82-#813 - #10813

INDUCED POLARIZATION SURVEY REPORT

ACACIA MINERAL DEVELOPMENT CORP.

Tusk 1-6 mineral claims, Alta Lake area, Vancouver M.D., B. C.

Lat. 50°00'N, Long. 123°04'W, N.T.S. 92J/3

AUTHOR: Glen E. White, P. Eng., B.Sc.
Consulting Geophysicist

DATE OF WORK: October 7 - 22, 1982

DATE OF REPORT: November 30, 1982

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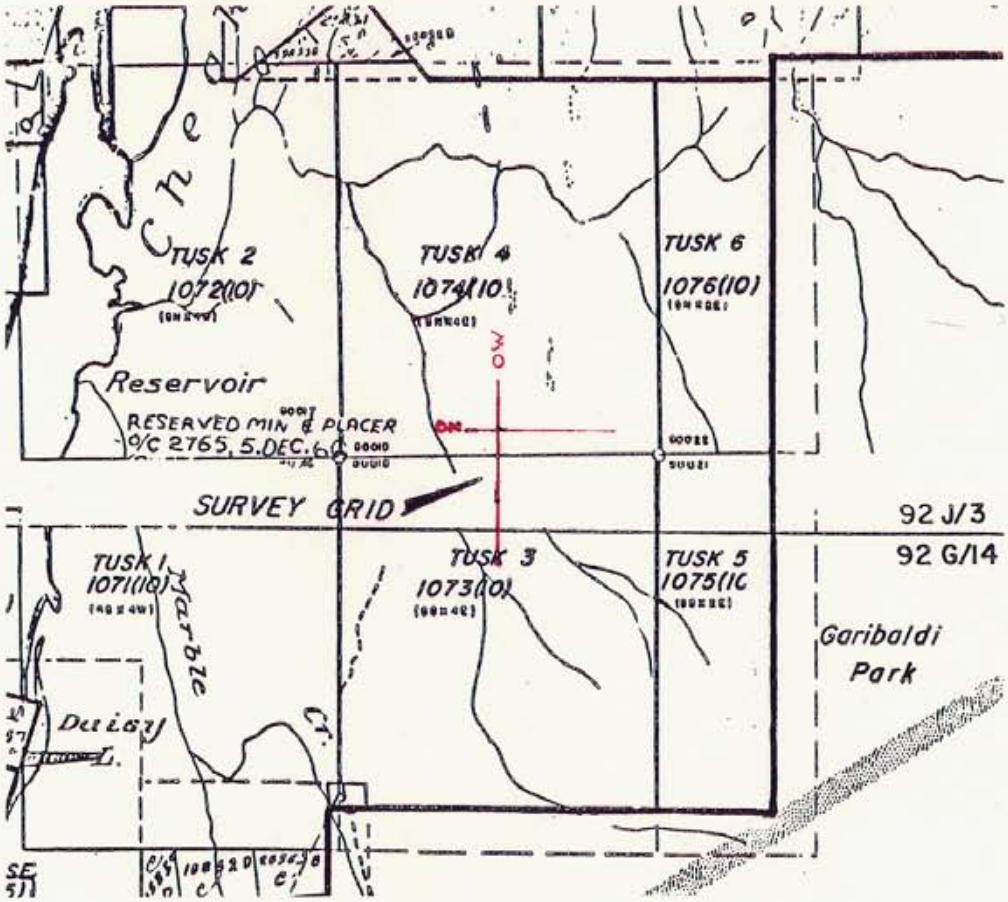


ACACIA MINERAL DEV. CORP. LTD.

TUSK CLAIMS

LOCATION AND CLAIM MAP

Glen E. White
geophysical consulting
services ltd

FIG. 1

INTRODUCTION

During the period October 7 - 22, 1982, a program of linecutting and induced polarization surveying was conducted over the Tusk mineral claims. The Tusk mineral claims are Grid staked claims which cover the old Daisy, Ron, J, FF and SS two post staking claims. A reconnaissance geochemical survey was undertaken over a portion of the SS mineral claims in October of 1980. Anomalous values of copper and particularly molybdenite mineralization were detected.

Thus, the report describes a detailed induced polarization survey that was conducted by Glen E. White Geophysical Consulting & Services Ltd. on behalf of Acacia Mineral Cevelopment Corporation Ltd. over the geochemical anomalies.

PROPERTY

The property consists of the Tusk 1-6 mineral claims comprising some 100 -units recorded on October 28, 1981.

LOCATION AND ACCESS

The mineral claims are located on the east side of Daisy Lake between the Cheakamus River and Garibaldi Provincial Park, Vancouver Mining Division, B. C. Latitude 50°00'N, Longitude 123°06'W, N.T.S. 92J/3.

Access is via some 4 miles of good gravel base logging road which originates approximately 100 yards north of the Callaghan Creek bridge on Highway 99.

GENERAL GEOLOGY

The survey area lies on a north facing slope which drains into Daisy Lake and the Cheakamus River. The topography is generally steep which makes access and exploration difficult.

The very little geological information available for this region is shown on GSC Maps 1711 and 42-1963. Essentially, the host rocks for the mineralization are sediments and volcanics of Triassic to Cretaceous age which have been enveloped by the Coast Range Cretaceous or earlier granodiorites and granites.

The sedimentary and volcanic rocks show variable degrees of metamorphism but are thought to form pendants or septas in the Coast Range batholith.

The mineral discovery made by Northair Mines Ltd. on their Warman Claims some 8 miles to the north shows veins of quartz and carbonate in metamorphosed rocks bearing lead, zinc and copper mineralization with economically significant values of gold and silver.

The survey area appears to cover metamorphosed pendant rocks, andesites and schists with an intermingling of gneisses and minor diorite.

SURVEY GRID

The 1980 geochemical grid was conducted on a reconnaissance basis unsuitable for an induced polarization survey. The new grid has been established over anomalous geochemical values with the lines spaced 100 m apart and orientated in an east-west direction. Some 15 km of survey grid was established and surveyed.

INDUCED POLARIZATION

The equipment used on this survey was the Huntec pulse-type unit and Mark III receiver. Power was obtained from a Briggs and Stratton moter coupled to a 2.5 KW 400 cycle, three phase generator, providing a maximum of 2.5 KW D.C. to the ground. The cycling rate is 1.5 seconds "current on" and 0.5 seconds "current off", the pulse reversing continuously in polarity. Power was transmitted to the ground through two potential electrodes, P_1 and P_2, which were deployed in the three electrode array with an "a" spacing of 100 m and separations of n = 1.

The data recorded in the field consists of careful measurements of the current (I) in amperes flowing through electrodes C_1 and C_2, the primary voltage (V_p) appearing between electrodes P_1 and P_2 during the "current on" part of the cycle. A cycle time of 4 seconds was used with a duty ratio of 2.2 - 1, T_p .20 ms and T_d 60 ms.

The apparent chargeability (M') in milliseconds, is calculated by T_p $(M_1 + 2M_2 + 4M_3 + 8M_4) = M'$, where T_p is the basic integrating time in tenths of seconds. M_1, M_2, M_3 and M_4 are the chargeability effects at various times on the voltage decay curve following switch off of the transmitter, measured as a percentage of the primary voltage, V_p recorded during the "current on" time. By the use of these factors, one can gain an estimate of the decay curve in terms of chargeability for the given time T_p. This gives a quantitative value to the data measured.

The apparent resistivity, in ohm-metres, is proportional to the ratio of the primary voltage to the measured current, the proportionality factor depending on the geometry of the electrode array used. The chargeability and resistivity obtained are called "apparent" as they are values which that portion of the earth sampled by the array would have if it were homogeneous. As the earth sample is usually inhomogeneous, the calculated apparent chargeability and apparent resistivity are functions of the actual chargeabilities and resistivities of the rocks sampled and of the geometry of the rocks.

DISCUSSION OF RESULTS

Figures 2 and 3 show the copper and molybdenum values from the 1980 survey respectively which have been superimposed on the new grid for clarity. The westernmost copper geochemical values are from a 1976 survey. No molybdenum values are available.

Figure 4 shows the induced polarization chargeability values. A high of 6.6 milliseconds was obtained above a background of some 2.5 milliseconds. This area is in granitized volcanic rocks and diorites and thus a low background response was anticipated. However, the anomalous data only reached some 2.5 times background and yet shows excellent correlation with the geochemical highs. The glacial till in this area shows some thickness which has influenced the geochemical response and possibly the chargeability data.

The apparent resistivity map shows moderate variations from a low of 89 ohm-metres along a creek and 128 ohm-metres on the hillside to a high of 1569 ohm-metres near a logging landing. This apparent resistivity high shows a northwest-southeast trend which closely follows a number of the chargeability highs and anomalous geochemical values. A structure may be indicated or a more shallowly buried ridge of bedrock. The remaining variations are likely due to changes in the physical characteristics of the overburden such as composition, depth and moisture content.

Correltaion of the geophysical data shows that the chargeability results show a large contorted horseshoe shape with the nose around lines 100S to 200S and the flanges extending southeastward. The highest chargeability values tend to align in a northwest-

southeast direction. Three such trends are indicated. The center one shows direct correlation with high geochemical values. High geochemical values are also located southeastward off of the geophysical grid.

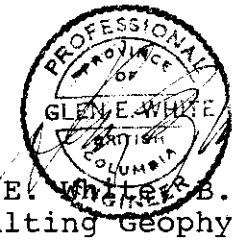
CONCLUSION

During the month of October 1982, a detailed induced polarization program was conducted over an area of anomalous copper and molybdenum geochemical balues on behalf of Acacia Mineral Development Corporation Ltd. The survey was conducted with a 100 m separation and located a contorted horse-shoe shaped anomaly some 2.5 times background in which the highest values tend to align in a northwest-southeast direction. The center zone coincides with an apparent resistivity high and anomalous copper - molybdenum soil samples. Thus, this zone may possibly be caused by a mineralized intrusive stock at depth or a complicated pattern of mineralized fracture zones.

RECOMMENDATIONS

It is recommended that the chargeability anomaly be covered with larger separations of a = 100 m, n = 2 and 3, to search for mineralized zones at depth. The survey should be extended to the southeast to cover the anomalous geochemical values. Subsequent to obtaining this information, the coincident chargeability-geochemical anomalies should be tested by diamond drilling.

Respectfully submitted,



Glen E. White, B.Sc., P. Eng.
Consulting Geophysicist

INSTRUMENT SPECIFICATIONS

INDUCED POLARIZATION SYSTEM

A. Instruments

(a) Type - pulse

(b) Make - Huntec

(c) Serial No. - transmitter #107 - receiver #3016

B. Specifications

(a) Size and Power - 2.5 KW

(b) Sensitivity - 300 x 10.5 volts

(c) Power Sources - 2.5 KW 400 cycle - three-phase generator

(d) Power - 8 H.P. Briggs and Stratton @ 3000 R.P.M.

(e) Timing - electronic, remote and direct.

(f) Readings - (i) ampls (ii) volts primary and secondary

(g) Calculate (i) Resistivity - ohm-meters (ohm-feet)

(ii) Chargeability - milliseconds

C. Survey Procedures

(a) Method - power supplied to mobile probe along TW 18 stranded wire from stationary set-up

(b) Configuration - Pole-dipole (three electrode array) Plot point midway between C_1 and P_1

D. Presentation

Contour Maps (i) Chargeability - milliseconds

(ii) Resistivity - ohm-meters (ohm-feet)

STATEMENT OF QUALIFICATIONS

NAME:	WHITE, Glen E., P.Eng.
PROFESSION:	Geophysicist
EDUCATION:	B.Sc. Geophysicist - Geology University of British Columbia.
PROFESSIONAL ASSOCIATIONS:	Registered Professional Engineer, Province of British Columbia.
	Associate member of Society of Exploration Geophysicists.
	Past President of B.C. Society of Mining Geophysicists.
EXPERIENCE:	Pre-Graduate experience in Geology - Geochemistry - Geophysics with Anaconda American Brass.
	Two years Mining Geophysicist with Sulmac Exploration Ltd. and Airborne Geophysics with Spartan Air Services Ltd.
	One year Mining Geophysicist and Technical Sales Manager in the Pacific north-west for W.P. McGill and Associates.
	Two years Mining Geophysicist and supervisor Airborne and Ground Geophysical Divisions with Geo-X Surveys Ltd.
	Two years Chief Geophysicist Tri-Con Exploration Surveys Ltd.
	Twelve years Consulting Geophysicist.
	Active experience in all Geologic provinces of Canada.

COST BREAKDOWN

Personnel	Date	Wages	Total
T. Allmann	Oct.7-22/82	$250/day	$4000.00
B. Hamilton	"	230/day	3680.00
O. Aarreskjold	"	175/day	2800.00
B. Crassweller	"	200/day	3200.00

Meals and accomodations @ $50/day	3200.00
Vehicle expenses	1760.00
Induced polarization system	1800.00
Materials, flagging, hip chains, etc	160.00
Drafting and secretarial	550.00
Interpretation and reports	850.00
Total	$22,000.00

To Main Gate & Highway 99

Road Impassable Washed Out

OLD BASELINE

— 52 + 00 S OLD GRID

Road Impassable Washed Out At This Point

OLD CLAIM POST

LCP TUSK 5 & 6

TUSK 4

TUSK 6

TUSK 3

TUSK 5

3 + 00 N
2 + 00 N
1 + 00 N
0 + 00
1 + 00 S
2 + 00 S
3 + 00 S
4 + 00 S
5 + 00 S
6 + 00 S
7 + 00 S
8 + 00 S
9 + 00 S
10 + 00 S
11 + 00 S

2 + 00 W
1 + 00 W
BASELINE 0 + 00
1 + 00 E
2 + 00 E
3 + 00 E
4 + 00 E
5 + 00 E
6 + 00 E
7 + 00 E
8 + 00 E
9 + 00 E
10 + 00 E

23°00'

MAGNETIC

LEGEND:

- Creek
- Road
- Bridge
- Cliff
- Logged Off Area
- Legal Claim Post, Tusk Claims
- Old Claim Post, SS Claims

GEOLOGICAL BRANCH
ASSESSMENT REPORT

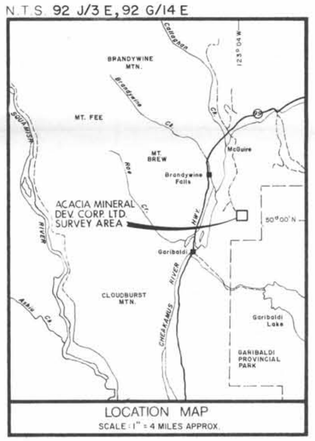
10,813

GEOCHEMICAL KEY

240
160
120
80
40

COPPER P.P.M.

N.T.S. 92 J/3 E, 92 G/14 E



LOCATION MAP
SCALE: 1" = 4 MILES APPROX.

50 m. 25 m. 0 50 m. 100 m. 150 m. 200 m.

1:2500

ACACIA MINERAL DEV. CORP.

TUSK CLAIMS

VANCOUVER MINING DIVISION — BRITISH COLUMBIA

GEOCHEMICAL MAP

COPPER P.P.M.

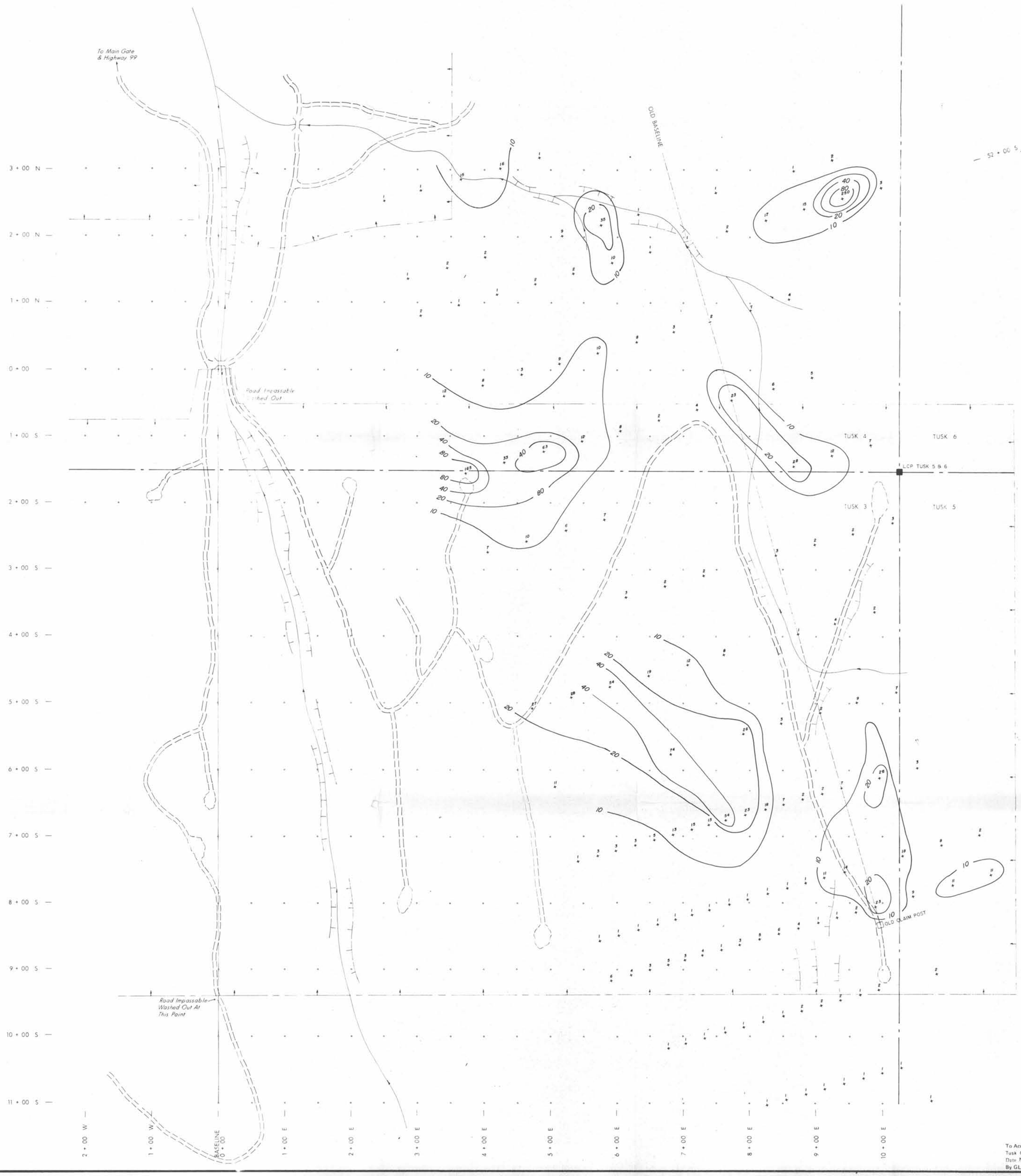
Glen E. White · geophysical consulting & services ltd.

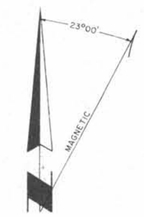
Interpreted By: G.E.W.	
Drawn By: FINELINE DRAFTING & GRAPHICS	
Checked By: G.E.W.	
Date: NOVEMBER 1982	
Fig. No.: 2	

To Accompany Geophysical Report
Tusk Claims
Date November 1982
By GLEN E. WHITE · B.Sc. GEOPHYSICIST

PROFESSIONAL ENGINEER OF GLEN E. WHITE BRITISH COLUMBIA

VANCAL





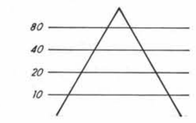
LEGEND:

- Creek
- Road
- Bridge
- Cliff
- Logged Off Area
- Legal Claim Post, Tusk Claims
- Old Claim Post, SS Claims

GEOLOGICAL BRANCH ASSESSMENT REPORT

10,813

GEOCHEMICAL KEY



MOLYBDENUM P.P.M.

N.T.S. 92 J/3 E, 92 G/14 E

LOCATION MAP
SCALE: 1" = 4 MILES APPROX.

50 m. 25 m. 0 50 m. 100 m. 150 m. 200 m.

1 : 2500

ACACIA MINERAL DEV. CORP.

TUSK CLAIMS

VANCOUVER MINING DIVISION — BRITISH COLUMBIA

GEOCHEMICAL MAP

MOLYBDENUM P.P.M.

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Fig. No.: 3	

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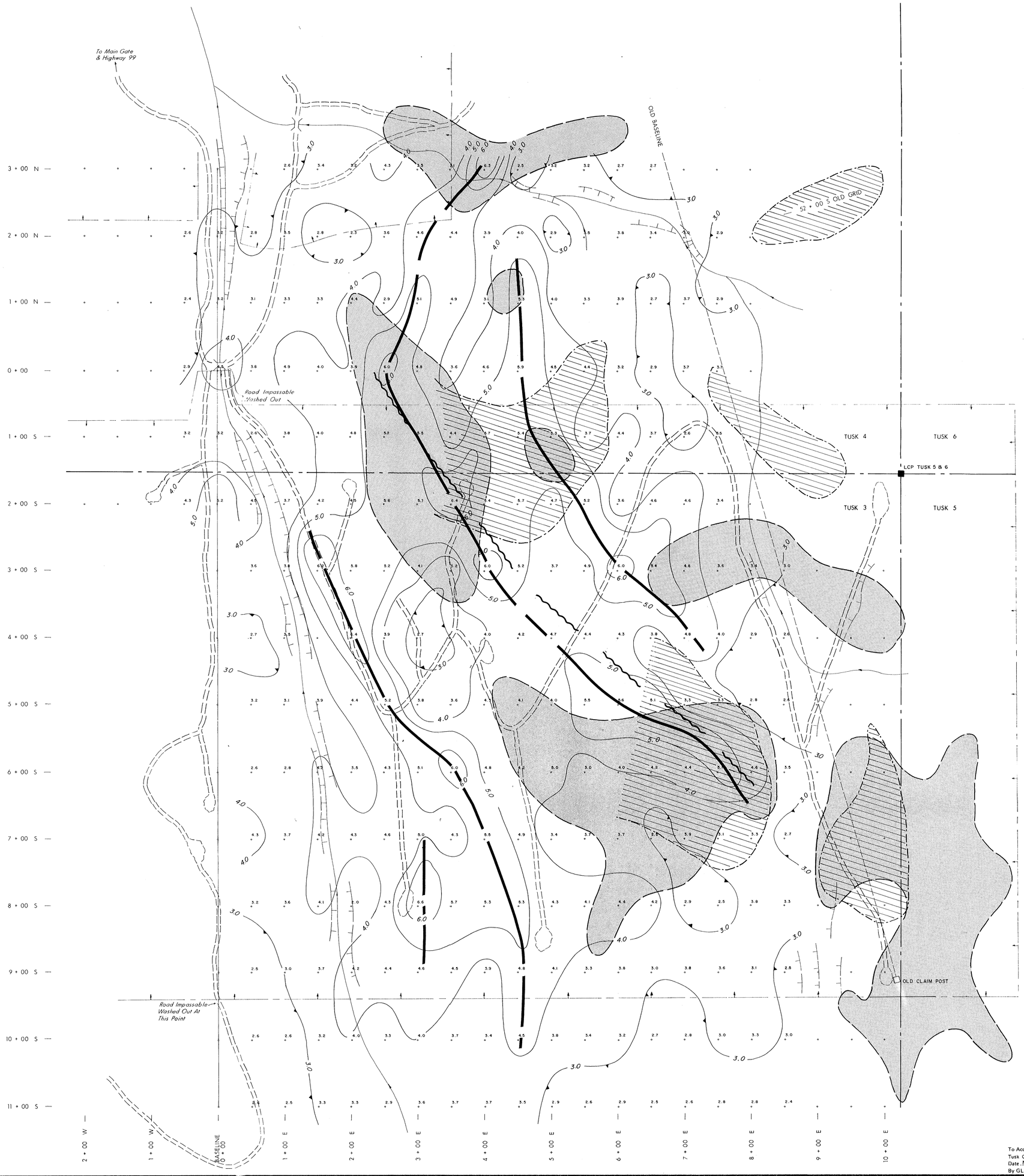
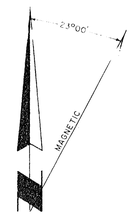
PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — GLEN E. WHITE — GEOPHYSICIST

VANCAL





GEOLOGICAL BRANCH ASSESSMENT REPORT

10,813

LEGEND:

- Creek
- Road
- Bridge
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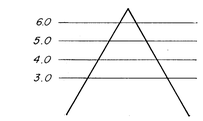
- Legal Claim Post, Tusk Claims
- Old Claim Post, SS Claims

INSTRUMENT:

HUNTEC 2.5 Kw TIME DOMAIN
a=100 m., n=1
C2 ← I → V
C1 P2 P1
POLE DIPOLE

CHARGEABILITY KEY

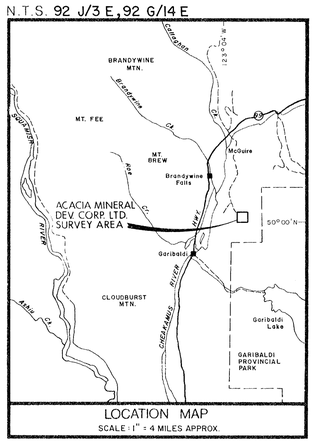


MILLISECONDS

INTERPRETATION KEY:

- COPPER GEOCHEMICAL ANOMALY GREATER THAN 80 P.P.M.
- MOLYBDENUM GEOCHEMICAL ANOMALY GREATER THAN 10 P.P.M.
- CHARGEABILITY TREND
- RESISTIVITY HIGH TREND

N.T.S. 92 J/3 E, 92 G/14 E



LOCATION MAP
SCALE 1" = 4 MILES APPROX.

50 m. 25 m. 0 50 m. 100 m. 150 m. 200 m.
1:2500

ACACIA MINERAL DEV. CORP.

TUSK CLAIMS

VANCOUVER MINING DIVISION — BRITISH COLUMBIA

INDUCED POLARIZATION SURVEY
CHARGEABILITY-N=1(MILLISECONDS)
INTERPRETATION MAP

To Accompany Geophysical Report on Tusk Claims
Date November 1982
By GLEN E. WHITE · B.Sc. ..... GEOPHYSICIST

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA GLEN E. WHITE

Glen E. White geophysical consulting & services ltd.

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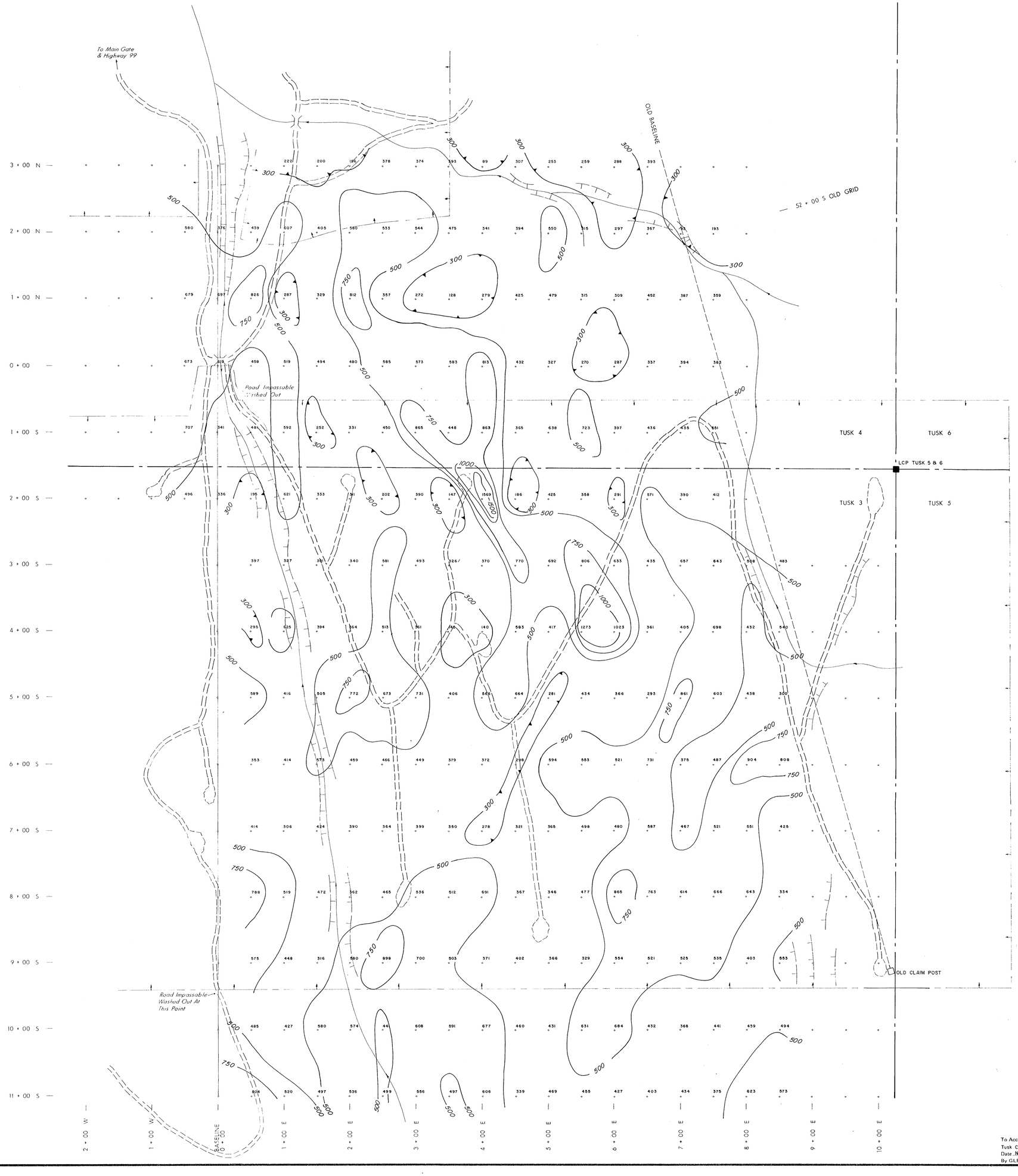
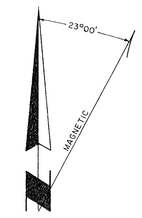
VANCAL





GEOLOGICAL BRANCH
ASSESSMENT REPORT

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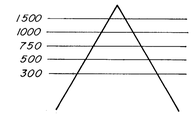
LEGEND:

- Creek
- Road
- Bridge
- Cliff
- Logged Off Area
- Legal Claim Post, Tusk Claims
- Old Claim Post, SS Claims

INSTRUMENT:

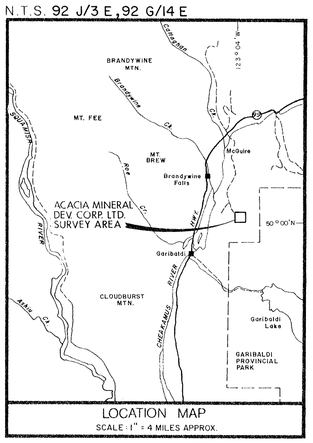
HUNTEC 2.5 Kw TIME DOMAIN
a=100 m., n=1
C2 ← I → C1 POLE
V → P2 P1 DIPOLE

RESISTIVITY KEY



OHM-METERS

N.T.S. 92 J/3 E, 92 G/14 E



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TUSK CLAIMS

VANCOUVER MINING DIVISION — BRITISH COLUMBIA

INDUCED POLARIZATION SURVEY
RESISTIVITY-N=1 (OHM-METERS)

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Date November 1982
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PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA GLEN E. WHITE

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