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**Memo To:** File  
**From:** J.M. Kowalchuk **NTS:** 104 G/8  
**Date:** December 06, 1988.  
**Subject:** BALL CREEK - CHEVRON MINERALS LTD.

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#### INTRODUCTION

As part of the Porphyry Study, Gwen Ditson evaluated the Ball Creek property owned by Chevron Minerals Ltd. Based on her recommendation, the writer visited the property in August and in October. Bulk stream sediment samples were taken of the creeks draining the property, contour soil samples were taken along the eastern slopes and rock chip samples were taken over part of the Goat zone and over a quartz-sericite alteration zone outcropping above the Camp Zone.

Sampling suggests that a zoning exists between the copper, gold and silver mineralization. The copper appears closest to the latite intrusive, then gold and then lead, zinc, silver mineralization.

A gold enriched zone appears to surround the porphyry copper mineralization.

#### LAND

Chevron Minerals Ltd. owns 100% of the Ball Creek property. The ground is held with 84 two post claims. These are tabulated below:

Mom 4-11  
Tara 1-24  
Rog 1-20, 22-27, 29, 31, 33, 34  
Me 1-8  
Don 1-4

The earliest expiry dates are for the Rog claims which is August 1990.

The claims lie within the Liard Mining Division.

## LOCATION AND ACCESS

The property lies at the junction of Ball and Devil Creeks about 7 km. west of the Stewart Cassiar Highway where it runs next to the Iskut River. The claims are plotted on NTS map sheet 104G 8W and are recorded in Cassiar for the Liard Mining District.

Access to the property is by helicopter from Dease Lake 140 km to the north. Mobilization of a camp or equipment would be by helicopter from the Stewart Cassiar Highway, 7 km to the East. The Iskut River is relatively narrow near the mouth of Ball Creek and would be easy to cross if a road was built into the property.

## TARGET TYPE

A large, low grade copper-gold porphyry, with an average grade of 0.1-0.2% copper and 0.5-1.0 ppm gold. Metal zoning studies may locate areas of better copper and gold mineralization.

## Previous Work

1929, 63, 66, 70	Geology, geochem, trenching, magnetics 6 DDH (61 m) by various companies including Newmont.
1971-1979	Geology, geochem, IP, 11 DDH (1982 m) by Norcen and Chevron.
1980	Geology, geochem, petrography, 2 DDH (953 m) by Norcen.

The 1972 IP survey was concentrated on the camp and DM zones. Two zones of high chargeability (30 ms) were located. The eastern zone (in the latite) was well drilled; the western zone was not tested. The 1973 IP survey over the Cliff zone located a broad 30 ms chargeability anomaly zone with peak values of 60 ms.

A 1975 IP survey designed to test the Camp zone at depths up to 450 meters located a large deep zone which was not tested.

## GEOLOGICAL SETTING

Triassic volcanics are intruded by a zoned-intrusive complex consisting of an outer granodioritic zone, a central brecciated latite zone and a small area of quartz monzonite which cuts all other rocks.

Several mineralized zones occur within the complex. The camp zone wraps around the latite breccia. All of the other zones; the DM, Cliff and Goat zones, occur around the outer margins of the intrusive within the volcanic rocks.

Zoned potassic, phyllic and propylitic alteration occurs around the Camp zone. The latite breccia hosts the strongest alteration, which grades outward into weaker alteration assemblages in the surrounding granodiorite. The other DM, Goat and Cliff zones occur in a propylitic alteration package with localized quartz-carbonate veining.

The main zone of mineralization is the camp zone where a mineralized quartz stockwork is uniformly developed. The best grades are associated with well developed stockwork and moderate to strong alteration copper grades, percent sulphide and intensity of alteration all increase with depth. The best drill intersection in the camp zone was a 113 metre section at the bottom of hole 74-3 which averaged 0.27% Cu, 0.025 opt Au and 0.024% Mo.

### 1988 FIELD PROGRAM

Bulk samples were taken from three creeks draining the deposit. Samples taken from all three creeks were very anomalous for gold with sample BS 11 recording a value of 2.29 ppm Au. Sample BS 9 gave 0.655 ppm Au and sample BS 10 gave 0.300 ppm Au. The sample locations are shown on Fig. 2.

A 650 meter soil line was located above the tree line at an elevation of 1325 metres. These soils showed an interesting metallic zoning with a lead-arsenic-silver-copper zone abruptly stopping and a gold zone starting. This change occurs at a geological contact with the gold giving readings from 100-500 ppb over 150 meters within volcanoclastics. The high lead-silver occurred in a welded tuff unit. The location of the soil line is shown on Fig. 2. A detailed map of the line is shown on Fig. 3.

A set of 8 sample locations, 25 metres apart, around which were taken scattered rock chips within a 1 metre radius, were located in the felsitized zone adjacent to the latite intrusives. They gave generally negative results. The location of this line is plotted on Fig. 2.

A contour chip sample line sampled over a 50 metre distance in the Goat zone, gave high lead-silver values and gold values up to 95 ppb. A sketch map of this line is shown on Fig. 4.

### DISCUSSION AND CONCLUSIONS

The Ball Creek property contains a large body of low grade porphyry copper-gold mineralization. Parts of the property have been drilled and tested for copper, however many areas remain to be tested. Some of the drilled areas were tested for gold, however the gold analyses were suspect and no definitive statement can be made of the gold content of the mineralization.

Preliminary work by PDI personnel confirm that this property is anomalous in gold, copper and silver. They have also defined a possible metal zoning around the main copper deposit (camp zone). This zoning is copper - gold - silver, lead, zinc.

The property is well located relative to the other porphyry copper properties in the area which are quite isolated. The Ball Creek property is only 7 km west of the Stewart Cassiar Highway. The construction of a road to the property would be quite simple.

Since Chevron Minerals is a senior company and holds 100% of the property, it should be easy to make a deal with them, requiring only a work committment and not costly property payments.

#### **RECOMMENDATION**

I recommend that Placer Dome commence talks with Chevron with the intent to option and explore this property.

**JOHN KOWALCHUK**

PROJECT SYNOPSIS  
1989 BUDGET PROPOSAL  
WESTERN CANADA

PROJECT

BUDGET: \$165,000

BALL CREEK

PHASE:

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Land

Ground held with 84 two post claims.

Mom 4-11

Tara 1-24

Rog 1-20, 22-27, 29, 31, 33, 34

Me 1-8

Don 1-4

The earliest expiry dates for some of the Rog Claims is August 1990.

Ownership

Ground is 100% owned by Chevron Minerals Ltd., Placer Dome can earn a 51% interest by a work commitment. No discussions have started on this type of deal Chevron would require.

Location and Access

The property is located at the junction of Ball Creek and Devil Creek about 7 km west of the Stewart Cassiar Highway where it runs next to the Iskut River. The claims are plotted on NTS map sheet 104G 8W and are recorded in the Liard Mining District.

Access to the property is by helicopter from Dease Lake 140 km to the north. Mobilization of a camp or equipment would be by helicopter from the Stewart Cassiar Highway, 7 km to the east.

Target Type

A large, low grade copper-gold porphyry with an average grade of 0.1-0.2% Cu and 0.5-1.0 ppm Au. Metal zoning on the property may locate areas of better copper and gold mineralization.

Geological Setting

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A 1975 IP survey designed to test the Camp zone at depths up to 450 meters located a large deep zone which was not tested.

### Previous Work (PDI)

Bulk samples were taken from three creeks draining the deposit. All three creeks were very anomalous for gold with B.S. 11 recording a value of 2.29 ppm Au. A 650 meter soil line was located above the tree line at an elevation of 1325 metres. These soils showed an interesting metallic zoning with a lead-arsenic-silver-copper zone abruptly stopping and a gold zone starting. This change occurs at a geological contact with the gold giving readings from 100-500 ppb over 150 meters within volcanoclastics. The high lead-silver occurred in a welded tuff unit.

Rock chip samples were concentrated in the felsitized zone where 8 chip samples, 25 meters apart tested the zone with generally negative results. A chip sample line over 50 meters on the Goat zone, gave high lead-silver values and gold values up to 95 ppb.

### Proposed Work

20 km line-cutting on which soils, IP, Mag and VLF-EM will be done. The lower flanks will be mapped and sampled.

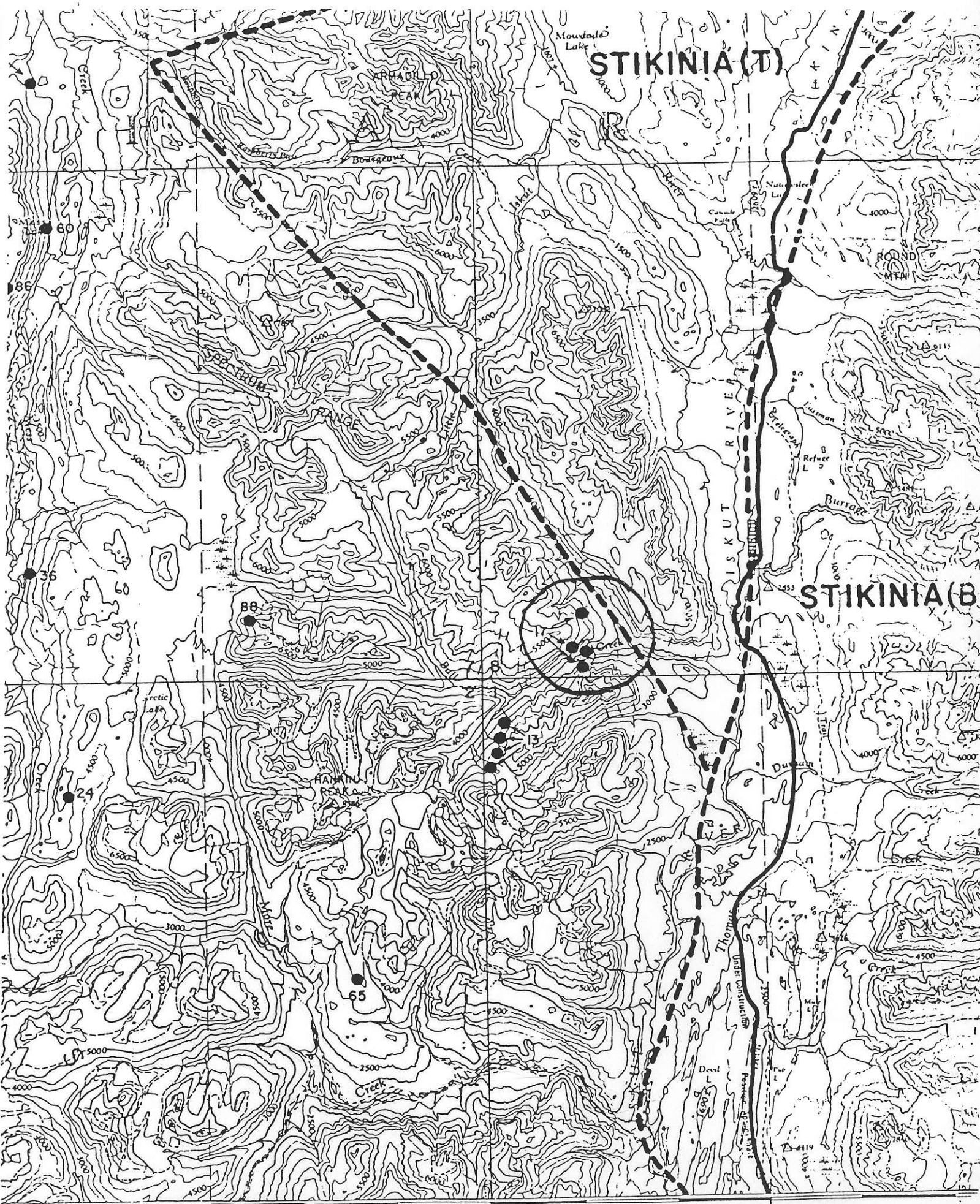
Budget Costs

Personnel	14,000.00
Line-Cutting	12,000.00
Magnetic & VLF-Em	4,000.00
IP	20,000.00
Assaying	17,000.00
Helicopter	30,000.00
Camp Operations	15,000.00
Transportation-Shipping	8,000.00
Supplies	5,000.00
Report, Evaluation	5,000.00
Contingency	15,000.00
Administration	20,000.00

TOTAL BALL CREEK PROPOSAL 165,000.00

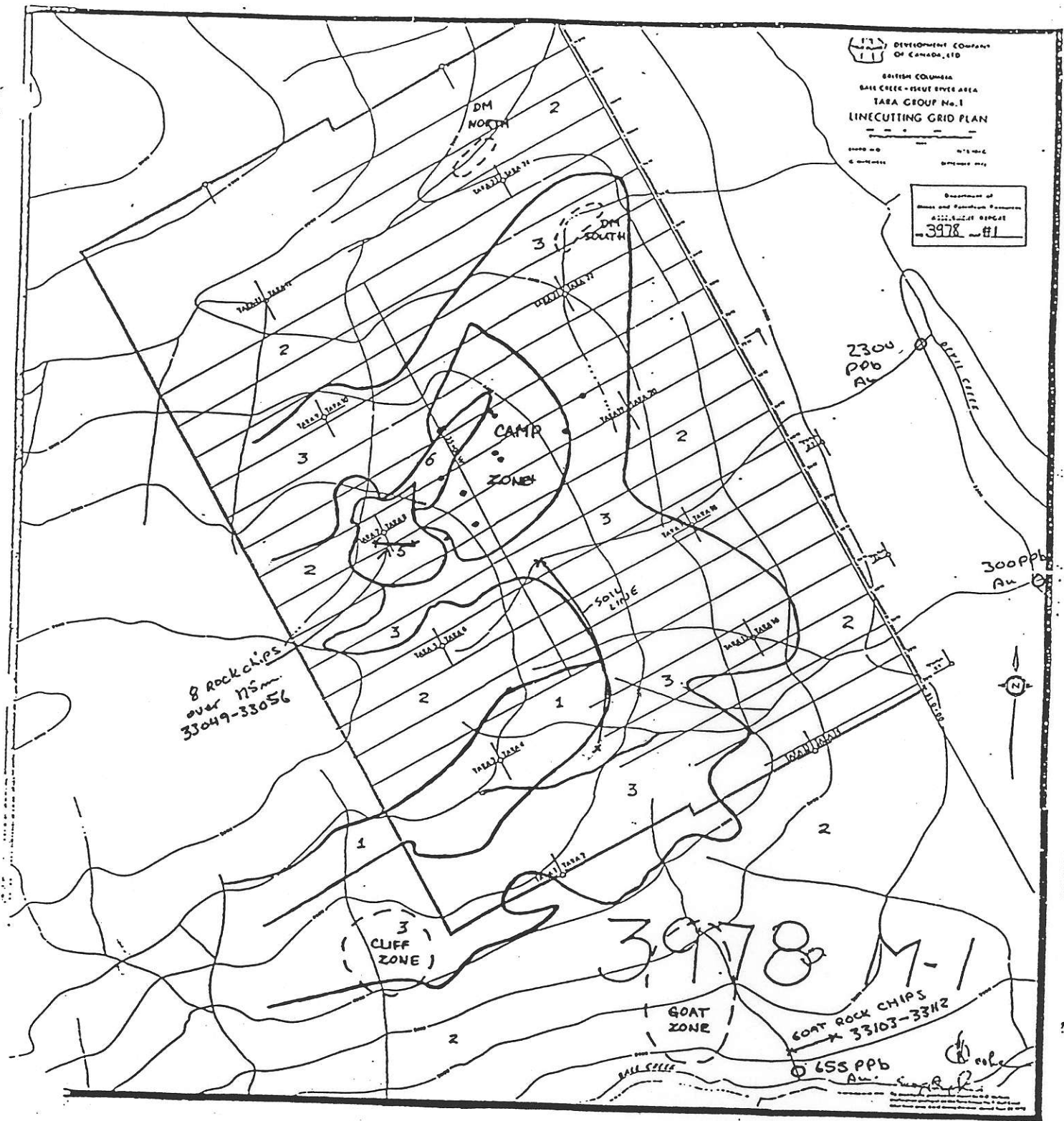
John Kowalchuk

JK/leb  
10.27.88



Ball CK in 104 G SE 1:250,000





Legend :

- |   |  |
|---|--|
| 6 | Quartz Monzonite Porphyry                        |
| 5 | 'Felsitized' Rock (dolomite/diopside alteration) |
| 4 | Latite/Quartz Latite                             |
| 3 | Granodiorite                                     |
| 2 | Volcaniclastics and Flows                        |
| 1 | Welded Tuff                                      |
- Drill Hole



Figure 2

104 G/8  
 BALL CREEK PROPERTY  
 Camp Zone, et al.  
 Geology and Drill Holes