivica Exploration Limited through a leak of the GSC geochemical results. They explored the area by airborne and ground EM in 1966 and hand pitting in 1967. Anomalous EM response was apparently caused by pyritic shales and Arivica allowed the claims to lapse.

In 1988, the area was restaked by Archer, Cathro on the behalf of NDU Resources Ltd. A number of gossanous seeps were located and sampled and stream sediment samples were taken upstream of the GSC sample sites.

The 1989 program consisted of claim tagging, geological mapping and soil geochemical sampling.

### GEOMORPHOLOGY

The claims encompass most of a 4600' (1400 m) high ridge which stands between the Keno Ladue and Beaver Rivers. The eastern slopes are cut by a number of fairly steep creeks. The claims extend from the peak at 4600' (1400 m) down to approximately 3500' (1070 m) on the west and 3000' (910 m) on the east. Dense vegetation cover reaches up to approximately 4400' (1340 m) elevation.

## GEOLOGY

### Regional

The Elixir property is located in the southeast corner of the Nash Creek map sheet (106D/1) which was mapped by L.H. Green in 1961 as part of "Operation Ogilvie". At that time, Green mapped the whole property as the Lower Schist division, believed to be of Devonian to Jurassic age. Green also identified several small Triassic greenstone sills. No other mapping was done in the area until the summer of 1989 when Grant Abbott of the Department of Indian and Northern Affairs remapped NTS map sheet 106D/1 which includes the Elixir property. This work will be released by the GSC in open file format in 1990.

### Property

Detailed geological mapping of the property revealed several east-west trending, generally north-dipping rock units which have, as yet, undefined structural relationships (Figure 3). The major map unit encountered is a silver weathering, pyritic black graphitic phyllite (Unit Bp). This unit is fine grained and thin bedded with an almost shaly appearance and often contains up to 10%, 1-2 mm, quartz bands. The black phyllite is probably correlative with Green's Devonian to Jurassic Lower Schist unit.

In the northern and southwestern parts of the claim block, quartz sericite phyllite (Unit Qs) is interbedded with the black phyllite. This rock is generally a pale greenish colour and contains abundant quartz and sericite with variable amounts of chlorite. The unit contains up to 10%, 1-3 mm, bluish quartz-eyes and is similar in appearance to a Mississippian(?) sequence in the vicinity of the Marg volcanogenic massive sulphide deposit, 10 km along strike to the west. The major occurrence of this unit, in the southwest corner of the mapped area, appears to have undergone tight, isoclinal folding.

The third major map unit in the Elixir area is a thin-bedded, black to dark grey, quartzite (Unit Qzit). The quartzite is composed of fine-grained quartz with occasional muscovite partings and thin graphitic interbeds with abundant white quartz veinlets and is correlated with the Mississippian Keno Hill Quartzite. The quartzite is interbedded with the other units in the north and apparently in fault contact with them in the south.

Numerous small greenstone sills (Unit Gdg) intrude all other lithologies in the southwest corner of the area. These intrusions are medium-grained gabbros containing feldspar and hornblende, variably altered to chlorite and are correlated with similar sills of probable Triassic age in the Ogilvie Mountains.

The structural and stratigraphic relationships between the various lithologies on the Elixir property are unclear and further geological mapping is required. There is evidence of at least two stages of deformation including at least one large scale folding event and, in addition, there appears to be at least one major thrust fault within the area.

Other than the presence of several gossanous seeps, no evidence of mineralization was identified during the course of mapping and sampling.

### GEOCHEMISTRY

A total of 398 soil, 8 stream sediment and 7 rock samples was collected from the property in 1989 in addition to the 17 soil, 7 stream sediment and 2 rock samples collected in 1988. The soil samples were taken at about 30 m spacings along the claim lines and along selected contour levels.

All samples were shipped by air to Chemex Labs Ltd. in North Vancouver where the soil and stream sediment samples were analyzed for 32 elements using aqua regia digestion and induced coupled plasma (ICP) atomic emission spectroscopy. Soil and stream sediment sample preparation consisted of sieving through a -35 mesh screen and pulverizing to -150 mesh. Rock samples were ground to -35 mesh and pulverized to -50 mesh. The rocks were analyzed for 20 major elements using a perchloric-nitric-hydrochloric acid digestion of a crushed and pulverized sample followed by ICP atomic emission spectroscopy.

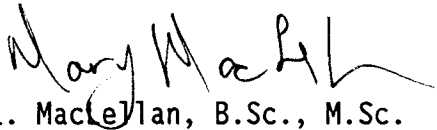
Figures 4 and 5 illustrate results for copper-zinc and lead-silver, respectively. Most of the samples taken from the head of, and along Creeks II and IV are anomalous for zinc and many of the samples are weakly anomalous in copper with maximum values of 3890 and 536 ppm, respectively, from areas of gossanous seeps (Figure 4). Widely scattered samples are weakly anomalous for lead (up to 62 ppm) and many of the samples taken along Creek IV and above Creek III are weakly anomalous in silver, up to 14.6 ppm, (Figure 5). All of the anomalous values and gossanous seeps drain areas of pyritic black phyllite bedrock.

CONCLUSIONS

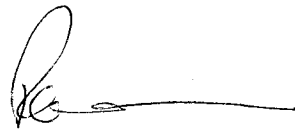
The Elixir claims contain numerous moderate strength zinc anomalies but all of the other elements (including copper, lead and silver) show only background or weak to moderately anomalous values. The anomalies and associated gossanous springs are associated with a pyritic black phyllite unit. The quartz sericite phyllite unit associated with volcanogenic polymetallic massive sulphide on the nearby Marg property does not appear to carry mineralization on the Elixir property. Zinc has a relatively high background value throughout most of this map sheet and its usefulness as a specific exploration tool is rather questionable; however, coincident weak to moderate strength zinc, copper and silver values in the headwater areas of Creeks II and IV should be followed up with detailed prospecting to define the potential for sedex base metal deposits in the black phyllite.

Respectfully submitted,

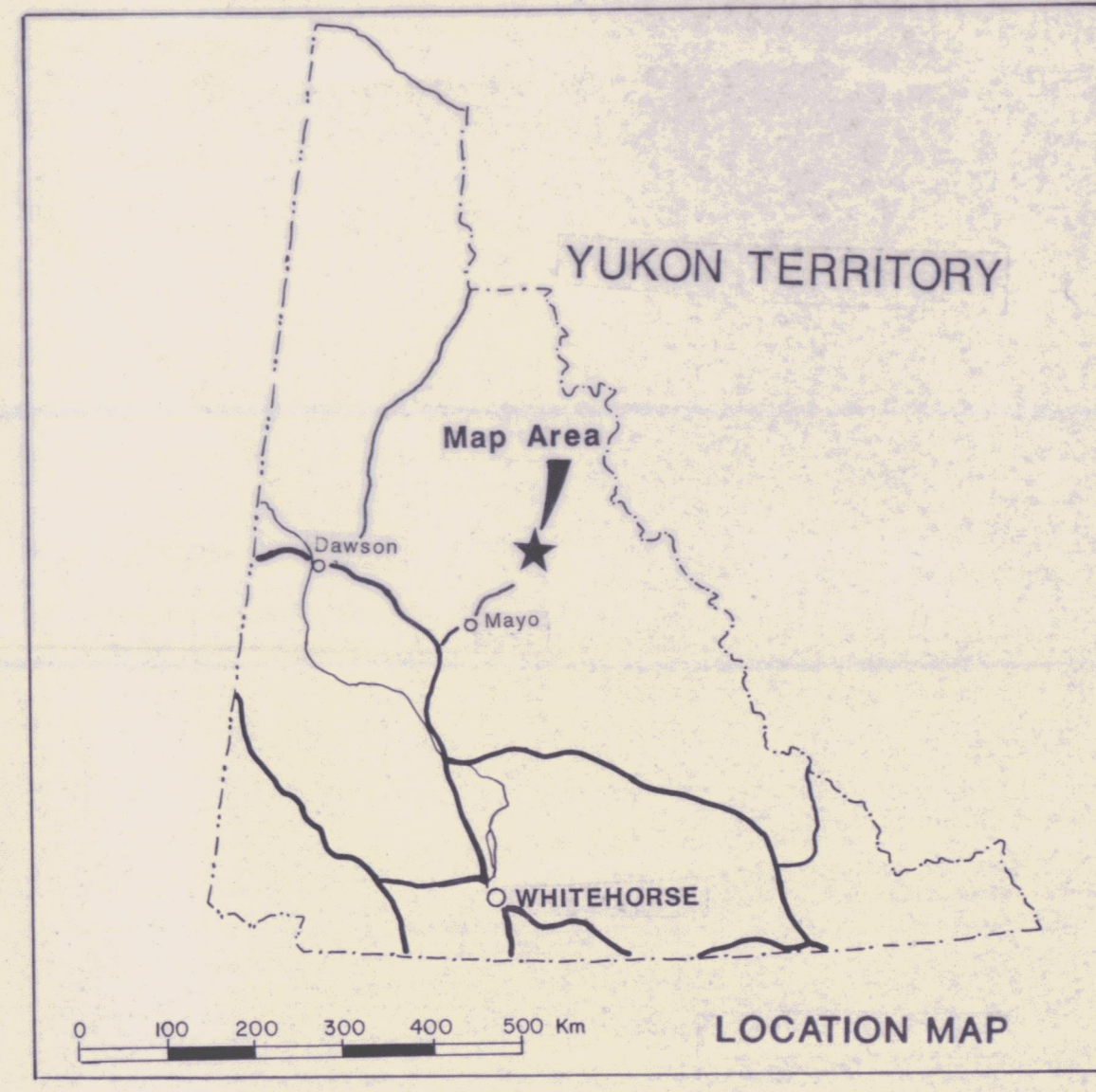
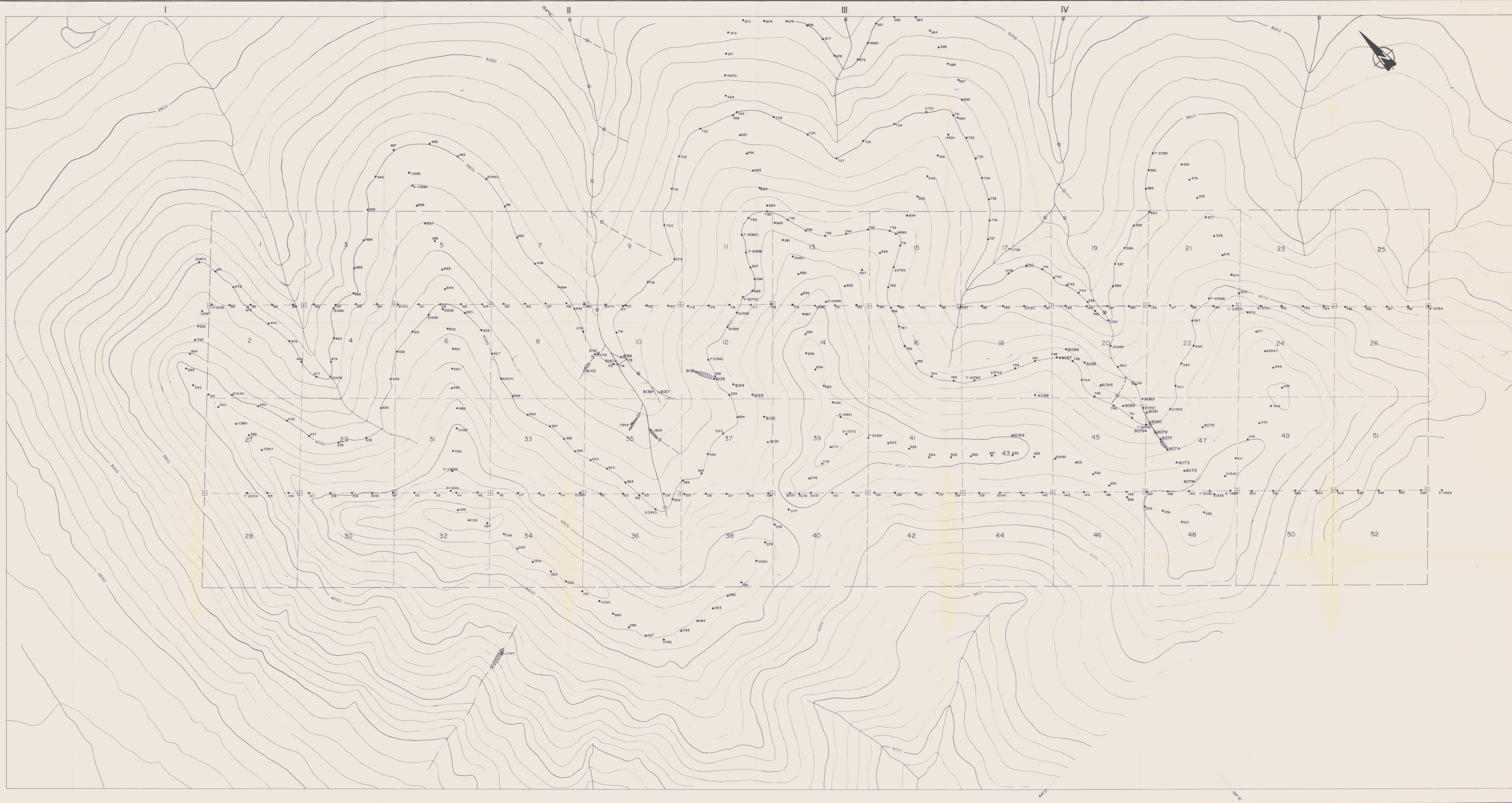
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED



M.L. MacLellan, B.Sc., M.Sc.

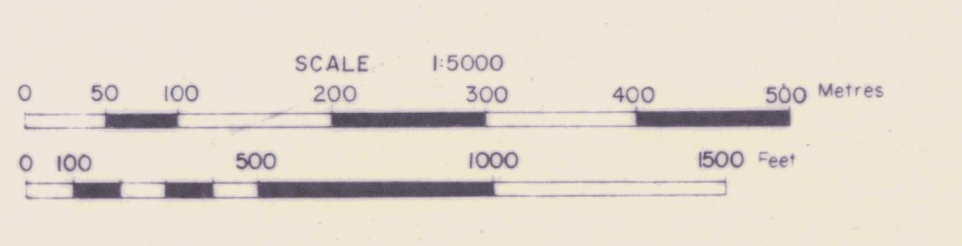


R.C. Carne, B.Sc., M.Sc.



- LEGEND**
- Soil Sample
  - x Stream Sediment Sample
  - Rock Sample
  - ⊙ GSC Stream Sediment Sample
  - ⊙ Limonitic Spring Gossan
  - 8134 Sample Number (1988-1992)
  - Claim Post (approximate location)

Figure 2  
 ARCHER CATHRO & ASSOCIATES (1987) LIMITED  
**CLAIM AND SAMPLE LOCATION MAP**  
 ELIXIR CLAIMS, YUKON  
 NDU RESOURCES LTD.





**LEGEND**

- Gdg Greenstone - silt of diorite and gabbro, variable chloritic alteration.
- Bp Black Phyllite - silver weathering graphitic phyllite.
- Qz1 Quartzite - massive, gray to dark grey, abundant white quartz veinlets, thin quartz graphitic phyllite interbeds.
- Qz2 Quartz Sericite Phyllite - 5 to 20%, 1 to 3 mm, blue quartz eyes, variably chloritic.

**SYMBOLS**

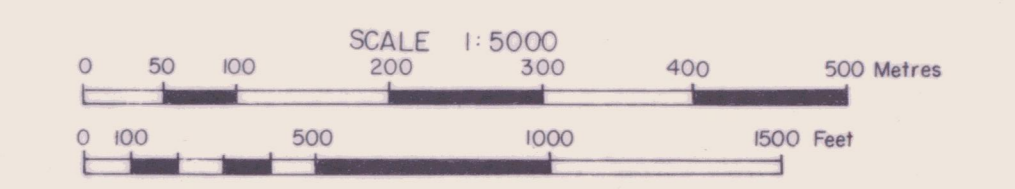
- Outcrop Outline
- Contact - approximate, inferred
- Foliation - strike, dip
- Bedding - strike, dip
- Small Scale Fold - strike and plunge
- Thrust Fault - approximate
- Syncline - approximate
- Anticline - approximate
- Limonitic Spring Gossan

**Figure 3**

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

**GEOLOGY**

ELIXIR CLAIMS, YUKON 225  
 NDU RESOURCES LTD. 106 D 1





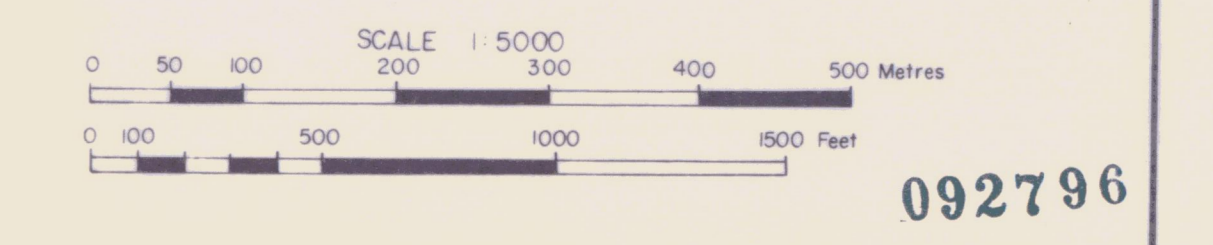
- LEGEND**
- X Stream Sediment Sample
  - Soil Sample
  - Rock Sample
  - ⊗ GSC Stream Sediment Sample
  - 34,112 Cu (ppm), Zn (ppm) (1988-1993)
  - ⊞ Limonitic Spring Gossan
  - 120,545 Anomalous Values (Cu > 100, Zn > 250 ppm)

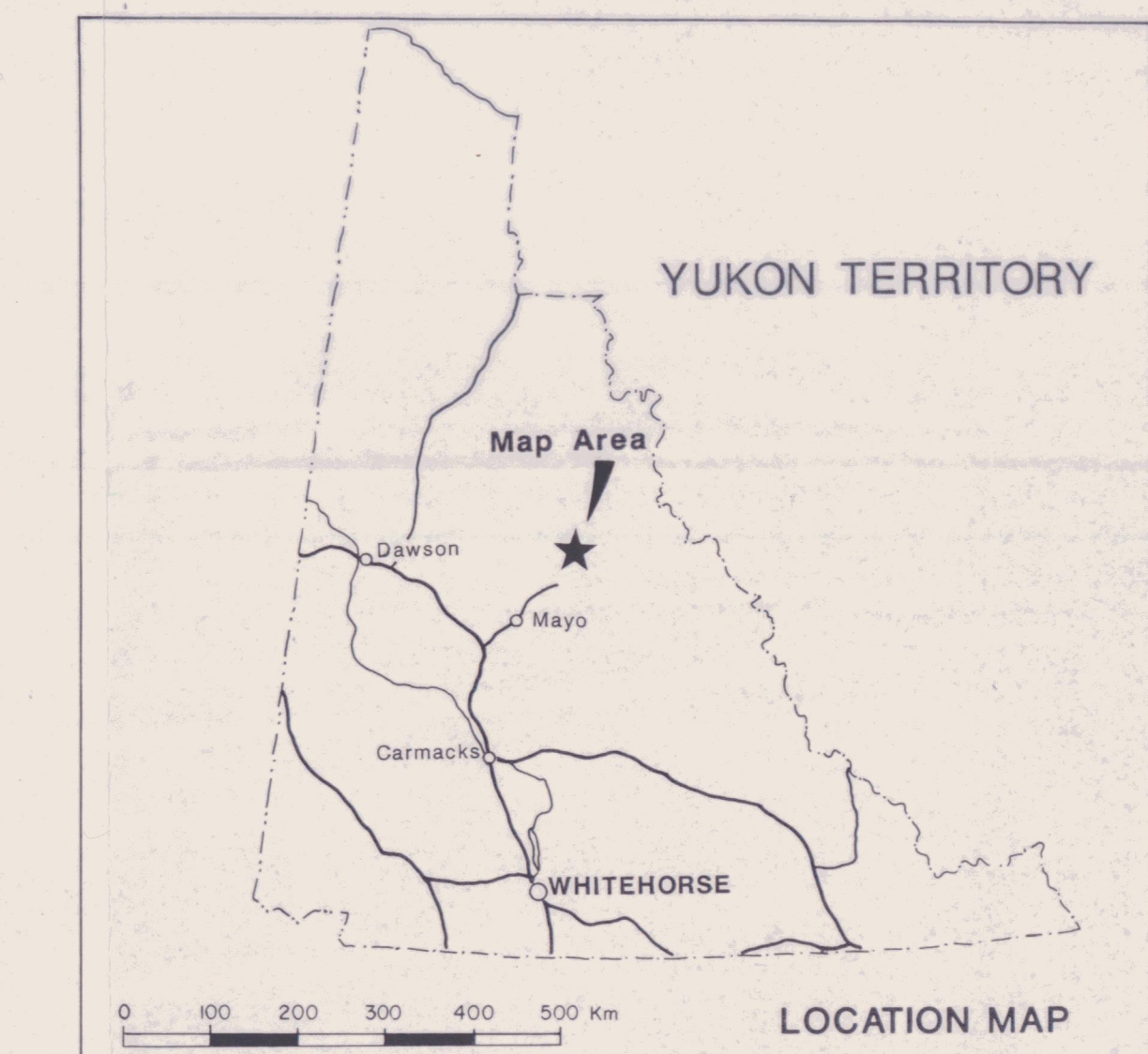
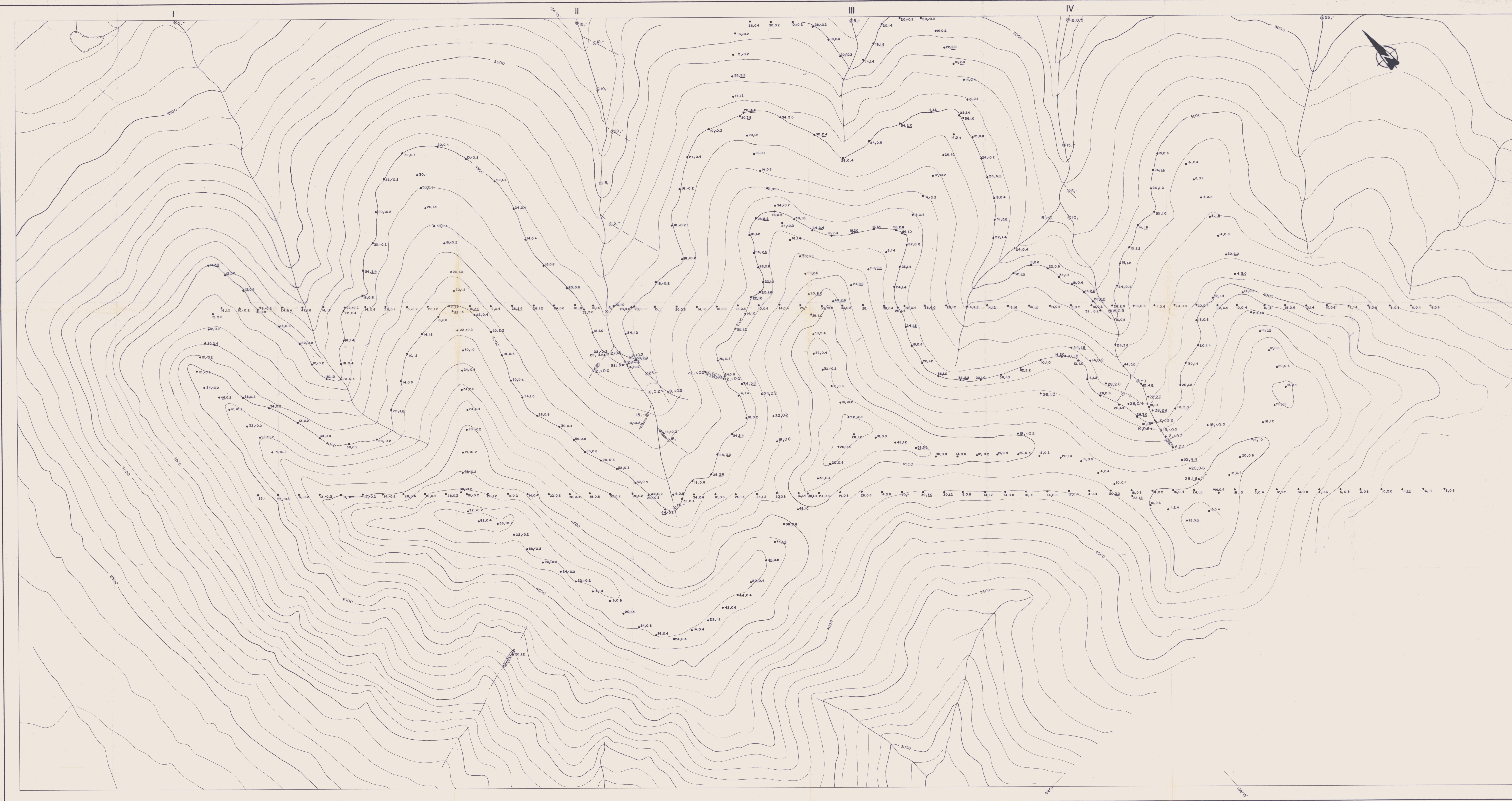
Figure 4  
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

**Cu, Zn GEOCHEMISTRY**

ELIXIR CLAIMS, YUKON *226*

NDU RESOURCES LTD. *106 D 1*





- LEGEND**
- Soil Sample
  - Rock Sample
  - × Stream Sediment Sample
  - ⊙ GSC Stream Sediment Sample
  - 23.02 Pb(ppm), Ag(ppm) (1988, 1989)
  - ⊙ Luminic Spring Gosson
  - 15.18 Anomalous Values (Pb>40, Ag>15ppm)

**Figure 5**  
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

**Pb, Ag GEOCHEMISTRY**

ELIXIR CLAIMS, YUKON  
 NOU RESOURCES LTD.

SCALE 1:5000  
 0 50 100 200 300 400 500 Metres  
 0 100 200 300 400 500 Feet

106 D 1

APPENDIX A  
AUTHORS' STATEMENTS OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, Robert C. Carne, geologist, with business addresses in Whitehorse, Yukon Territory and Vancouver, British Columbia and residential address in Burnaby, 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 present, I have been actively engaged as a geologist in mineral exploration in British Columbia and Yukon Territory and on June 1, 1981 became a partner of Archer, Cathro & Associates (1981) Limited.
3. I have personally participated in or supervised the field work reported herein and have interpreted all data resulting from this work.



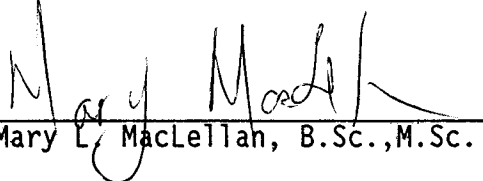
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Robert C. Carne, B.Sc., M.Sc.

STATEMENT OF QUALIFICATIONS

I, Mary L. MacLellan, geologist, with business addresses in Whitehorse, Yukon Territory and Vancouver, British Columbia and residential address in Vancouver, British Columbia, hereby certify that:

1. I graduated from the University of Manitoba in 1984 with a B.Sc. and I graduated from Michigan Technological University in 1988 with an M.Sc. in Geology.
2. From 1988 to present, I have been actively engaged as a geologist in mineral exploration in Yukon Territory and am presently employed with Archer, Cathro & Associates (1981) Limited. I was previously engaged as a geologist in mineral exploration in Manitoba from 1984.
3. I have personally participated in or supervised the field work reported herein.

  
Mary L. MacLellan, B.Sc., M.Sc.

APPENDIX B  
LIST OF PERSONNEL

LIST OF PERSONNEL

<u>NAME</u>	<u>POSITION</u>	<u>DATES ON PROPERTY</u>
Mary MacLellan	Geologist	July 21-22, August 21-23
Kevin Garus	Assistant	July 18, 21-22, August 21-23, 25
Gord MacIntosh	Assistant	July 18, 21, August 21, 23
Frank Gish	Assistant	August 21
Maggie Dittrick	Geologist	August 22-23