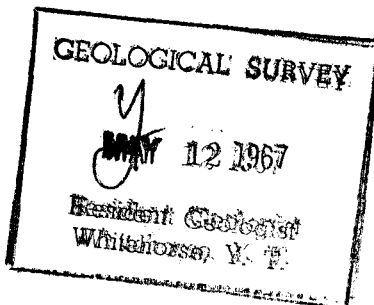


GEOLOGICAL AND ENGINEERING EVALUATION REPORT  
on the Zebra 1 to 14 Mineral Claims of

H. A. Briden  
Mayo Area, Yukon Territory

ALRAE EXPLORATION LTD.

January 6, 1967



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

*D. C. Finlay*  
RESIDENT GEOLOGIST

Approved as to cost in the amount  
of \$ 3000.00

*R. J. Paulsen*  
RESIDENT MINING ENGINEER

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

*[Signature]*  
COMMISSIONER OF YUKON

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.

## TABLE OF CONTENTS

	Page
INTRODUCTION . . . . .	1
LOCATION AND ACCESS. . . . .	1
TOPOGRAPHY AND VEGETATION. . . . .	1
HISTORY. . . . .	2
CLAIMS DESCRIPTION . . . . .	2
GENERAL GEOLOGY. . . . .	2
STRUCTURAL GEOLOGY . . . . .	3
ECONOMIC GEOLOGY . . . . .	3
DESCRIPTION OF SULPHIDE OCCURRENCES. . . . .	4
SAMPLE DESCRIPTION AND RESULTS . . . . .	6
CONCLUSIONS. . . . .	7
RECOMMENDATIONS. . . . .	8
DESCRIPTION OF WORK. . . . .	8
TIME AND COST DISTRIBUTION . . . . .	10

### MAPS

### Scale

Location Plan of Claim Group	1" = 4 mi.
Plan of Zebra Claims and Showings	1" = 1/2 mi.
Plan of Geology and Sampling of	
Showing No. 1	1" = 20 ft.
Showing No. 2	1" = 10 ft.
Showing No. 3	1" = 20 ft.
Showing No. 4	1" = 20 ft.

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Geological and Engineering Evaluation Report  
on the Zebra 1 to 14 Mineral Claims

INTRODUCTION

The Zebra claims consist of 14 full size mineral claims located on a tributary to the Hart River, N.E. of Dawson City, Yukon Territories. The claims are divided into two groups of contiguous claims, Zebra 9 to 12 being separated from the rest by approximately 1/2 mile.

Alrae Exploration was engaged by H. A. Briden to carry out a geological and engineering evaluation report of the group during the period between June 5 and June 20, 1966. All work was done by Alrae personnel under the field supervision of R.G. Hawley.

LOCATION AND ACCESS

The Zebra claims are located in the Yukon Territories at longitude 136° 57', latitude 64° 40', on the Larsen Creek map sheet No. 116A. The group consists of ten claims at this point and four others about 1/2 mile east.

Access to the area is best by fixed wing aircraft to Mark or Two Beaver Lakes, and by helicopter from either of these to the claims area, which is roughly ten miles south west of Mark Lake and 16 miles easterly from Two Beaver. An access road of approximately 40 miles could be built through quite open, though in places wet, country to Chapman Lake and the Dempster Highway.

TOPOGRAPHY AND VEGETATION

The topography of the area is quite rugged with talus slopes, often quite steep, bordering fairly flat, broad valleys. The valley bottoms are often swampy and are covered with low brush and very few trees.

## HISTORY

No work had been done on showings in the area, to the knowledge of the writer, except some trenching and sampling by Asbestos Corporation in 1956 on Showing No. 4. These trenches are noted on the sketch of that showing.

## CLAIMS DESCRIPTION

The Zebra group of claims, held by H. A. Briden of Vancouver, B.C., comprise a group of 14 claims, at approximately longitude 136° 57', latitude 64° 40', on map 116A, Yukon Territories. The record numbers are Y 6293 to Y 6300 inclusive for Zebra 1 to Zebra 8 and Y 6287 to Y 6292 for Zebra 9 to Zebra 14 inclusive.

Zebra 9 to Zebra 12 inclusive are removed from the rest of the group by approximately one half mile. The claims were staked during the period between June 5 and June 9, 1966.

## GENERAL GEOLOGY

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

### Table of Formations:- (from Larsen Creek, Sheet 116A)

#### Cretaceous

- 20 - Orange to brown weathering diorite and gabbro, altered equivalents.

#### Cambrian, Ordovician and Silurian

- 8 - Dolomite and limestone, thick bedded, grey-buff weathering.

- - Unconformity - -

### Precambrian

- 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 south-easterly through the area, usually dipping vertically or steeply south. These are surrounded by andesitic flows, often quite 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.

### STRUCTURAL GEOLOGY

No definite folding was noted in the sediments in the claims area.

Two sets of faults and shears appear to occur in the area. One set strikes generally parallel to the bedding direction in an easterly or south-easterly direction, dipping from steeply south to 45° south. The other set strikes northerly with vertical to very steep dips. It appears to offset the sediments and possibly the easterly fault set with a right hand displacement.

### ECONOMIC GEOLOGY

The sulphide mineralization in the area 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 diorite stock. The deposits occur as pods parallel 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.

#### DESCRIPTION OF SULPHIDE OCCURRENCES

##### Showing No. 1

This showing occurs on Claim Zebra No. 11. It consists of a very irregular quartz vein, possibly in an en echelon pods, within serpentized andesitic rocks. The vein strikes generally north and dips vertically or steeply to the east. The exposed length is about 80 feet and the width varies from one foot to over six feet. Float occurrences to the north indicate a possible length of the zone of close to 900 feet. To the south, the vein strikes under a talus slope and may extend another 80 feet but does not appear to cross the creek, which may be a fault zone. Malachite stain and chalcopryrite occur mainly at cross-shears on the vein. Elsewhere only minor pyrite and chalcopryrite are seen.

Samples No. 1, 2, and 3 were taken here, located as shown on the accompanying sketch. Gold values are low and copper values are due mainly to malachite.

##### Showing No. 2

This showing is located on claim Zebra No. 11, on the same side of the creek as, and about 250 feet upstream from, showing No. 1. An area of about ten feet by six feet is exposed. Here the zone strikes northwest and dips vertically or steeply northeast. It occurs in sheared andesite. On the southwest wall is a two foot section of strong copper-iron oxidation with remnant chalcopryrite. Bordering this to the northeast is fractured andesite with minor chalcopryrite over a two foot width. Next to this section is massive chalcopryrite over a 1.5 foot width. The northeast

wall is not exposed and since massive chalcopyrite float was found to the northeast, several feet from the trench, the zone could be considerably wider. Float indicates that the zone continues about 25 feet uphill to the northwest where it appears to be cut off at a sharp scarp of barren serpentinized andesite. The possible extension downhill to the southeast would only be to the creek, a distance of about 40 feet, since it does not appear in the rocks on the other side. Sample 4, a six foot chip sample was taken across the widest exposed part of the zone.

About 300 feet upstream from No. 2, and on the same side of the creek, a narrow vein occurs which consists of rhodocrosite and a heavy black mineral which is probably a manganese mineral. Samples are slightly magnetic. The vein is two feet wide, exposed over a 60 foot strike length, strikes northwest and dips steeply south. Sample No. 11 is a grab sample from this vein.

### Showing No. 3

This showing is located on claim Zebra No. 4. It occurs as a bedding lense striking northwest and dipping 40° to the southwest within a light brown rusted zone in the sericite phyllites. The mineralization consists of a pod about 30 feet long and one to two feet wide of almost massive chalcopyrite. The zone grades to narrow stringers of quartz and siderite at each end. Several rusted zones were observed in the phyllites striking into overburden covered areas a short distance from the creek canyon walls. The steeply cut creek canyon lines up directly with Showing No. 4, which is a NS structure about 4,500 feet to the north, indicating a possible fault line. Sample No. 6 was a one foot chip taken across the pod.

About 600 feet upstream to the south of this showing, a large amount of rusted quartzite with disseminated arsenopyrite

occurs in the form of large flat blocks. Sample No. 10 is a grab sample of this which ran 0.15 ounces in gold and the same in silver. No effort was made to trace the source of this occurrence.

Showing No. 4

This showing is located on claim Zebra No. 14. Mineralization here occurs in a tan weathering calcite-siderite vein, with minor quartz, which is six to eight feet wide and exposed by trenching (by Asbestos Corporation in 1956) over a strike length of 250 feet. The vein strikes north and dips nearly vertically or steeply west. It is bounded by andesite at the north end and cuts the vertical bedding of sericite phyllites at right angles at the south end. The main exposure at the creek in the north part is quite stained by malachite and a lense of massive chalcopryite from six inches to over two feet wide occurs along an exposed length of fifteen feet of the vein. A trench about sixty feet to the south shows a one foot width of massive chalcopryite. Most of the trenches are too caved to see any bedrock but most of them have pieces of massive chalcopryite piled near them and the southernmost one has a few pieces of bornite. In some places siderite-calcite stockwork was noted similar to that at showing No. 3. The vein strikes into a talus slope to the north and overburden to the south. Some float was noted to the north indicating an extension in that direction.

Sample No. 5 is a four foot chip sample across the main exposure.

SAMPLE DESCRIPTION AND RESULTS

<u>Sample No.</u>	<u>Description</u>	<u>Gold oz/ton</u>	<u>Silver oz/ton</u>	<u>Cu. %</u>	<u>Pb. %</u>	<u>Zn. %</u>
No. 1	10 ft chip, showing No. 1	Trace	Trace	0.47	-	-
No. 2	2 ft chip, showing No. 1	Trace	Trace	-	-	-



<u>Sample No.</u>	<u>Description</u>	<u>Gold oz/ton</u>	<u>Silver oz/ton</u>	<u>Cu. %</u>	<u>Pb. %</u>	<u>Zn. %</u>
No. 3	2 ft chip, showing No. 1	0.01	Trace	1.67	-	-
No. 4	6 ft chip, showing No. 2	0.02	2.78	12.55	-	-
No. 5	4 ft chip, showing No. 4	0.005	8.80	6.85	-	-
No. 6	1 ft chip, showing No. 3	Trace	0.30	14.50	-	-
No. 10	Quartzite float with arsenopyrite, south of showing No. 3	0.15	0.15	-	-	-
No. 11	Grab of rhodocrosite and black sulphide, south of showing No. 2	Trace	Trace	0.22	Trace	Trace

### CONCLUSIONS

Showing No. 1 would appear to have the potential of a good length but would only be important if the gold values had run higher.

Showing No. 2 has good values in copper over good widths but appears to be only a short pod with little likelihood of extension along strike. The vein to the south of No. 2 gave insignificant values.

The best place to search for economic deposits would appear to be in the overburden covered area between showings No. 3 and 4, to find extensions of these veins; along the valley to the south of showing No. 3, in an attempt to locate the source of the gold-silver bearing quartzite float represented by sample No. 10.

From the few samples taken and the small amount of outcrop examined, it seems apparent that, though copper values are high enough, much larger mineralized zones must be found or zones with much higher values in gold and silver. However, the amount of outcrop is a very

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small percentage of the total area, especially in the valley bottoms, and since gold and silver values do occur in appreciable amounts in some of the showings, then there appears to be a possibility that more extensive work may locate deposits of economic importance.

#### RECOMMENDATIONS

It is recommended that a geochemical survey be carried out first, particularly on the group of claims consisting of Zebra 1 - 8, and 13 - 14, in the vicinity of showings 3 and 4.

This type of mineralization, massive sulphide pods, would lend itself well to electromagnetic surveys and this type of survey could be carried out as a follow up to the geochemical work.

Stripping may be of some use to extend known exposures and on any anomalous areas found, but due to frost and deep overburden in most of the area, it could not be of extensive use. Some showings on steep slopes, with water available, such as showings 1 and 2, could be exposed by sluicing with fire pumps.

Further prospecting should be carried out in and near the claims area.

#### DESCRIPTION OF WORK

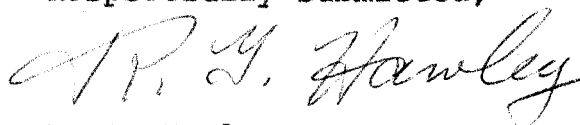
Darrell Reinke and Tom Tompkins were flown into the area June 4, 1966, and staked the Zebra 1 - 8 on June 5th. Claims Zebra 9 - 12 were staked on June 8th and Zebra 13 and 14 were staked on June 9th. They were flown out of the area on June 20th. Air transport and camp servicing was supplied by Great Northern Airways with fixed wing aircraft and by P. Callison with helicopter.

The writer flew in to examine the work done and report on the showings on June 18th and returned June 20th.

Reinke and Tompkins were employed in preliminary mapping and sampling of the showings, as well as prospecting the area, under the writer's supervision during the period June 6th to 20th.

Due to the remoteness of the area, the short time available due to a short season, and the high cost of moving the men to Dawson City and returning, the work was done between the time of staking and the time of recording the claims.

Respectfully submitted,



R. G. Hawley.

Endorsed by,



R.H.D. Philp, P. Eng.

Zebra Group

TIME AND COST DISTRIBUTION

Personnel:

D. Reinke Vanderhoof, B.C.	June 5-20/66	16 days @ \$29.34/day	\$ 469.44 ✓
T. Tompkins Vancouver, B.C.	June 5-20/66	16 days @ \$23.25/day	372.00 ✓
G. Hawley Vancouver, B.C.	June 18-20/66	3 days @ \$35.00/day	105.00 ✓

Room and Board - 35 man days @ \$7.50/day 262.50 ✓

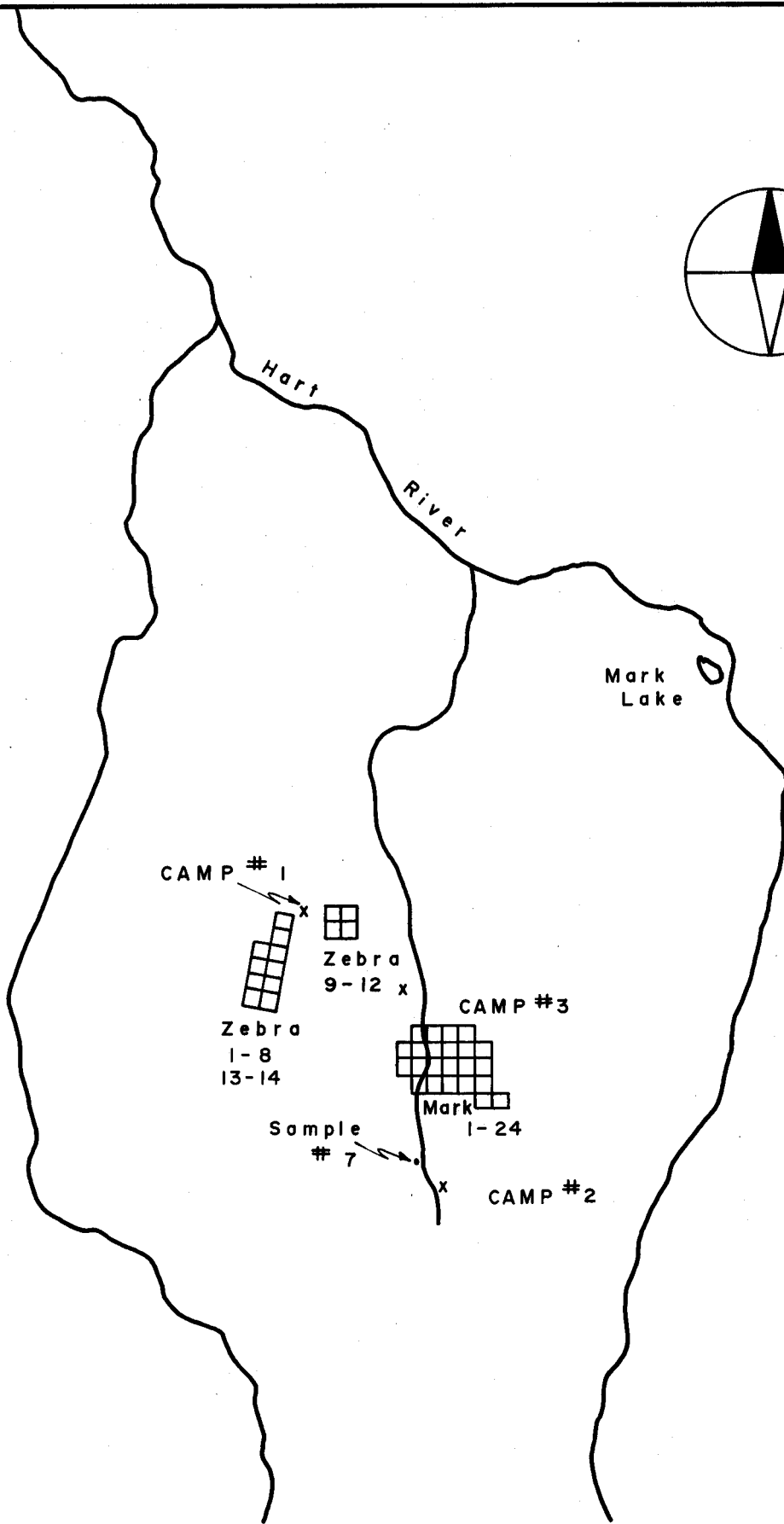
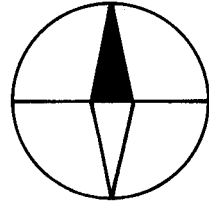
Transportation:

Fixed wing (G.N.A. account)	304.00
Helicopter (dry lease \$110/hr @ 14 gal/hr = 27 hrs.)	2,970.00 ✓

Helicopter fuel 378.35 ✓

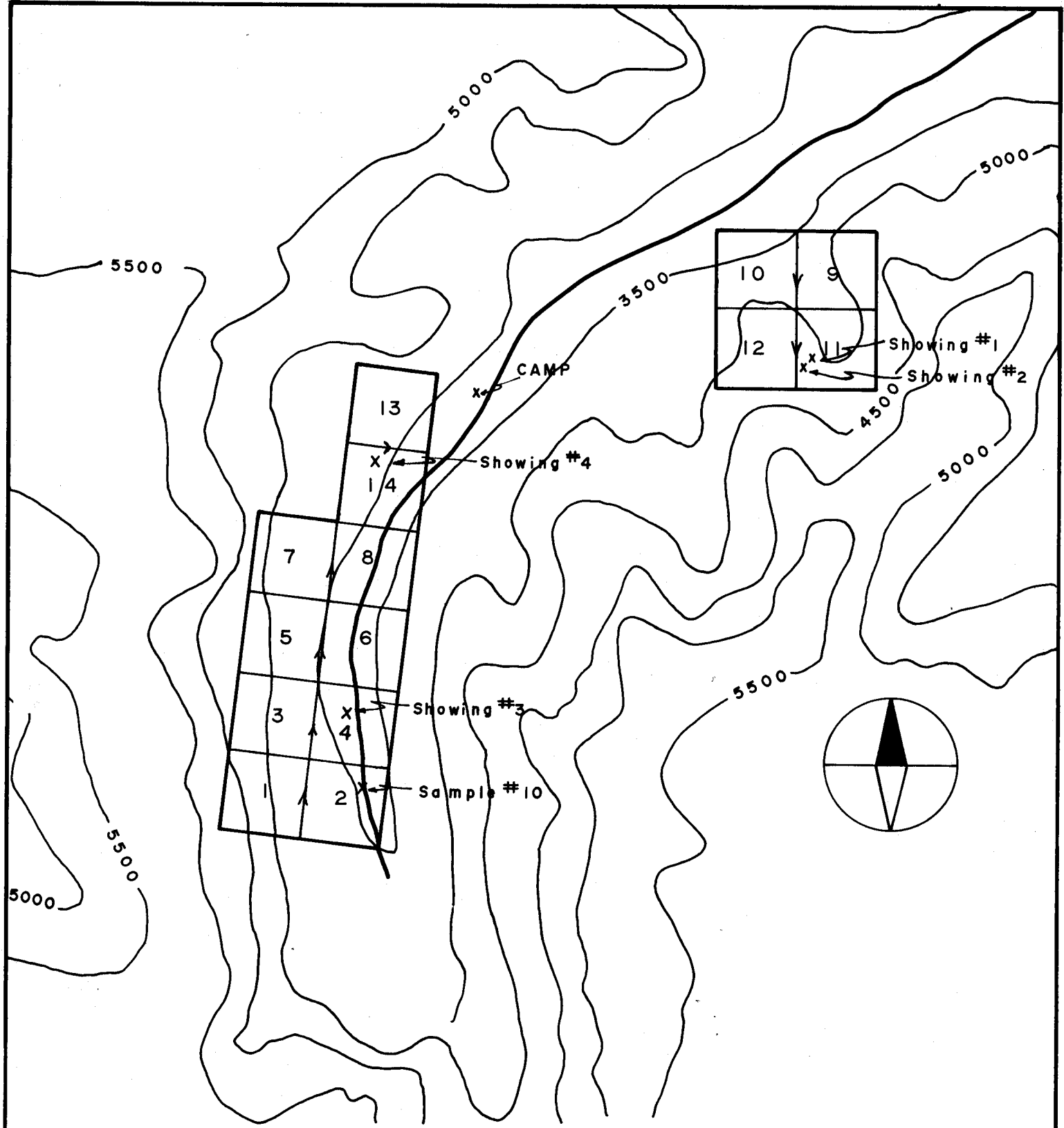
Miscellaneous (assays, chemicals, camp equipment) 175.83

TOTAL \$ 5,042.12



ALRAE EXPLORATION LTD.  
Zebra & Mark Claim Groups  
LARSEN CREEK MAP AREA  
Date: Oct. 27, 66 Scale 1" = 4 Mi

Drawn: C. L. C.

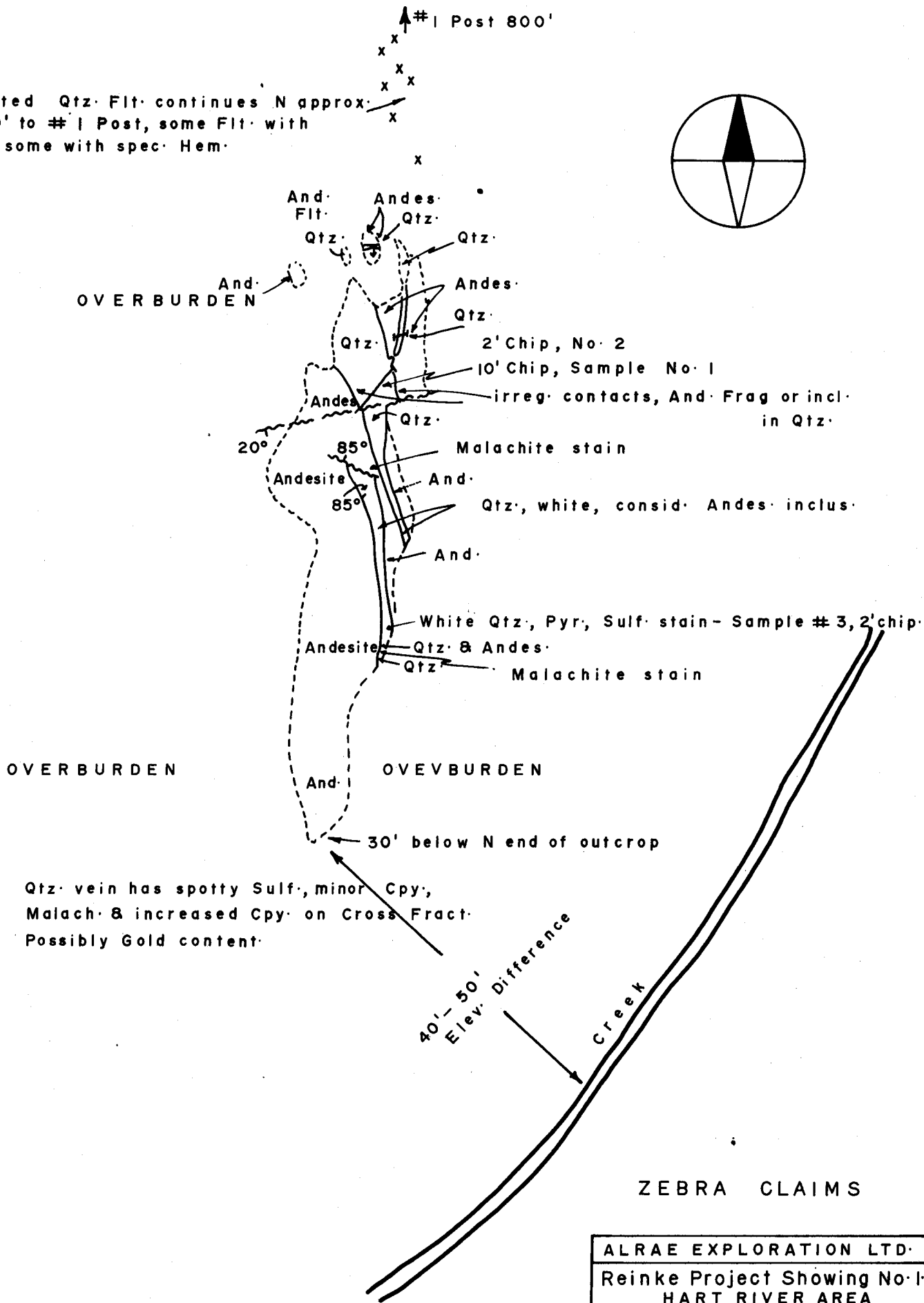
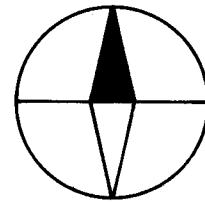


ZEBRA CLAIMS

ALRAE EXPLORATION LTD.	
ZEBRA CLAIM GROUP	
1-14	
Claim Sheet # 116-A-10	
Date: Oct. 27, 66	Scale 1"=1/2Mi.

Drawn C.L.C.

Rusted Qtz. Flt. continues N approx. 800' to #1 Post, some Flt. with Cu, some with spec. Hem.

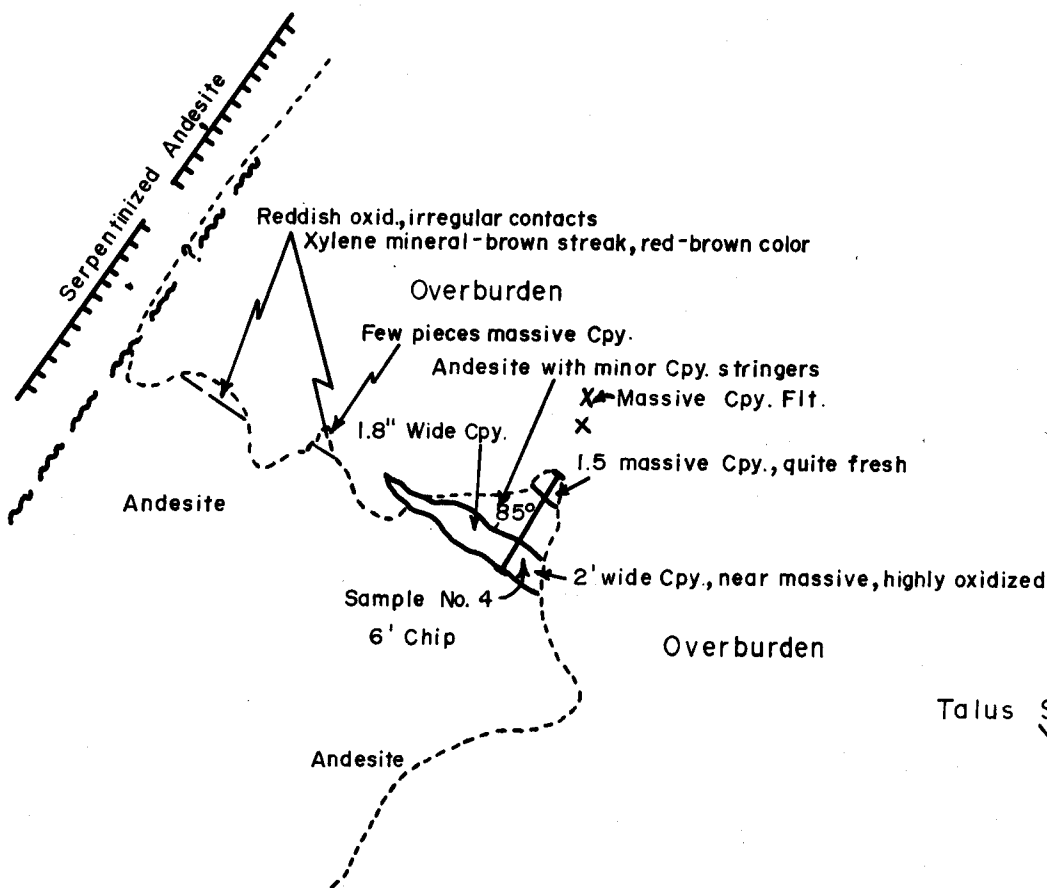
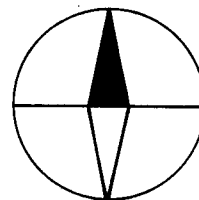


ZEBRA CLAIMS

ALRAE EXPLORATION LTD.
Reinke Project Showing No. 1
HART RIVER AREA
Date: Oct. 27, 66 Scale 1" = 20'

Drawn C.L.C.

#2 Post 500'



Talus Slopes

Andesite

Rhodochrosite (?) & dark sulfides (Tetrahedrite ?)  
 in 2' wide vein in Andesite, striking NW, dip  
 steeply (80°) S.W. Cut off to N.W. by flat  
 shear, to S.E. by ovbdn. Exposed over 60' length

ZEBRA CLAIMS

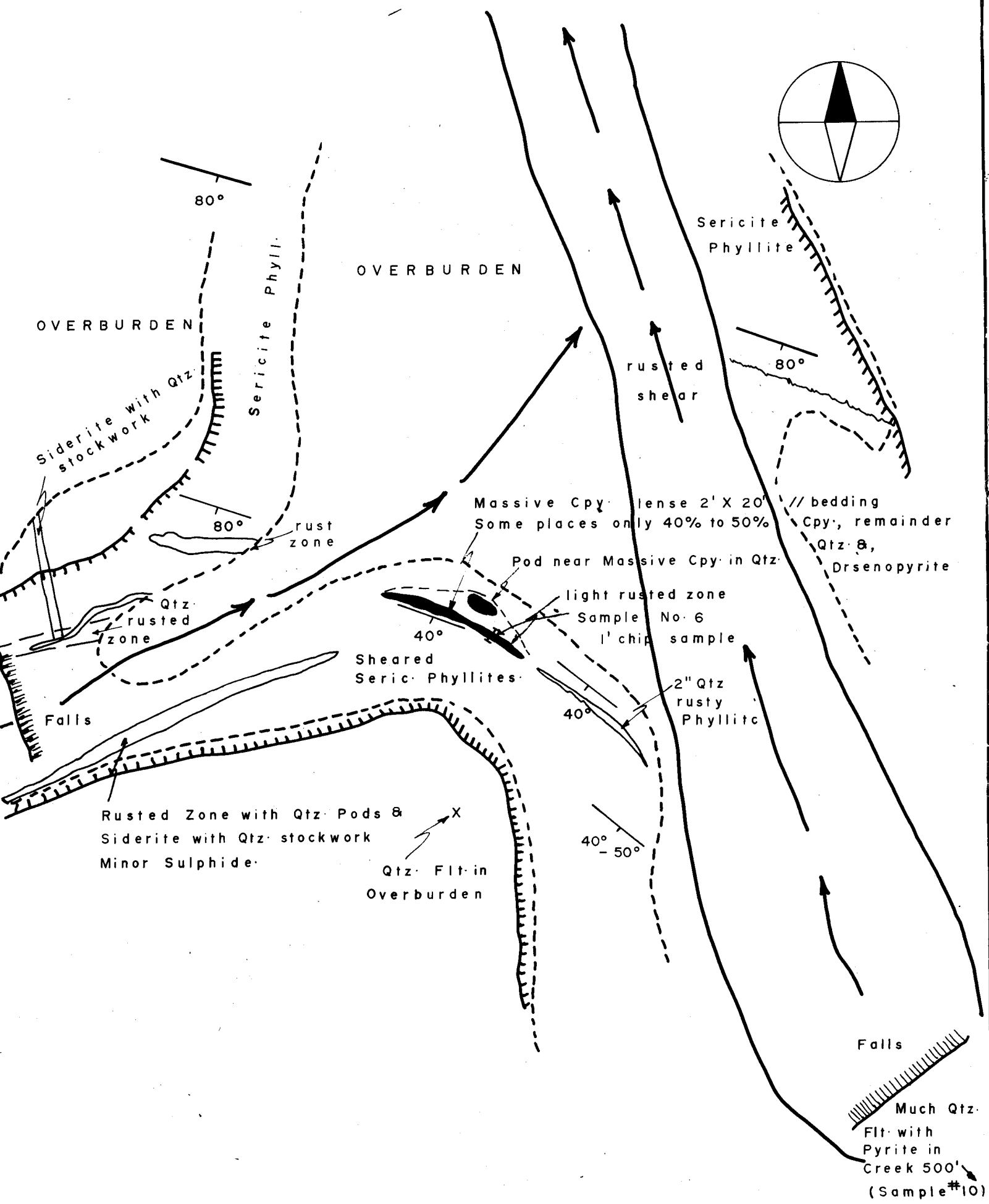
ALRAE EXPLORATION LTD.	
Reinke Project Showing No.2	
HART RIVER AREA	
Dawson District	
Date: October 27/66	Scale: 1" = 10'

Drawn: M.R.L.

300 Ft.

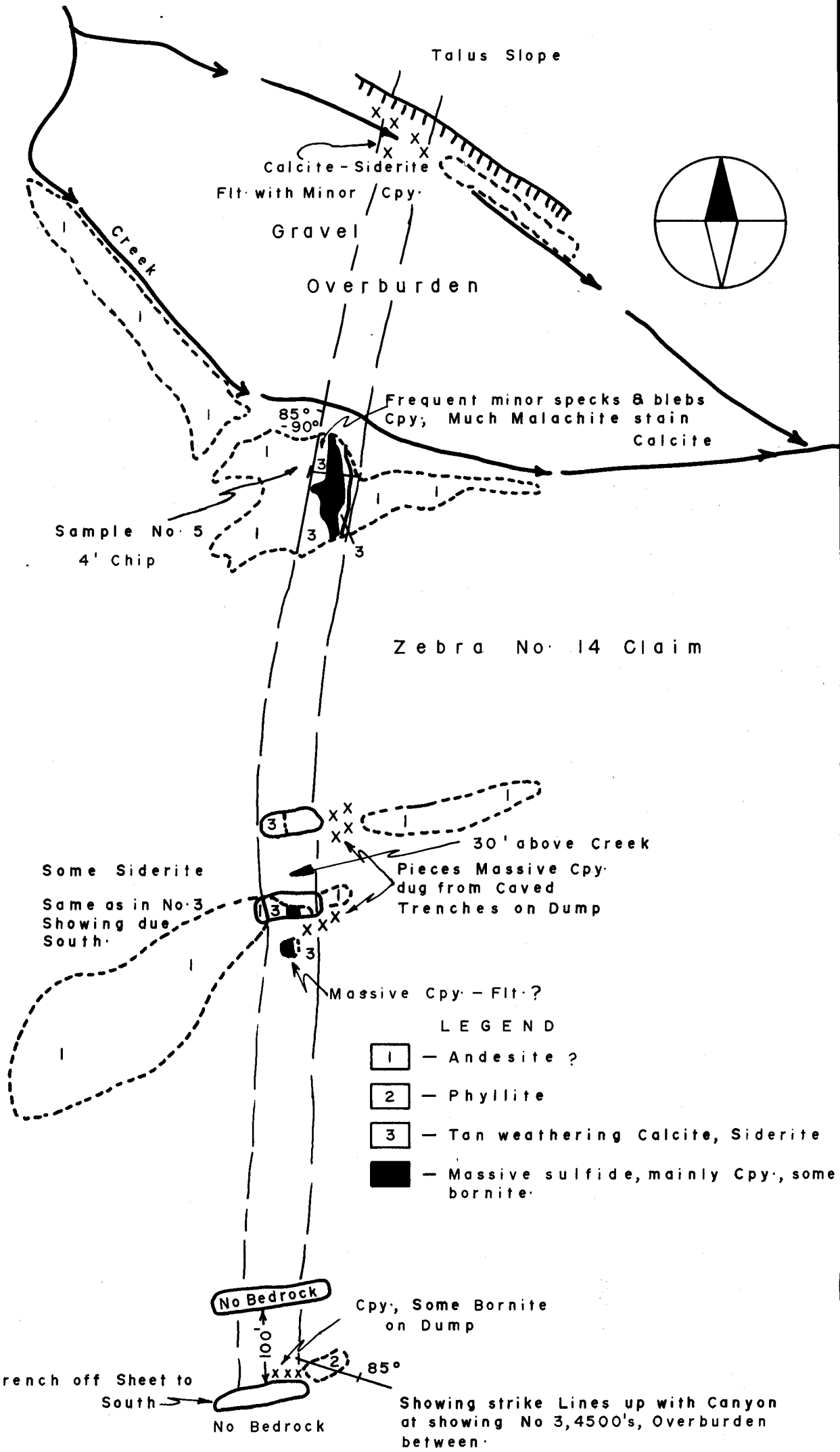
Sample No. 11  
 Grab





ZEBRA CLAIMS

ALRAE EXPLORATION LTD.  
 Reinke Project Showing No. 3  
 HART RIVER AREA  
 Dawson District  
 Date: Oct. 27, /66 Scale 1" = 20'



ZEBRA CLAIMS

ALRAE EXPLORATION LTD.	
Reinke Project Showing No. 4	
HART RIVER AREA	
Dawson District	
Date: Oct. 26, /66	Scale: 1" = 20'

Department of  
Indian Affairs and  
Northern Development

Resource and  
Economic Development  
Group

Ministère des  
Affaires indiennes et  
du Nord canadien

Bureau des ressources  
et du développement  
économique



**MR. B. R. BAXTER**  
**MINING RECORDER**  
**MAYO MINING DISTRICT**

Box 1767,  
Whitehorse, Y.T.,  
May 12, 1967.

**RESTRICTED**

our file/notre dossier  
your file/votre dossier  
date

**M.I. M-252**

**Geological and Engineering Evaluation Report on  
Zebra 1 to 14 Mineral Claims for H. A. Briden by  
R. G. Hawley and R. Philp - June 5 - 20, 1966**

On the recommendation of the Resident Geologist and the Resident Mining Inspector I hereby authorize you to accept this report as representation work under Section 53 (4) of the Yukon Quartz Mining Act to the value of Three Thousand Dollars (\$3,000.00) but you are to withhold the Certificates of Work until you receive sworn Affidavits supporting Expenditures.

Original signed by  
Commissioner J. Smith

**James Smith,**  
**Commissioner.**

NON/RAM

cc: Chief, Resource Management Division  
Attention: Geological Evaluation Unit

Central Mining Records - Whitehorse

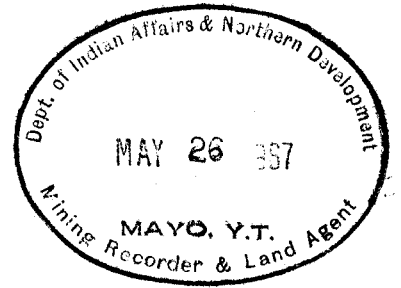
Resident Mining Inspector



DOMINION OF CANADA:  
Yukon Territory  
~~XXXXXXXXXXXXXXXXXXXX~~

In the Matter of application for assessment work  
Zebra claims.

To Wit:



I, H. A. Briden

of 846 West Hastings Street, Vancouver 1,

in the Province of British Columbia, do solemnly declare that the cost of geological and engineering evaluation work on the Zebra claims is as follows:

Personnel:

D. Rainke					
Vanderhoof, B.C.	June 5 - 20/66	16 days @ 36.84/day	=	\$ 589.44	
T. Tompkins					
Vancouver, B. C.	June 5 - 20/66	16 days @ 30.75/day	=	492.00	
G. Hawley					
Vancouver, B. C.	June 18 - 20/66	3 days @ 42.50/day	=	<u>127.50</u>	
					<u>1,208.94</u>

To access transportation to and from claim site:

Fixed wing - Great Northern Airways	304.00	
Helicopter @ 124.00 per hr. - 27 hrs.	<u>3,348.00</u>	3,652.00
Assays, chemicals and camp equipment		<u>181.18</u>
<b>TOTAL</b>		<b>\$ <u>5,042.12</u></b>

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 25  
day of May, A.D. 1967  
H.A. Briden

M L B. New  
A Commissioner for taking Affidavits for British Columbia or  
A Notary Public in and for the Province of British Columbia.



# ALRAE EXPLORATION LTD.

202 - 846 WEST HASTINGS STREET, VANCOUVER 1, B.C. TELEPHONE 681-9381

Mr. H. A. Briden  
Gulf Equipment & Finance Ltd.  
848 W. Hastings Street  
Vancouver 1, B. C.

IN ACCOUNT WITH:

Alrae Exploration Ltd.  
846 W. Hastings Street  
Vancouver 1, B. C.

RE: JUNE 1966

Invoice No. 66 - 102

Re: Zebra Group of Claims - Callison Project

Personnel:

D. Reinke - June 5 - 20/66	\$ 469.44	
T. Tompkins June 5 - 20/66	372.00	
G. Hawley - June 18 - 20/66	<u>110.00</u>	\$ 951.44
Room and Board - 35 man days @ \$7.50/day		262.50
<u>Transportation:</u>		
Fixed Wing - Great Northern Airways	\$ 304.00	
Helicopter Fuel	<u>378.35</u>	\$ 682.35
Miscellaneous - Assays, Chemicals, Camp Equipment		<u>175.83</u>
		\$ <u>2,072.12</u>

June 30, 1966

ALRAE EXPLORATION LTD.

*R. J. Coonan*

GEOLOGY  
Exploration

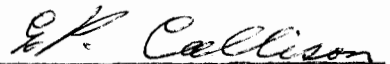
CONSULTANTS  
Development

MINING  
Production

February 28, 1967

In account with exploration project - Zebra Group

This is to certify that the times and dates flown with helicopter as stated in the adjoining report and consisting of 27 hours between the dates of June 5th to 20th, including ferrying charges to and from the project are correct.



---

E. P. Callison