Property Submission:
Bird, Shred + Nik claims ~ $125,000 spent
094D/09

94D/9
B.P Minerals

BIRD Claims, Central B.C.

822046

Target:

Massive sulphide deposit containing enhanced levels of gold. UM assoc.

The Property:

A major through going regional structure cutting andesitic pyroclastics, flows, tuffs and conglomerates has been intruded by acidic and ultramafic plutons. The target is reflected by an outstanding geochemical soil anomaly averaging in excess of 5000 ppm copper up to 20,000 ppm copper. The anomaly train is up to 2 km long on the BIRD claims.

The Program:

The grid across the fault zone must be reestablished and an EM survey conducted to establish the trace of the massive sulphide target. Once established, the target conductor can be drill tested at three locations.

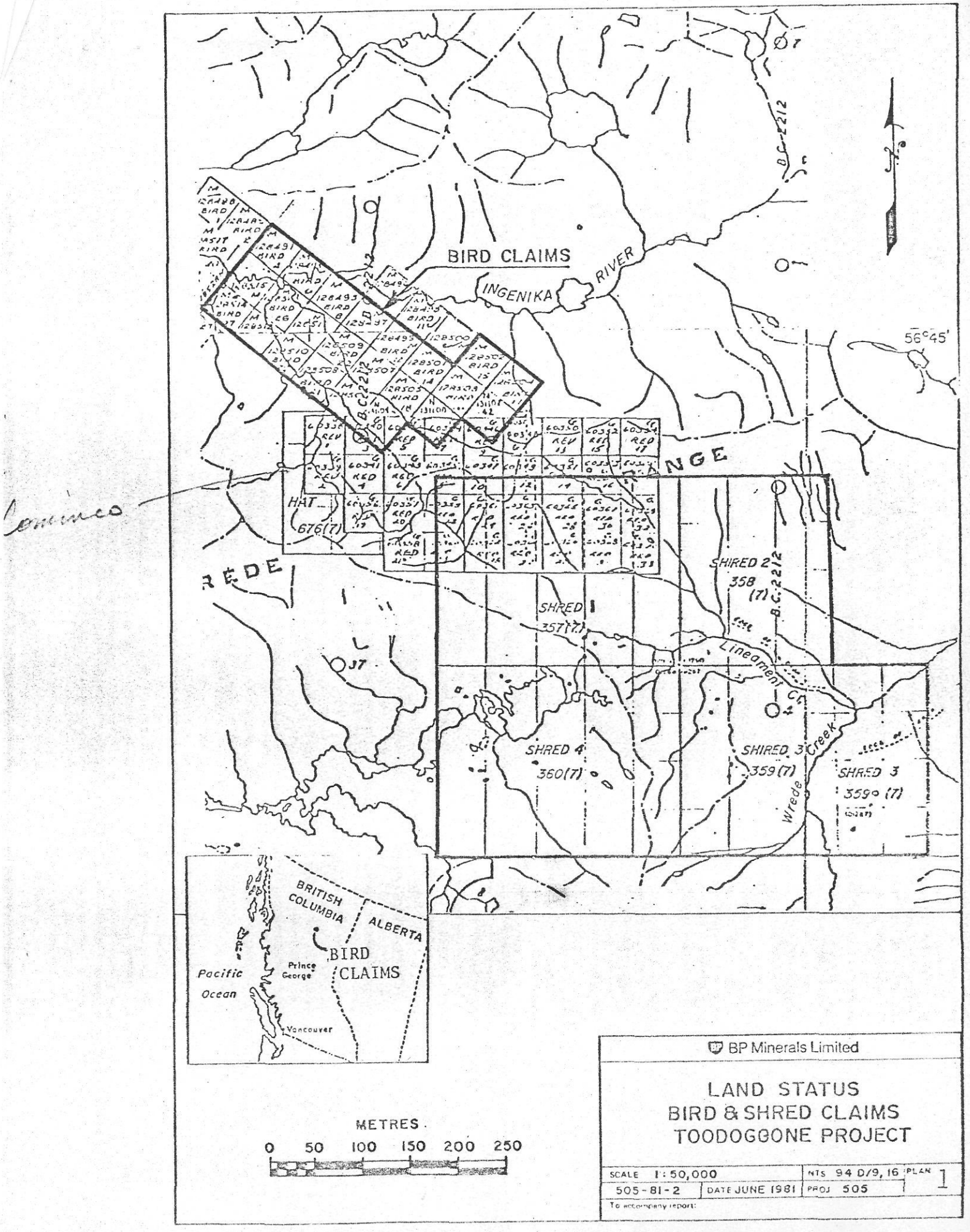
Anticipated Entry Costs:

The establishment of a grid and completion of an electromagnetic survey are required to define the location of 3 drill targets along the 2 km geochemical trend. A minimum of 500 m of diamond drilling is required to earn a 50% interest in BIRD.

Cu, Co, Ni, Mn, Cr, Mg, Ca, Ba, Sr, K, As anomalous in soils - pattern over UM - by inference from results to MS potential

Au anom in soils

- [illegible] on UM but no EM


BIRD CLAIMS
INGENIKA
RIVER
B.C. 2212
56°45'
HAT
676(7)
SHRED 2
358
(7)
SHRED
357(7)
Lineament
SHRED 4
360(7)
SHIRED 3
359(7)
Creek
SHRED 3
359a (7)
Wrede
BRITISH COLUMBIA
ALBERTA
BIRD CLAIMS
Prince George
Pacific Ocean
Vancouver
METRES
0 50 100 150 200 250
BP Minerals Limited
LAND STATUS
BIRD & SHRED CLAIMS
TOODOGGONE PROJECT
SCALE 1:50,000
NTS 94 D/9, 16
PLAN 1
505-81-2
DATE JUNE 1981
PROJ 505
To accompany report:

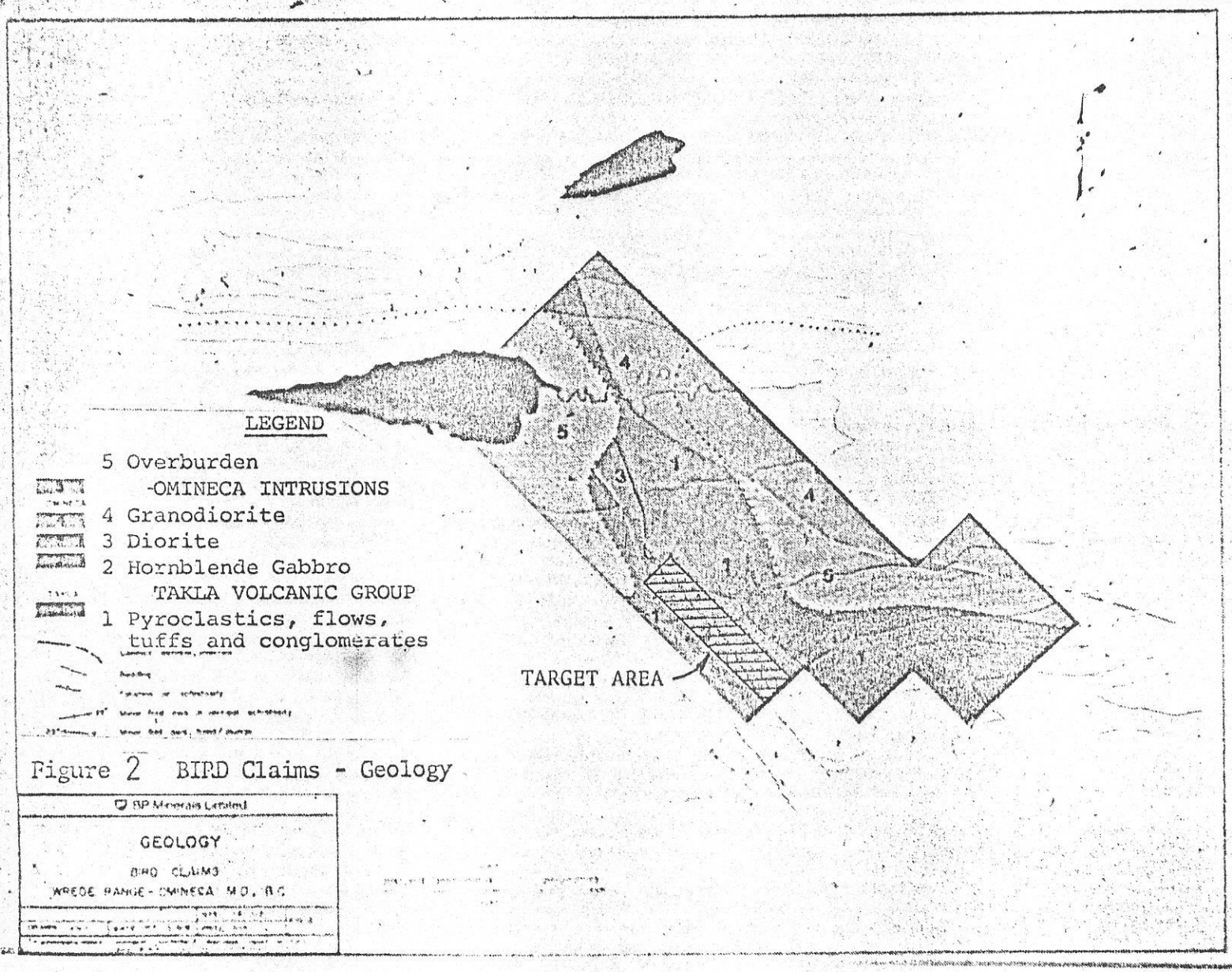


Figure 2 BIRD Claims - Geology

SHRED claims, central B.C. - BP exploration ~ $150,000

Target:

Massive sulphide deposit containing enhanced levels of gold.

The property:

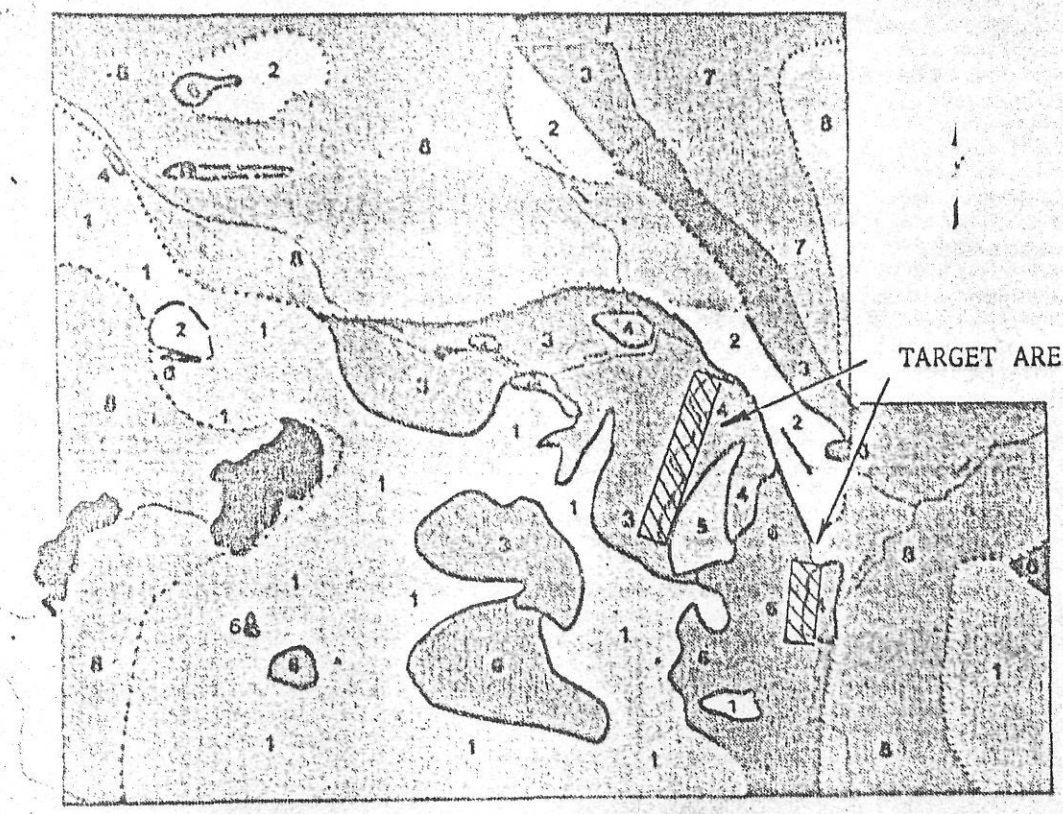
Upper greenschist, lower amphibolite facies andesitic volcanics comprising fine to coarse pyroclastics are intruded by ultramafic and acidic plutons along a major, regional structural break. Coincidence of the most anomalous copper and gold soil geochemical results along the trend of an IP anomaly over 1 km long, and an association of geochemical/geophysical anomalies with two massive sulphide occurrences (grade 0.5% copper and 5% copper, 0.5% nickel) suggests a massive sulphide target is available for drill testing.

The program:

A cut grid was established in 1982 to determine the trace of a massive sulphide target more accurate than is currently known using IP data. An EM survey is contemplated to position a target conductor reliably on the ground prior to diamond drill evaluation. Analysis of all available soil samples over an EM conductor for gold will help priority rate selection of a target for drill siting.

Anticipated entry cost:

Completion of an EM survey over the approximate 25 line km of grid and diamond drill testing of 3 holes (500 m in total) is required to earn a 50% interest in the property.

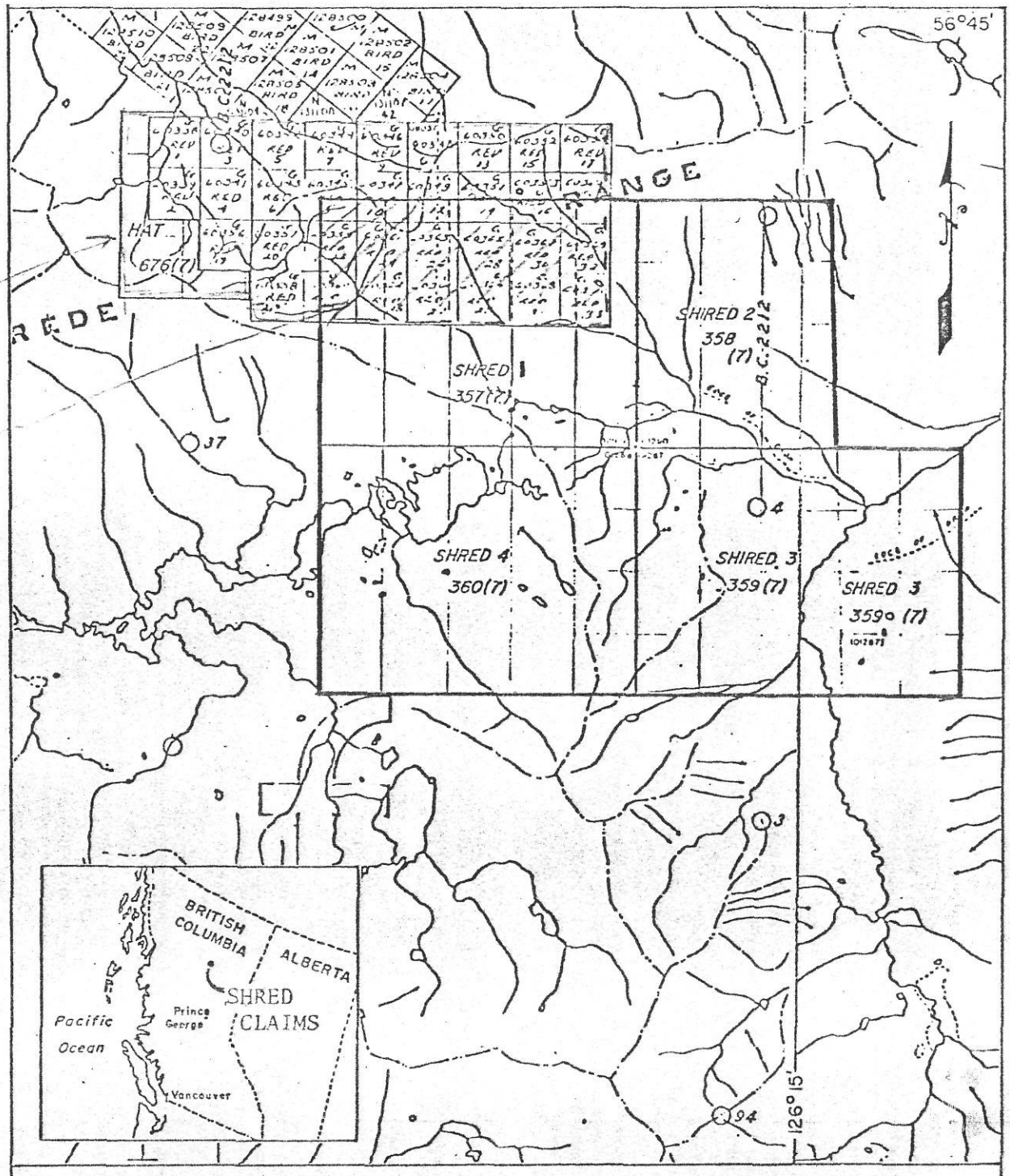


LEGEND

- 8 OVERBURDEN
- 7 QUARTZ DIORITE
- 6 MONZONITE, DIORITE
- 5 SYENITE PORPHYRY
- 4 PYROXENITE, PERIDOTITE
- 3 METAVOLCANICS; HORNFELSED PYROCLASTICS & VOLCANICLASTICS
- 2 PYRITIC TUFFS & METAVOLCANIC (CRYSTAL TUFF), CHLORITE SCHIST
- 1 ANDESITIC TUFF, PYROCLASTICS, DERIVED VOLCANICLASTICS

SHRED CLAIMS

Figure 2 SHRED Claims - Geology



Miles
0 .5 1
0 500 1000
Metres

BP Minerals Limited

SHRED CLAIMS
ORIENTATION - STATUS MAP

SCALE 1:50,000		NTS 94 D 9	FIG. 1
DWG. No. 80-143	DATE JUNE 1980	PROJ. 505	
To accompany report:			

Wrede Creek
Several claims
~12 mi E of Sustut — on opposite side of graben
- helicopter access
- valley bottom flat ground

- talus fine sampling
- anomalous areas soil geochem'd
- 4000' long IP anom w/ some mag

1) - 3 m. MS (py) in boulder 0.5 Cu ~100 ppb Au
probably in glacial ob

2) 4 discrete lenses of MS surrounded by mte — py (po) cpy, pentlandite — in UM
\ 5% Cu, 0.5 Ni // grab sample of high grade
no data of Zn, Co etc

General location - Takla volcanics
U/M belt done edge of major graben (Toodoggone - Mesilinka - Hogh,

BP - Alwyn prospect Cu-Au in New Denver / Kaslo area - RioTinto JV

BP MINERALS LIMITED

The NIK Belt

A farmout proposal

BIRD SHRED NIK

mineral properties (Cu, Mo, Au)
NTS 94D/9

Dr. S.J. Hoffman
BP MINERALS LIMITED
June, 1981

BPVR 81-5

The NIK Belt - A Farmout Proposal On Behalf of BP Minerals Limited

SUMMARY

The NIK belt represents a major tectonic linament along the eastern edge of the Intermontane Belt, in northcentral British Columbia, along which have been emplaced a suite of acidic, basic and ultrabasic intrusions which carry significant amounts of chalcopyrite and molybdenite (and/or nickel and gold.) The mineral potential of the belt was identified by the regional exploration surveys of BP Minerals during the period 1973 to 1976. Three properties were acquired to protect the best of the anomalous zones, at BIRD, SHRED, and NIK. The NIK property has been examined more intensively than the other two. Anomalies remain to be tested on NIK as well as on the other properties which have seen little or no diamond drilling.

The exploration target is a copper/molybdenum porphyry. In addition, the SHRED property has potential for massive sulphides of the copper-nikcel-gold type within and along the margins of ultramafic plutons.

BP has expended over $1,000,000 on exploration on the three properties. All merit further investigation, primarily by diamond drilling, although a period of re-evaluation of available data and completion of some

geochemical and geophysical in-house and field studies is also necessary. It is the intention of BP to joint venture. Potential pariticpants can earn an interest in the lands by work.

The accompanying report summarizes regional aspects of the exploration and data which are specific to individual properties. Internal company reports are available for a more thorough examination of the data.

TABLE OF CONTENTS

THE NIK BELT - A FARMOUT PROPOSAL ON BEHALF OF BP MINERALS LIMITED

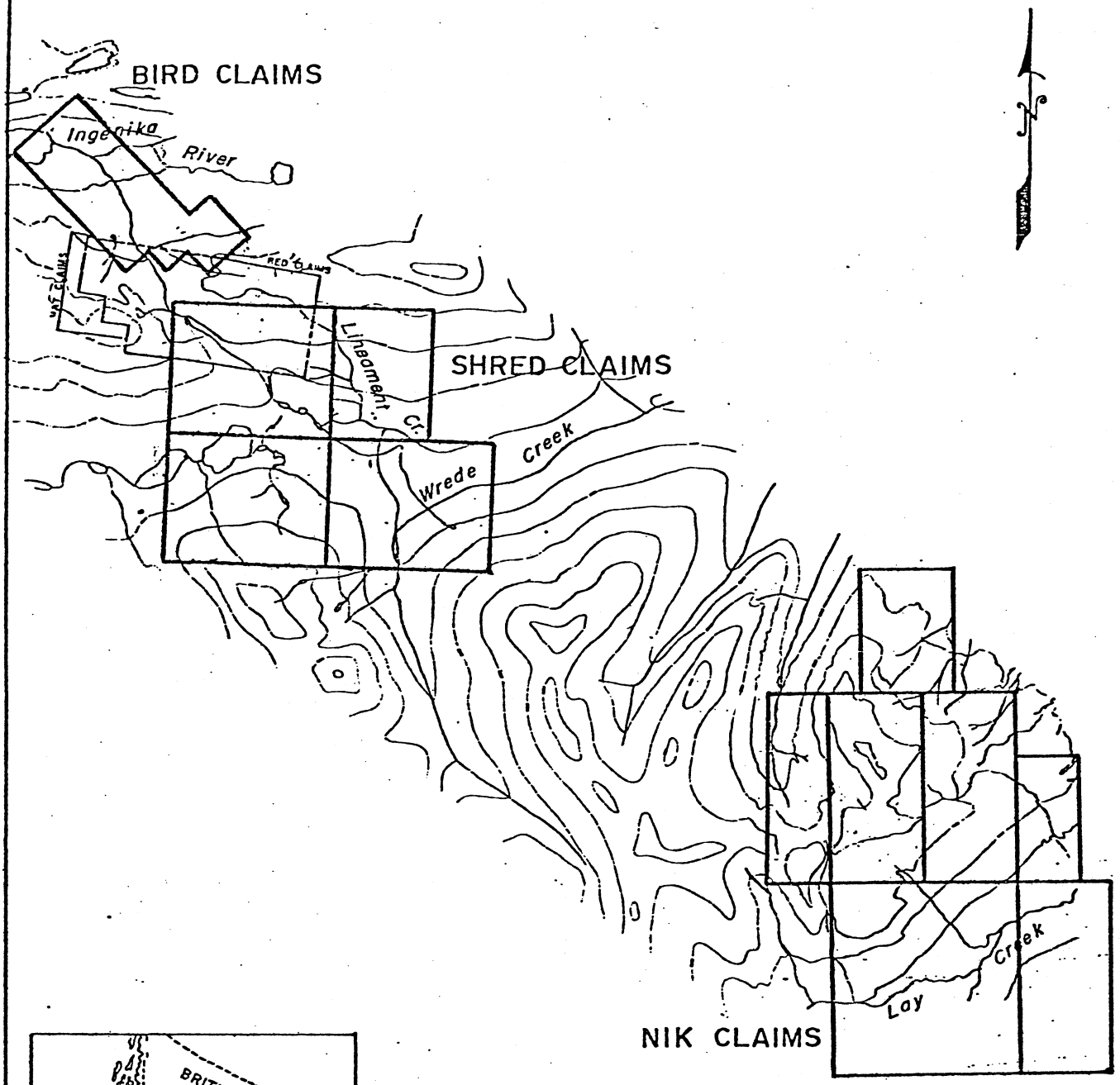
LIST OF FIGURES

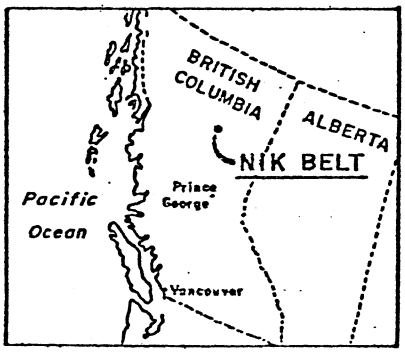
LIST OF TABLES

INTRODUCTION

The BIRD, SHRED, and NIK claims (Plate 1) were acquired following discovery of significant float occurrences of copper and molybdenum associated with outstanding soil geochemical anomalies for the same elements. Geochemical anomalies are distinctly linear in outline, characterizing a 30 km long belt averaging 2 km wide, expanding to 4 km wide at NIK and SHRED. Photo interpretation and geological mapping have identified a major suture zone along the eastern margin of Quesnel Trough, a subdivision of the Intermontane belt of British Columbia. The geological suture is termed the 'NIK belt' for purposes of this report.

Regional geological and geochemical surveys identified the mineral potential of the NIK belt. Follow-up of geochemical anomalies led to the discovery of boulders containing chalcopyrite and molybdenite (+ 1% copper equivalent) in intermediate intrusive rocks on the NIK claims. The SHRED claims follow-up program identified massive sulphide lenses in an ultramafic intrusion (chalcopyrite, pyrite, pentlandite, and magnetite), fracture-fill chalcopyrite and molybdenite in the intermediate intrusions, disseminated chalcopyrite (1% copper) in the tuffaceous andesites, and gold soil anomalies.





METRES
0 100 200 300 400 500

BP Minerals Limited

BP CLAIM GROUPS
NIK BELT
TOODOGGONE PROJECT

SCALE 1:100,000		NTS 94 D/9,16	PLAN 1
505-81-1	DATE JUNE 1981	PROJ. 505	

To accompany report:

The BIRD study highlighted a molybdenite bearing quartz stockwork and several striking zones of copper and molybdenum enrichment in soils.

Technical data available for each of the properties is summarized in the following sections. A work program comprising additional office studies, further geochemical analysis of available samples, new geochemical and geophysical programs and diamond drilling are recommended.

LOCATION AND ACCESS

The NIK belt lies on the McConnell Creek map-sheet (NTS-94D), in northcentral British Columbia. Road access to the area is provided by the B.C. Department of Mines road to Moose Valley via Johanson Lake, a 350 km link from Fort St. James. Alternatively, light aircraft can be used to reach an airstrip and float base at Johanson Lake.

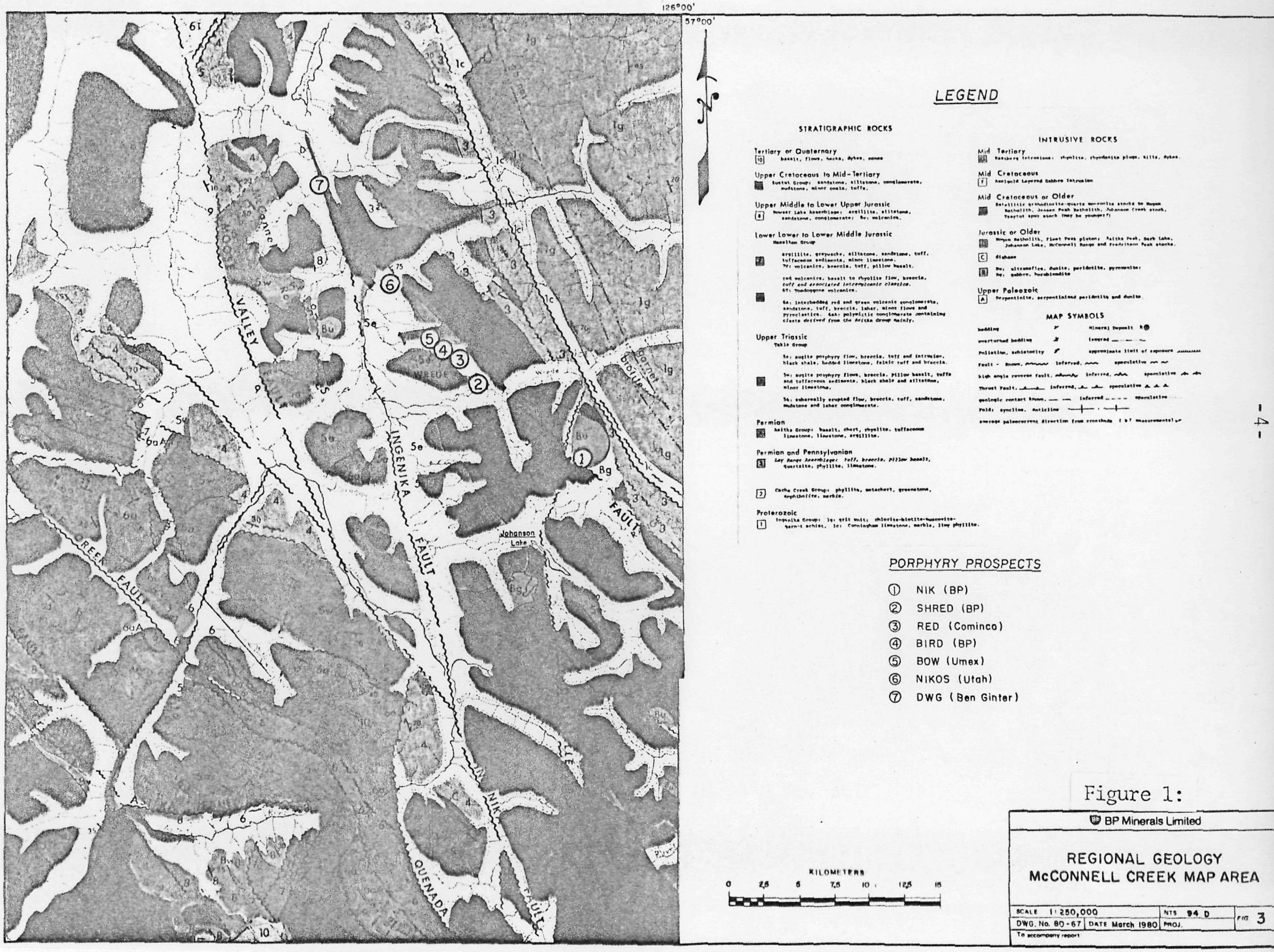
The NIK claims are accessible along a 10 km four wheel drive road from the west end of Johanson Lake. The SHRED and BIRD claims lie about 15 km north of Johanson Lake.

HISTORY

Porphyry copper exploration was initiated in the 1960's with large scale reconnaissance stream sediment surveys by many of the major exploration companies. Shortly thereafter, it was recognized that the NIK belt area was associated with some of the highest background levels of copper in British Columbia. The RED claims were staked in 1968 by Cominco and are still held (Plan 1). Approximately 300 metres of shallow diamond drill testing of RED in 1973 intersected 39 metres of .30% Cu, and 20 metres of .46% Cu and .015% Mo in highly leached rock. In the early 1970's the DWG claims were staked to cover chalcopyrite-bearing quartz veins within a sheared, pyritiferous granodiorite. In 1972-1973, Utah Mines Limited completed a limited investigation of the NIKOS porphyry prospect. In 1974, Umex examined the BOW claims prospect and completed one diamond drill hole. In 1974 BP evaluated the BIRD prospect with two holes totalling 280 metres. The NIK claims were tested by both percussion and diamond drill programs. The SHRED claims have been tested with Winkie drilling.

REGIONAL GEOLOGY (Figure 1)

Regional geology of the area is described by Lord (1948) and more recently by Richards (1976). Alignment



126°00'
57°00'
VALLEY
INGENIKA
FAULT
REEK FAULT
QUENADA
NIK
FAULT
Johanson Lake
LEGEND
STRATIGRAPHIC ROCKS
Tertiary or Quaternary
Upper Cretaceous to Mid-Tertiary
Upper Middle to Lower Upper Jurassic
Lower Lower to Lower Middle Jurassic
Hazelton Group
Upper Triassic
Takla Group
Permian
Permian and Pennsylvanian
Proterozoic
INTRUSIVE ROCKS
Mid Tertiary
Mid Cretaceous
Mid Cretaceous or Older
Jurassic or Older
Upper Paleozoic
MAP SYMBOLS
PORPHYRY PROSPECTS
① NIK (BP)
② SHRED (BP)
③ RED (Cominco)
④ BIRD (BP)
⑤ BOW (Umex)
⑥ NIKOS (Utah)
⑦ DWG (Ben Ginter)
KILOMETERS
0 2,5 5 7,5 10 12,5 15
BP Minerals Limited
REGIONAL GEOLOGY
McCONNELL CREEK MAP AREA
SCALE 1:250,000
NTS 94 D
FIG 3
DWG. No. 80-67
DATE March 1980
PROJ.
To accompany report

Figure 1:

of the porphyry prospects is related to a major suture zone, the Lay Range Fault, which has juxtaposed Lower Mesozoic rocks against Paleozoic and Proterozoic rocks.

The NIK Fault cuts predominently andesitic volcanic and volcaniclastic rocks of the Triassic Takla group. The fault lies near but not at the western margin of a granitic batholith of the Omineca intrusions. This 'Fleet Peak' pluton may have been intruded along the Lay Range Fault proper. The NIK belt comprises a major mineralized fault zone which has been intruded by ultramafic bodies or probable late Triassic age and by a number of younger calc-alkaline intrusions of mid Jurassic age.

The NIK belt trends northwesterly. Subsidiary structures to the main fault intersecting at a low angle are recognized on the NIK, SHRED and BIRD mineral properties. Major and crosscutting east-west trending fault zones are also interpreted to underlie the three properties beneath overburden covered valleys of tributaries of Lay Creek in the south, Wrede Creek in the center and the Ingenika River in the north (Plan 1). Porphyry and massive sulphide prospects are found in the most structually complex portions of the belt which are also associated with the greatest variety of intrusive rocks.

REGIONAL GEOCHEMISTRY (Figure 2)

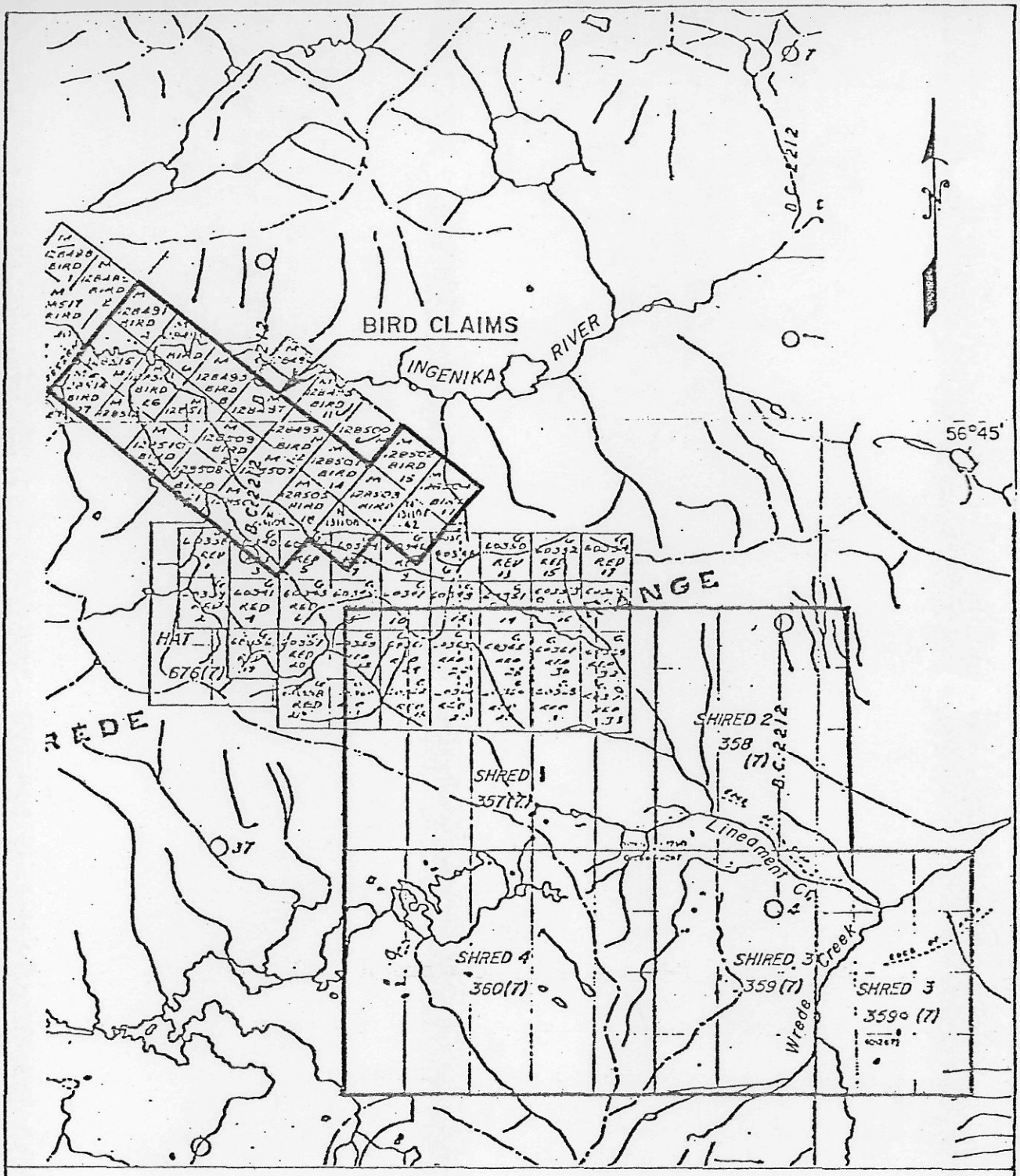
The linear nature of the soil and talus fine geochemical anomalies is illustrated by the copper and molybdenum distributions of Figure 2. The sampling program covers almost the entire area shown on Figure 2, suggesting the linear distribution of anomalies is probably related to the NIK Fault. The bulge in the width of anomalous zones on NIK and SHRED may be due to the east-west faults predicted to follow Wrede and Lay Creeks. Detailed geochemistry on each property is described next in conjunction with geology and geophysics of the claim groups.

BIRD CLAIMS (Plan 2)

A. INTRODUCTION

The BIRD claims were evaluated along 10.5 km of cut line (a non-metric grid) by ground IP and magnetometer surveys. Geological mapping along the grid and outcrops between grid lines was complimented by the collection of 604 soil geochemical samples. Two BQ drill holes totalling 286 metres tested a northern portion of the claims. A total of about 100 metres of core was recovered from a Winkie drill program in 1979.

Figure 2: Wrede Creek compilation geochemistry Copper, molybdenum and zinc content of soils and talus fines.



METRES
0 50 100 150 200 250

BP Minerals Limited

LAND STATUS
BIRD & SHRED CLAIMS
TOODOGGONE PROJECT

SCALE 1:50,000		NTS 94 D/9, 16	PLAN 2
505-81-2	DATE JUNE 1981	PROJ. 505	

To accompany report:

B. GEOLOGY (Figure 3)

Takla volcanic country rocks comprising pyroclastics, flows, tuffs, and conglomerates underlie the claim group. Rocks locally contain up to several percent pyrite. An Omineca intrusion of grandodiorite, here described as the Fleet Peak pluton, lies along the eastern margin of the property. The NIK fault cuts through Takla rocks along a northeastern trend and has been intruded by hornblende gabrro and diorite. The diorite contains a quartz-molybdenite stockwork on the northcentral portion of the property. Impressive pyritic gossans are found north and south of the claims. Within the claim group proper, overburden covers much of the geology and gossans are visible only along creek channels and near the boundary of the RED group.

Molybdenite has been identified in association with the quartz stockwork. Predominent alteration type is propylitic, but within the propylitized area are zones of quartz - sericite and clay. Molybdenite, chalcopyrite and bornite are present in greater concentrations along the southern boundary of the claim group.

C. GEOCHEMICAL SURVEY

The distribution of copper in soils (Figure 4) outlines several zones where the metal has accumulated to

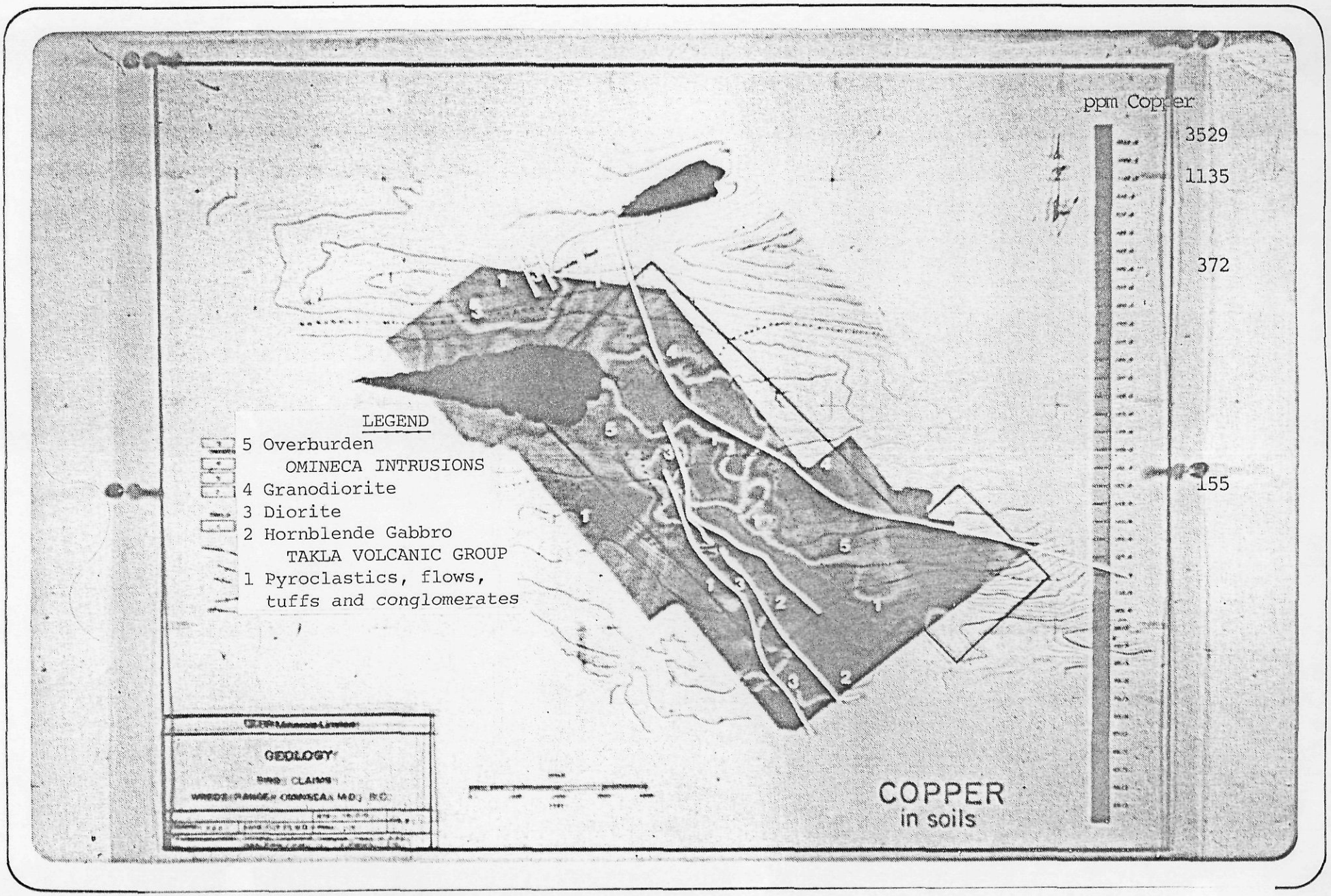


Figure 4: BIRD Claims - Copper in soils
(Note roct contacts are marked by white lines, faults are marked by orange lines, bar scale is in units of 100 metres.)

well in excess of 1000 ppm. Anomalies northeast and southeast of the claims are associated with gossanous zones. Within the claim group proper highest copper values are found along two creeks which cut through overburden terrain.

Copper concentrations are relatively low in the central portion of the claim group. In part this may reflect a thick overburden cover. Deep overburden geochemical sampling follow-up confirmed that anomalous conditions at the bedrock-overburden interface are more extensive than in surface soils. In addition, a large zone of very acidic soil pH (less than 4.0) has probably promoted extensive leaching of copper. Extreme acidic conditions are interpreted to reflect oxidation of large quantities of pyrite beneath the overburden cover, accompanied by solution of copper sulphides. Evidence for high copper levels in groundwater can be documented by the deposition of malachite in the leached rind of calcareous boulders found in the overburden. Extreme leaching of bedrock down to 100 metre depths has been reported by COMINCO on their RED group.

The molybdenum distribution (Figure 5) outlines the same anomalous zones as described for copper. Highest concentrations (more than 16 ppm) are found on the southern portion of the property near known occurrences of molybdenite.

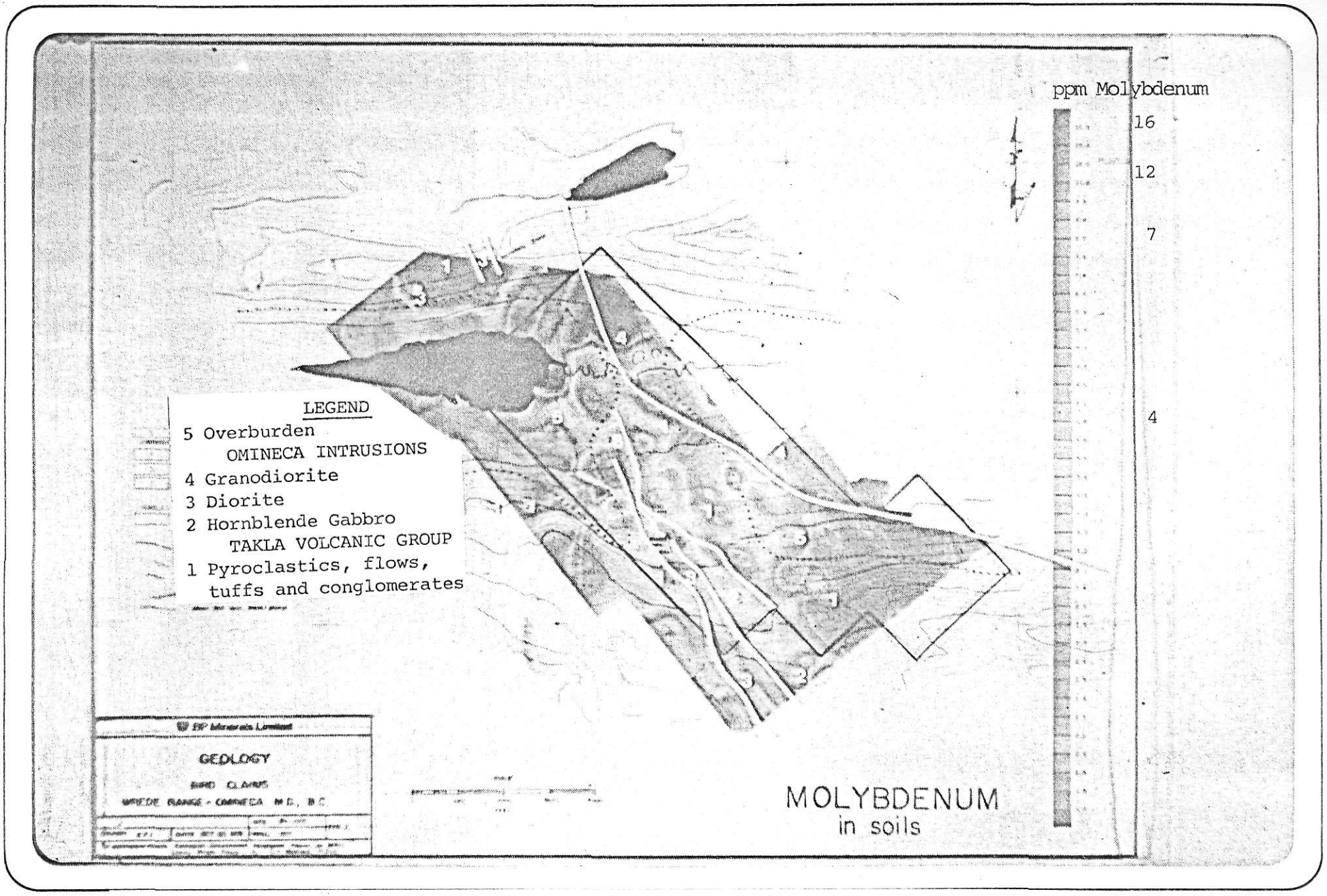


Figure 5: BIRD Claims - Molybdenum in soils
(Note rock contacts are marked by white lines, faults are marked by orange lines, bar scale is in units of 100 metres.)

The molybdenum-bearing quartz stockwork is also reflected by the soil geochemistry, as is the gossan in the north. Overburden covered areas are weakly anomalous in the 5 - 10 ppm range.

Geochemical anomalies have dimensions in the order of 1 km or longer and up to 1 km in width. Structural control on metal levels is evident, particularly along the NIK trend. Most of the anomalous zones remain untested and need to be evaluated.

D. GEOPHYSICAL SURVEYS

Both the IP and magnetometer survey outlined anomalies which are elongated along the direction of the NIK trend. An IP anomaly at least 1000 metres in length and up to 300 metres in width is probably caused by disseminated sulphides in the quartz feldspar porphyry and surrounding volcanic rocks.

DIAMOND DRILLING - Note where and why the 2 [illegible] holes + [illegible] hole drilled & the results. Also put locations on maps. *

E. WORK RECOMMENDATIONS

Standard geochemical and geophysical surveys should be completed over the claim group. Deep overburden sampling is necessary to evaluate overburden covered areas between the two creeks and the southern portion of the claim group. Follow-up of geochemical and geophysical anomalies will require diamond drill testing. (Consideration might be given to Cominco's Red Group claims in view of the complex joint boundary situation).

SHRED CLAIMS (Plan 2)

A. INTRODUCTION:

The SHRED claims were acquired after follow-up of geochemical anomalies led to the discovery of significant copper occurrences associated with acidic and ultramafic intrusions and volcanic sediments. A grid was established and 10.9 km of IP was completed. A topofil grid was used in conjunction with the cut lines. A total of 1025 soil samples, 110 silt samples and 59 deep overburden samples were taken. The claims were also surveyed using a ground magnetometer. A total of 110 metres of 'Winkie' drilling was also undertaken.

B. GEOLOGY (Figure 6)

The country rock at SHRED comprises a complex suite of andesitic tuffs, pyroclastics and volcaniclastic sediments. Calcareous tuffs and agglomerates are exposed near the western boundary of the claim group. In the east the volcanics have been metamorphosed to amphibolite grade and hornfelsed by intrusion of acidic dykes and stocks. A prominent zone of pyritic tuffs, crystal tuffs and chlorite schists follow Lineament Creek, which represents one of the splays of the NIK fault system. The pyritic zones are particularly outstanding, forming gossanized zones visible from the air and merging upslope with the RED claims gossan.

Intrusive rocks include a suite of acidic to ultramafic intrusions which appear localized either by the NIK structure or an east-west trending lineament along Wrede Creek (Plan 2). Acidic intrusive rocks consist of syenite porphyry, monzonite and diorite. Ultramafic intrusions are either pyroxenite or peridotite and are very magnetic. The Fleet Peak pluton marks the eastern boundary of the SHRED group.

Sulphide occurrences are hosted by volcanic, acidic and ultramafic lithologies. Two occurrences of massive sulphide are documented in association with ultramafic rocks. One contains magnetite, pyrrhotite, chalcopyrite and pentlandite (5% Cu, 0.5% Ni) whereas the other was found in a large boulder (5 metre diameter) containing pyrite and chalcopyrite (50% sulphides and 0.5% Cu). Chalcopyrite and malachite are found along fractures in dioritic rocks. One deep overburden geochemical sample intersected chalcopyrite-rich diorite grading 1.3% Cu.

The chlorite schists contain chalcopyrite and malachite, probably along mineralized splays of the NIK fault. Disseminated chalcopyrite was noted in an ash tuff unit of the Takla Group containing an estimated 3% chalcopyrite. However, pyritic ash tuff gossans along Lineament Creek appear barren of copper sulphides, though they lie close to the mineralized chlorite schists.

The SHRED group has the potential for hosting massive sulphides of the Cu-Ni type and Cu-Au mineralization at the contact between ultramafic rock and acidic intrusions. Porphyry and volcanogenic types of copper deposits are also possible on SHRED.

C. GEOCHEMICAL SURVEY

Significant copper (Figure 7) and molybdenum (Figure 8) soil anomalies are found along the main east-west trending valley. Bedrock is intermittently exposed throughout the southern half of the claim group but constitutes only one or two percent of the landscape surface, in patches of five or ten square metres separated by large areas of relatively thin (?) overburden.

An anomaly threshold for copper was chosen at 180 ppm (Figure 7), with several values exceeding several thousand ppm. Three major anomalous zones are identified, each having dimensions in excess of 1000 metres X 1000 metres. The most outstanding anomaly comprises a cluster of metal-rich zones at the centre and eastern portion of the claim group. Although zones of low value exist within the anomalous area, deep overburden sampling has identified many values exceeding 500 ppm copper (up to 1.3%) beneath soils containing less than 50 ppm copper. Evidently copper-poor tills have been deposited above mineralized bedrock and the

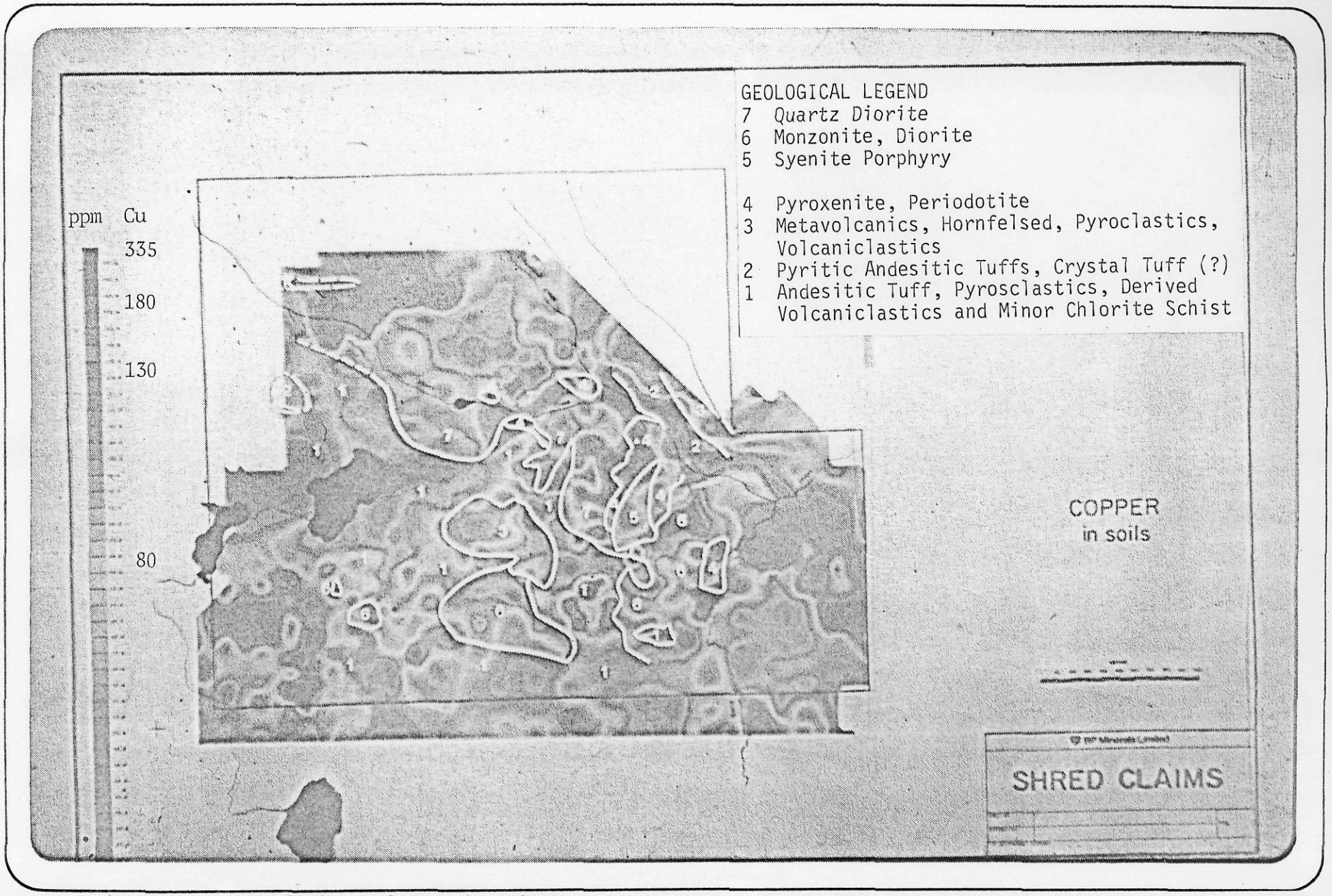


Figure 7: SHRED Claims - Copper in soils
(Note rock contacts are marked by white lines, faults are marked by orange lines, bar scale is in units of 100 metres).

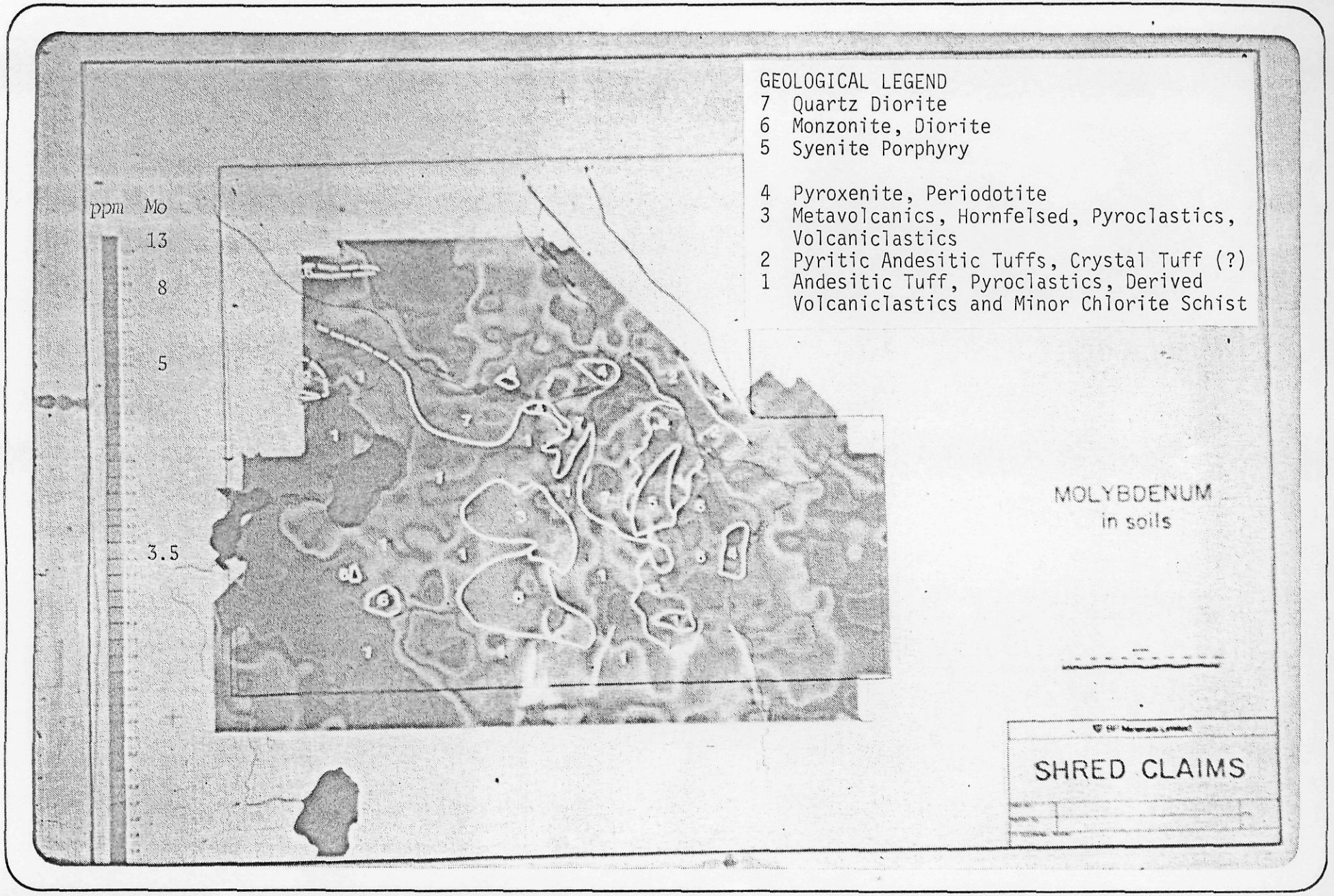


Figure 8: SHRED Claims - Molybdenum in soils
(Note rock contacts are marked by white lines, faults are marked by orange lines, bar scale is in units of 100 metres).

source(s) of geochemical anomalies in soils has to be localized by systematic deep overburden sampling. Molybdenum enrichment appears to follow the NIK fault and a linear zone running north-south through the western end of the copper anomaly. Gold values are high in selected soil samples over this portion of SHRED.

Anomaly 2 is a coincident copper-molybdenum rich zone in the southwest. Metal accumulation characterizes a predominently overburden covered area underlain by calcareous tuffs and intruded by plugs of monzonite and diorite. Sulphides have not been documented during preliminary follow-up studies.

Anomaly 3 in the northwest is also a coincident copper-molybdenum zone associated with talus deposits sliding from the RED gossan upslope. Bedrock is not exposed. The source of the copper and molybdenum may lie within the SHRED claims or may be derived from RED. A gold occurrence is reported from the same area in the McConnell Creek memoir (Lord, 1948).

D. GEOPHYSICAL SURVEY

Only a ground magnetic survey covers the claim group. That work highlighted the ultramafic units which are typically highly magnetic. The pyritic tuffs in the

east are characterized by a mag low which also follows the NIK fault. The volcanic country rock and acidic intrusive units are magnetically indistinquishable.

An IP survey was completed along the 10.9 km of cut line. IP anomalies were defined and diamond drilling was suggested as a follow-up procedure. A max-min EM traverse (0.9 km) was run across the massive sulphide lenses south of geochemical anomaly 1. The The massive sulphides apparently are not sufficiently large or responsive to be detected.

E. WORK RECOMMENDATIONS

Much of the SHRED claim geochemistry was completed on topofil lines which are not recoverable today. It is therefore recommended that the existing grid of 10.9 km be extended to cover the claims area. A property wide program of deep overburden drilling is necessary to relocate and localize the soil geochemical anomalies. Samples taken at 50 metre intervals along line 100 metres apart would be analyzed for Mo, Cu, Pb, Zn, Ni, and Au. The grid would then be used for an IP survey.

A number of drill targets will be outlined as a consequence of the above work. Depending on their number and distribution, a road could be pushed through from Johanson Creek and anomalies trenched. An evaluation of anomaly 3 probably requires a joint relationship with COMINCO.

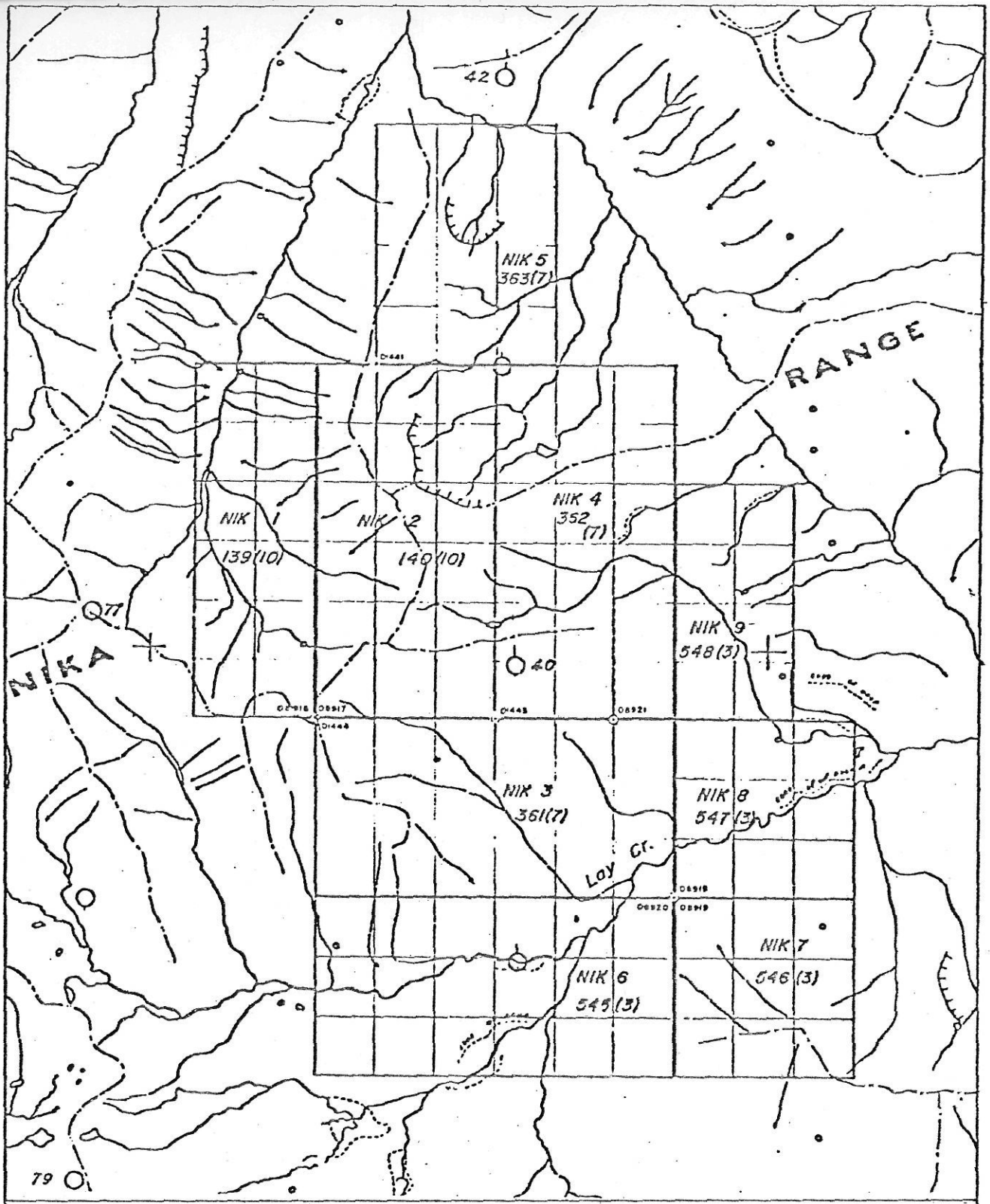
NIK CLAIMS (Plan 3)

A. INTRODUCTION:

The NIK claims have been the most extensively evaluated of the claim groups along the NIK belt. A number of prospective zones remain to be tested however.

A cut and picketted grid totalling 50 km has been established on NIK and geochemical soil or talus fine samples taken at 50, or locally at 25 metre intervals for an aggregate of 2500 samples. Geology has been mapped on and off the grid at a scale of 1:2500 or 1:5000. Prospecting of geochemical anomalies in search of mineralized bedrock/float has been preliminary. Magnetic and IP/resistivity surveys have covered all and a portion (8 km) of the grid area, respectively.

A 10 km access road was constructed from the western end of Johanson Lake. The road has not been maintained since 1978 and in that year could only be driven to the main valley of Lay Creek at the base of the NIK mountain. The road could be driven by cat which completed 2,500 metres of trenching and established the drill sites for 79 percussion holes. Most of the 3,000 metres of diamond drilling was supported by helicopter. Best grades intersected by drilling include 30 metres averaging 0.3% Cu in strongly pyritized and propylitized diorite, and 0.21% Cu/0.025% Mo over 70 metres of zeolitized pyroxenite. Drill holes have not as yet, intersected the



BP Minerals Limited

LAND STATUS
NIK CLAIMS
TOODOGGONE PROJECT

SCALE 1:50,000		NTS 94 D/9,16	PLAN 3
505-81-3	DATE JUNE 1981	PROJ. 505	

To accompany report:

source of the high grade boulders of chalcopyrite which average 1.4% Cu.

B. GEOLOGY (Figure 9)

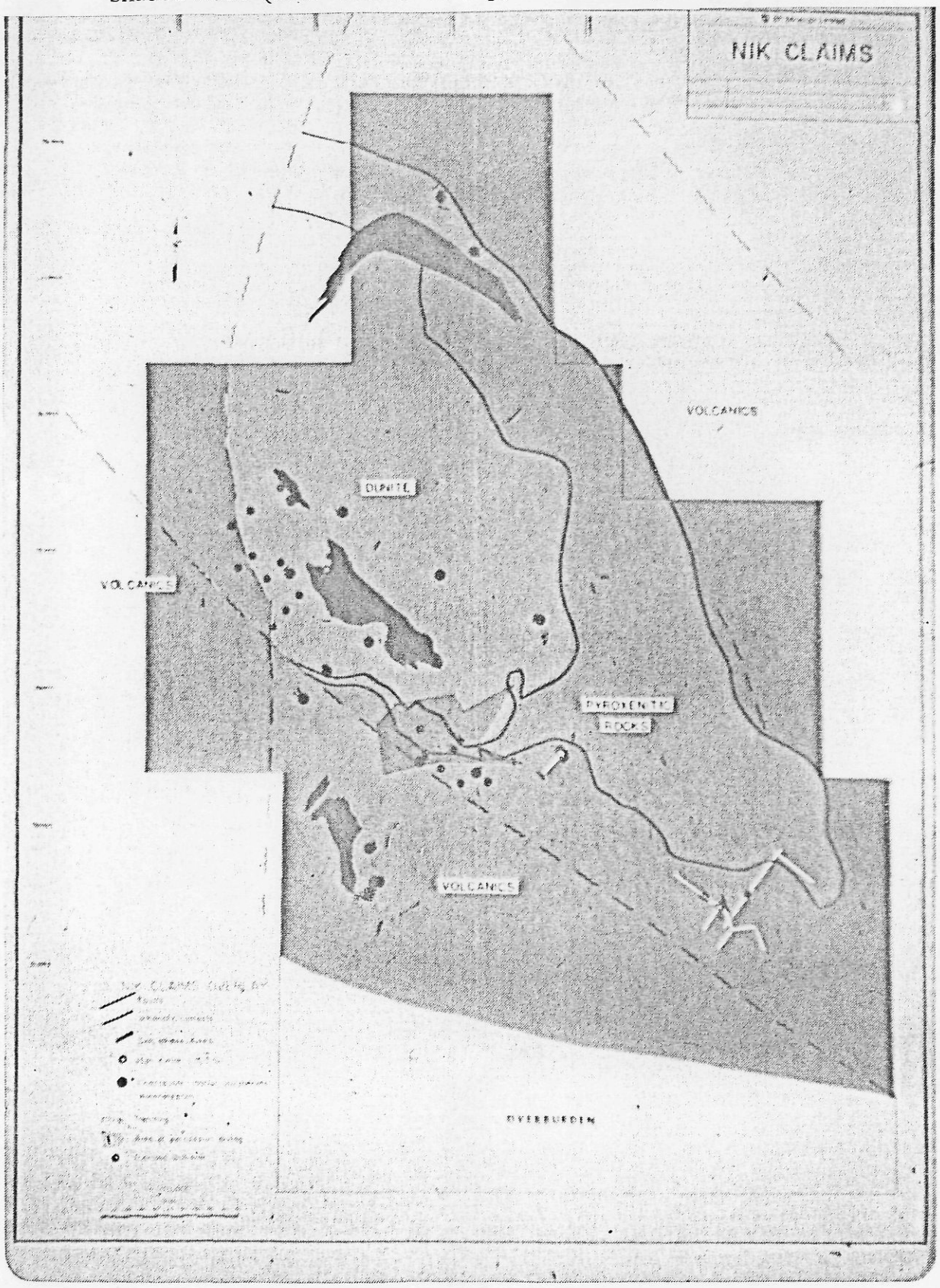
The NIK claims are centered on the Wrede Creek ultramafic complex, one of several zoned or Alaskan-type ultramafic bodies in the McConnell Creek (NTS 94D) and Aiken Lake (NTS 94C) map-areas. The ultramafic complex is approximately 5 km in diameter and was emplaced in andesitic to basaltic flows and tuffs of the Triassic Takla Group (Figure 9). The complex is fault-bounded on its western (the NIK fault) and northwestern margins and is in contact with hornfelsed rocks of the Takla Group elsewhere. The NIK ultramafic body is crudely concentrically zoned, progressing from a core of chromite-bearing dunite to an apparently continuous outer rim of pyroxene-rich rocks.

A well-defined contact metamorphic aureole, with metamorphism up to the hornblende hornfels facies suggests that the ultramafic body was emplaced magmatically. K-Ar dating of hornblendes from a hornblende pegmatite gives ages of 219 $\pm$ 10 Ma and 225 $\pm$ 8 Ma which are similar to those of the adjacent Takla volcanic.

Porphyritic, equigranular and pegmatitic diorites to granites intrude as narrow to wide (0.5m to 150m wide) dykes cutting both ultramafic and volcanic rocks. The most

Figure 9: NIK claims - Geology

Note: bar scale is 1 km long; red colour - calc-alkaline intrusions; white lines - trenches; large black dots - Cu &/or Mo occurrences; small black dots - diamond drilling holes; shaded area (near centre of map) - area of percussion drilling.



abundant dyke lithology is a medium-grained, hornblende-bearing diorite. K-Ar dating of hornblende from a diorite dyke gave an age of 172 ± 6 Ma, correlative with Middle Jurrasic plutonism. Dykes of quartz diorite to quartz monzonite composition are less common; biotite becoming more prominent in the quartz and orthoclase-bearing rocks. Less common are very narrow dykes and veins of pink, pegmatitic alaskite.

Disseminated and fracture-filling pyrite, chalcopyrite, molybdenite and rare bornite occur in widely distributed dioritic to granitic dykes within and adjacent to the ultramafic body. Sulphides are generally confined to the dyke rock, but might extend several metres into the ultramafic wall rock. Secondary biotite from a sulphide-rich specimen of hornblende pegmatite yielded a K-Ar age of 157 ± 5 Ma. Hydrothermal alteration of the dyke rocks ranges from a propylitic assemblage of chlorite-epidote-carbonate in the pyrite-rich rocks, to a potassic assemblage of sericite and secondary biotite in the chalcopyrite and molybdenite-bearing rocks.

An occurrence of molybdenite mineralization is found in pyroxenite, hornblende peridotite and hornfels along the southern edge of the ultramafic complex. This area was investigated by shallow (less than 50 metres) percussion drilling followed by deeper diamond drilling. Three diamond drill holes penetrated the contact between hornfels at surface and ultramafic rock at depth. Dykes

of diorite porphyry, quartz diorite, quartz monzonite or alaskite are intersected in most diamond drill holes but quantitatively acidic intrusive sections constitute a relatively minor part of the bedrock.

A second important occurrence is found to the north where intrusive boulders average 1% to 3% Cu. Molybdenite is a minor accessory only. High grade float is exposed over an area 200 metres long and 20 metres wide. The source of the float has not been intersected by drilling. However, mineralized dykes were intersected downslope of the float train and alteration of the ultramafic host accompanied by 300 ppm molybdenum levels at 150 metre depth to the east of the float train lends encouragement to further exploration.

The main mass of the ultramafic complex is a relatively non-reactive dunite which may have acted as an impermeable cap-rock, analogous to aplitic or silica-rich cap-rock critical to impound ore-solutions in porphyry molybdenum systems. Deposition of chalcopyrite and molybdenite in pyroxenite follows localized fracturing of the ultramafic body by faults which served as channel-ways for release of fluids accompanying intrusion of acidic dykes. The source of the mineralizer, a porphyry system at depth, is thought to underlie either north or south cirque. In view of the high grades of copper (1.0-3.0%) in intrusive boulders at surface, a large body of intrusive rock having comparable grades at depth is an

attractive target. Bedrock geochemistry suggests such a target could exist in south cirque.

A possibility also exists for the scavenging of platinoids, particularly palladium, from ultramafic rocks by the epigenetic sulphides. Such a feature could significantly upgrade the gross value of potential copper-molybdenum ore. (Mertie, 1920).

C. GEOCHEMICAL SURVEY

The NIK fault is highlighted by enhanced copper (Figure 10) and molybdenum (Figure 11) levels in soils and talus fines along a northwestern trend. Geochemical distributions are described with respect to 'north cirque', 'south cirque' and 'main valley' which are depicted on the clear overlay to Figure 10. Anomalous areas lie in predominently overburden covered portions of the property.

The most outstanding copper anomaly characterizes north cirque. The anomalous zone is over 1000 metres along, open to the northwest. Maximum anomaly width is about 1000 metres. Molybdenum levels constitute a relatively weak zone of enrichment by comparison to other parts of the property. Despite relatively low levels at surface, molybdenum content of two diamond drill holes at 150 metre depths reach 300 ppm, associated with altered pyroxenite.

Figure 10: NIK Claims - Copper in soils
(Note rock contacts are marked by white lines, faults are marked by orange lines, bar scale is in units of 100 metres).

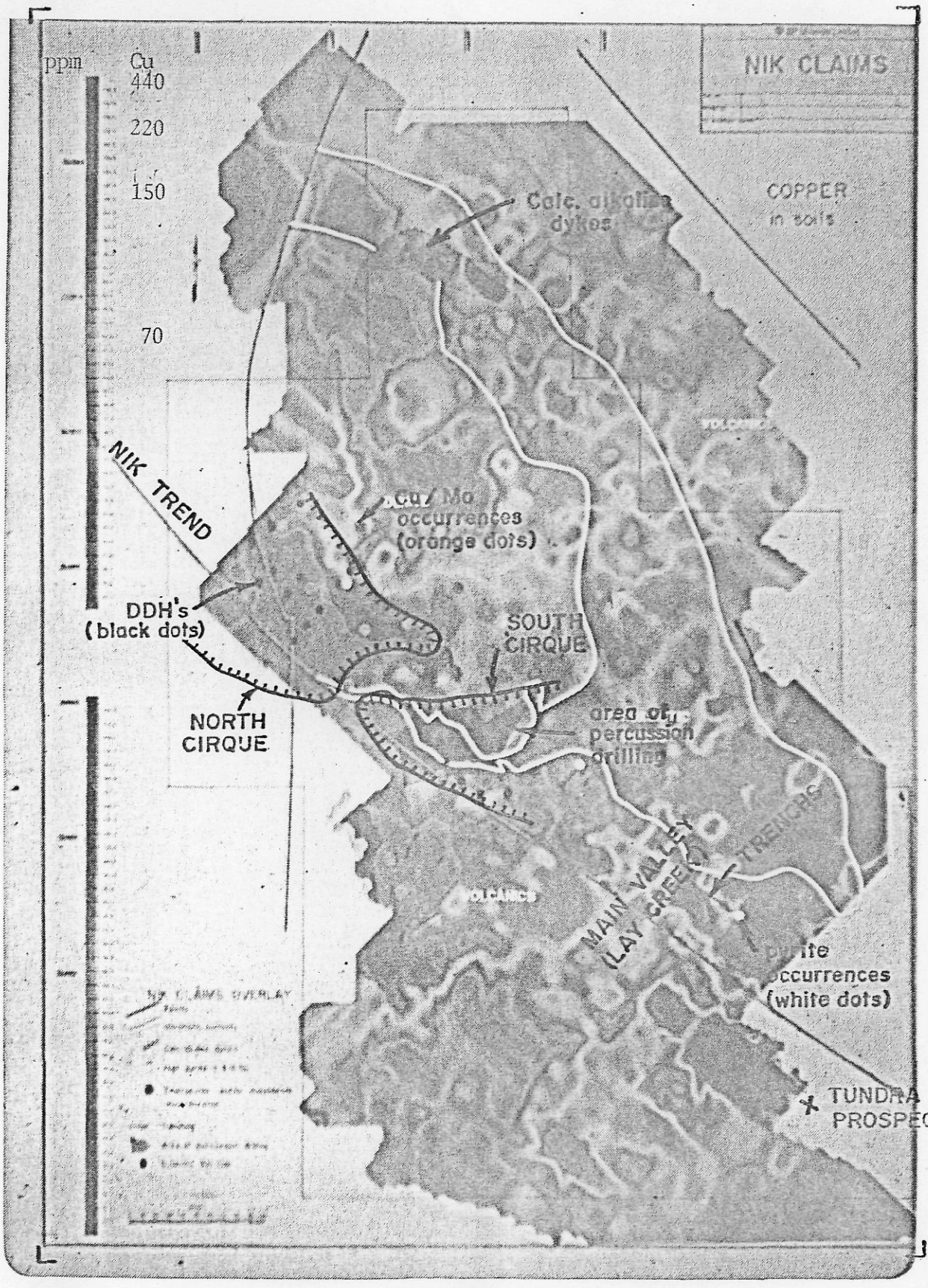
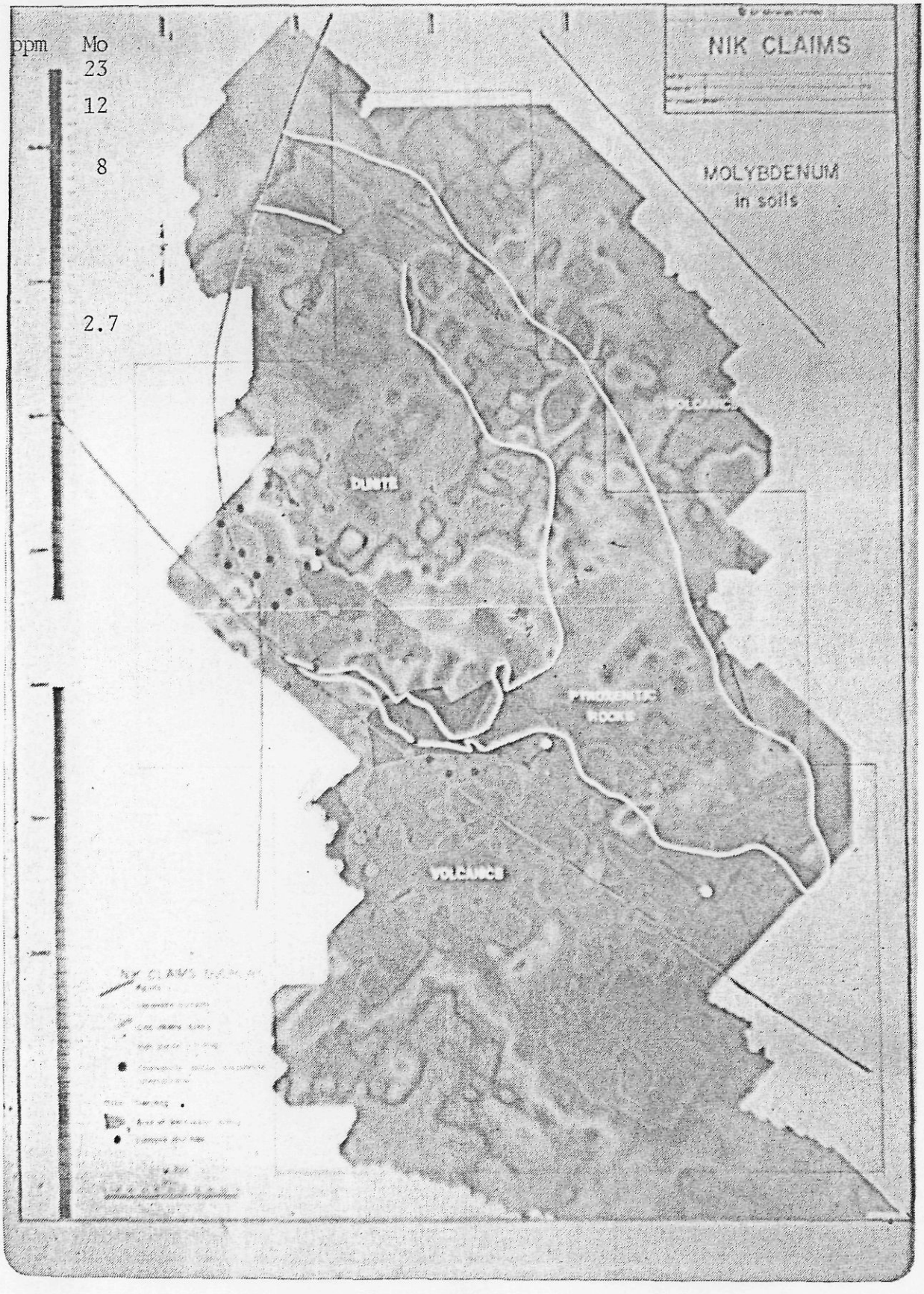


Figure 11: NIK Claims - Molybdenum in soils
(Note rock contacts are marked by white lines, faults are marked by orange lines, bar scale is in units of 100 metres).



South cirque is typified by enhanced copper and molybdenum concentrations, although zones of enhancement in the order of 500 to 1000 metres across are not the most outstanding anomalies of the property. Nevertheless, best drill intersections are near relatively weak portions of the molybdenum or copper soil anomalies. Higher contrast anomalies elsewhere along the NIK trend remain to be tested. Both north and south cirques are associated with impressive float trains of mineralized acidic intrusive rocks which have not been drill intersected.

The molybdenum anomaly of the main valley of Lay Creek has been trenched. Metavolcanic bedrock is exposed intermittently, but contains only minor quartz veins and/or pyrite. The copper anomaly immediately northeast is underlain by a gabbro which is recognized to be a metasomatized variety of the pyroxenite. Genesis of the gabbro is uncertain. It might be a zone of the ultramafic intrusion or be due to reaction of a hydrothermal system with a pyroxenitic cap-rock. The copper and molybdenum anomaly immediately southwest lies near the TUNDRA occurrence (see overlay on Figure 10) and is also unexplained. Similarly, a large copper and molybdenum-rich zone 2.5 km west of the trenched area has also not been explored but is known to be associated with an acidic intrusion, very pyritic along the base of the mountain.

The large copper and molybdenum anomaly in the northwest is due to pyritic ash tuff units of the Takla group which are extensively iron stained. The rugged topography and lack of mineral occurrences has downgraded its significance. However, a series of copper and molybdenum-rich zones along the northern margin of the ultramafic complex is worthy of follow up. Copper occurrences in acidic intrusive dykes are known to be upslope of the copper anomaly. The linear character of the unexplained molybdenum anomaly along the edge of the dunite may be fault controlled, intersecting the NIK trend in south cirque, in a currently untested portion of the property.

Limited bedrock geochemistry has been undertaken, yielding interesting results. For example, although the dunite contains 1000 to 1500 ppm nickel, the altered pyroxenite contains only 35 ppm nickel compared to an averaging 300 ppm nickel in unaltered pryoxenite. South cirque is also characterized by 6X background potassium anomaly which is suggestive of alteration associated with a hydrothermal system. More research into primary geochemical patterns is required.

D. GEOPHYSICAL SURVEY

The NIK property was thought to present an ideal case for classical geophysical exploration.

Mineralized intrusive boulders contain a range of chalcopyrite concentrations of 4% to 10% and should be an IP responder. By contrast, ultramafic rocks contain almost no sulphides. Intrusive rocks are altered and are expected to have resistivities different from the ultramafic rocks. The ultramafic units are highly magnetic whereas the intrusive rocks contain much lower quantities of magnetite. Volcanic rocks in the west are less magnetic than the intrusive units.

Direct interpretation of the geophysical surveys, however, is complicated by a high IP response of magnetite which typically exceeds the response of sulphide-bearing acidic intrusions. The magnetic behaviour of the ultramafic complex also tends to mask patterns which could be attributed to buried intrusions. A prominent magnetic low following the northwestern margin of the ultramafic pluton, along the NIK trend, may be a reflection of this pluton or more probably is due to a fault zone bounding the ultramafic body. VLF or other electromagnetic surveys have not been used on the property. Presumably VLF might be able to map the location of dykes and fault zones beneath the overburden.

E. DIAMOND AND PERCUSSION DRILL PROGRAMS

The NIK property was drill tested in three successive years. The first drill program in 1977 consisted of a five hole fence near the head of north cirque. The objective was to assess geophysical anomalies (IP, mag). Only two holes penetrated intrusive rock and intersected up to 0.3% copper in potassically altered diorite.

The 1978 drilling was initially a percussion program in south cirque designed to intersect and map bedrock in the overburden covered valley. Significant copper and molybdenum grades were intersected. Subsequent diamond drilling (3 holes) was instituted to confirm percussion results and to penetrate to deeper depths than was possible with the 50 metre deep percussion holes. Mineralized zones appear fault and fracture-controlled over intervals of 30 to 50 metres. Deeper sections contain less copper and molybdenum than near surface sections which locally exceed 1% Mo or 2% Cu over 3 metre sections.

The 1979 drill program centered on north cirque where tests to 150 metres failed to intersect intrusive rocks. Rock alteration and anomalous molybdenum levels in two holes have been described previously, lying east of the 200 metre long by 20 metre wide mineralized float train also mentioned

previously. Three holes were drilled in south cirque. All intersected significant sulphide grades (holes 16, 17 and 18, Table 1) and/or zones of extensive alteration.

Diamond drilling to date has tested only a few of the many anomalies along the NIK trend. Results are summarized on Table 1.

F. WORK RECOMMENDATIONS

A large volume of data has been collected on NIK which has to be further compiled and evaluated. A study of the petrology and genesis of the ultramafic complex is underway by Wong as a Masters thesis at UBC. A report is due in late 1981 or 1982. Thin section and a major program of whole rock geochemistry of hand samples, percussion chips and diamond drill core is recommended to define alteration and/or intrusive centres which could be the focus of a further drill program.

A field program comprising mapping and sampling of outcrop presently unmapped, prospecting geochemically anomalous area, and boulder tracing is necessary. The grid should be extended northward along the NIK trend. Lines of geochemical samples available from previous years should be submitted for multielement ICP analysis, plus gold and mercury. Assessment of the platinoid group metal content of

TABLE I NIK CLAIMS - DIAMOND DRILL RESULTS

NORTH CIRQUE DIAMOND DRILLING

NDH	FOOTAGE	INTERVAL	%Cu	%Mo
2	150-180'	30'	.22	-
2	370-470'	100'	.30	-

SOUTH CIRQUE DIAMOND DRILLING

NDH	FOOTAGE	INTERVAL	%Cu	%Mo
6	0-140'	140'	.13	.020
6	200-330'	130'	.02	.016
6	400-450'	50'	.03	.015
6	600-700'	100'	.02	.007
7	40-90'	50'	.44	.019
7	200-250'	50'	.18	.023
7	380-430'	50'	.14	.006
7	630-680'	50'	.03	.013
7	740-790'	50'	.02	.007
8	30-260'	230'	.21	.025
16	220-240'	20'	.12	.047
16	270-320'	50'	.16	.018
16	370-400'	30'	.54	-
16	490-530'	40'	.13	.009
16	560-630'	70'	.11	.006
16	630-670'	40'	-	.034
17	370-420'	50'	.24	.008
18	170-220'	50'	.04	.02
18	440-460'	20'	.25	-

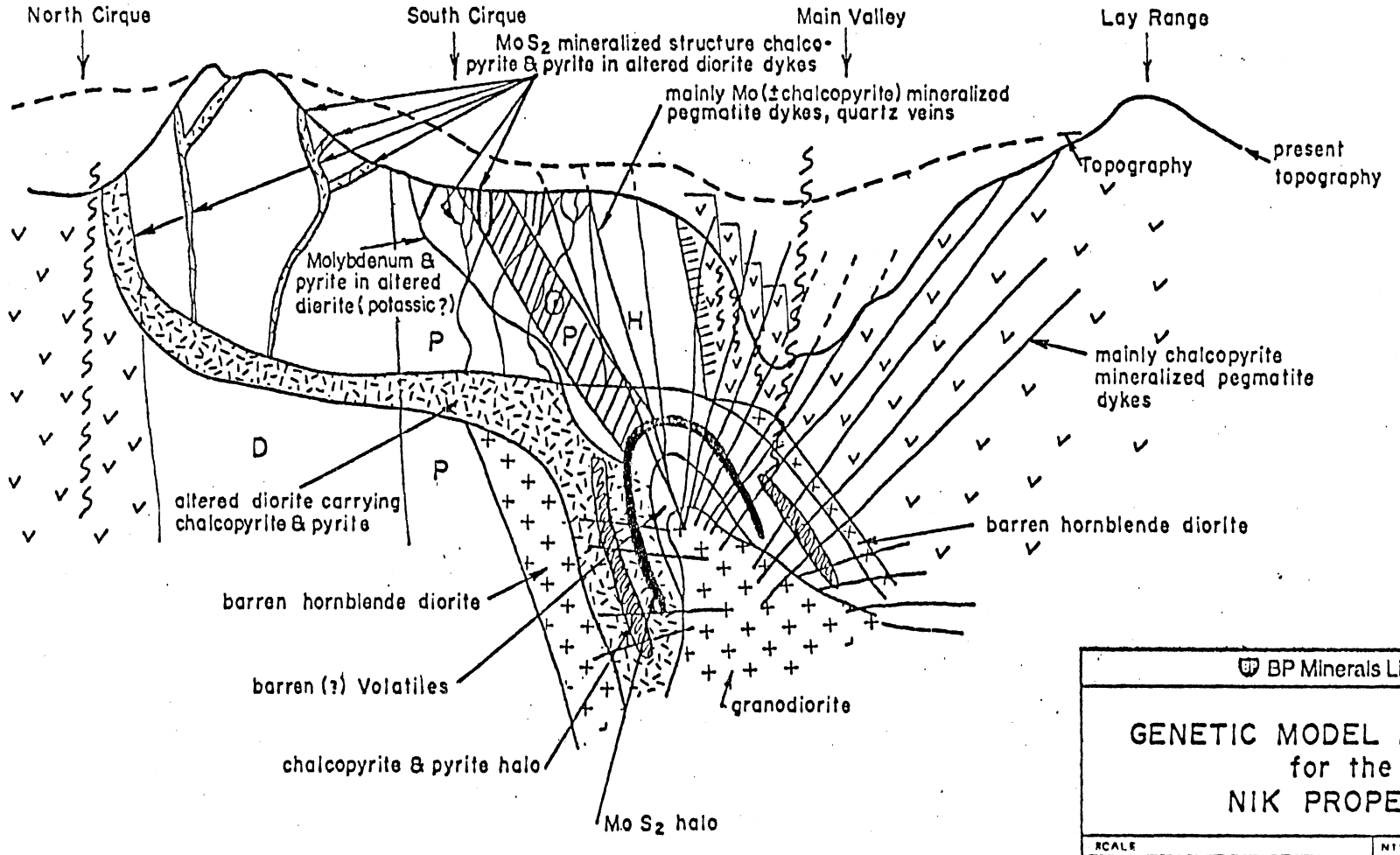
the ultramafic complex should be tested on soil samples along selected traverse lines. A VLF survey is necessary to define faults and dyke contacts along the NIK trend.

A diamond drill program which penetrates to 600 to 700 metre depths is required to test the genetic model of the property illustrated on Figure 13. Three holes are suggested for each of the north and south cirques. Diamond drilling of the main valley Lay Creek requires additional field studies to define the best targets for diamond drilling.

References:

1. Lord, C.S., 1948. McConnell Creek Map-area, Cassiar-District, British Columbia, GSC Memoir 251, 72 pages.
2. Mertie, J.B., Jr., 1920. The Salt Chuck palladium-copper mine, Prince of Wales Island, Alaska; Eng. and Mining Jour., Vol. 110, p. 17-20.
3. Richards, T.A., 1976. McConnel Creek Map-area (94D east half); in Report of Activities, Part A, GSC Paper 76-1A, 43-55.

IDEALIZED GEOLOGICAL SECTION LOOKING NE ACROSS NORTH AND SOUTH CIRQUES



BP Minerals Limited

GENETIC MODEL PROPOSED for the NIK PROPERTY

SCALE		NTS	FIG. 13
505-81-5	DATE JUNE 1981	PROJ. 505	

To accompany report:

JOINT VENTURE PROPOSAL

BP Minerals has expended over $1,000,000 on exploration programs specific to the NIK belt properties (Table 2). The current land holding is tabulated in Appendix 1. High grades of sulphides in float and/or bedrock and an extensive distribution of high contrast geochemical and geophysical anomalies has been found by BP Minerals following reconnaissance and property evaluations. Although some regional and property field investigations are still warranted, the NIK belt evaluation requires commitment for a major program of diamond drill testing of existing anomalies.

TABLE II WORK COMPLETED ON BP PROPERTIES

CLAIM:	BIRD (1974-1979)	SHRED (1976-1979)	NIK (1975-1979)
	10.4 km grid preparation geologic mapping (1:12,000)	12.5 km grid preparation geologic mapping (1:12,000, 1:2,400 locally)	50 km grid prepara geologic mapping (1:5,000, 1:2,500 locally)
	geochemical sampling ground magnetometer survey	geochemical sampling ground magnetometer survey	geochemical sampli ground magnetomete survey
	10 km IP/resistivity	10.9 km IP/resistivity .5 km EM (Max-Min II)	8 km IP/resistivity
		47 overburden drill holes	35 overburden dril holes
			construction of 10 of access road
			2.55 km trenching
			2,700 percussion drilling (81 holes
	380 m diamond drilling (6 holes)		3,000 m diamond drilling (18 holes
Total BP Expenditure	$115,800	$109,900	$842,500

A list of internal company reports is appended for those who wish to undertake a more critical examination of data prior to entering a joint venture agreement (Appendix 2). The staff of BP Minerals is prepared to assist with your evaluation.

APPENDIX 1

Summary of Claim Status, NIK Belt

CLAIM	RECORD #	HECTARAGE	EXPIREY DATE
SHRED #1	357	500	July 19, 1981
SHRED #2	358	300	July 19, 1982
SHRED #3	359	500	July 19, 1982
SHRED #4	360	500	July 19, 1982
BIRD #4	128491	20.9	Sept. 25, 1982
BIRD #6	128493	20.9	Sept. 25, 1982
BIRD #8	128495	20.9	Sept. 25, 1982
BIRD #10	128497	20.9	Sept. 25, 1982
BIRD #12	128499	20.9	Sept. 25, 1982
BIRD #14	128501	20.9	Sept. 25, 1982
BIRD #15	128502	20.9	Sept. 25, 1983
BIRD #16	128503	20.9	Sept. 25, 1982
BIRD #17	128504	20.9	Sept. 25, 1983
BIRD #18	128505	20.9	Sept. 25, 1982
BIRD #19	128506	20.9	Sept. 25, 1983
BIRD #20	128507	20.9	Sept. 25, 1983
BIRD #21	128508	20.9	Sept. 25, 1983
BIRD #22	128509	20.9	Sept. 25, 1983
BIRD #23	128510	20.9	Sept. 25, 1983
BIRD #24	128511	20.9	Sept. 25, 1983
BIRD #25	128512	20.9	Sept. 25, 1983
BIRD #26	128513	20.9	Sept. 25, 1983
BIRD #27	128514	20.9	Sept. 25, 1982
BIRD #28	128515	20.9	Sept. 25, 1982
BIRD #42	131107	20.9	Aug. 23, 1981
BIRD #43	131108	20.9	Aug. 23, 1981
BIRD #44	131109	20.9	Aug. 23, 1981
NIK #1	139	300	Sept. 16, 1987
NIK #2	140	450	Sept. 16, 1987
NIK #3	361	450	July 19, 1986
NIK #4	362	300	Jyly 19, 1986
NIK #5	363	300	July 19, 1981
NIK #6	545	450	March 1, 1983
NIK #7	546	225	March 1, 1982
NIK #8	547	225	March 1, 1983
NIK #9	548	300	March 1, 1982

INTERNAL COMPANY REPORTS - APPENDIX 2

BIRD

LLOYD, J., October, 1974, Induced Polarization and Ground Magnetometer Survey, BPR 74 - 5.

MUSTARD, D.K., October, 1974, Geological, Geochemical, and Geophysical Report, BPR 74 - 8.

BATES, C.D.S., March, 1975, Final Report, Volume III BPR 75 - 3.

MUSTARD, D.K., October, 1975, Drilling Report, BPR 75 - 12.
BATES, C.D.S.,

MUSTARD, D.K., October, 1975, Drilling Report, BPR 75 - 27.
BATES, C.D.S.,

BRADLEY, M.D., September, 1979, Report of the 1979 Diamond
CLARK, W.R., Drilling Program on the BIRD Mineral Claims, BPVR 79 - 22.

SHRED

BETZ, J., August, 1976, Comments on the Maximin II EM Results, BPR 76 - 12.

DEPAOLI, G.M., August, 1976, 1976 Geophysical Report, BPR 76 - 14.

MUSTARD, D.K., August, 1977, Geochemical and Geophysical Report
BATES, C.D.S. BPR 77 - 7.
HOFFMAN, S.J.

BRADLEY, M.D., May, 1978, 1977 Summary Report of Geological,
HOFFMAN, S.J. Geochemical, Geophysical and Overburden Drill
WING, G. Surveys, BPVR 78 - 10.

BRADLEY, M.D., May, 1978, 1977 Summary Report of Geological,
HOFFMAN, S.J. Geochemical, Geophysical and Overburden Drill
WINE, G. Surveys, BPVR 78 - 10A.

HOFFMAN, S.J., September, 1978, Geochemical & Geophysical Report
DEPAOLI, G.M. on the SHRED Property, (#1,2,3,4) BPVR 78 - 11.

NIK

DEPAOLI, G.M., August, 1976, Geophysical Report, BPR 76 - 16.

BATES, C.D.S., Oct ber, 1976, Drilling Report, BPR 76 - 17.

BRADLEY, M.D., June, 1976, Geological, Geochemical and
HOFFMAN, S.J. Geophysical Report, BPR 76 - 27.
WONG, R.H.

BATES, C.D.S., October, 1977, Drilling Report, BPR 77 - 11.

DEPAOLI, G.M., June, 1977, Geophysical Report on NIK Claim Group 1977, BPR 77 - 20.

BRADLEY, M.D., May, 1978, 1977 Summary Report of Geological,
HOFFMAN, S.J. Geophysical and Geochemical Surveys; Percussion
WINE, G. and Diamond Drilling Programs, BPVR 78 - 9.
WONG, R.H.

BRADLEY, M.D., May, 1978, 1977 Summary Report of Geological,
HOFFMAN, S.J. Geochemcial and Geophysical Surveys: Percussion
WINE, G. and Diamond Drilling Programs, BPVR 78 - 9A
WONG, R.H.

1978, Appendices of 1977 Summary Report of Geological, Geophysical, and Geochemcial Surveys, BPVR 78-9B

MUSTARD, D.K., March, 1979, Geological and Geochemical
WONG, R.H. Assessment Report on the NIK Mineral Claims, Nos. 6, 7 & 8, BPVR 79 - 6.

Report with JBG
94D/9

FILE COPY.

CORPORATION FALCONBRIDGE COPPER

6415 - 64th Street, Delta, B.C., Canada V4K 4E2 Tel. (604) 946-5451

April 26, 1983

Dr. D. Mustard
B P Minerals Limited
#700 - 890 West Pender Street
Vancouver, B. C.
V6C 1K5

Dear Don;

I wish to thank you for giving me the opportunity to review BP exploration data on the Bird, Shred and Nik claim groups in north central British Columbia. Although the areas clearly warrant additional exploration, they do not fit into our present scheme of priorities and I therefore decline an interest on behalf of Falconbridge Copper. I have taken the liberty of passing on a copy of the project summaries to John Gammon who is the exploration manager for Falconbridge Ltd. (Nickel) in Vancouver. Their existing interests in the general area may give them a more favorable perspective.

Thank you for a most enjoyable luncheon and for the opportunity to renew old acquaintences. I look forward to seeing you and Stanley in the near future.

Sincerely,

David H. Watkins
Exploration Manager

DHW/ik