

HART RIVER MINES LTD.  
Report on a Geochemical Survey  
on the Zebra 1 - 89 Claims  
Hart River Area, Y. T.

ALRAE ENGINEERING LTD.



January 14, 1969

This report has been examined by  
the Geological Evaluation Unit.  
Approved as to technical worth by:

  
RESIDENT GEOLOGIST

Approved as to cost in the amount  
of: \$ 9,322.96

  
RESIDENT MINING ENGINEER

Accepted as representation work  
under Section 53(4) Yukon Quartz  
Mining Act.

  
COMMISSIONER OF YUKON

TO PROTECT OUR CLIENTS, THE PUBLIC AND OURSELVES, ALL REPORTS ARE SUBMITTED AS THE SOLE PROPERTY OF CLIENTS AND AUTHORIZATION FOR PUBLICATION OF STATEMENTS, CONCLUSIONS AND EXTRACTS FROM OUR REPORTS MUST RECEIVE OUR WRITTEN APPROVAL

MEMORANDUM

Mining Recorder,  
Mayo, Y.T.

Box 1767,  
Whitehorse, Y.T., June 9, 1969.  
M.I. M-252

Reports on the Geochemical Surveys on the Zebra 1 - 89  
and Mark 39-76 Mineral Claims and the Geochemical and Mag-  
netometer Surveys on the Mark 1 - 38, Linda B 1 - 9, 17 & 18  
and the May 1 - 6 Mineral Claims for Hart River Mines Ltd.  
by G. Trowsdale.

---

On the recommendation of the Resident Geologist and Resident Mining Engineer  
I hereby authorize you to accept these reports as representation work under  
Sec. 53 (4) of the Yukon Quartz Mining Act to the value of \$27,987.51 com-  
bined for the three reports.

Yours sincerely,

Original signed by  
Commissioner J. Smith

Attach.  
NQ Needhamstram

James Smith,  
Commissioner.

cc: Chief, Oil and Mineral Division  
Attention: Geological Evaluation Unit  
  
Central Mining Records - Whitehorse ✓  
  
Resident Geologist

## TABLE OF CONTENTS

	Page
INTRODUCTION . . . . .	1
CONCLUSIONS AND RECOMMENDATIONS. . . . .	1
LOCATION AND ACCESS. . . . .	1
TOPOGRAPHY AND VEGETATION. . . . .	2
CLAIM DATA . . . . .	2
HISTORY. . . . .	2
GEOLOGY. . . . .	2
Table of Formations . . . . .	3
GEOCHEMICAL SURVEY . . . . .	4
INTERPRETATION . . . . .	4
TIME AND COST DISTRIBUTION . . . . .	6

### MAPS

			Scale
Fig. 1	Geochemical Survey	Copper	1" = 500'
Fig. 2	Geochemical Survey	Lead	1" = 500'
Fig. 3	Geochemical Survey	Zinc	1" = 500'

TO PROTECT OUR CLIENTS, THE PUBLIC AND OURSELVES, ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS AND AUTHORIZATION FOR PUBLICATION OF STATEMENTS, CONCLUSIONS AND EXTRACTS FROM OUR REPORTS MUST RECEIVE OUR WRITTEN APPROVAL.

## INTRODUCTION

The Zebra 1 - 89 group of claims consists of 89 contiguous, full sized mineral claims situated in the Hart River area 80 miles northwest of Mayo, Y.T. These claims were staked as follows:

Zebra 1 - 14	June 1966
Zebra 15 - 77	June 1968
Zebra 78 - 89	August 1968

The survey was conducted at the request of Hart River Mines Ltd. to investigate the locations of further possible sulfide zones in the group.

Field work was carried out from July 8th to July 23rd, 1968.

## CONCLUSIONS AND RECOMMENDATIONS

Two of the three main anomalies revealed by the soil samples are associated with known mineral occurrences, the third is associated with a favourable geological environment. All these appear to be located near diorite-argillite-dolomite contacts. The copper anomaly associated with the junction of two faults in the lower dolomite east of Zebra Creek and northeast of showing #3 merits further investigation.

It is recommended that further investigation along the contacts of diorite-argillite and dolomite should be made. Magnetic or gravity geophysical surveys should be instituted to determine the continuity of the present known showings.

## LOCATION AND ACCESS

The claims are located at approximately 64°38'N latitude and 136°50'W longitude on claim sheet 116A-10. This site is 80 air miles northwest of Mayo and 80 miles northeast of Dawson.

Access to the property was by Cessna 185 from Dawson, Y.T. to Mark Lake then by helicopter to the property, 12 miles southwest of Mark Lake. Chapman Lake and the Dempster highway lies approximately 50 miles to the west. A winter road has been constructed from the Dempster highway to the property during December 1968.

#### TOPOGRAPHY AND VEGETATION

The relief in the area varies from broad 'U' shaped valleys to steep unstable talus slopes. The valleys are mainly swampy and covered with buckbrush and willows. Spruce, the predominant tree type, are sparsely scattered throughout the valleys to an elevation of approximately 3,500 feet.

#### CLAIM DATA

The block of 89 contiguous full sized claims is shown on claim sheet 116A-10. These claims are all held by Hart River Mines Ltd.

#### HISTORY

These claims were staked as follows: Zebra 1-14 in June 1966, Zebra 15-77 in June 1968 and Zebra 78-89 in August 1968.

A Geological and Engineering Report was instituted during 1966 and completed January 1967 on Zebra claims 1-14. From this investigation four showings were located carrying values in gold, silver and copper.

On the remaining claims staked during 1968 this is the first recorded work.

#### GEOLOGY

The detailed geology of the area was mapped during 1968 and a full report will be issued, on completion, by A. MacDonald and

J.L. Usher.

TO PROTECT OUR CLIENTS, THE PUBLIC AND OURSELVES, ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS AND AUTHORIZATION FOR PUBLICATION OF STATEMENTS, CONCLUSIONS AND EXTRACTS FROM OUR REPORTS MUST RECEIVE OUR WRITTEN APPROVAL.

Most of the geologic information in this report is taken from Map 116A, the Larsen Creek sheet, 1" = 4 miles, which accompanies G.S.C. paper 62-7 by L.H. Green and J.A. Roddick.

Table of Formations

<u>Cretaceous</u> 20	orange to brown weathering, diorite and gabbro and altered equivalents.
<u>Cambrian, Ordovician and Silurian</u> 8	Dolomite and limestone, thick bedded, grey-buff weathering.
Unconformity	
<u>Precambrian</u> 2	orange weathering, platy, grey-green dolomite, dark slate, minor phyllite and quartzite.
2d	buff, orange and pink dolomite, black shale, minor black limestone. Red dolomite; green argillite, maroon quartzite and shale, and greenstone.
1	mainly dark grey, grey-green, and black thin bedded argillite, slate and phyllite.

Relatively narrow bands of sediments of map units 1, 2, and 2d trend easterly or southeasterly through the area, usually dipping vertically or steeply south. These are surrounded by andesitic flows often serpentized and in places becoming coarser grained and approaching a diorite. These units are capped in places by remnants of less altered, thick bedded limestones and dolomites of unit 8. Small stocks of diorite (unit 20) intrude the above units at several locations in the area.

Two sets of faults and shears appear to occur in the area. One set strikes generally parallel to the bedding in an easterly or southeasterly direction dipping from steeply to 45° south. The other set strikes northerly with vertical to very steep dips. It appears to occur mainly along the north side of the sedimentary belt of units 2 and 2d, often in a zone of coarser andesite or close to a

TO PROTECT OUR CLIENTS, THE PUBLIC AND OURSELVES, ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS AND AUTHORIZATION FOR PUBLICATION OF STATEMENTS, CONCLUSIONS AND EXTRACTS FROM OUR REPORTS MUST RECEIVE OUR WRITTEN APPROVAL.

diorite stock. The deposits occur as pods parallel to the bedding in sericite phyllites or as veins in shear zones cutting serpentized andesite or cross cutting the phyllites. Most of the deposits are accompanied by quartz and siderite.

#### GEOCHEMICAL SURVEY

(1) Control Grid

Approximately 30 line miles of baseline and cross lines were marked with flagging as outlined in figs. 1, 2 and 3. Lines were put in using a compass and nylon chain at 400 foot intervals and sampling stations at 200 feet along the lines.

(2) Field Procedure

The geochemical survey carried out was a program of soil sampling. Samples collected along cross lines, consisted of residual soil immediately underlying the organic layer. A total of 28 line miles of grid lines were sampled.

(3) Laboratory Procedures

All samples were analysed for copper, lead and zinc. Laboratory work was performed by the Whitehorse Assay Office, Whitehorse, Y.T.

After drying and screening to -80 mesh the metals were extracted by a hot  $\text{HNO}_3\text{-HCl}$  solution. The quantities of each metal in the sample were determined by atomic absorption spectrographic analysis. Contoured laboratory results for lead, zinc and copper are shown on figs. 1, 2 and 3.

#### INTERPRETATION

There are three main anomalous areas revealed by the soil sampling, two of these are associated with known showings while the third occurs near a favourable geological environment.

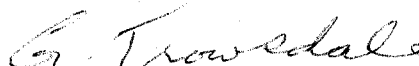
Original showings No's. 1 and 2 are the main area of interest, having copper, lead and zinc anomalies associated with the showings in the diorite-argillite-dolomite contact zones.

Showing No. 4 has a copper anomaly in the general area near the diorite-argillite contact and is adjacent to a faulted limestone-diorite contact which could be a favourable environment for mineralization.

There is a copper anomaly associated with the junction of two faults in the lower dolomite east of Zebra Creek and northeast of showing No. 3 which would warrant further investigation.

The soil sampling has indicated three areas for further investigation, and it is felt that the diorite body on the Zebra group should be more fully checked for mineralization, especially along the contacts with the argillite and dolomites.

Respectfully submitted:



G. Trowsdale, P. Eng.

TIME AND COST DISTRIBUTION

LABOUR

<u>Name</u>	<u>Days</u>	<u>Position</u>	
Dr. J. L. Usher	10	Supervision	\$ 612.80
G. Trowsdale	5	Supervision and Report	460.09
R. A. Bennett	40	Grid lines soil sampling plotting	1,230.00
P. Cumberbirch	35	Grid lines, soil sampling	618.10
D. Reinke	1	Grid lines	33.88
M. Payne	5	Drafting	276.55
G. D. House	4	Interpretation	200.00
D. L. McKelvie	2	Consulting	200.80
R. G. Jury	2	Consulting	<u>200.00</u>
			\$ 3,832.22
Camp costs	87 x 12.36		\$ 1,075.32
Transportation			
Air Fare	33-1/2 x 4 x 230		306.67
Cessna	16 hours @ 65.00		1,040.00
Helicopter	12 hours @ 150.00		1,800.00
Laboratory charges			1,023.75
Miscellaneous drafting and field supplies			<u>250.00</u>
			\$ 5,495.74
		TOTAL	\$ <u>9,327.96</u>

TO PROTECT OUR CLIENTS, THE PUBLIC AND OURSELVES, ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS AND AUTHORIZATION FOR PUBLICATION OF STATEMENTS, CONCLUSIONS AND EXTRACTS FROM OUR REPORTS MUST RECEIVE OUR WRITTEN APPROVAL.

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the City  
of Vancouver, in the  
Province of British Columbia, this 5  
day of March 1969, A.D.

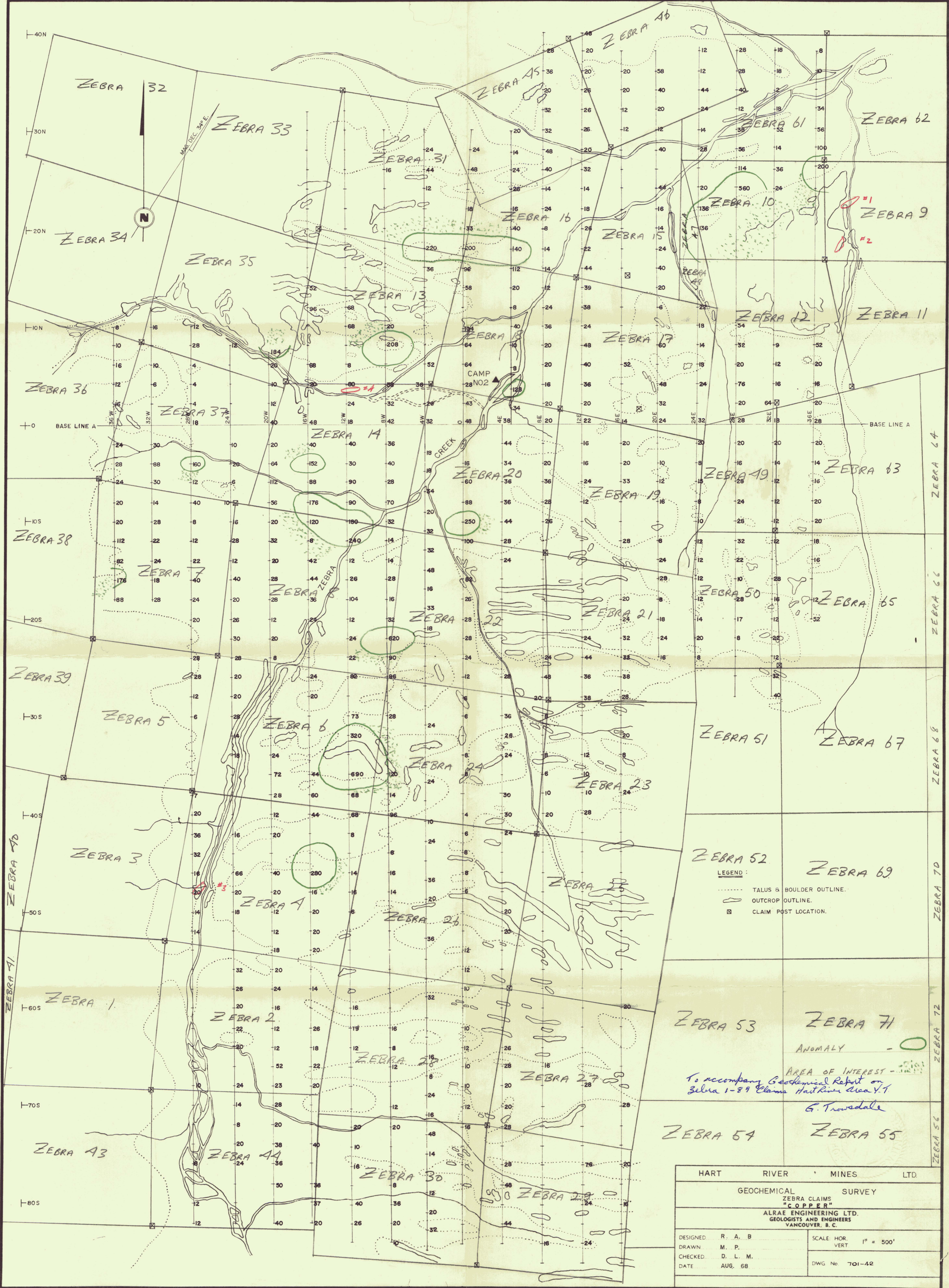
G. Trowsdale

[Signature]

*A Commissioner for taking Affidavits for British Columbia or  
A Notary Public in and for the Province of British Columbia.*

★0

*2011 3 25 20 sample 2 550 sample  
550 sample base*



LEGEND:

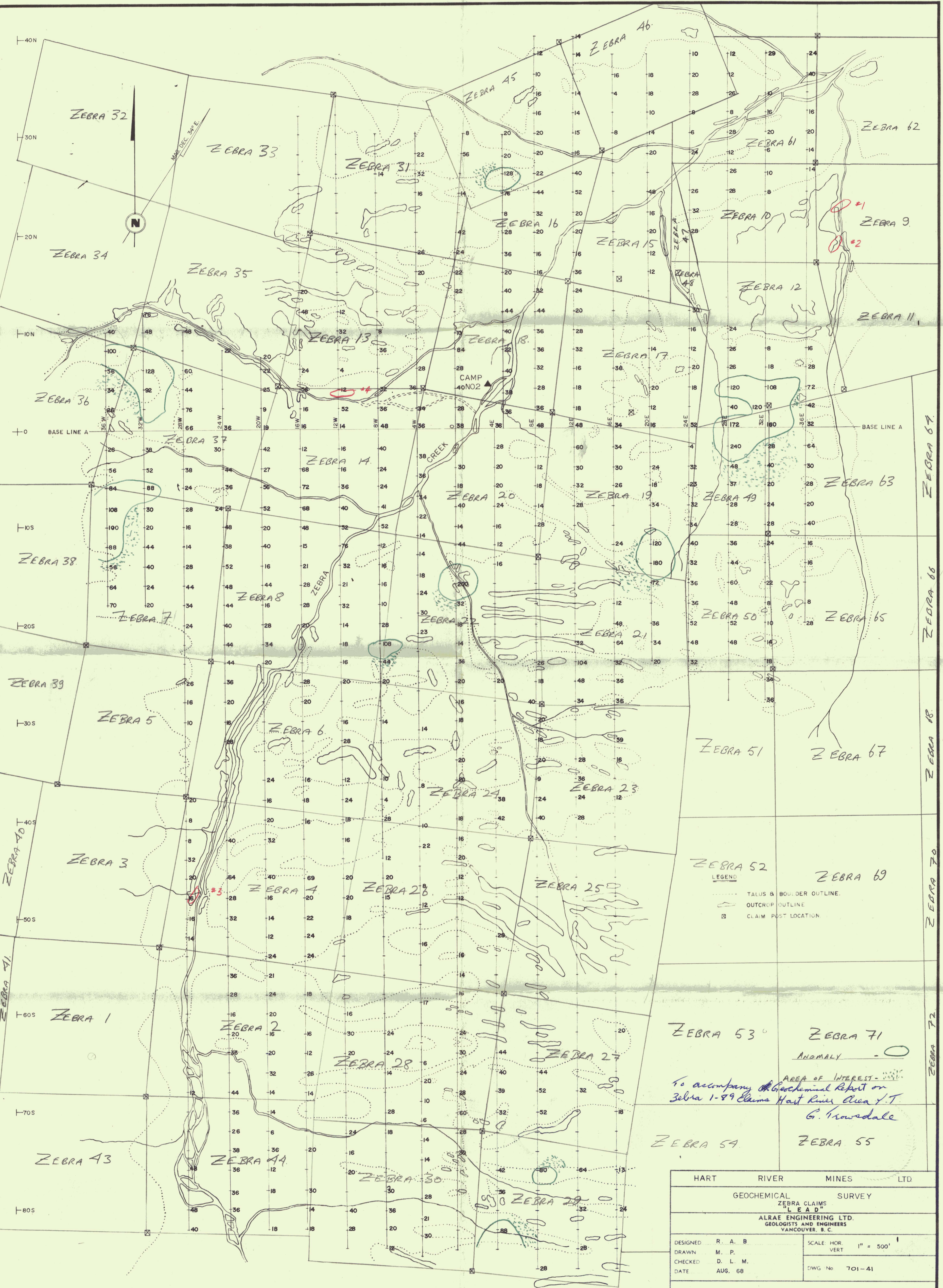
- TALUS & BOULDER OUTLINE.
- OUTCROP OUTLINE.
- ⊠ CLAIM POST LOCATION.

AREA OF INTEREST - O

To accompany Geotechnical Report on Zebra 1-89 Claims Hart River Area V.1

G. Trowsdale

HART RIVER MINES LTD.	
GEOCHEMICAL SURVEY	
ZEBRA CLAIMS "COPPER"	
ALRAE ENGINEERING LTD. GEOLOGISTS AND ENGINEERS VANCOUVER, B. C.	
DESIGNED: R. A. B.	SCALE: HOR. VERT. 1" = 500'
DRAWN: M. P.	
CHECKED: D. L. M.	
DATE: AUG. 68	DWG No. 701-42

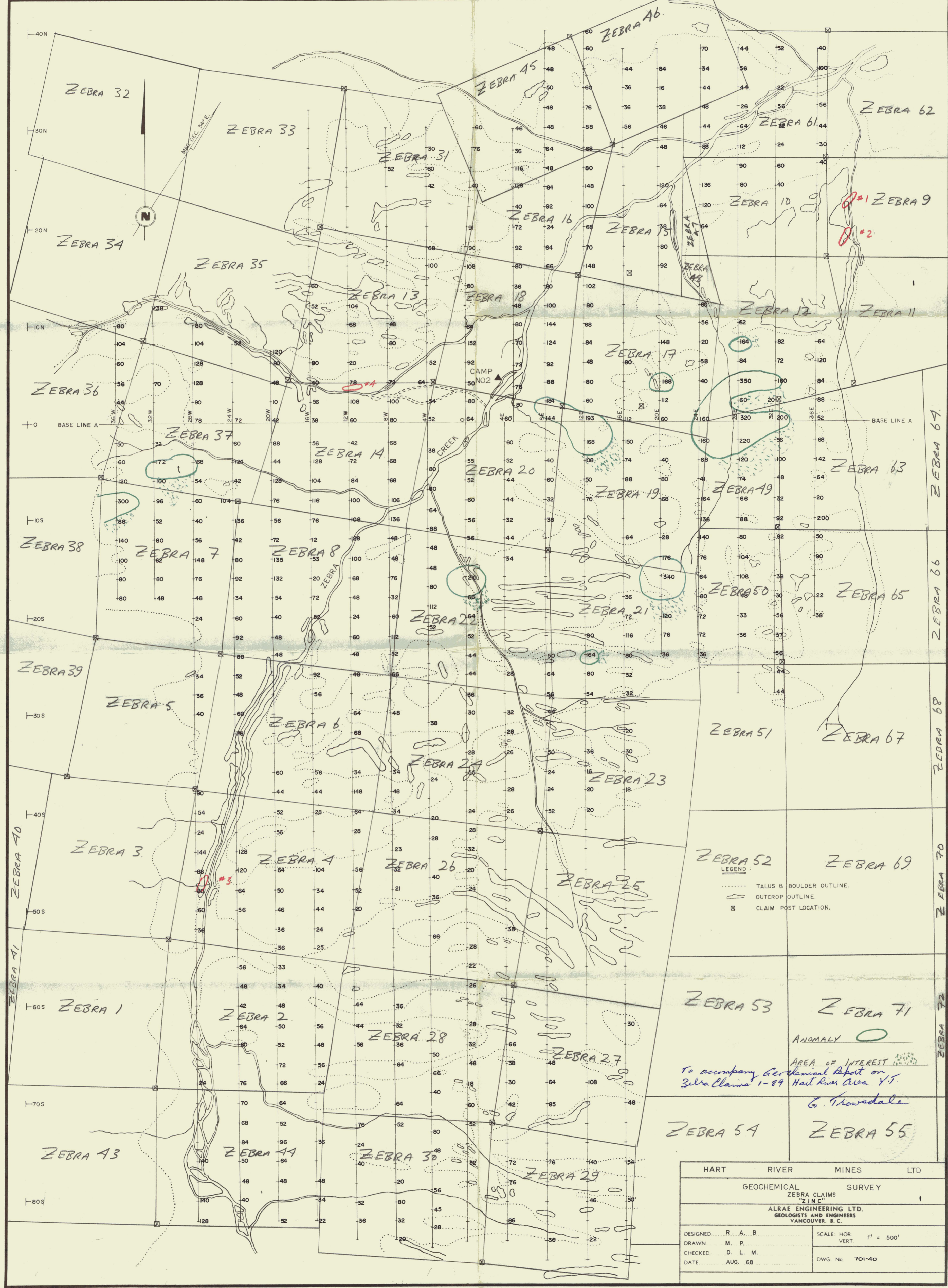


**LEGEND**

- TALUS & BOULDER OUTLINE.
- OUTCROP OUTLINE
- ⊠ CLAIM POST LOCATION

AREA OF INTEREST -  
 to accompany Geochemical Report on  
 Zebra 1-89 Claims Hart River Area Y.T.  
 G. Howsdale

HART RIVER MINES LTD.	
GEOCHEMICAL SURVEY	
ZEBRA CLAIMS "LEAD"	
ALRAE ENGINEERING LTD. GEOLOGISTS AND ENGINEERS VANCOUVER, B. C.	
DESIGNED R. A. B.	SCALE: HOR. VERT. 1" = 500'
DRAWN M. P.	DWG No. 701-41
CHECKED D. L. M.	
DATE AUG. 68	



**ZEBRA 52**

**LEGEND**

- ..... TALUS & BOULDER OUTLINE.
- OUTCROP OUTLINE.
- ⊠ CLAIM POST LOCATION.

**ZEBRA 53**      **ZEBRA 71**

ANOMALY ○

AREA OF INTEREST

To accompany Geochemical Report on Zebra Claims 1-89 Hart River Area V.T.  
G. Trowsdale

**ZEBRA 54**      **ZEBRA 55**

HART RIVER MINES LTD.			
GEOCHEMICAL SURVEY			
ZEBRA CLAIMS "ZINC"			
ALRAE ENGINEERING LTD. GEOLOGISTS AND ENGINEERS VANCOUVER, B. C.			
DESIGNED	R. A. B.	SCALE	HOR. 1" = 500'
DRAWN	M. P.	VERT.	
CHECKED	D. L. M.	DWG No 701-40	
DATE	AUG. 68		