

ARIS SUMMARY SHEET

District Geologist, Smithers

Off Confidential: 92.08.19

ASSESSMENT REPORT 21826

MINING DIVISION: Liard

PROPERTY: PLB  
LOCATION: LAT 57 22 00 LONG 130 25 00  
UTM 09 6358878 414789  
NTS 104G08W  
CLAIM(S): PLB 4  
OPERATOR(S): Noranda Ex.  
AUTHOR(S): Savell, M.J.  
REPORT YEAR: 1991, 14 Pages  
KEYWORDS: Jurassic, Andesites, Siltstones, Argillites, Greywackes  
WORK  
DONE: Geological  
GEOL 450.0 ha  
Map(s) - 1; Scale(s) - 1:5000  
RELATED  
REPORTS: 19307, 20482

|                     |     |
|---------------------|-----|
| LOG NO: NOV 22 1991 | RD. |
| ACTION:             |     |
| FILE NO:            |     |

GEOLOGICAL REPORT

ON THE

PLB 4 CLAIM

Liard Mining Division  
N.T.S. 104 G/08

Longitude: 130° 25' W  
Latitude: 57° 22' N

NORANDA EXPLORATION COMPANY, LIMITED  
(no personal liability)

REPORT BY: MICHAEL SAVENEL  
GEOLOGICAL BRANCH  
ASSESSMENT REPORT OCTOBER, 1991

21,826

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| FIGURE 1 | Location Map | 1:8,000,000 ....    | 2a |
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1.0 SUMMARY

This report documents an exploration program undertaken in August 1991 on the PLB-4 mineral claim to explain a number of geophysical features obtained from the AEM survey flown in 1990 and to provide a clearer geological picture. The PLB-4 claim is located 45 km northwest of Bob Quinn Lake and 7 km west of the Burrage airstrip on Highway #37. Access is by helicopter. The claim is underlain by Lower to Middle Jurassic coarse clastics, fine black sediments and marine andesitic volcanics. No indications of any significant mineralizing event were observed. Airborne geophysical features reflect magnetic and resistivity contrasts at faults, contacts and sharp slope breaks, rather than mineralization. No further work is warranted and the property should be returned to the vendor.

## 2.0 INTRODUCTION

The PLB-4 claim was staked by La Montagne Exploration Ltd. in August of 1988, to cover a drainage area identified to be anomalous in gold by the Regional Geochem Survey undertaken by the federal government. In the spring of 1990 the property was optioned by Noranda Exploration Company, Limited and a brief reconnaissance program was completed. The east half of the property was surveyed with helicopter borne magnetics and electromagnetics in October 1990. This report documents an exploration program undertaken in August 1991 that was designed to explain a number of geophysical features located by the airborne survey and to provide a clearer geological picture. All work was done by employees of Noranda Exploration under supervision of the author.

## 2.1 LOCATION & ACCESS

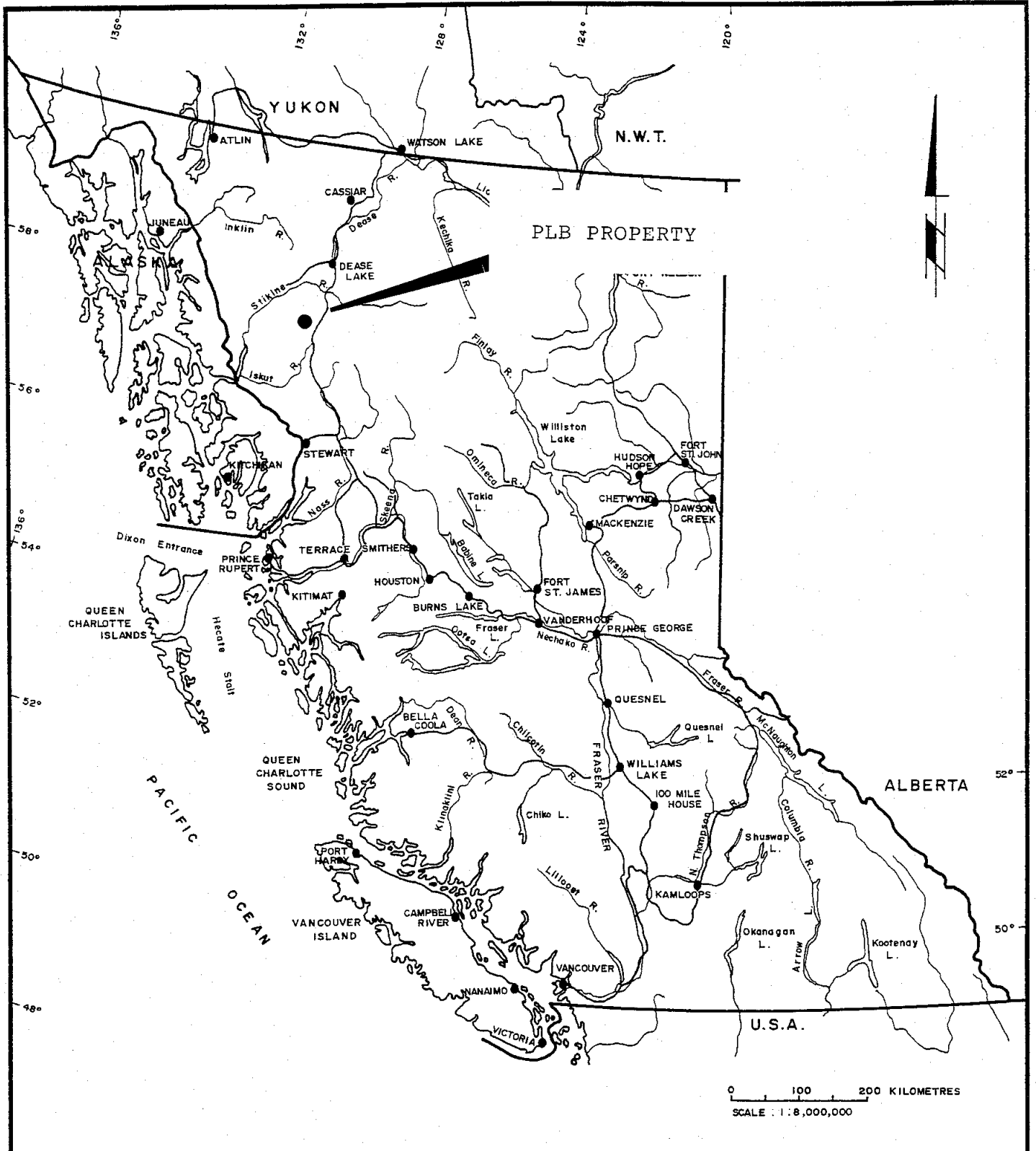
The PLB-4 claim is located 45 km northwest of Bob Quinn lake and 7 km west of the Burrage airstrip on Highway #37. The claim is situated at 57 degrees 22 minutes North and 130 degrees 25 minutes West on the Refuge Lake map sheet (NTS 104 G/08) in the Liard Mining Division.

Access to the property was by helicopter chartered from Vancouver Island Helicopters, based at Noranda's More Creek exploration camp located 25 km west of Bob Quinn Lake on the Stewart-Cassiar Highway.

## 2.2 CLAIM STATISTICS

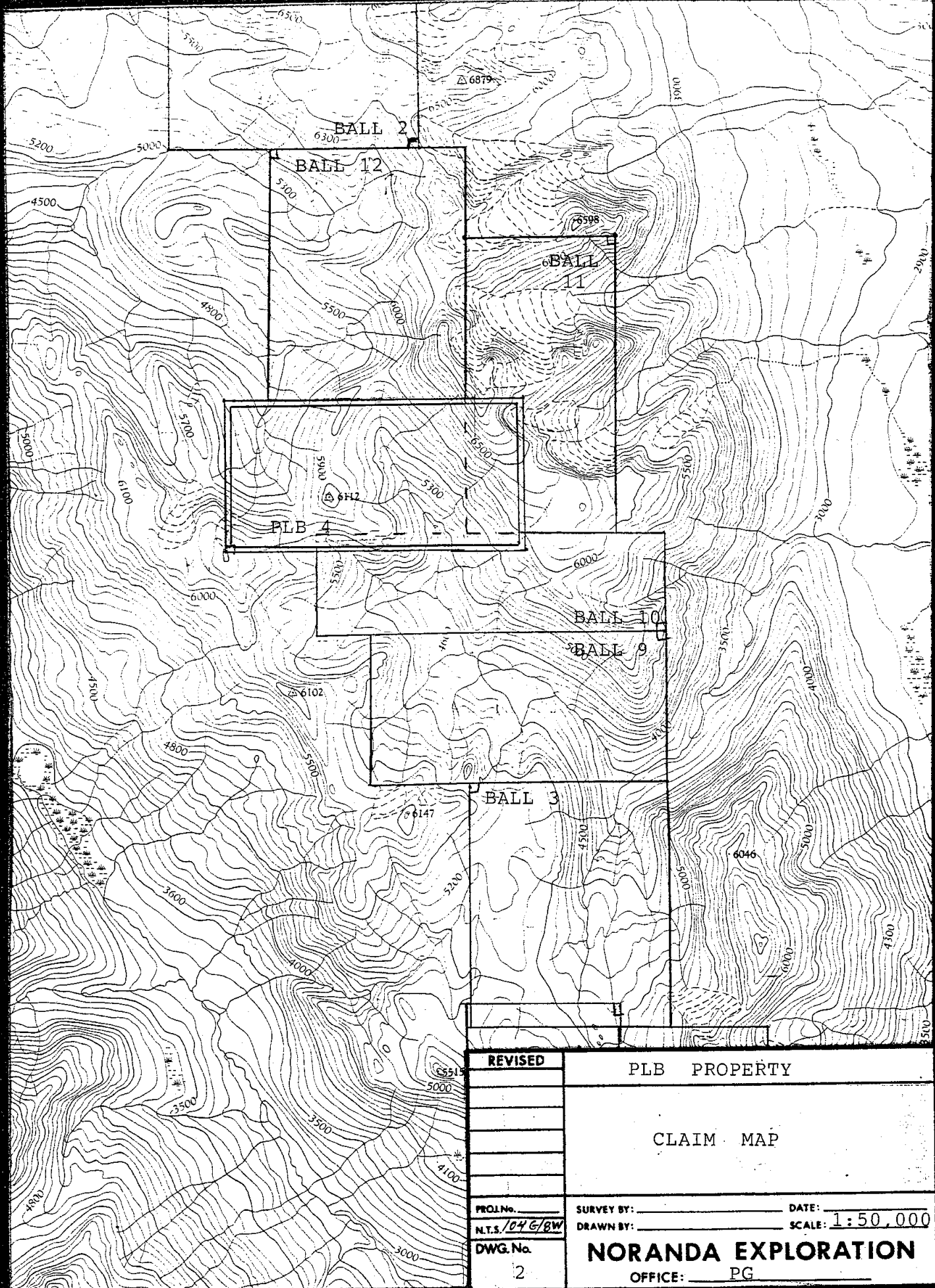
| <u>Name</u> | <u>Record #</u> | <u>Units</u> | <u>Record Date</u> | <u>Owner</u>  |
|-------------|-----------------|--------------|--------------------|---------------|
| PLB-4       | 5114            | 18           | Aug. 18, 1988      | Noranda Expl. |

Upon acceptance of this report by the ministry, the claims will be in good standing until Aug. 18, 1992.



|                |                             |                    |
|----------------|-----------------------------|--------------------|
| REVISED        | PLB PROPERTY                |                    |
|                | LOCATION MAP                |                    |
| PROJ.No. _____ | SURVEY BY: _____            | DATE: _____        |
| N.T.S. _____   | DRAWN BY: S.K.B.            | SCALE: 1:8,000,000 |
| DWG.No.        | <b>NORANDA EXPLORATION</b>  |                    |
| 1              | OFFICE: PRINCE GEORGE, B.C. |                    |

VANCAL 11827



|                  |                            |                 |
|------------------|----------------------------|-----------------|
| REVISED          | PLB PROPERTY               |                 |
|                  | CLAIM MAP                  |                 |
| PROJ. No.        | SURVEY BY:                 | DATE:           |
| N.T.S. / 24 G/BW | DRAWN BY:                  | SCALE: 1:50,000 |
| DWG. No.         | <b>NORANDA EXPLORATION</b> |                 |
| 2                | OFFICE: PG                 |                 |

### 2.3 TOPOGRAPHY & VEGETATION

The property lies on the eastern edge of the Coast Mountain terrane and is characterized by rugged terrain with steep incised creek valleys and rounded glaciated peaks. Elevations range from 1490 metres to 1895 metres.

The claim occurs entirely in alpine environs. Vegetation consists of grasses and mosses typical of a cool, wet environment.

### 2.4 PREVIOUS WORK

In 1988 the property was staked by La Montagne to secure area containing anomalous silt samples from the RGS.

In 1989 Gulf International Minerals optioned the property and conducted several man days of reconnaissance work. Results are reported in "Geological Report of the PLB-4 Claim" by Andris Kikauka for Gulf International Minerals, August 1989.

In 1990 Noranda Exploration conducted geological and geochemical surveys which were filed for assessment purposes. The east half of the property was surveyed using helicopter borne magnetics and electromagnetics in late 1990.



### 3.0 REGIONAL GEOLOGY

The area lies near the western edge of the Intermontane Belt of the Canadian Cordillera, where it parallels the Coast Plutonic Complex. Recent work by both the Geological Survey of Canada and the Geological Services Branch of British Columbia provides a framework of the complex geology of this rugged area. The area includes four, unconformity bounded, tectonostratigraphic assemblages: 1) Paleozoic Stikine Assemblage; 2) Triassic-Jurassic volcano-plutonic complexes of Stikinia; 3) Middle and Upper Jurassic Bowser overlap assemblage; and 4) Tertiary Coast Plutonic Complex. (Anderson, 1989) This section of the Intermontane Belt forms the west limb of the "Stikine Arch," a roughly horseshoe shaped area of Upper Triassic to Jurassic stratigraphy that hosts most of the significant mineral deposits in northwest B.C. and the Toadogone gold camp.

The Paleozoic Stikine Assemblage is the oldest assemblage and contains three distinct, mainly volcanic-carbonate divisions: Early Devonian limestones and intermediate to felsic volcanics, Mississippian bioclastic limestones, and Permian fragmental volcanics and limestone. These rocks are generally metamorphosed and highly deformed.

The Triassic-Jurassic volcano-plutonic complexes (Stewart Complex) are comprised of both the Triassic Stuhini Group and the Jurassic Hazleton Group. The Stuhini consists of limestone and mafic volcanics deposited in an island arc environment. These rocks host the Snip and Johnny Mountain structural gold deposits. Hazleton Group rocks consist of andesitic breccias/lavas, felsic tuffs/ breccias, and maroon-green volcanic sediments (siltstone, greywacke, conglomerate, and black shale) also of island arc affinity. Black shales (Eskay Creek facies) overlying felsic volcanics (Mt. Dilworth Formation) host the Eskay Creek gold deposits.

Sub-volcanic intrusions accompany most of the volcanic centres of the Mesozoic island arc complexes and range from Alaskan type ultramafics to felsic dykes. Distinctive porphyritic dykes link Upper Triassic and Lower Jurassic volcanics with their plutonic equivalents. Many of the significant mineral deposits in the Stewart Complex are found to have a close association with volcanic centres.

The Middle and Upper Jurassic Bowser Overlap Assemblage are predominantly turbidite black clastics deposited in the Bowser Basin, formed as a result of uplift to the west due to emplacement of the Coast Range Intrusives.

The Tertiary Coast Plutonic Complex consists of post-tectonic, felsic plutons. Eastward younging of strata and local zones of high strain attest to intrusion and uplift of the complex.

Tertiary to Recent subaerial volcanics cover local, low lying areas.

The prime target of current exploration on the property is a precious metal enriched polymetallic massive sulphide deposit similar to Eskay Creek. The Eskay Creek deposit is contained within black argillites and mudstones of the Eskay Creek Facies immediately hanging wall to felsic volcanics of the Mt. Dilworth Formation. The deposit consists mainly of pyrite, sphalerite, and galena with minor arsenic, antimony and mercury sulphides in both stratiform and crosscutting massive and stringer zones. Both exhalative and epithermal processes may have contributed to the formation of the deposit.

#### 4.0 PROPERTY GEOLOGY

The geological setting is shown at a scale of 1:5,000 on figure 3, along with a summary of the major airborne geophysical features. Also shown on figure 3 is an interpreted southwest-northeast cross section through the entire claim.

Outcrop is limited to a few scattered rubble zones in steep areas and gulches, and north facing cirque walls. Approximately 95% of the property is covered by alpine grasses and talus slopes.

The oldest rocks mapped are thick bedded, rusty-orange weathering, coarse clastic sediments (Unit 1a). A north plunging anticline is suggested by bedding patterns. Conformably overlying these rocks are black, thinly bedded, fissile argillite and siltstone (Unit 1b). These are shallow to moderately dipping to the east. An intensely deformed section is exposed along the cirque wall on the northern boundary enclosed by steep dipping faults. Conformably overlying unit 1b is a sequence of interbedded marine, andesitic volcanics and black sediments that form the resistant ridge at the far northeast corner of the property. This comprises units 1c to 1g. Pillowed andesites of unit 1g dominate, however, the relatively thin intervals of rusty weathering black, cherty argillite (Unit 1c) are considered possible hosts for volcanogenic sulphide mineralization. Minor constituents of this sequence include felsic breccias of uncertain origin, and fine grained dioritic dykes believed to be feeders to the andesitic volcanics.

Units 1c to 1g are thought to be time and facies equivalents to the Hazelton rocks that host the Eskay Creek deposit.

Unconformably overlying Lower Jurassic sediments on the ridges on the southwest portion of the property are Tertiary or possibly recent vesicular andesitic subaerial flows.

The faults and contacts derived from the airborne magnetic data appear to correlate with lithological contacts. The southeast-northwest trending positive magnetic axis along the east side of the property correlates with the high ridge formed by the resistant and magnetically higher susceptible Mesozoic volcanic package (Unit 1g). A paralleling, weaker magnetic axis through the centre of the property correlates with the west contact of the intensely deformed black sediment section. The high resistivity area interpreted from the electromagnetic data appears to map out the Mesozoic volcanics to the east.

An weak electromagnetic anomaly detected across two flight lines near the east side of the claim is coincident with a contact between a fine diorite dyke and rusty weathering, cherty hornfelsed, black sediments. The area is steep with plenty of outcrop; prospecting failed to locate any sulphides. The anomaly is attributed to resistivity and magnetic contrasts across the sediment-diorite contact.

#### 5.0 CONCLUSIONS

The PLB-4 claim is underlain by Lower to Middle Jurassic coarse clastics, fine black sediments and marine andesitic volcanics. No indications of any significant mineralizing event were observed. Airborne geophysical features reflect magnetic and resistivity contrasts at faults, contacts and sharp slope breaks, rather than mineralization.

#### 6.0 RECOMMENDATIONS

No further work is warranted and the property should be returned to the vendor.

7.0 REFERENCES

Anderson, R.G. et al : Mesozoic Stratigraphy and setting for some mineral deposits in Iskut River map area, northwestern British Columbia. In G.S.C. Paper 90-1F, p. 131-139, 1990.

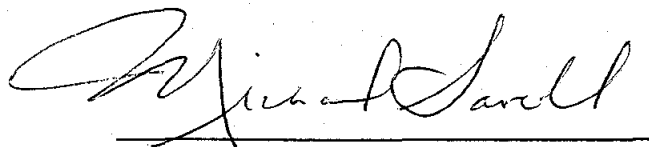
Souther, J.G.: Telegraph Creek map-area British Columbia. G.S.C. Paper 71-44, Geological Survey of Canada, 1972.

APPENDIX I

STATEMENT OF QUALIFICATIONS

I, Michael Savell, of the City of Prince George, Province of British Columbia, do certify that:

1. I am a geologist residing at 3507 Rosia Road, Prince George, British Columbia.
2. I am a graduate of Dalhousie University, Halifax, Nova Scotia with a Bachelor's of Science (Honours) degree in Geology.
3. I am a member in good standing of the Geological Association of Canada, the Prospector's and Developer's Association and the B.C.-Yukon Chamber of Mines.
4. I presently hold the position of Sr. Project Geologist with Noranda Exploration Company, Limited and have been in their employ since 1980.



Michael Savell  
Sr. Project Geologist  
Noranda Exploration Co., Ltd.  
(no personal liability)

APPENDIX II  
STATEMENT OF COSTS

REPORT TYPE: Geological

October, 1991

a) WAGES:

No. of Days - 4  
Rate per day - \$146.05  
Dates from - Aug 1 to Aug 17, 1991  
Total: \$ 584.20

b) FOOD & ACCOMMODATION:

No. of Days - 4  
Rate per day - \$61.84  
Dates from - Aug 1 to Aug 17, 1991  
Total: \$ 247.36

c) TRANSPORTATION:

No. of Days - 4  
Rate per day - \$218.64  
Dates from - Aug 1 to Aug 17, 1991  
Total: \$ 874.55

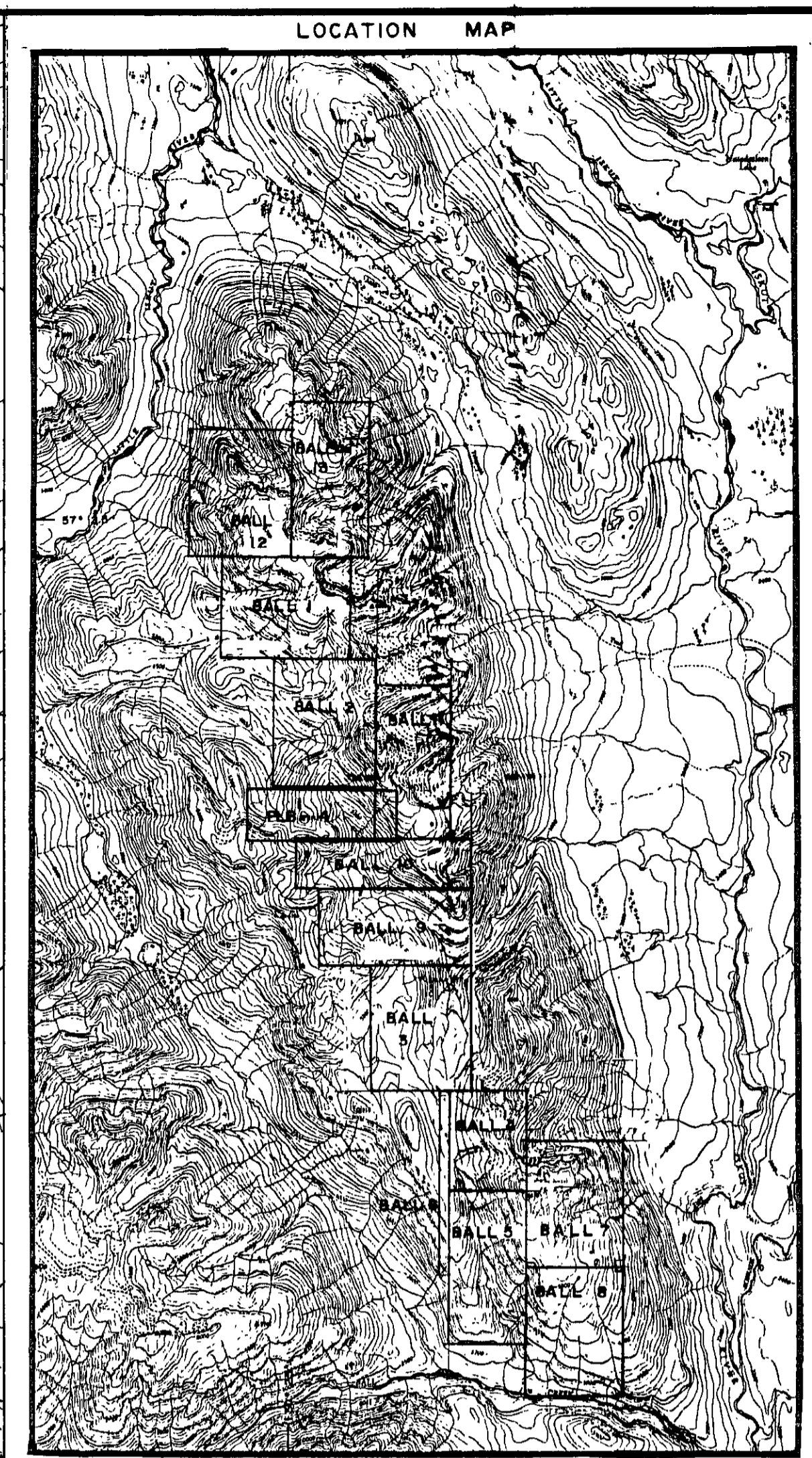
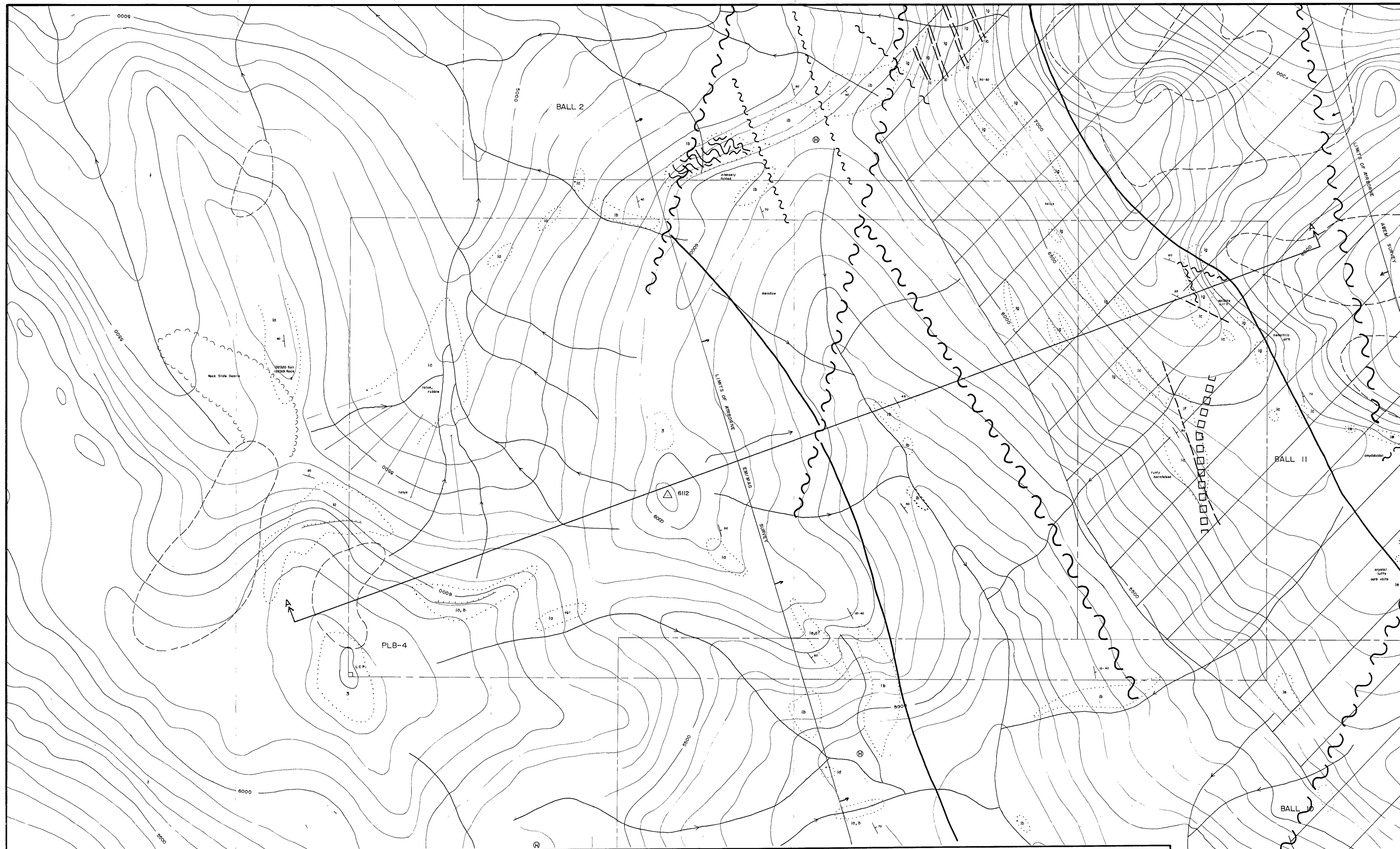
d) COST OF PREPARATION OF REPORT:

|          |          |           |
|----------|----------|-----------|
| Author   | \$250.00 |           |
| Drafting | \$ 50.00 |           |
| Typing   | \$ 50.00 |           |
| Total:   |          | \$ 350.00 |

=====

TOTAL COST:

\$ 2,056.11



SCALE 1:100,000

**LEGEND**

- TERTIARY**
- 2 Flat lying, green vesicular andesitic flows, breccia, sub aerial.
- LOWER-MID JURASSIC**
- 1g Massive to pillowed, grey-green aphanitic andesites.
  - 1f Fine grained, dark-green to black, diorite dykes (fenders to above).
  - 1a Grey-green, andesitic tuffs, breccia.
  - 1d Rhyolite-Dacite Breccia.
  - 1c Black, cherty siltstones, rusty weathered.
  - 1b Black, thinly bedded, friable argillite and siltstone.
  - 1e Thick bedded, orange-rusty weathered grey waxes and conglomerates.
- Area of outcrop  
 Bedding Altitude  
 Geological Contact  
 Fault

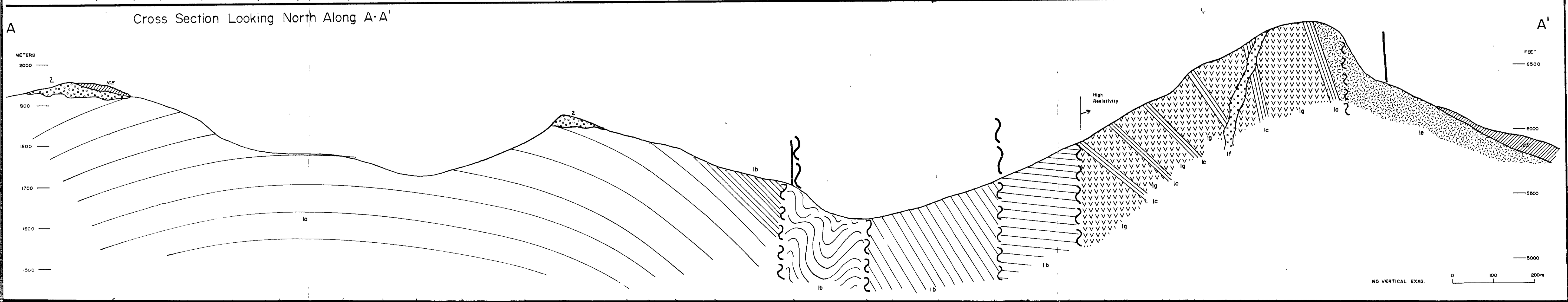
**SIGNIFICANT FEATURES INTERPRETED FROM ABEM SURVEY (1990)**

- Positive magnetic axes
- Contacts or Faults
- EM Anomaly

**GEOLOGICAL BRANCH ASSESSMENT PROGRAM**

**21,826**

0 100 200 300 400 500 METRES  
 1:5000



|                 |                             |                 |  |
|-----------------|-----------------------------|-----------------|--|
| REVISED         | PLB 4 CLAIM                 |                 |  |
|                 | Geology & ABEM-MAG Features |                 |  |
| PROJ. No. 289   | SURVEY BY: DH, MS           | DATE: NOV. 1991 |  |
| N.T.S. 1046/28W | DRAWN BY: PUL               | SCALE: 1:5000   |  |
| DWG. No. 3      | <b>NORANDA EXPLORATION</b>  |                 |  |
|                 | OFFICE: PRINCE GEORGE, B.C. |                 |  |