THE FIN PROPERTY

Geology and Geochemistry

on

FIN Claims

Omineca Mining Division (94E-2)

94E/2

54°14' 126°41'

for

Brinco Mining Limited

by

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THE FIN PROPERTY

Geology and Geochemistry

1. INTRODUCTION

The Fin claims, under option from Bradford Pearson, cover a porphyry-copper property in the Finlay River area of northern British Columbia. This report discusses the results of a short program of field mapping, rock geochemistry and petrographic studies for a portion of this property.

Field mapping was done from August 7 to August 15, 1982, by J. R. Woodcock and D. Gorc, each with a helper. After a preliminary review of the data, Mr. D. Gorc accompanied by Ian Lyn and Ian Coster, returned to the property to extend the mapping westerly. This second phase lasted from October 4 to October 15. Subsequently, a small crew of men made a third trip to the property to trench and sample at the site of the Kennco drill hole.

Because of the complexity of these rocks, especially the intrusive stocks and numerous dykes, it was necessary to map a portion of the property in more detail than had been anticipated. Also, notes were made on the types and distribution of overburden as a future aid to interpretation of the soil geochemistry.

Numerous rock specimens were collected for further identification and some petrography and rock chip samples were collected at many of the sites for rock geochemistry. The rock samples from the first phase of mapping were analyzed by ACME Laboratories Ltd. by ICP technique; the samples from the second phase were analyzed by Min-En Laboratories Ltd. using atomic absorption. In addition, selected rock samples were analyzed by Min-En for trace amounts of gold.

The base maps that were used in the geological mapping have been expanded from 1:10,000 to 1:5,000 scale, with consequent thickening of the contours. Also the grid lines as shown on this base map were inaccurate in places. Therefore, the present detailed geological mapping was controlled by the grid lines and by the topography and these grid lines were tied into the topography. For this work a new topographical map was drafted with the revised locations of some of the cross-lines.

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1.1 Location and Access

The Fin claims are located in the Omineca Mining District of British Columbia, approximately 20 km. northeast of the northern end of Thutade Lake and 1 km south of Finlay River. These claims are centered at latitude 57° 14' N, longitude 126° 41' W on map sheet 94E-2.

Mobilization for the program is from Smithers, British Columbia and men and equipment are moved by fixed-wing aircraft, to the Sturdee River airstrip, approximately 27 km. west of the property. Mobilization to the property must be by helicopter and arrangements can be made to use helicopters that are working in the district.

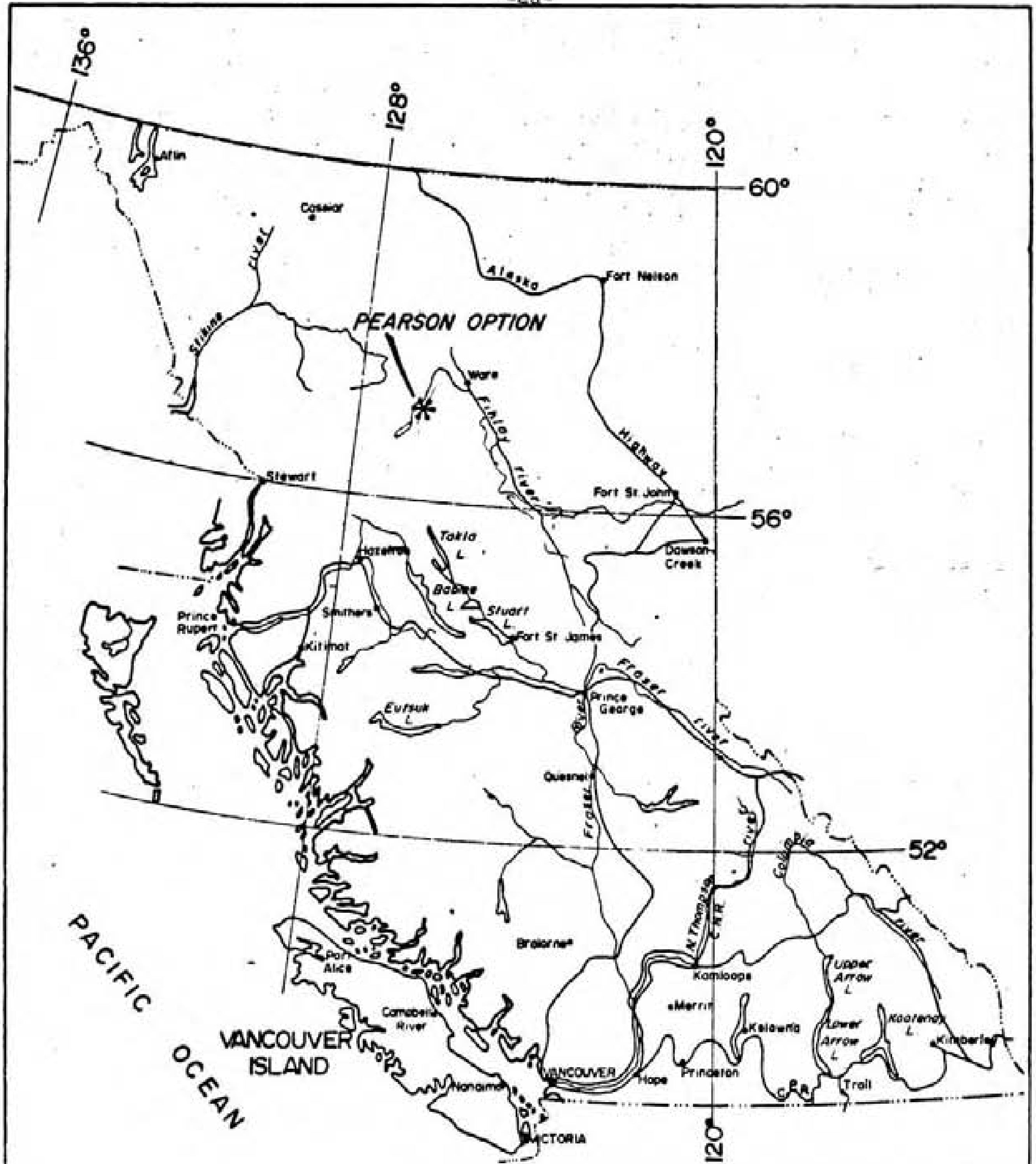
1.2 History and Previous Work

The Fin claims cover portions of an area that was worked by Kennco Explorations (Western) Ltd. during the period June 1968 to April 1973. Kennco's work included soil and silt sample surveys, ground and airborne magnetic surveys, reconnaissance I.P. and geological mapping. Details of this work is documented in B. C. Mines assessment reports 1846, 1886, 1983, 2035, 2326, 2380, 3031, 3120, 3266 and 4396.

Bradford D. Pearson staked the Fin claims in 1978 to cover this porphyry-copper prospect and in October, 1978, he optioned the ground to Riocanex.

Work by Riocanex in 1979, included line cutting, geological mapping with scale 1:5,000 and soil and silt sampling. The geological work was done by David Knight, a graduate student at the University of Manitoba. This was followed in late 1979 with 377 meters of diamond drilling in 2 holes.

In 1980, Riocanex drilled an additional 10 diamond drill holes totalling 977 meters in addition to a ground magnetometer survey of 50.7 km. The drilling was confined to the southwestern and central parts of the property. The 1982 mapping program, as discussed in this report, was confined to the northeastern and central parts of the property.



BRINCO MINING LTD.

FINLAY PROPERTY
OMINECA M.D., B.C. – NTS 94E-2

LOCATION MAP

SCALE 1:7,600,000
0 200 400 KM.

J.R. WOODCOCK CONSULTANTS LTD.

DEC. 1982 FIGURE 1

2. PROPERTY AND CLAIM STATUS

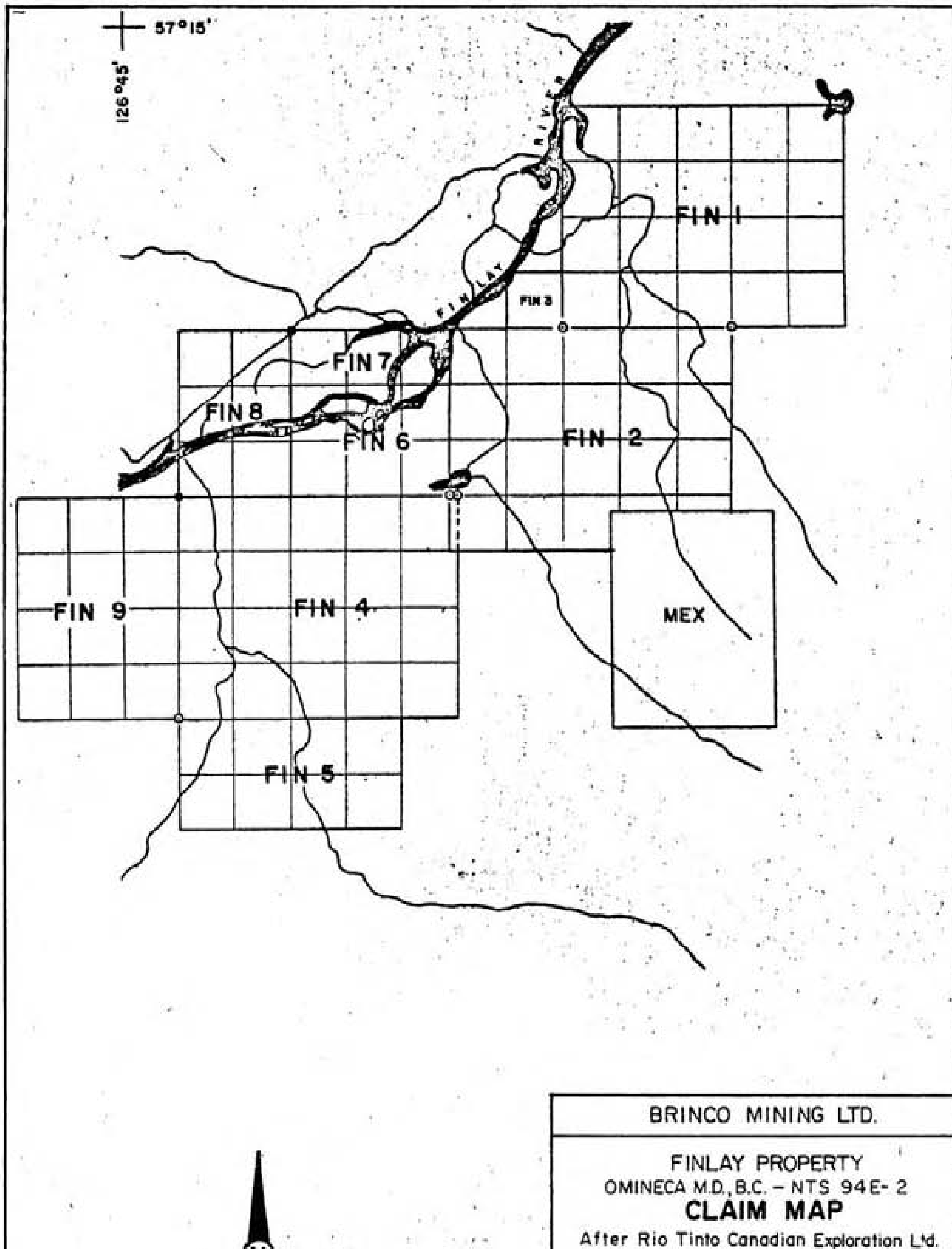
The Pearson Option currently consists of six mutually contiguous mineral claims totalling 75 units. The claims, their record numbers and anniversary dates are given in the table below.

TABLE 1

Claim Status

Claim Name	Record Number	Anniversary Date
FIN 1 (20 units)	1437 (9)	27 Sept. 1979
FIN 2 (20 units)	1438 (9)	27 Sept. 1979
FIN 3 (1 unit)	1439 (9)	27 Sept. 1979
FIN 4 (20 units)	1864 (7)	3 July 1980
FIN 5 (8 units)	1865 (7)	3 July 1980
FIN 6 (6 units)	1946 (8)	3 Aug. 1980

In conjunction with the 1982 mapping program, the position of the legal corner posts for the Fin 1 and Fin 3 claims were established with respect to the grid and the topographical map.



BRINCO MINING LTD.	
FINLAY PROPERTY OMINECA M.D., B.C. – NTS 94E-2 **CLAIM MAP** After Rio Tinto Canadian Exploration L'td. SCALE 1:50,000 0 1 2 3 KM.	
J.R. WOODCOCK CONSULTANTS LTD.	
DEC. 1982	FIGURE 2

3. GEOLOGY

3.1 Regional

The Fin property is near the southeast margin of the Toodoggone precious metal camp; it is about 10 km. southwest of Baker Mine.

The Todogoone area lies in the eastern part of the Intermontane Belt. The geological map (open file map 306) by H. Gabrielse et al assigns the volcanic strata along the southeast part of the property to the Hazelton Group. Within and adjacent to the wide Finlay River valley northeast of the property, are some basic volcanic rocks that are mapped as the Takla Group. The Hazelton Group are Lower Jurassic and the Takla Group are Upper Triassic.

East of the property and to the east of the Finlay River, these strata are intruded by the Omineca intrusions of Jurassic and Cretaceous ages. These intrusions are probably the source of the boulder erratics of quartz monzonite. However, the syeno-monzonite bodies and feldspar porphyry dykes may be of a later age; T.G. Shroeter (1980, 1981) suggests that such intrusions may be feeders to the Toodoggone volcanic rocks which unconformably overlie the Takla Group. The Toodoggone volcanics are probably Early to Middle Jurassic.

3.2 Rock Types of Property

Rock Types

In conjunction with the geological mapping, rock specimens were collected throughout the area and each of these sites appears on the sample and specimen number map. Some difficulty was involved in sorting out the various intrusive rock types. The specimens were classified in the field for the purposes of the mapping; subsequently all hand specimens were again reclassified in Vancouver and at this time representative specimens were selected for this section examination by Woodcock. After the thin section examination some of the rock types were renamed. In some cases it is difficult to differentiate between rock types in hand specimen or, in some cases, even with thin section help. Some of these areas of doubt between similar rock types will be mentioned in the following summary.

In order to clarify the geological picture, the rock types have been classified according to a number of suites. The volcanic

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suite includes clastic volcanics and flow rocks of pre-intrusive ages. The plutonic suite includes the equi-granular granodiorites and also the somewhat similar quartz monzonite porphyry; these are in the quartz-rich intrusions. The red dyke suite includes a group of associated dykes that intrude the volcanic and plutonic suites; the rocks are characterized by their red coloration due to hematite dusting in some of the feldspars. The "associated dykes" are generally found adjacent to or in close proximity to dykes of the red suite. "Miscellaneous dykes" include a quartz-eye rhyolite porphyry and some porphyritic andesite, neither of which fits into the above suites.

Finally a thin section examination of the highly magnetic glacial erratics that are widespread in the lateral moraines helped classify them as quartz monzonite, probably from the Omineca Intrusions.

The following summaries include the distinguishing features of each rock type. More complete descriptions can be obtained from individual examinations which are included in the appendix.

3.2.1 The Volcanic Suite

Only rocks from the wester extremities of the 1982 map area have been classified as volcanic rocks. Five thin sections show a large variety in rock types, including andesite-porphyry (W-198); rocks with abundant crystal fragments and classified as crystal tuffs (W-168, W-197); and a porphyritic rock with an unusual fine-grained phaneritic matrix, called a microdiorite. In places the tuffs exhibit good banding. Such bands include some of the "microdiorite" indicating that it is probably a crystal tuff.

Several of the thin sections (W-142, W-168, W-197) show fine-grained secondary biotite forming a network and also replacing some of the mafic minerals. This is probably a hornfelsing effect adjacent to the plutons. Secondary K-feldspar also occurs with some of these hornfelsed rocks; specimen W-142 has a hair-line veinlet of K-feldspar. In the central part of the mapped area, the contact area between a large dyke of trachyte porphyry and the volcanics to the west is highly sheared and intensely altered. It is difficult to tell whether the rock is altered granodiorite, trachyte porphyry, or volcanic because of shearing and alteration. In other places the rock is completely altered

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to a quartz sericite mixture containing large concentrations of sericite, probably originally plagioclase phenocrysts (W-167).

3.2.2 The Plutonic Suite

A pluton, largely of granodiorites, occupies much of the map area. The granodiorites, based on the examination of only a few thin sections, have been divided into hornblende granodiorite and the biotite granodiorite and these types can be differentiated on the basis of field and thin section features. The biotite granodiorite is characterized by abundant conspicuous quartz; many of the crystals occur as clusters thus accentuating the quartz content. This is in contrast to the hornblende granodiorite in which the same amount of quartz is less conspicuous and the crystal outlines are much more blurred. The biotite granodiorite is also characterized by its leucocratic color. In places it does contain a few flakes or small rosettes of molybdenite. The hornblende granodiorite is generally much more altered and does contain more pervasive epidotization. In places, it is very difficult to differentiate between the two rocks on the basis of hand specimens and also in places there is confusion between the altered hornblende granodiorite and the quartz monzonite porphyry.

The quartz monzonite porphyry is characterized by its porphyritic texture which is noted on smooth surfaces or sawed slabs; but is not always apparent on fractured or weathered surfaces. On such smooth surfaces, the rounded, partially resorbed quartz-eyes are readily apparent. This porphyry is characterized by a quartz-K-feldspar matrix with some wormy intergrowth or myrmekitic textures in places. From the field mapping it is difficult to determine whether this quartz monzonite porphyry occurs as dykes within the granodiorite, whether parts of it form separate stocks, or whether some is a contact phase of the granodiorite.

3.2.3 The Red Dyke Suite

This suite of red dykes is characterized by the widespread hematite dusting in feldspars, some of which seems to extend into the intruded granodiorite. The dykes lack abundant epidote, especially fracture epidote and they are almost devoid of pyrite. Three completely different rock types occur and in many places these different rock types occur within the same dyke without obvious sharp contacts. The rock types include a medium-grained syenite which is composed largely of plagioclase crystals within a matrix of variolites. This radiating type of texture or variolite is composed mainly of K-feldspar. The rock also contains about 15% pyroxene which is largely replaced by chlorite or epidote. Epidote also occurs as an alteration product in some of the plagioclase crystals. Some interstitial quartz is present but this amounts to less than 1% (W-83).

The trachyte porphyry is another reddish rock with abundant pink feldspar phenocrysts. Most of these phenocrysts are plagioclase and the matrix again is largely composed of variolites, presumably all K-feldspar. In some places, K-feldspar, without variolitic texture, forms part of the matrix. There appears to be gradations between the two textured types. Apatite, sphene, and magnetite occur as accessory minerals and the mafic minerals are altered to epidote and chlorite. Some of the trachyte porphyry (e.g. W-122) appears to be completely devoid of quartz. In other specimens (e.g. W-166) phenocrysts of quartz form up to 10% of the rock. These little phenocrysts of quartz do weather out as little knobs on the outcrops. However, even in single outcrops the distribution is very erratic. The quartz-bearing variation has been labelled quartz-eye trachyte porphyry.

In the field, a unique type of dyke was mapped as the "brick red dyke". This dyke is composed of a porphyry, probably with aphanitic matrix and with some phenocrysts of feldspar and a few phenocrysts of quartz. Thin section examination shows that the phenocrysts form about 45% of the rock and include mainly plagioclase, some biotite, some amphibole and a trace of quartz. The matrix is composed of K-feldspar and quartz and this contrasts greatly with the other associated rocks of this suite. The composition, as determined through thin section examination, indicates that this is a quartz latite porphyry. Examples include specimens W-90, W-229 and W-122.

A quartz monzonite porphyry, coarser than that of the "plutonic" quartz monzonite porphyry, has been mapped in several places. This coarser porphyry differs in that it generally is magnetic, has few or no quartz phenocrysts and has some reddish coloration. It is difficult to distinguish from the trachyte porphyry; however, thin section examinations show that the matrix has myrmekitic intergrowth versus the variolitic texture in the trachyte. This intrusive rock has been labelled "magnetic quartz monzonite porphyry". The rock does have more epidote alteration than the other rocks of the red dyke suite.

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3.2.4 The Associated Dykes

Several types of unusual dykes are associated with the red dyke suite. These dykes occur adjacent to the red dykes or near them; but can diverge somewhat in strike. In the field these have been mapped as the brown dykes and the dark green dykes. Both types of dykes are generally characterized by abundant placioclase laths as phenocrysts.

Thin section examination shows that the matrix of these porphyries has a ophitic texture with numerous criss-crossing plagioclase laths and with interstitial K-feldspar and altered mafics. The large plagioclase phenocrysts occur within this quasi ophitic matrix. The term "dolerite" has been used for these rocks. This was chosen in preference to diabase because the term diabase generally refers to equi-granular rocks with a gabroic composition. The petrology books indicate that great variations are present in such dyke rocks and that K-feldspar can be present.

The brown dyke rock, labelled "dolerite porphyry" differs from the dark green dyke in a number of features. It is a crowded porphyry and the matrix material is coarser-grained than that of the dark green dykes. This matrix includes abundant laths of K-feldspar as well as plagioclase.

The dark green dyke rocks vary from those that have practically no phenocrysts, labelled "fine-grained dolerite" (e.g. W-109) to those that have about 10% plagioclase phenocrysts plus 10% mafic phenocrysts and a matrix that is largely plagioclase laths with minor K-feldspar (W-132, W-104). The individual thin section descriptions of the appendix give further data.

White dykes composed of porphyritic latite occur in a number of places; these can be easily mistaken for bleached and silicified plutonic rocks such as the granodiorite. However, they are of limited extent and, although the contacts are difficult to discern, they must lie between the red dyke and the intruded plutonic rock (e.g. sample W-112 and part of sample W-127). In other places somewhat similar rocks have been found within the granodiorite and have initially been mapped as granodiorite. Thin section examination has changed this identification (W-56).

3.2.5 Miscellaneous Intrusive Rocks

In one exposure in the northwest part of the map area, leuco-

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cratic quartz-eye porphyry occurs. Thin section examination of W-228 shows phenocrysts of quartz, K-feldspar and plagioclase (in approximately equal proportions) and about 1% biotite, in a matrix of K-feldspar and quartz. This is a rhyolite porphyry.

Occasional exposures of a porphyry with dark green aphanitic matrix and relatively sparse plagioclase phenocrysts occurs in places. Abundant epidote occurs in the rock, some of which replaces the plagioclase. This is labelled porphyritic andesite. It is probably a dyke rock as it has been only noted in areas of the pluton; however, it could be a volcanic remnant.

3.2.6 Glacial Erratics

One other intrusive rock should be included in this summary and that is the coarse-grained leucocratic, highly magnetic rock of the erratics that form much of the lateral moraine. These rocks (L-287, W-197) have been examined in thin section and identified as coarse-grained, equi-granular quartz monzonites with abundant green to yellow pleochroic hornblende. Accessory minerals include magnetite, large sphene crystals and a few small epidote patches. Large poikalitic crystals of K-feldspar occur in places and drastically increase the K-feldspar/plagioclase ratio. Alteration is very slight.

3.3 Structure

The magnetometer survey of Riocanex Limited shows a fairly sharp boundary between two different magnetic regimes. This boundary, lying between lines 6+00W and 7+50W separates an area of somewhat erratic high magnetic susceptibility on the northwest from an area of uniform and low magnetic susceptibility on the southeast. A comparison with the geological map shows that, except for its most northerly extent, this boundary represents the contact between a plutonic host rock on the northeast and a volcanic host rock on the southwest.

The plutonic regime includes the biotite granodiorite, the hornblende granodiorite, and some smaller areas of the finer grained quartz monzonite porphyry. Although the area of biotite granodiorite has not been fully delimited, the mapping indicates that this pluton is about 1600 meters by 1200 meters in aerial extent. It is bounded on the west by the hornblende granodiorite and fine grained quartz monzonite porphyry, on the other three sides its contact is not well exposed. However, a small exposure of hornblende granodiorite has been mapped to the east of it and a larger exposure of hornblende granodiorite occurs within its northern part, adjacent to the overburden of the Finlay valley. The hornblende granodiorite along with the fine grained quartz monzonite porphyry have been mapped over a width of about 600 meters west of the biotite granodiorite body.

One could interpret this as a zoned pluton with biotite granodiorite in the center and hornblende granodiorite in the outer parts. However, there are good indications that the body of biotite granodiorite intrudes the older granodiorite and fine grained quartz monzonite porphyry. The biotite granodiorite is distinctly fresher in appearance and more leucocratic with conspicuous large quartz clusters versus the hornblende granodiorite which has fracture controlled alteration, especially epidote. It is somewhat erratic in composition in comparison with the uniform texture and colour of the biotite granodiorite. It contains the fracture controlled chalcopyrite and quartz-molybdenite versus the molybdenite rosettes within the biotite granodiorite.

The volcanic rocks in the southwestern part of the area are largely crystal tuffs and other pyroclastics. Composition varies from light coloured felsite to dark coloured andesite. In some of the specimens, good graded bedding occurs indicating a tuffaceous origin in spite of the almost uniform crystal-like nature of the fragments. Thin section examinations done on the volcanic rocks near the pluton show secondary biotite indicating hornfelsing. No thin sections were done for the volcanic rocks in the southwest part of the area and so the extent of this biotite metamorphism is unknown.

Swarms of dykes cut both the plutonic areas and the volcanic areas; there is some difference in predominant dyke types within each of these areas. Within the plutonic area is the red dyke suite, the syenite, the trachyte porphyry and the quartz latite porphyry as well as the associated dykes which are more basic and have a pseudo diabasic texture (the dolerites). The dykes within the plutonic suite are parallel or sub-parallel trending between 330° azimuth and 0° azimuth. There is a slight indication of radiating from a center near < 3+50W, 10+00S.

Within the southwest volcanic area, the dykes are somewhat different in composition and in general attitude. The rock of of many of these dykes has quartz eye and resembles the fine-grained quartz monzonite which occurs as irregular areas within the hornblende granodiorite. These rocks, however, have pink colouration and could be part of the red dyke suite. Another rock has been labelled "magnetic quartz monzonite porphyry". Within the volcanic area, this is associated with the fine grained quartz-monzonite porphyry. The same rock also occurs at the south end of L12+00E. These rocks are easily confused with the trachyte porphyry.

The dykes within the volcanic area are less uniform in thickness and somewhat discontinuous along strike. They occur in two sets, a northwest set and a northeast set.

Two relatively large intrusions of trachyte porphyry also occur. One of these has been mapped at the southeast ends of lines L0+00 to L4+50W. The red dyke suite could radiate from this intrusion. Another relatively large body mapped as trachyte porphyry is that which lies along the western contact of the hornblende granodiorite pluton. In this case much of the rock does contain conspicuous small quartz phenocrysts.

At this point, the pertinent microscopic differences between the similar rock types will be reiterated. The thin section work shows that the "magnetic quartz monzonite porphyry" contains few, if any, quartz phenocrysts and has a matrix which has abundant myrmekitic intergrowth of quartz and K-feldspar. The "fine-grained quartz monzonite porphyry" contains conspicuous small rounded quartz eyes or phenocrysts and has more of a granitoid matrix which includes some myrmekitic intergrowths of quartz and K-feldspar. Trachyte porphyry can have some quartz phenocrysts; however, the matrix is largely K-feldspar and variolitic textures are prevalent.

Small faults are common especially in the areas of the older hornblende granodiorite and the volcanic rocks; however, only two fault zones have been noted. A northerly trending zone occurs in the vicinity of the contact between the granodiorite and the volcanics. In its northern part rocks on both sides are highly sheared and subsequently altered so that the original rock type cannot be discerned. In addition, this fault zone appears to offset the dyke of trachyte porphyry. Along the creek, near Riocanex hole 9, the volcanic rock is quite sheared and in places highly pyritized and sericitized. This shearing trends northerly.

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3.4 Rock Alteration

3.4.1 Biotite

Secondary biotite occurs in volcanic rocks near the westerly margin of the plutons. This secondary biotite is attributed to hornfelsing or metamorphism by the intrusion. It can only be confirmed by thin section work; a number of individual microscopic descriptions report such alteration. The volcanic rock with high magnetite at 6+00W, 2+00N has a brownish tint which may also be secondary biotite.

In the western part of the map area, some of the intrusive dykes of quartz monzonite porphyry have a contact zone that grades into the volcanic. This has been called "granitized volcanic". It resembles some of the assimilated fragments found in the red dykes.

3.4.2 Hematite

The most conspicuous alteration product on the property is the red hematite dusting which occurs in the feldspars, especially the plagioclase. This is especially prevalent in the intrusive rock of the red dyke suite where the alteration can be so intense that the rock (e.g. the quartz latite porphyry) resembles a brick in colour.

Adjacent to some of these red dykes, the intruded rocks are also altered in varying degrees to reddish orange colours. The most conspicuous of this is the hornblende granodiorite which has been converted to a very orange-red colour adjacent to the syenite dykes. In the field this was initially mapped as the "hybrid" granodiorite e.g. L3+00E, 6+00N. The volcanic rocks are also altered to a deep red colour adjacent to some of the dykes. In the 1982 map area this is especially noticeable in the outcrop area west of L6+00W, 2+00N. Much of the core from the Riocanex drilling appears to be a reddish altered volcanic rock, accompanied by abundant magnetite.

3.4.3 Epidote

Epidote alteration is also widespread. The most conspicuous are the replacements and coatings along fractures. In addition there is abundant disseminated epidote which is probably the alteration of mafic minerals and some plagioclase phenocrysts.

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Except for the abundant epidote in the magnetic quartz monzonite porphyry, the epidote alteration is not as abundant in rocks of the red dyke suite as it is in rocks from the plutonic suite and some of the volcanics. However, thin section examination shows that most mafics of all rock types are highly altered to epidote plus chlorite and in most places this alteration is complete.

The various rock alterations are compiled on figure 4 . This figure gives the extimates of relative amounts of epidote for each hand specimen classified as Nil, Trace, Low, Moderate, High. The epidote alteration is subdivided into "disseminated" or "fracture". The fracture filling or replacement epidote may be later than the disseminated epidote. The map demonstrates

1) High values are confined to a narrow zone along the south side of the map area.

2) An area of "Nil" values occurs in the volcanics in the northwest part of the map area, extending westward from the pluton contact. This is an area of widespread sericite alteration which may have eliminated the epidote.

3) The remainder of the map area has values "Trace" to "Moderate", including the intervening volcanic area and all of the pluton.

3.4.4 Magnetite

Magnetite accompanies the hematite alteration in some of the altered volcanics where it forms dark replacements. In the case of the Riocanex drilling, the best gold values were obtained in such rock. The magnetite is also widespread in the epidote-chlorite pseudomorphs of the mafic mineral. In addition to the replacement or introduced magnetite, magnetite grains are common as the accessory minerals in some of the red dykes and in the plutonic rocks.

3.4.5 Sericite

Clay-sericite alteration occurs in many of the tuffaceous rocks. This has been identified by hand specimen examination and confirmed by some thin section work. Presumably some of this is early alteration of tuffs by ground waters; some is caused by later hydrothermal alteration related to mineralization. This latter type has minor pyrite.

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Sericite alteration occurs in most of the plagioclase phenocrysts to varying degrees. This can be accompanied by some clay and or carbonate.

Volcanic rocks with abundant pyrite have been bleached white with quartz-sericite alteration. It is not accompanied by quartz veinlets. Most of this bleaching is hypergene; however, some could be supergene. The porphyritic volcanic rocks in the vicinity of Riocanex hole 80-9 form the most outstanding example.

Sericite alteration also occurs without abundant pyrite, especially in areas of the hornblende granodiorite. This type of alteration appears to be quite local and struct rally controlled. It is not unusual to grade from intense to minimal alteration over a distance of a few meters. This can be accompanied by minor copper.

On the alteration map, the sericite alteration is classified as "Low to Moderate" or "Intense".

3.5 Mineralization

3.5.1 Pyrite

Abundant pyrite occurs only in the volcanic rock and in most places this appears to be structurally controlled. This pyritization is associated with sericitization and bleaching. The best example is the bleached volcanic rock near Riocanex hole 80-9.

In the pluton, pyrite is generally low to trace. However, because of complete removal of the limonite and the pyrite at surface, the low amounts of pyrite may be more widespread than suspected. In places where trenches or cliff faces have been exposed, some of the hornblende granodiorite fractures do have good goethite coatings indicating a former low pyrite content. Locally within the hornblende granodiorite are local areas with moderate pyrite (up to 3%) and in some places this has associated chalcopyrite. In general, the porphyry type of copper-molybdenum mineralization on the property lacks abundant pyrite or a good pyrite halo.

One other place where abundant pyrite occurs is the altered outcrop of magnetic quartz monzonite porphyry near the L12+00E, 12+00S. This contains from 3% to 10% pyrite, which appears to be structurally controlled.

3.5.2 Copper

One can divide the copper mineralization of this property into two types. The most widespread is the copper associated with molybdenite and occurring as disseminated, fracture coatings and in quartz veins. This is generally confined to the hornblende granodiorite part of the pluton. The best examples are at the Kennco hole, in the trench at 1+10E, 2+80N and at 0+80W, 1+00S. In the Kennco hole, values in the order of 0.23% copper are reported over a length of 81 feet. The rock around this hole is mapped as hornblende granodiorite. However, the intense sericite alteration makes this classification uncertain. In October, a crew of men returned to the property with Mr. Ian Coster to blast pits into this mineralized rock. Coster's report is included as Appendix I.

A second type of copper mineralization occurs in the volcanics. This type has some associated gold and is generally accompanied by replacement magnetite forming streaks within the rock. The best example would be the southwest part of the property drilled by Riocanex. In the present map area, scattered copper mineralization occurs in volcanic rock near the plutonic contact at L6+00W, 2+00N. The volcanic rock in this place does have streaks and areas of replacement magnetite and the rock geochemistry shows anomalous gold values. This type of mineralization is not accompanied by molybdenite.

Malachite was noted in the unaltered biotite granodiorite (sample sites L96, L97, L98). Other high geochemical copper results from this relatively fresh looking rock might also reflect some copper mineralization not noted during the mapping.

Malachite occurs along fractures in some trachyte porphyry at 4+70W, 12+00S. The few high copper values in syenite and other members of the red dyke suite probably also reflect some minor disseminated chalcopyrite.

3.5.3 Molybdenum

The most abundant molybdenite occurs along fractures and in quartz veins accompanying the copper in the hornblende granodiorite. This is exposed in trenches and in the Kennco drill hole, and it is reflected in the combination of molybdenum and copper geochemistry.

Molybdenite also occurs as scattered rosettes in the relatively fresh biotite granodiorite and is responsible for the scattered anomalous molybdenum values in this pluton.

The high molybdenum values without high copper in the magnetic quartz monzonite porphyry at 12+00E, 12+00N probably also reflects scattered molybdenite flakes. The rock is altered to pyrite-sericite.

3.6 Surficial Geology

As an aid to interpretation of the soil geochemistry, Riocanex contracted Seymour Environmental Geology to study the surficial deposits. This contractor divided the surficial deposit into 8 units. In this report a few comments will be made on Woodcock's observations and the relationship of these observations to the maps submitted by Seymour Environmental Geology.

Woodcock classified the surficial deposits as follows:

1. Fluvioglacial deposits adjacent to the Finlay River. These deposits do have glacial kettles in places; they are probably outwash deposits forming several levels of terraces. This is equivalent to unit 2 of Seymour Environmental Geology. The contact of these deposits with the outcrop areas to the southeast marks the boundary of the anomalous geochemistry.

2. On the mountain slopes of the south part of the mapped area are some lateral moraines that form conspicuous ridges. These are interspersed with swampy depressions composed of large boulders of magnetic hornblende quartz monzonite. The flanks of some of these ridges have been washed by lake waters, thus removing the sand and leaving deposits composed solely of large granitoid boulders. This is probably equivalent to unit 4 of Seymour Environmental Geology.

3. Between these two different types of glacial formations is a zone characterized by numerous flat-topped terraces. This area is largely equivalent to unit 5 of Seymour Environmental Geology. The material composing these terraces, and generally exposed under overturned trees, consists of till. This is composed of boulders within a matrix of sandy material. This matrix is dissimilar to that generally found in southern parts of British Columbia in that it lacks abundant clay. It does not become sticky when wet and it does not pack hard on drying.

   Some of these terraces have outcrop exposures along their faces and some of them have shallow overburden on the tops with the rock exposed under overturned trees. Woodcock, with this limited observation of the material did not see any gravel layers or sand layers to indicate fluvial deposition. The origin of these terraces is puzzling; they might be or erosional origin rather than depositional origin. This erosion would have to be done by impounded lake waters with levels changing as the glaciers receded. Such erosion would also account for the concentration of the large granitoid boulders in the flanks of the lateral moraines on the southern part of the property. The fact that parts of some of the till terraces coincide with underlying rock terraces may be a coincidence with the rock terraces owing their origin to an earlier erosion.

If this widespread unit in the araa of interest is merely till, then it is probably largely of local origin displaced by the glaciers that moved in an northeasterly direction along the Finlay River valley. By contrast, the rocks of the lateral moraines to the south have been brought from outside of the area mapped and the fluvial deposits along the Finlay River have also been transported considerable distances.

4. Swamp areas have been noted along the lines and placed on some portions of the map. These swampy areas do have considerable black soil under them and will thus be an important factor in interpreting the geochemistry.

5. Shallow overburden or undifferentiated overburden has been mapped only in the areas of complex geology in order to show the limits of the outcrop areas. The areas of abundant outcrop are included in unit 8 of Seymour Environmental Geology.

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4. MAGNETOMETER SURVEY

The ground magnetometer survey was conducted by a geologist of Riocanex using a proton procession magnetometer. As mentioned in section 3.3, there is a change from a high and somewhat erratic magnetic picture over the southwest part of the property to a lower magnetic picture with more uniform texture over the northeast part of the property. This transition corresponds to the transition between volcanic rocks on the southwest and the plutonic rocks on the northeast.

The best anomaly occurs over volcanic rocks adjacent to the pluton. This reflects the magnetite in the hornfels zone.

The area of altered volcanics south of Fin Lake is reflected by low susceptibility.

Superimposed on the above magnetic picture along the south side of the map are linear anomalies trending parallel to the valley. These are probably caused by the lateral moraines which contain boulders of magnetic quartz monzonite porphyry.

5. GEOCHEMISTRY

5.1 Soil Geochemistry

5.1.1 Soil Types

The distribution and types of surficial deposits is a major factor in the magnitude and uniformity of any of the metal anomalies in the soils. The reader is referred to the discussion of surficial deposits (section 3.6). The fact that the valley glaciers moved northeasterly in this area is also an important factor in determining the origin of the soil anomalies. The high geochemical values are restricted to areas of rock outcrop or shallow overburden.

5.1.2 Copper-Molybdenum

Copper is the most widespread metal anomaly and therefore most of the comments on the overburden control are made relative to the copper geochemical map. The anomalous values cut off sharply on the north where the area of abundant rock exposures terminates sharply against the area of fluvioglacial deposits of the Finlay valley. Uphill to the south are the lateral moraines with their transported quartz monzonite boulders. These are devoid of copper values. A band about 150 meters wide and lying along the south side of the moraine ridges is also devoid of copper values. The terraces in this area are thicker than the lower terraces and the depth to bedrock is probably too great for development of good surface metal values.

Geologically the copper anomaly is restricted to the area of the plutonic rocks with about half its length occurring in the hornblende granodiorite and half in the biotite granodiorite. Termination on the east may again be partly due to overburden conditions. The local areas with highest values correspond with small rock anomalies which are discussed in section 5.2.2.

In one place the soil copper anomaly extends southwesterly onto the volcanic rocks (6+00W, 1+50N). This is the area where the magnetite and the dispersed copper are found throughout an extensive outcrop of volcanic rock.

The areas of high molybdenum values correspond quite closely to the areas of high copper values.

5.1.3 Gold

The anomalous gold values in the soils are scattered erratically throughout the property occurring in the areas of the plutonic rocks and also in the areas of the volcanic rocks. The best concentration of anomalous values occurs northwest of the 1982 map area and this is the area where Riocanex did most of its drilling. Rock types in this area include abundant brick-red volcanic rocks altered with hematite.

In the 1982 program, one area of anomalous values on line 4+50W was resampled. In many regions mull sampling is a better gold geochemical technique than soil sampling. In some regions, lichen can yield higher values than the soil or mull. Therefore at some of the sites moss and lichen samples were also collected for comparison.

These samples were analyzed at Min-En Laboratories in North Vancouver, a lab with considerable experience in gold geochemistry. Min-En uses an ashing technique prior to digestion and in some cases, especially if the temperature is too high, the gold can volatilize. For this reason some of the samples were sent to X-Ray Laboratories in Toronto for neutron activation analysis to be done directly on unwashed materials. The results from the neutron activation of unwashed samples were lower than the previous results. However, correlation was fair. The results of these analyses are given in Table 2.

TABLE 2

Neutron Activation versus Atomic Absorption

Sample Site	Pearson's Map	Woodcock Soil			Au in Vegetation		
		Au (ppb)	Cu (ppm)	Mo (ppm)	Mull (ppb)	Moss (ppb)	Lichen (ppb)
3 + 75 S	1950	270	151	24	25	65	5
4 + 50 S	650	65	321	21	5	30	5
3 + 00 S	305	435	360	46	10		
2 + 25 S	< 5	35	21	3	5	20	60

From this table one can conclude:

a) Although the soil values from the 1982 sampling are generally much lower from those of Pearson's work, most of the values are still highly anomalous for gold.

b) Copper and molybdenum do show some correlation; possibly the molybdenum has a better direct line correlation than copper.

c) The values obtained in the vegetable materials were much lower and certainly not as definitive as the soil samples.

The soil profile in these sample sites consists of a thin A-1 horizon which consists of partially decayed plant material; this material along with some roots formed the mull samples. The A-2 and A-3 horizons are generally absent; the partially decayed plant materials are underlain directly by rusty "B horizon" soil. The fact that the gold is concentrated in the rusty soils and is much lower in the mull might indicate that the gold values are in the till and are not being concentrated through deep root systems into plant materials.

5.2 Rock Geochemistry

5.2.1 Techniques

In the geological mapping, rock specimens were collected from many sites for subsequent classification and identification and thin section work. At most of these sites, samples of rock chips were also collecte for geochemical analyses. The first batch of samples were sent to ACME Analytical Laboratories to be analyzed by inductively coupled argon plasma technique (I.C.P.). Twelve of these samples were then submitted to Min-En Laboratories for analysis of Cu, Pb, Zn, Ag, and Mo by atomic absorption technique (AA). In addition, 81 selected samples were submitted to Min-En Laboratories for trace analyses of gold. These included samples with high copper or lead and also some dyke types.

The comparison in the metals shows that the I.C.P. technique is satisfactory for Cu, Zn and Mo. However, correlation for all lead values within the range of these samples and for silver values below 2 ppm was very poor. Therefor the I.C.P. technique does not seem satisfactory for silver and lead.

The copper, lead, zinc, molybdenum and silver values are plotted each individually on separate maps. These geochemical maps indicate which technique was used in the analyses. The gold

TABLE 3

Atomic Absorption versus Inductively Coupled Plasma

Sample No.	Mo		Cu		Pb		Zn		Ag		Au	
	AA	ICP	AA	ICP	AA	ICP	AA	ICP	AA	ICP	AA	ICP
W82-51	2	2	26	17	31	19	86	85	1.4	0.3	5	ND
52	11	12	106	106	18	7	77	68	1.9	0.9	10	ND
53	24	26	68	58	14	3	68	50	1.4	0.8	5	ND
54	200	173	580	531	32	20	105	123	4.6	4.4	10	ND
55	57	57	80	82	28	15	59	41	1.6	0.8	5	ND
60	1	1	65	69	12	1	88	92	0.7	0.1	5	ND
61	34	36	165	194	22	4	68	63	2.6	2.0	10	ND
72	2	1	42	42	16	8	53	51	1.2	0.6	10	ND
78	2	1	21	20	18	6	108	121	0.4	0.1	5	ND
82	4	2	8	7	20	1	70	74	1.1	0.1	5	ND
85	4	3	20	20	20	2	92	109	1.0	0.1	5	ND
92	2	2	28	29	21	8	60	62	0.9	0.2	5	ND

Gold is in ppb

All other metals are in ppm

values are also plotted on a separate map which also shows the main areas of anomalous gold in soil.

5.2.2 Copper

In general the volcanic region has low values with background less than 15 ppm, somewhat lower than that of the plutons; however, this might be a feature of the AA analysis versus the ICP analysis

Scattered anomalous copper values occur in the rock throughout the area. The few clusters of high values have partly contoured with contour values at 50 ppm and 100 ppm. A few comments on these clusters will be presented.

1. The largest area of high values occurs in the western part of the hornblende granodiorite in the area of the most abundant red dykes. Many of the high values are in the hornblende granodiorite; however, some high values are in the red dykes themselves (up to 256 ppm in syenite).

2. Within the very fresh appearing and unaltered and unmineralized biotite granodiorite, centered on line 600 E, 0+00N are some slightly anomalous copper values. These could be due to minor disseminated chalcopyrite.

3. Three high points occur around the Camp Lake; whether or not the intervening area is anomalous is not known. One of these values is at the Kennco drill hole; a second is at the place where quartz-chalcopyrite-molybdenite veinlets were noted and a third is a sample where no mineralization is recorded.

4. Some altered granodiorite along the creek (line 7+50E, + 50N) has some anomalous copper values.

5. The magnetic bearing volcanic rock adjacent to the pluton (6+50W, 2+00N) carries anomalous copper values. This is a place where disseminated chalcopyrite and scattered malackite occur.

6. The pyritic zone at Riocanex hole 81-9 is not anomalous in copper.

5.2.3 Molybdenum

The molybdenum has poorly defined anomalies which are smaller

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in size than the corresponding copper anomalies. Five of these small anomalous areas are shown on the map and four of these are coincident with the copper anomalies. These reflect the porphyry type copper-molybdenum mineralization.

Scattered one point anomalies without associated copper occur in the relatively unaltered biotite granodiorite. These reflect the scattered coarse molybdenite rosettes.

The molybdenum content of the volcanics, even the altered bleached rocks, is only 1 to 2 ppm.

5.2.4 Zinc

In general the volcanic rocks adjacent to the pluton contact have values higher than background (e.g. outcrop of copper bearing magnetic volcanics with > 150 ppm Zn). This may correspond to a hornfels zone.

The highest values occur in the red dykes. These are listed as follows:

Tp L88-497 ppm; L152-469 ppm; W118-566 ppm

qTp L168-285 ppm

SY W137-139 ppm; W207-131 ppm

QLp L114-141 ppm; W78-121 ppm

bDP L185-134 ppm

MQMp C25-279 ppm; G443-243 ppm; I22-224 ppm

QMp C33-575 ppm; G446-228 ppm; G447-206 ppm

5.2.5 Lead

The reported background values for the volcanic area are 10 ppm to 40 ppm whereas those for the plutonic area are 1 ppm to 10 ppm. This difference probably reflects the two different analytical techniques.

A small area of anomalous values occurs north of Fin Lake. These are in altered volcanics.

Other scattered highs are only one point anomalous.

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5.2.6 Silver

There is a poor correlation between ICP and AA values in range < 2 ppm. The difference in background values for the volcanic area (0.5 ppm to 1.5 ppm) and the plutonic area (0.1 ppm to 0.5 ppm) may reflect this.

A few slightly anomalous values are present:

1. The largest cluster of anomalous values corresponds with the largest copper-molybdenum anomaly in the area of the red dyke swarm.

2. The shows of chalcopyrite-molybdenite around Camp Lake have corresponding anomalous silver.

3. The low intensity copper-molybdenum anomaly in the biotite granodiorite has slightly anomalous silver.

4. The copper bearing magnetic volcanic on L6+00W has corresponding slightly anomalous silver.

5.2.7 Manganese

These analyses also were done by the two different analytical techniques, AA in the volcanic area and the ICP in the plutonic area. Background appears to be the same in both terrains; however, the volcanic area does contain a larger percentage of the higher values. Many of the samples of altered volcanic rocks have low values (less than 300 ppm).

No trends are apparent.

5.2.8 Gold

The map of the gold geochemistry shows the values for the rocks. Also superimposed on this are the soil anomalies from Bradford Pearson's maps. Note that many of the anomalous values on Pearson's map are in creeks and silts; these are not included on the present map.

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The rock geochemistry shows a few anomalous values and these all occur within the volcanic area; there were no anomalous values in the plutonic area. The most conspicuous cluster of high gold values (up to 170 ppb) is in the magnetite-copper bearing volcanic rock at L6+00W, 2+00N. The adjacent plutonic area has values of only 5 ppm. One of Pearson's soil anomalies covers the anomalous volcanic area, but also extends north-easterly onto the plutonic area.

A few other scattered values occur in the volcanics near the pluton and near Riocanex hole 80-5.

The present writers propose that the gold occurs in the volcanic rock, especially in the hornfels zone adjacent to the pluton and that the gold values in the till of the plutonic area were dragged northeasterly by glacier action. This is especially apparent for the anomalous area at L6+00W, 2+00N.

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6. SUMMARY AND CONCLUSIONS

The mapping has divided the area into a plutonic region with mainly hornblende granodiorite and biotite granodiorite versus a volcanic region. Swarms of red dykes of a variety of compositions cut these rock types. Those of the plutonic region have intense hematite dusting giving them a brick-red colour; those of the volcanic region are also somewhat red with hematite. The dyke swarms in the plutonic region trend northerly and are sub-parallel with some indication that they radiate outward from a point in the south part of the property; the dykes in the volcanic region seem to occur along two predominant directions, northeasterly and northwesterly.

The volcanic rocks are probably of the Hazelton Group; the pluton could be part of the Omenica intrusions (Mesozoic); and the later red dykes may be feeders to the Toodoggone volcanics. The red dykes appear to be later than the copper-molybdenum mineralization. The copper-gold mineralization may also be of a later age than the copper-molybdenum mineralization.

The major rocks of the plutonic area include hornblende granodiorite and biotite granodiorite. The hornblende granodiorite has the most widespread alteration and contains all of the noted fracture mineralizations of chalcopyrite-molybdenite. Minor chalcopyrite also occurs along with magnetite alteration in one outcrop area of volcanic rocks adjacent to the pluton.

Sericite alteration in the exposed areas is somewhat erratic with no good trends and is probably structurally controlled, although one does get the impression that within the pluton there is a trend to increasing alteration towards the overburden area southeast of the Kennco hole.

Pyrite is present in low to moderate amounts; locally it increases with sericite along structures. There are also areas of sericite alteration, at least at surface, that have no pyrite. These may be caused by late circulating meteoric waters. Some zones of structurally controlled intense pyrite-quartz-sericite alteration occur in the volcanics (e.g. Riocanex hole number 9). This is barren of any base metals.

The most significant type of mineralization is that of the chalcopyrite-molybdenite, generally accompanied by some quartz veinlets. This is typical porphyry-copper type mineralization in contrast to the gold-chalcopyrite mineralization found associated with magnetite in the Riocanex drilling. The porphyry copper mineralization occurs mainly within the hornblende granodiorite around the stock of biotite granodiorite. Sampling in trenches at the Kennco drill hole indicated no significant

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gold content.

The rock geochemistry has not indicated good zoning for the copper-molybdenum, partly because of the discontinuous nature of the mineralization in the well exposed areas, but also because of complete leaching at the surface in places.

The types of surficial deposits are important in the interpretation of the soil geochemistry. These include glacial-fluvial deposits along the Finlay River, boulder morrains along the higher south slopes; and erosional terraces in the intervening till deposits.

This interpretation of the surficial deposits and an appraisal of the gold geochemistry (soil values versus rock values) have been used to suggest that the gold in the soil comes from the volcanic rocks, and that the glacial action has dragged some of these gold traces northeasterly onto the plutonic area.

The best target for a porphyry-copper-molybdenum prospect is the overburden area around and south of the Kennco drill hole, an area about 500 meters by 700 meters.

The best target for chalcopyrite-gold is the magnetite-volcanic rock at 6+00W, 2+00N. This appears to be a very small target.

Respectfully submitted,

December 13, 1982

J. R. Woodcock

J. R. Woodcock

Dennis Gorc

Dennis Gorc

7. REFERENCES

Campbell, C. and Haynes, L., January 1981: Pearson Option (Fin Claims) Diamond Drilling, Geophysics; for Rio Tinto Canadian Exploration Ltd.

Haynes, L. and Knight, D., February, 1980: Fin Claims (Pearson Option) Geology and Geochemistry; for Rio Tinto Canadian Exploration Ltd.

Haynes, L., September, 1980: Fin Claims (Pearson Option) Diamond Drilling; for Rio Tinto Canadian Exploration Ltd.

Pantelegev, A., 1981: Toodoggone Volcanics South of Finlay River; in Geol. Field Work, Ministry of Energy, Mines and Mineral Resources, Paper 82-1, pp. 135-141.

Pearson, Bradford, D., February, 1982: Notes to accompany maps of Fin Claims.

Schroeter, T.G., 1980: Toodoggone River; in Geol. Field Work, Ministry of Energy, Mines and Mineral Resources, Paper 81-1, pp. 124-131.

Schroeter, T.G., 1981: Toodoggone River; in Geol. Field Work, Ministry of Energy, Mines and Mineral Resources, Paper 82-1 pp. 122-133.

Seymour Environmental Geology, January, 1981: Surficial Geology Maps; for Rio Tinto Canadian Exploration Ltd.

APPENDIX I

THE FIN PROPERTY

Trenching

THE FIN PROPERTY by Ian Coster

Trenching

A total of eight days was spent blasting three trenches on the Fin property, using one BRINCO geologist, and two blasters from McCrory Holdings Ltd. The main trench (T-1) was located at the old Kennco DDH site. The second trench (T-2) was located at about 80 m SW of 000W/100S and the third trench (T-3) was located at about 60 m SW 150E/290N. A total of 21 rock chip samples were taken; including 16 from T-1, two from T-2 and three from T-3.

Main Trench (T-1)

The main trench was roughly 5 meters long and 3 meters deep. The water table appeared at the 3 meter depth mark and put a halt to further blasting. Bedrock in the trench was an equigranular, medium-grained grey-green granodiorite which was prevasively altered to differing degrees of intensity. Mineralization was sporatic and consisted of pyrite, chalcopyrite, molybdenite, trace bornite, and associated malachite, goethite and limonites.

The first meter of depth showed highly broken and weathered silicified rock. Much kaolinite, laumontite and limonites were along fracture walls. Mineralization was minor and consisted of disseminated pyrite (> 1%) and trace pyrite and chalcopyrite along fracture faces. Two samples (T1-15, T1-16) were taken strictly of the top meter and three samples (T1-10, T1-12, T1-14) were taken of the top 2 meters.

The second meter of depth showed most of the primary alteration and sulphides still intact, although the rock was still noticeably leached. Alteration consisted of chlorite-sericite-clay along small shears and along fractures; a moderate amount of pervasive clay-sericite alteration; and pervasive silicification. Disseminated pyrite (1-2 %) is associated with the pervasive silicification. Quartz veinlets (avg. 1 cm wide, max. 2 cm wide) were observed only in broken muck. They appear somewhat chalcedonic and have 1-2 cm epidote alteration envelopes. Epidote was also moderately disseminated in the granodiorite. The quartz veinlets often carried blebby CPY, occasional PY and trace MoS_2 along the selvages. Bornite was seen very rarely associated with the selvage CPY. CPY was also noted (in places) along dry fractures with PY. There are two main fracture directions; 166°-170°/vertical to steep dip west; and 026° at the north end of the trench curving to 060° at the south and dipping vertically to 75° to the SE. Several gouge (chlorite-clay-sericite) filled shears (?) were noted going 074°/60° SW; 060°/75° SE and 020°/16° SE. Two samples (T1-11, T1-13) were taken of strictly the second meter of the trench with samples T1-10, T1-12, T1-14 being from the top 2 meters.

The third meter of depth showed the same geology and alteration and mineralization as the 2nd meter but to a less intense degree. The pervasive silica-pyrite alteration was just as strong except near the south wall where the granodiorite is hardly altered at all. More MoS_2 was seen in the lower meter than above (very minor however) and was seen entirely along dry fractures. The degree of surface weathering was lower of course, but general leaching due to the presence of the water table was quite evident. Five samples (T1-5, T1-6, T1-7, T1-8, T1-9) were taken strictly of the lower meter. Also, four samples (T1-1, T1-2, T1-3, T1-4) were taken horizontally along the floor, at water line, to try to get the deepest part of the trench sampled.

2nd Trench (T-2)

As mentioned before, this site was not a true trench, but was about 1 meter of fractured weathered overhang blasted off the outcrop, thereby exposing a 3m X 2m area for sampling. The bedrock is a grey-green granodiorite (as in T-1) only is more silica altered than in T-1. The rock contains > 1-2% disseminated ≲ 1mm blebs of pyrite. The bedrock exposed is not very fresh, showing very limonitic weathering of pyrite (?) generally along fractures and some clay along fractures. The rock was well fractured at 172°/85°W; 142°/66°NE; 160°/38°SW. Mineralization was rare and consisted of very rare CPY as ≤ 2 mm disseminated blebs and to an equal degree, parallel to the 172° (dry) fractures. Molybdenite was seen in only one speciman and was also along the dry 172° fractures. Sample T2-1 was taken over the west half of the trench floor, and T2-2 along the east half.

3rd Trench (T-3)

This trench was located right over top of the old narrow exhisting trench, about 3 meters NW of W82-54R. We blasted it to produce a trench 3.5 meters long, 1.5 meters wide and just over a meter deep. Bedrock was fairly weathered and consisted of grey-green silicified granodiorite with about 1% blebby and cubic < 1mm disseminated pyrite. The rock was well fractured at 172°/70°E and 030°/70°NW as well as a horizontal set that was virtually unmeasurable. Parallel to fractures were kaolinite and goethite to a minor degree and a fair amount of lomonites (rust) with minor pyrite. No Cu or Mo mineralization was seen. One 10 cm^3 chunk of chalcedonic quartz containing 1% blebby and cubic pyrite was found in blasted muck. Three samples were taken, all along the floor of the trench (T3-1, T3-2,T3-3).

SAMPLE RESULTS

Sample	Width (cm)
T1-1	130
2	220
3	190
4	140
5	100
6	100
7	100
8	100
9	100
10	150
11	100
12	200
13	100
14	130
15	90
16	90
T2-1	160
2	180
T3-1	160
2	150
3	260

THE FIN PROPERTY

1982 Trenches - Assay Results

Trench 1 - Kennco Drill Hole

Sample #	Cu %	Mo %	Ag oz/t	Au oz/t
82-T1-1	0.11	0.008	0.14	< 0.003
2	0.06	0.005	0.06	< 0.003
3	0.06	0.020	0.14	< 0.003
4	0.07	0.036	0.18	< 0.003
5	0.04	0.006	0.08	0.003
6	0.03	0.005	0.10	< 0.003
7	0.15	0.006	0.18	0.003
8	0.07	0.005	0.20	< 0.003
9	0.03	0.006	0.08	< 0.003
10	0.05	0.009	0.12	< 0.003
11	0.04	0.003	0.10	0.003
12	0.03	0.017	0.12	< 0.003
13	0.04	0.008	0.14	< 0.003
14	0.02	0.003	0.08	< 0.003
15	0.03	0.004	0.12	< 0.003
16	0.03	0.005	0.12	< 0.003

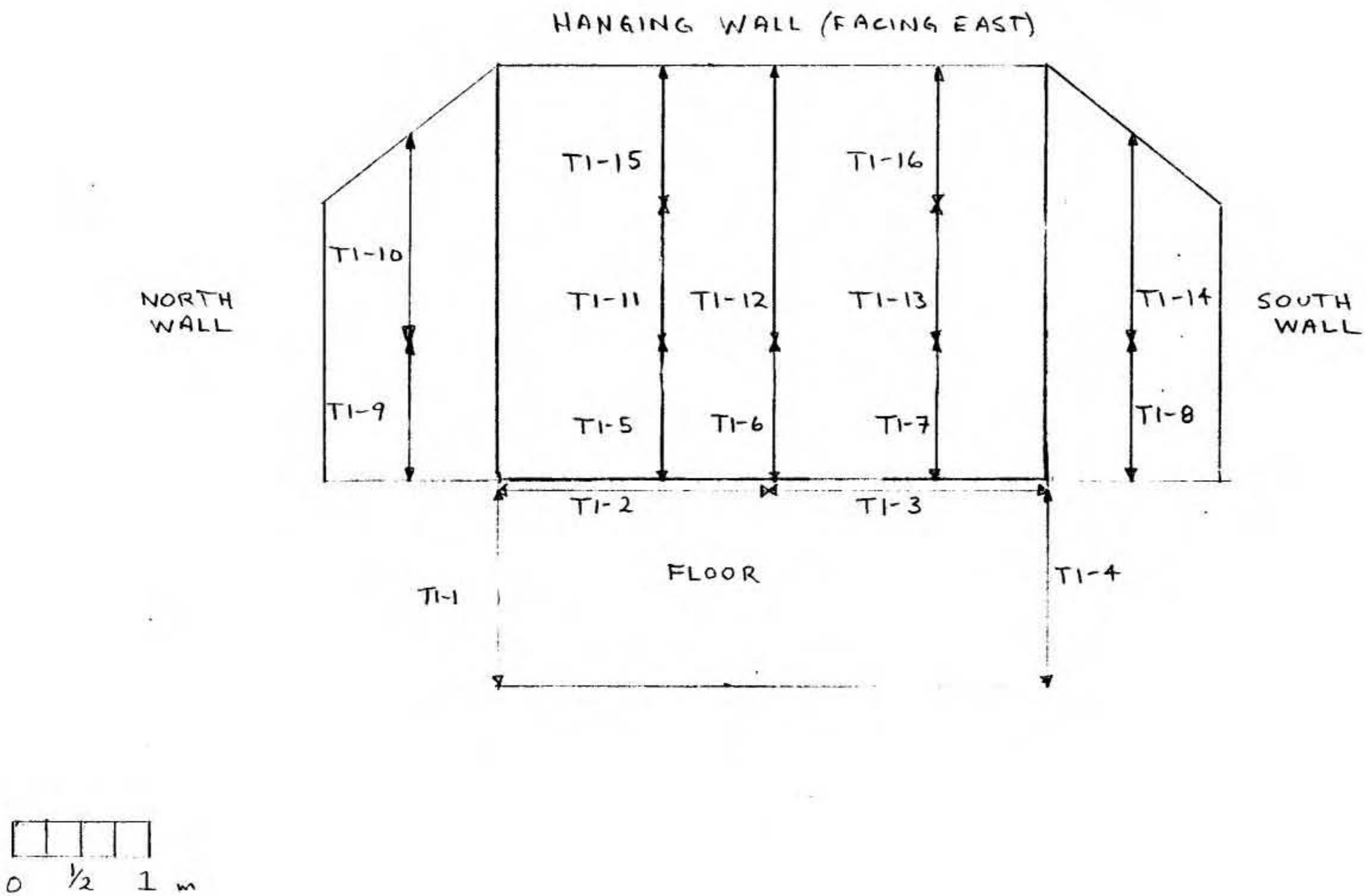
Trench 2 - Sample Site W-82-54, previous trenchsite

Sample #	Cu %	Mo %	Ag oz/t	Au oz/t
82-T2-1	0.04	0.005	0.04	< 0.003

Trench 3 - Sample Site W-82-209

Sample #	Cu %	Mo %	Ag oz/t	Au oz/t
82-T3-1	0.03	0.010	0.05	0.003
2	0.01	0.002	0.08	< 0.003
3	0.01	0.001	0.02	< 0.003

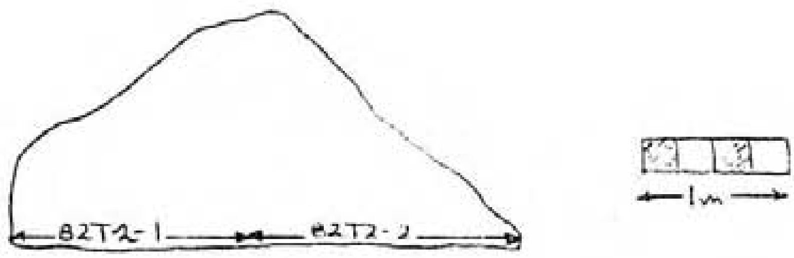
MAIN TRENCH - FIN



SECOND TRENCH - FIN

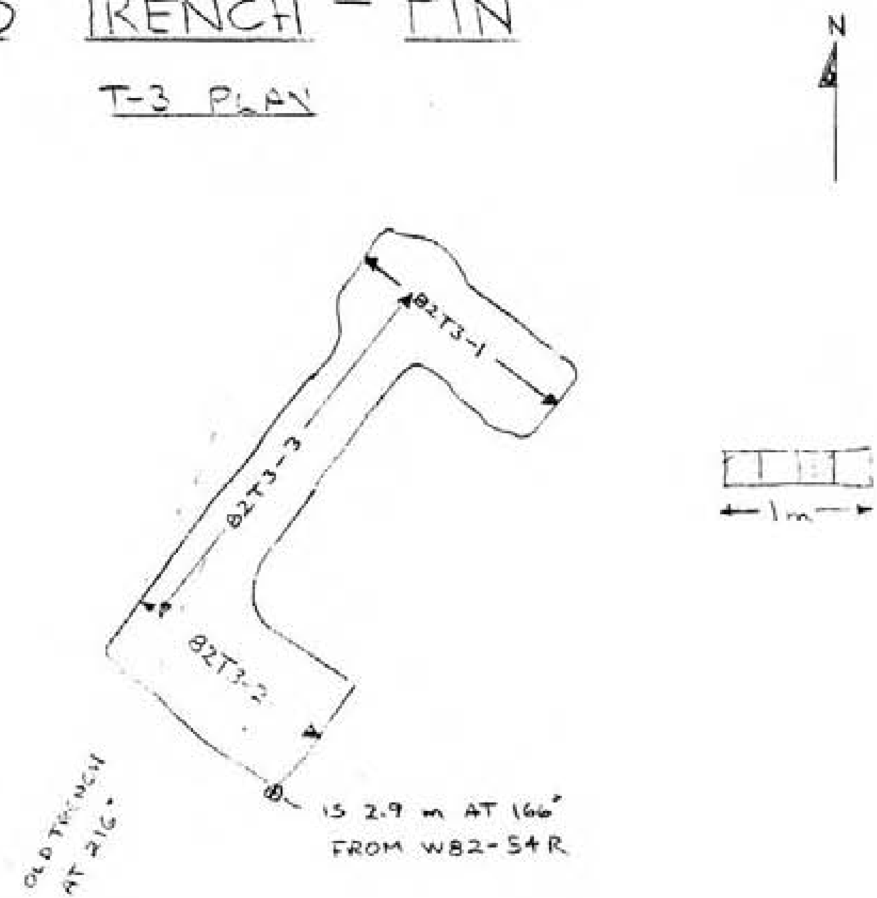
(LOOKING 008°)

T-2 SECTION



THIRD TRENCH - FIN

T-3 PLAN



APPENDIX II

PETROGRAPHIC REPORTS

J. R. WOODCOCK CONSULTANTS LTD.

PETROGRAPHIC REPORT

Spec. No. G82-321 Classification Porphyritic Andesite Date

MEGASCOPIC DESCRIPTION: Porphyry with aphanitic greenish matrix and white plagioclase phenocrysts. Stained section shows some K-feldspar replacement of plagioclase phenocrysts, but more in matrix; also large patches of epidote.

MICROSCOPIC DESCRIPTION:

Texture: Matrix is composed of plagioclase in laths and equidimensional. Crystals up to 0.2 ml. long - possibly a fine-grained phaneritic to aphanitic matrix.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz	< 1%	2?	
K-feldspar	3		
Plagioclase	15	55	
Biotite			
Amphibole	- 2		Replaced by chlorite etc.
Pyroxene			
Epidote	23		5% in plagioclase. 18% in patches
Pyrite		< 1%	

Accessory Minerals: Apatite < 1%

Opaque Minerals:

Alteration and Mineralization:

Oxidation:

Remarks: Suspect it is a dyke rock.

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PETROGRAPHIC REPORT

Spec. No. W82-142 Classification Hornfelsed micro-diorite volcanic Date

MEGASCOPIC DESCRIPTION: This was mapped as a volcanic in field with a somewhat coarser matrix than normal. The stained section shows a microdiorite with scattered plagioclase phenocrysts and with one hairline veinlet of K-feldspar

MICROSCOPIC DESCRIPTION:

Texture: There are two generations of plagioclase phenocrysts - a few large scattered ones up to 2 m long and the matrix ones 0.1 to 0.3 mm long. In addition there is a minor amount of fine interstitial feldspar.

Essential Minerals and Habits:

	(5%) Phenocrysts	(70%) Matrix	(25%) Interstitial	Remarks
Quartz	0	2	3	
K-feldspar	1	15	8	
Plagioclase	4	40	8	
Biotite		8	7	
Amphibole				
Pyroxene				
Magnetite		5		

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: Minor K-feldspar alteration in plagioclase phenocrysts. The matrix plagioclases have bright alteration rims (probably also plagioclase) which contrast sharply with the rest of the plagioclase with its heavy clay dusting and minor sericite. There seems to be minor K-feldspar alteration of some plagioclase crystals. The mafics of the matrix are replaced by chlorite and secondary biotite.

Oxidation:

Remarks: The secondary biotite in mafics and as zones could be hornfelsing of intruded volcanic.

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PETROGRAPHIC REPORT

Spec. No. W 82-197 Classification Hornfelsed Crystal Tuff Date Sept. 10/82

MEGASCOPIC DESCRIPTION: This was mapped in field as a volcanic. The stained section shows one K-feldspar phenocryst and minor K-feldspar in matrix in two ends of slab. It also reveals the abundant quartz crystals.

MICROSCOPIC DESCRIPTION:

Texture: A highly sheared porphyry with aphanitic matrix could also likely be a crystal tuff. Matrix content varies from 10% to 50%.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz			
K-feldspar			
Plagioclase			
Biotite			
Amphibole			
Pyroxene			

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: The plagioclase phenocrysts and the matrix are moderately altered to clay and sericite. Patches of secondary biotite could be due to hornfels -- some replaces mafic minerals, but some is in matrix.

Oxidation:

Remarks: Quartz grains and some plagioclase grains are rounded, also some of quartz grains have resorbed embayments. Many quartz and plagioclase grains are fragments of crystals, could also be some lithic fragments.

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PETROGRAPHIC REPORT

Spec. No. W82-168 Classification Hornfelsed Crystal Tuff Date Sept. 13/82

MEGASCOPIC DESCRIPTION: Mapped as altered volcanic and called altered granodiorite in hand specimens. Stained section shows one large fragment, no K-feldspar and a matrix of quartz and plagioclase which could have a crude micrographic texture.

MICROSCOPIC DESCRIPTION:

Texture: Thin section shows phaneritic mixture of crystals with only small areas of aphanitic grain size.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz			
K-feldspar			
Plagioclase			
Biotite			
Amphibole			
Pyroxene			

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: Secondary biotite in networks and concentrations much of plagioclase has only clay dusting; but elliptical concentrations of sericite occur.

Oxidation:

Remarks: This looks like a jumbled concentration of quartz and plagioclase fragments which have been recrystallized.

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PETROGRAPHIC REPORT

Spec. No. W82-198 Classification Andesite Porphyry Date Sept. 13/82

MEGASCOPIC DESCRIPTION: This was mapped as a pyritic volcanic. The stained slab is somewhat similar to W197, but with more K-feldspar crystals, less quartz crystals. Aphanitic matrix.

MICROSCOPIC DESCRIPTION:

Texture: A porphyry with aphanitic matrix; a few coarser patches could be lithic fragments.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz	2		
K-feldspar	15	4	
Plagioclase	45	30	
Biotite			
Amphibole			
Pyroxene			
Muscovite	1		
Pyrite	2		

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: Quartz phenocrysts are highly resorbed. Muscovite phenocrysts altered to some clay and some clay and some leucoxine. There is no evidence that these were originally biotite. The centers of some plagioclase crystals are altered to epidote and in places, remainder or rims have been replaced by K-feldspar. Sericite and kaolinite are abundant in the matrix and also in some of the plagioclase phenocrysts.

Oxidation:

Remarks: Small epidote concentrations could be replaced plagioclase or mafic minerals.

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PETROGRAPHIC REPORT

Spec. No. W82-167 Classification Altered Porphyritic Rock Date

MEGASCOPIC DESCRIPTION: Suggested altered granodiorite in hand specimen and altered volcanic in field. Stained section shows abundant disseminated pyrite, some plagioclase phenocrysts and silicious matrix with minor K-feldspar.

MICROSCOPIC DESCRIPTION:

Texture: Mainly a mosaic of interlocking quartz crystals with disseminated flakes sericite and with concentrations of sericite indicating altered plagioclase phenocrysts. .

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz			
K-feldspar			
Plagioclase			
Biotite			
Amphibole			
Pyroxene			

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: Mafics altered to muscovite, etc. Intense quartz sericite alteration.

Oxidation: Limonite along fractures.

Remarks:

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PETROGRAPHIC REPORT

Spec. No. W82-56 Classification Porphyritic Latite Date

MEGASCOPIC DESCRIPTION: A porphyry, somewhat blurred, but with white plagioclase phenocrysts. Stained section shows abundant K-feldspar in matrix and some along veinlets. Light greenish-grey color.

MICROSCOPIC DESCRIPTION:

Texture:

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz	1/2		
K-feldspar	3	45	
Plagioclase	45%		
Biotite	1/2		
Amphibole			
Pyroxene			

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: Some mafic crystals altered to chlorite and muscovite to epidote. Other small concentrations of epidote may be altered plagioclase phenocrysts. Stained section shows only minor K-feldspar in one part of matrix and only few plagioclase phenocrysts partly replaced by K-feldspar. Plagioclase phenocrysts moderately altered to clay and some sericite.

Oxidation:

Remarks: Rock has a uniform texture compared to volcanics of W 197 and W198. But it does have the sparse scattered quartz crystals.

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PETROGRAPHIC REPORT

Spec. No. W82-112 Classification Porphyritic Latite Date

MEGASCOPIC DESCRIPTION: This is the white hard or silicious (?) rock which occurs beside red dyke. Staining reveals the plagioclase phenocrysts in the matrix that has high K-feldspar. Abundant disseminated pyrite is associated with phenocrysts of altered mafics.

MICROSCOPIC DESCRIPTION:

Texture: Porphyry with aphanitic matrix. Some discontinuous quartz veinlets, but no quartz in rock.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz	0		
K-feldspar		(2/3) 50	A guess from color of stain
Plagioclase	20	20?	A guess because of sericite
Biotite			
Amphibole	1		Altered to chlorite and epidote
Pyroxene			
Epidote	6		In patches (altered mafic?) and vein

Accessory Minerals: Py 2%

Opaque Minerals:

Alteration and Mineralization: Plagioclase phenocrysts moderately altered to sericite also sericite in matrix; parts of matrix altered to sericite -- this may be plagioclase.

Oxidation:

Remarks: The stained section does resemble that of W82-56.

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PETROGRAPHIC REPORT

Spec. No. W82-74 Classification Hornblende Granodiorite Date Sept. 8/82

MEGASCOPIC DESCRIPTION: Equigranular granitoid rock, slightly darker than the high quartz granodiorite (L 119, L77) and lacking the large quartz clusters.

MICROSCOPIC DESCRIPTION:

Texture: The quartz and K-feldspar are interstitial with crystal size about .15 compared to the plagioclase crystals with crystal size about .5 mm.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Interstitial	Remarks
Quartz			21	
K-feldspar			17	
Plagioclase	50			
Biotite				
Amphibole	10			
Pyroxene				
Magnetite			2	

Accessory Minerals:

Opaque Minerals: Magnetite

Alteration and Mineralization: Hornblende highly altered to chlorite, epidote, magnetite; plagioclase slight to moderate alteration to sericite.

Oxidation:

Remarks:

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PETROGRAPHIC REPORT

Spec. No. W82-79 Classification Hornblende Granodiotite Date Sept. 9/82

MEGASCOPIC DESCRIPTION: Same as W82-72

MICROSCOPIC DESCRIPTION:

Texture: The plagioclase crystals are slightly smaller in W74 and the interstitial K-feldspar and quartz are coarser.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Interstitial	Remarks
Quartz			2	
K-feldspar			18	
Plagioclase	50			
Biotite				
Amphibole	7			
Pyroxene				
Magnetite			2	

Accessory Minerals: Sphene with hornblende.

Opaque Minerals:

Alteration and Mineralization: The mafics show good hornblende outlines; but are altered to chlorite, carbonate, and leucoxine; plagioclase moderately altered to sericite; minor epidote in places.

Oxidation:

Remarks:

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PETROGRAPHIC REPORT

Spec. No. W82-80 Classification Hornblende ? Granodiorite Date Sept. 9/82

MEGASCOPIC DESCRIPTION: This resembles W82-74 except that there is more altered mafics.

MICROSCOPIC DESCRIPTION:

Texture: This is more equi-granular than W74, with coarser quartz and K-feldspar. In places clusters of quartz occurs but in irregular areas with interuptions by K-feldspar vs. the rounded clusters of the biotite granodiorite.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz	20		
K-feldspar	17		
Plagioclase	45		An 32
Biotite			
Amphibole ?	8		Altered to chlorite and epidote
Pyroxene			
Epidote patches	10		

Accessory Minerals: Apatite, sphene

Opaque Minerals: Magnetite with epidote

Alteration and Mineralization: Some plagioclase is altered to scattered sericite flakes and clay; but abundant epidote is scattered throughout plagioclase in places; epidote and chlorite has altered all the mafics; also large patches of coarse grained epidote occur.

Oxidation:

Remarks:

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PETROGRAPHIC REPORT

Spec. No. W82-101 Classification Altered hornblende Granodiorite Date Sept. 9/82

MEGASCOPIC DESCRIPTION: Similar to W82-74 but has K-feldspar and more large concentrations of epidote.

MICROSCOPIC DESCRIPTION:

Texture: Some of K-feldspar is interstitial and optically continuous over large areas -- almost poikolitic in places.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz			
K-feldspar	15		
Plagioclase			
Biotite			
Amphibole			altered
Pyroxene			

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: The amphibole ? is altered to actinolite chlorite and some epidote.

Plagioclase has clay clouding and some sericite.

Oxidation:

Remarks:

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PETROGRAPHIC REPORT

Spec. No. G82-306 Classification Altered hornblende Granodiorite Date Sept. 9/82

MEGASCOPIC DESCRIPTION: The stained section shows about 1/2 K-feldspar compared to W82-79 and also finer different outlines to quartz.

MICROSCOPIC DESCRIPTION:

Texture: Similar to other hornblende granodiorite except for quartz (see remarks)

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz	20		
K-feldspar	8		
Plagioclase	54		
Biotite			
Amphibole	8		
Pyroxene			
Epidote patches	8		
Pyrtie	2		

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: The plagioclase has moderate alterations to sericite and clay.

Mafics are altered to epidote, chlorite, leucoxine; but one outline is amphibole.

Oxidation:

Remarks: The quartz interstitial to the feldspar crystals is optically continuous over large areas imparting a crude psuedo graphic texture.

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PETROGRAPHIC REPORT

Spec. No. W82-182 Classification Altered Granodiorite Date Sept. 9/82

MEGASCOPIC DESCRIPTION: Dark grey overall color and blurred crystal outlines due to alteration. Hairline watery veinlets could be quartz, some feldspar has pink colour.

MICROSCOPIC DESCRIPTION:

Texture:

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz			
K-feldspar			
Plagioclase			
Biotite			
Amphibole			
Pyroxene			

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: mafics completely altered to chlorite and actinolite; plagioclase altered to clay and very fine sericite.

Oxidation:

Remarks: I believe quartz has been introduced into discontinuous veinlets and into large areas of concentrations.

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PETROGRAPHIC REPORT

Spec. No. W82-208 Classification Quartz Monzonite Porphyry Date

MEGASCOPIC DESCRIPTION: identification indicated granodiorite. However, stained slab shows small quartz eyes and could be porphyry.

MICROSCOPIC DESCRIPTION:

Texture: Porphyry with equigranular matrix of quartz and K-feldspar.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz	7	25	
K-feldspar	10	29	
Plagioclase	20		
Biotite	7		altered to epidote and chlorite
Amphibole			
Pyroxene			
Epidote			

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: Mafics and some plagioclase altered to epidote remainder of plagioclase is dusted with clay and some sericite with more sericite near epidote veinlet. Some plagioclase replaced by K-feldspar. One gone of fine grained actinolite?

Oxidation:

Remarks: Note that only the little rounded quartz eyes readily differentiate this from granodiorite in the stained section.

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PETROGRAPHIC REPORT

Spec. No. W82-91 Classification Quartz Monzonite Porphyry Date

MEGASCOPIC DESCRIPTION: Identified as quartz-monzonite porphyry in hand specimen; stained slab showed crowded plagioclase porphyry with scattered quartz eyes and with abundant K-feldspar in matrix.

MICROSCOPIC DESCRIPTION:

Texture: Only about 20% matrix. The intergrowths mentioned for W72 occur adjacent to quartz and plagioclase phenocrysts.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz	7	?	
K-feldspar		20	
Plagioclase	60%		
Biotite			
Amphibole	8	4	
Pyroxene			

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: Quartz phenocrysts resorbed. The mafics altered to epidote and opaques and chlorite. However, most patches of coarse eipdote are replacements of plagioclase phenocrysts.

Oxidation:

Remarks: Less quartz than normal for this rock type.

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PETROGRAPHIC REPORT

Spec. No. W72 Classification Quartz Monzonite Porphyry Date Sept. 7/82

MEGASCOPIC DESCRIPTION: This was field labelled as quartz monzonite porphyry.

MICROSCOPIC DESCRIPTION:

Texture: Matric variable with most about 0.1 mm but also with twinned plagioclase up to .3 mm. Quartz and plagioclase phenocrysts up to 1.5 mm. Cut by an epidotized zone.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz	15%	10%	
K-feldspar	5 ?	20	
Plagioclase An 24	20 ?		
Biotite	} 10%		
Amphibole	}		
Pyroxene			
Intergrowth		2	Wormy intergrowth (1/4 qtz) (3/4 K-feldspar)

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: In places large plagioclase phenocrysts are altered to sericite and to K-feldspar in outer parts. Some plagioclase phenocrysts altered to myrmyekitic intergrowth? (reaction rims)

Oxidation:

Remarks: Patches in vicinity of epidote vein of epidote and chlorite were mafic minerals.

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PETROGRAPHIC REPORT

Spec. No. G82-303 Classification Altered Quartz Monzonite Porphyry Date Sept. 9/82

MEGASCOPIC DESCRIPTION: In field this was mapped as altered granodiorite with pink vein along one side. There are also some dark grey veinlets.

MICROSCOPIC DESCRIPTION:

Texture: The vein is a mixture of quartz and K-feldspar -- aplite
Rock is porphyry with plagioclase phenocrysts. Some of quartz concentrations could be altered or fractured phenocrysts.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz			
K-feldspar			
Plagioclase			
Biotite			
Amphibole			
Pyroxene			

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: The dark blotches and veinlets are concentrations of epidote, some of which replaces mafic minerals and some replaces plagioclase. The plagioclase which originally formed about 50% of rock as phenocrysts is altered to clay and scattered sericite with abundant epidote in places.

Oxidation:

Remarks: Matrix is about 1/2 quartz and 1/2 K-feldspar.

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PETROGRAPHIC REPORT

Spec. No. L119 Classification Quartz rich biotite granodiorite Date Sept. 8/82

MEGASCOPIC DESCRIPTION: A coarse grained equigranular rock with abundant quartz, especially in large clusters.
leucocratic; altered mafics

MICROSCOPIC DESCRIPTION:

Texture: A few extra large plagioclase and quartz phenocrysts are up to 2 mm long most crystals are from .5 to 1mm and interstitial is .05 to .2

Essential Minerals and Habits:

	Phenocrysts	Matrix	Interstitial	Remarks
Quartz	10		12	
K-feldspar			16	some is perthitic
Plagioclase	55%			An 30
Biotite	7			
Amphibole				
Pyroxene				

Accessory Minerals: Sphene, magnetite

Opaque Minerals:

Alteration and Mineralization: Mafic crystals altered to chlorite, epidote and leucoxine, probably originally biotite; some biotite relics. Central parts of plagioclase altered to clay and some sericite.

Oxidation:

Remarks:

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PETROGRAPHIC REPORT

Spec. No. L 77 Classification Quartz Rich Biotite Granodiorite Date

MEGASCOPIC DESCRIPTION:

MICROSCOPIC DESCRIPTION:

Texture:

Essential Minerals and Habits:

	Phenocrysts	Matrix	Interstitial	Remarks
Quartz	large 10		14	
K-feldspar			14	
Plagioclase	55			
Biotite	7			
Amphibole				
Pyroxene				

Accessory Minerals: Sphene

Opaque Minerals:

Alteration and Mineralization: Plagioclase moderately altered to sericite and clay; K-feldspar light clay dusting; biotite altered to chlorite, epidote, leucoxine, magnetite.

Oxidation:

Remarks:

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PETROGRAPHIC REPORT

Spec. No. L82-131 Classification Biotite Granodiorite Date

MEGASCOPIC DESCRIPTION: Because of its coarseness and abundance of quartz, much of which is coarse clusters, this was mapped as quartz monzonite. The stained slab reveals microfractures throughout including in the quartz crystals. Aslo shows variable K-feldspar content.

MICROSCOPIC DESCRIPTION:

Texture: Equigranular with quartz fragments up to 3 mm long. Some sheared and fractured zones have abundant epidote in vein or network.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz	25		
K-feldspar	25		
Plagioclase	44		
Biotite	6		Altered to chlorite and sphene
Amphibole			
Pyroxene			

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: Plagioclase has dusting of clay and minor sericite; the biotite is completely altered to chlorite and some patches have abundant sphene crystals.

Oxidation:

Remarks:

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PETROGRAPHIC REPORT

Spec. No. W82-90 Classification Quartz Latite Porphyry Date Sept. 7/82

MEGASCOPIC DESCRIPTION: Brick-red dike rock, aphanitic with phenocrysts of feldspar; few quartz crystals in some specimens; altered mafic phenocrysts, no epidote or pyrite visible.

MICROSCOPIC DESCRIPTION:

Texture: Sections at one end is cut by quartz vein with some carbonate. Crowded porphyry matrix in feldspar (.1 to .2 mm) with interstitial quartz (.02 to .05 mm) with quartz content varying from 15% to 35%.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz	1	12%	
K-feldspar		37	untwinned - check staining
Plagioclase An 35	38		mostly 1 to 2 mm long.
Biotite	4	tr.	
Amphibole	3	5	
Pyroxene			

Accessory Minerals:

Opaque Minerals: Clay dusting, hematite dusting in spots; pyrite.

Alteration and Mineralization: Hornblende 100% to carbonate, chlorite, minor epidote or epidote plus chlorite; plagioclase phenocrysts-clay dusting plus sericite; biotite phenocrysts - stringy product with some carbonate plus chlorite.

Oxidation:

Remarks:

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PETROGRAPHIC REPORT

Spec. No. W82-83 Classification Syenite Date Sept. 8/82

MEGASCOPIC DESCRIPTION: Brick-red phaneritic rock of feldspar with some altered mafics and with rounded inclusions of finer grained similar rock.

MICROSCOPIC DESCRIPTION:

Texture: Nearly equigranular; ; mainly plagioclase crystals with perthitic interstitial material radiating from plagioclase crystals in places, also replacing plagioclase crystals in places.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Interstitial	Remarks
Quartz			1%	
K-feldspar			4%	-blends into the variolite
Plagioclase	30%			-contains epidote crystals in places
Biotite				
Amphibole				
Pyroxene	15%			-largely replaced by chlorite and epidote
Variolite (K-feldspar)			50%	-what is this intergrowth?

Accessory Minerals: sphene trace

Opaque Minerals: Magnetite, clay dusting on plagioclase with hematite dusting in spots

Alteration and Mineralization: Mafic has mainly gone to epidote and chlorite; plagioclase crystals contain epidote and have clay dusting. Pink hematite dusting on plagoclase and on intergrowths.

Oxidation:

Remarks: The unusual intergrowth could be K-feldspar and albite?

What are intergrowth minerals?
What are mafic minerals?

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PETROGRAPHIC REPORT

Spec. No. W82-229 Classification Trachyte Porphyry Date Sept. 8/82

MEGASCOPIC DESCRIPTION: This is the pink feldspar porphyry with the finer grained rounded inclusions. Another small rounded inclusion appears to be aphanitic quartz-eye volcanic.

MICROSCOPIC DESCRIPTION:

Texture: Porphyry of large plagioclase, K-feldspar, quartz phenocrysts in a variolitic matrix.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz	5		
K-feldspar	3	10	
Plagioclase	27		An 34
Biotite			
Amphibole	8		
Pyroxene			
Variolite		50	Staining indicates K-feldspar

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: Hornblende phenocrysts altered to chlorite and epidote; plagioclase phenocrysts altered to clay and few sericite quartz phenocrysts resorbed. One large K-feldspar phenocrysts has slight clay dusting.

Oxidation:

Remarks: Stained section shows some K-feldspar in central parts of large plagioclase phenocrysts; but cannot detect this in thin section. Although staining indicates variolites are K-feldspar; this is unusual; they are generally plagioclase.

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PETROGRAPHIC REPORT

Spec. No. W82-122 Classification Trachyte Porphyry Date Sept. 8/82

MEGASCOPIC DESCRIPTION: Feldspar porphyry with white to hematite dusted feldspar and dark grey matrix; mafic phenocrysts altered. No quartz phenocrysts visible. Staining shows matrix has abundant K-feldspar and few plaguoclase phenocrysts altered around edges to K-feldspar.

MICROSCOPIC DESCRIPTION:

Texture: Porphyry with about 50% phenocrysts; matrix has no quartz, seems to be one type of feldspar with crystal size .01 to .02 mm. Plagioclase phenocrysts 5 mm long.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz	0		
K-feldspar	2	18	
Plagioclase	20		
Biotite	13		
Amphibole	-		
Pyroxene			
Apatite	tr.		
~~Variolite~~(K-feldspar)		47	Possibly includes some fine inter-growth.

Accessory Minerals: Sphene, magnetite

Opaque Minerals:

Alteration and Mineralization: The outer parts of large plagioclase phenocrysts and al smaller plagioclase phenocrysts are altered to sericite and clay. Mafics are altered to epidote and chlorite. The pink dusting is mostly in matrix.

Oxidation:

Remarks: Matrix consists of interlocking blurred crystals of K-feldspar and also a patchwork in which patches of optically continuous K-feldspar have somewhat radiating texture (variolitic texture). Patches are in range of .3 to .5 mm across.

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PETROGRAPHIC REPORT

Spec. No. G322 Classification Trachyte Porphyry Date

MEGASCOPIC DESCRIPTION: This is also the pink feldspar porphyry; but with more abundant quartz phenocrysts than normal.

MICROSCOPIC DESCRIPTION:

Texture: Porphyry with aphanitic equigranular matrix. Crude variolite only occur as radiating overgrowths on some of plagioclase phenocrysts.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz	4	3	
K-feldspar		32	
Plagioclase	38		
Biotite			
Amphibole	10		Altered
Pyroxene			
Variolites		12	(probably K-feldspar)

Accessory Minerals:

Opaque Minerals: Magnetite 1%

Alteration and Mineralization: Hornblende -- chlorite and epidote. Plagioclase has clay dusting and fine sericite.

Oxidation:

Remarks: Note quartz phenocrysts only occur in one end of section; this unequal distribution is characteristic of this rock.

J. R. WOODCOCK CONSULTANTS LTD.

PETROGRAPHIC REPORT

Spec. No. G-82-422 **Classification** Trachyte Porphyry **Date** November 29, 1982

MEGASCOPIC DESCRIPTION: Porphyry with grey matrix and white feldspar phenocrysts plus altered mafic phenocrysts

MICROSCOPIC DESCRIPTION:

Texture:

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz	tr		
K-feldspar		48	could replace outer parts of plagioclase phenocrysts
Plagioclase	40		
Biotite			
Amphibole) ?	12		completely altered to epidote and chlorite + magnetite
Pyroxene)			

Accessory Minerals: trace sphene
trace apatite

Opaque Minerals:

Alteration and Mineralization:
Plagioclase phenocrysts altered to sericite and clay, especially around outer parts

Mafic minerals completely altered to epidote and chlorite + opaques

Oxidation:

Remarks:

J. R. WOODCOCK CONSULTANTS LTD.

PETROGRAPHIC REPORT

Spec. No. W82-166 Classification Quartz-eye Trachyte Porphyry Date

MEGASCOPIC DESCRIPTION: Because of its pink feldspar phenocrysts, this was mapped in field as QFp and subsequently called GD. The polished stained slab shows porphyry with plagioclase phenocrysts, quatz phenocrysts, quartz veinlets.

MICROSCOPIC DESCRIPTION:

Texture: Matrix of finer grained variolites than W122

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz	8		
K-feldspar	5	50 (variolites)	
Plagioclase	25		
Biotite			
Amphibole	20		
Pyroxene			

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: The mafic minerals completely altered to epidote and chlorite - some outlines indicate hornblende; K-feldspar has replaced centers of some plagioclase phenocrysts.

Oxidation:

Remarks:

J. R. WOODCOCK CONSULTANTS LTD.

PETROGRAPHIC REPORT

#2

Spec. No. 82-C-24 Classification Trachyte Porphyry Date November 29, 1982

MEGASCOPIC DESCRIPTION: grey aphanitic rock with about 40% sharp white plagioclase phenocrysts; about 15% altered mafic phenocrysts, a few euhedral quartz phenocrysts and a matrix that is mainly K-feldspar (yellow stain)

MICROSCOPIC DESCRIPTION:

Texture: Porphyry with large plagioclase phenocrysts
Matrix mainly K-feldspar (staining) of three distinct textures

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz			
K-feldspar		50	
Plagioclase	36		
Biotite			
Amphibole	8		completely altered to epidote and
Pyroxene			chlorite
chlorite		4	

Accessory Minerals:
Plagioclase has kaolinite alteration

Opaque Minerals:

Alteration and Mineralization:
Plagioclase has kaolinite alteration
Mafic minerals completely altered to epidote and chlorite

Oxidation:

Remarks: Part of matrix composed of the vague orthoclase, with vague variolitic texture; part of matrix is mosaic of coarse K-feldspar and part is finer grained mixture of K-feldspar, chlorite and some plagioclase.

J. R. WOODCOCK CONSULTANTS LTD.

PETROGRAPHIC REPORT

Spec. No. L 126 Classification Dolerite Porphyry Date Sept. 8/82

MEGASCOPIC DESCRIPTION: This is the field labelled "brown porphyry" with brick-red matrix and good plagioclase laths as phenocrysts. Staining shows that much of matrix is K-feldspar.

MICROSCOPIC DESCRIPTION:

Texture: The matrix is a criss-cross of plagioclase and K-feldspar laths with some darker interstitial material. Laths are about 0.3 mm long.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz	0	3	
K-feldspar	0	17	
Plagioclase	45%	21	
Biotite			
Amphibole			
Pyroxene	2		clinopyroxene
Magnetite & Opaques		4	mainly in minute crystals
Chlorite and Epidote		8	probably from amphibole or pyroxene

Accessory Minerals: trace apatite, also apatite needles.

Opaque Minerals:

Alteration and Mineralization: Mafic phenocrysts altered to epidote, chlorite and carbonate. According to John Payne, matrix mafics are completely altered to chlorite - biotite a mineral with optical properties of chlorite, but color and birefringence closer to that of biotite.

Oxidation:

Remarks:

Is alteration of plagioclase phenocrysts - actinolite?

What are needle-like crystals in and near matrix?

J. R. WOODCOCK CONSULTANTS LTD.

PETROGRAPHIC REPORT

Spec. No. W82-104 Classification Fine-grained Porphyritic ~~Dolerite~~ Date Sept. 8/82

MEGASCOPIC DESCRIPTION: This is the dark basic dyke with white plagioclase phenocrysts and some dark rounded altered phenocrysts. Staining shows some K-feldspar in matrix.

MICROSCOPIC DESCRIPTION:

Texture: Plagioclase and pyroxene phenocrysts occur as interlocking clusters; most phenocrysts up to .5 mm long; matrix laths of plagioclase grade from .03 up to small phenocrysts.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz			
K-feldspar		14	
Plagioclase	10	40	An 31 on phenocrysts
Biotite			
Amphibole			
Pyroxene	10	18	Clinopyroxene

Accessory Minerals: Magnetite

Opaque Minerals:

Alteration and Mineralization: Mafic altered to chlorite -- (biotite) as identified by John Payne -- see notes one L 126
Negligible alteration to plagioclase.

Oxidation:

Remarks:

J. R. WOODCOCK CONSULTANTS LTD.

PETROGRAPHIC REPORT

Spec. No. L132 Classification Porphyritic Dolerite Date

MEGASCOPIC DESCRIPTION: This dark green plagioclase porphyry is very similar to W104, but with finer-grained matrix. It is porphyritic with white plagioclase laths and some dark mafics. These can occur together in clusters; some red hematite dusting with some clusters. Staining shows K-feldspar in small veinlet and also concentrated as halo around some dark specks.

MICROSCOPIC DESCRIPTION:

Texture: Porphyritic with plagioclase laths forming most of matrix; the K-feldspar carbonate are interstitial. Plagioclase laths of matrix up to .15 mm long.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz	0	0	
K-feldspar		18	
Plagioclase	8	46	
Biotite			
Amphibole (			
Pyroxene (	4	18	largely altered to carbonate
Magnetite (		6	

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: Mafic altered to carbonate and actinolite; some sericite alteration on plagioclase phenocrysts.

Oxidation:

Remarks:

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PETROGRAPHIC REPORT

Spec. No. W82-109 Classification Fine-grained Dolerite Date Sept. 8/82

MEGASCOPIC DESCRIPTION: This is another dark green dyke similar to W104 but without plagioclase phenocrysts. The altered mafic phenocrysts have some concentrations of K-feldspar of matrix; also some K-feldspar in hairline veinlet.

MICROSCOPIC DESCRIPTION:

Texture: Few plagioclase clusters are large enough to be phenocrysts.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz		0	
K-feldspar		15	
Plagioclase	1	60	
Biotite			
Amphibole / Pyroxene	2	20	

Accessory Minerals: Minor pyrite, no magnetite

Opaque Minerals:

Alteration and Mineralization: Mafic phenocrysts altered to chlorite and epidote; suspect the abundant small birefringent mineral in matrix is altered pyroxene or hornblende.

Oxidation:

Remarks:

J. R. WOODCOCK CONSULTANTS LTD.

PETROGRAPHIC REPORT

Spec. No. G82-323 Classification Magnetic Quartz Monzonite Porphyry Date Sept. 13/82

MEGASCOPIC DESCRIPTION: This is the highly magnetic feldspar porphyry. The stained slab shows plagioclase phenocrysts form about 40%. Also black spots which may be magnetite K-feldspar form about 40% of matrix.

MICROSCOPIC DESCRIPTION:

Texture: Some intergrowth textures in matrix but not well developed as in W72.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz	2	25	Could be extra coarse matrix
K-feldspar		22	
Plagioclase	30	8	
Biotite	9		Altered to chlorite and epidote
Amphibole			
Pyroxene			
Magnetite	3		
Epidote Patches	3		Unknown origin

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: Mafic mineral altered to chlorite, epidote, opaques.

Oxidation:

Remarks:

J. R. WOODCOCK CONSULTANTS LTD.

PETROGRAPHIC REPORT

Spec. No. G82-461 **Classification** Coarse Magnetic Quartz Monzonite Porphyry **Date** Nov. 29/82

MEGASCOPIC DESCRIPTION: Contact between grey volcanic and a pinkish porphyry--probably trachyte

large patches of porphyry are replaced by epidote

MICROSCOPIC DESCRIPTION:

Texture: The porphyry has myrmekitic intergrowths out from plagioclase phenocrysts

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz	nil	X	in interstitial crystals and in myrmekite
K-feldspar			
Plagioclase			
Biotite			
Amphibole			
Pyroxene			

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization:

Oxidation:

Remarks: The volcanic was originally a mixture of plagioclase and mafic (hornblende and biotite) crystals. Now most of mafics altered to chlorite.

J. R. WOODCOCK CONSULTANTS LTD.

PETROGRAPHIC REPORT

Spec. No. W82-228 Classification Rhyolite Porphyry Date Sept. 7/82

MEGASCOPIC DESCRIPTION: White rock with abundant quartz eyes and some white feldspar phenocrysts.

MICROSCOPIC DESCRIPTION:

Texture: Porphyry in which matrix is blurred mixtures of quartz and K-feldspar or as graphic intergrowth (about 40% quartz). Matriz grain size .1 to .3 mm.

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz	13	24	
K-feldspar	12	35	
Plagioclase	15		
Biotite	1		
Amphibole			
Pyroxene			

Accessory Minerals:

Opaque Minerals: Leucoxine on altered mica phenocrysts.

Alteration and Mineralization: Coarse sericite flakes scattered through matrix and in places in plagioclase phenocrysts; minor mafic crystals altered to muscovite

Oxidation: limonite along fractures.

Remarks:

J. R. WOODCOCK CONSULTANTS LTD.

PETROGRAPHIC REPORT

Spec. No. W82-196 Classification Quartz Monzonite Erratic Date

MEGASCOPIC DESCRIPTION: This grey coarse grained granitoid rock is also from a magnetic erratic. Comparison will be made to L287. W82-196 is coarser with clearer crystals. Staining shows K-feldspar content slightly higher.

MICROSCOPIC DESCRIPTION:

Texture:

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz			finer grained than in L287, interstitial
K-feldspar			
Plagioclase			
Biotite	trace		green to yellow hornblende
Amphibole			
Pyroxene			

Accessory Minerals:

Opaque Minerals:

Alteration and Mineralization: Plagioclase is altered to clay and some sericite. The small amount of biotite is altered to chlorite.

Oxidation:

Remarks:

J. R. WOODCOCK CONSULTANTS LTD.

PETROGRAPHIC REPORT

Spec. No. L82-187 Classification Quartz Monzonite Erratic Date Sept. 10/82

MEGASCOPIC DESCRIPTION: This is the magnetic erratics that occur on the lateral morraines. They are coarse grained equigranular granitoid rock. The staining reveals unequal distribution of K-feldspar.

MICROSCOPIC DESCRIPTION:

Texture:

Essential Minerals and Habits:

	Phenocrysts	Matrix	Remarks
Quartz	13		
K-feldspar	29		As 40
Plagioclase	35		
Biotite	7		
Amphibole	13		Green to yellowish hornblende
Pyroxene			

Accessory Minerals: 2% magnetite, large sphene, few small epidote

Opaque Minerals:

Alteration and Mineralization: Epidote in hornblende and chlorite in some of biotite and some hornblende. Some sericite in plagioclase in places.

Oxidation:

Remarks: A second section of L287 shows large poikilitic crystals of K-feldspar in one end of section; definitely > 1/3 K-feldspar.

APPENDIX III

SUMMARY OF COSTS

December 1982.

FIN PROPERTY

STATEMENT OF COSTS

The 1982 field programme for the Fin property was carried out in three phases. Phase one was conducted from August 7 to 15, 1982 by J.R. Woodcock and D. Gorc of J.R. Woodcock Consultants Ltd. as a geological and alteration mapping survey. Two field assistants were also employed and, during the final three days, B.H. Whiting and G.H.T. Lohman of Brinco Mining Limited participated in the mapping.

Phase two was a continuation of the mapping and sampling with D. Gorc accompanied by I. Lyn and I. Coster of Brinco. This took place from October 4 to 15, 1982.

Phase three was a trenching and sampling programme conducted by I. Coster with a two-man blasting team from McCrory Holdings Ltd. This was carried out from October 25 to November 1, 1982.

Office petrographic studies and report compilation were conducted by J.R. Woodcock Consultants following each phase. Executive Supervision was provided by R.S. Hewton and A.A. Burgoyne of Brinco.

A. GEOLOGICAL CONSULTING COSTS

Field --	$ 22,718.75
Office ---	12,688.00

This category includes all costs charged by J.R. Woodcock Consultants Ltd., including field salaries (56 man-days), assay and analyses (156 samples), camp, fuel, helicopter and related expenses for mobilizing and demobilizing, petrographic studies and report preparation.

Total A	$ 35,406.75

B. SALARIES AND WAGES (BRINCO)

I. Coster (field - 19 days; field prep and report writing - 8 days) 27 days @ $100.00/day	$ 2,700.00
I. Lyn (field - 12 days; field prep and assisting with reports - 5 days) 17 days @ $120.00/day	2,040.00
G.H.T. Lohman (field - 3 days, assisting demobilization - 1 day) 4 days @ $100.00/day	400.00

B. SALARIES AND WAGES (BRINCO) (Cont'd.)

B.H. Whiting (field - 3 days, assisting demobilization - 1 day) 4 days @ $120.00/day	$ 480.00
Executive Supervision provided by:	
R.S. Hewton - 3 days @ $180.00/day	540.00
A.A. Burgoyne - 3 days @ $200.00/day	600.00
Total B	$ 6,760.00

C. SITE WORK

Trenching and blasting was conducted by a two-man team provided under contract by McCrory Holdings Ltd. of Whitehorse, Y.T.

Contract trenching and blasting	$ 9,871.86
Total C	$ 9,871.86

D. ANALYSES (BRINCO)

Rock Chip Samples

- 21 samples from the trenching programme assayed for Cu, Mo, Ag and Au @ $30.00/sample	$ 630.00
Total D	$ 630.00

E. TRANSPORTATION

Fixed Wing Aircraft (Smithers to the Sturdee Air Strip for mobilization and demobilization)	$ 1,386.72
Helicopter 8.5 hours @ $450.00/hour	3,825.00
Vehicle - 6 days 4x4 plus fuel @ $40.00/day	240.00
Total E	$ 5,451.72

F. FIXED EXPENSES (BRINCO)

Expediting	$ 157.40
Field Equipment and Supplies	258.05
Camp-Food, Fuel and Exp.	1,484.83
Total F	$ 1,900.28

G. TRAVEL AND ACCOMMODATION

Travel Vancouver to Smithers and return plus accommodation and related expenses during staging of the exploration phases and property visits. One trip for A.A. Burgoyne, R.S. Hewton, B.H. Whiting, G.H.T. Lohman and I.A. Lyn. 2 trips for I. Coster.

7 trips @ $320.00/trip	$ 2,240.00
Total G	$ 2,240.00

SUMMARY OF EXPENSES
(Applied as assessment work)

A Geological Consulting Costs	$35,406.75
B Salaries and Wages	6,760.00
C Site Work - Trenching	9,871.86
D Analyses	630.00
E Transportation	5,451.72
F Field Expenses	1,900.28
G Travel and Accommodation	2,240.00
Total Assessment Expenses	$62,260.61

SUMMARY OF EXPENSES
(Not applicable to assessment work)

A Option Payments	$25,000.00
B Legal Expenses	1,150.00
C Recording Fees, etc.	3,200.00
Total Non-Applicaple Expenses	$29,350.00
OVERALL TOTAL	$91,610.61

Cost Statement prepared by B.H. Whiting, January 4, 1983.

APPENDIX IV

STATEMENTS OF QUALIFICATIONS

<u>CERTIFICATE</u>

1. I, Dennis Gorc, graduated from Queen's University, Kingston, Ontario in 1976, with a B.A.Sc.

2. I have practiced mineral exploration since graduation in Ontario, Northwest Territories and British Columbia.

Dennis Gorc

Dennis Gorc

CERTIFICATE

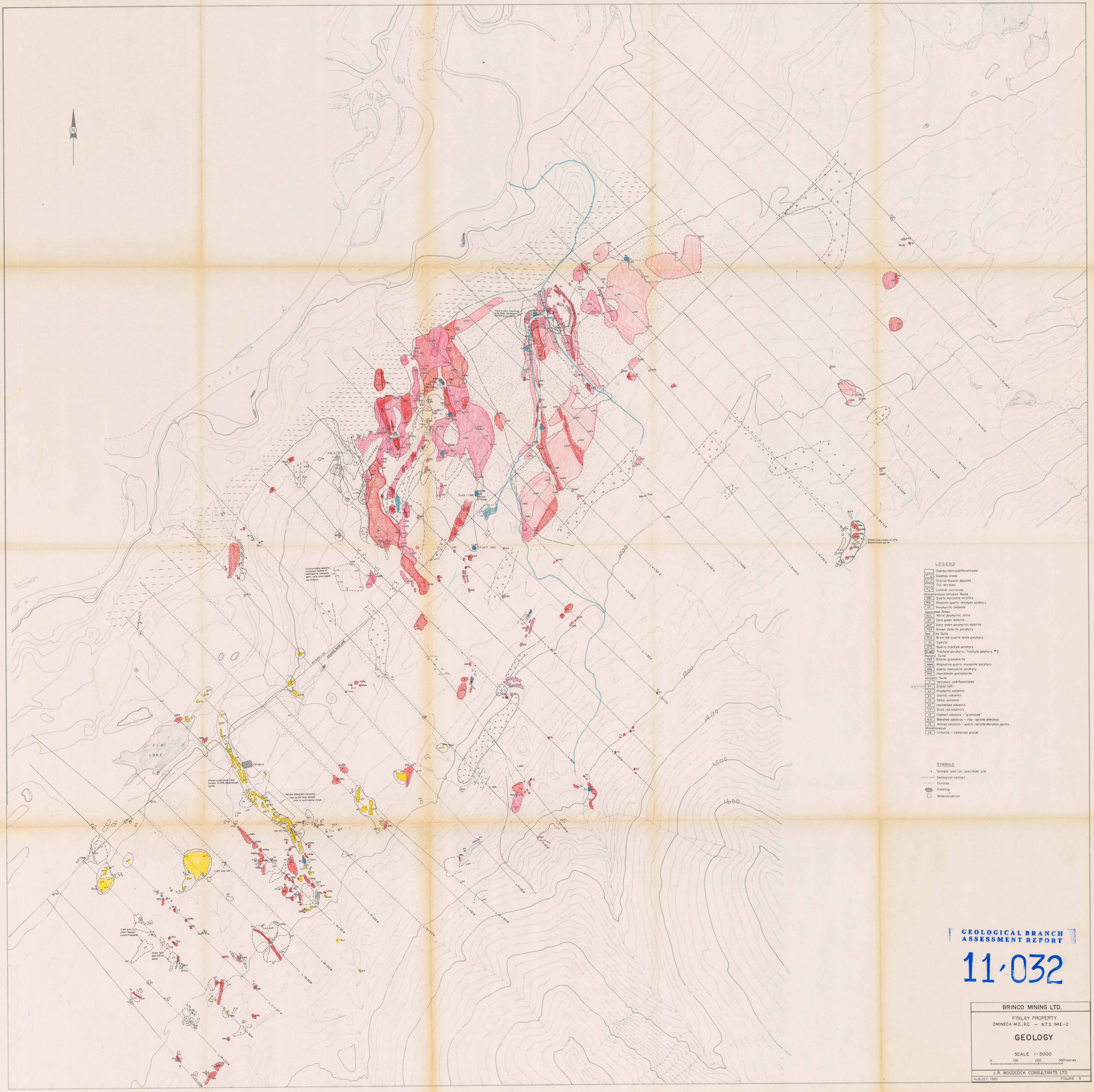
1. I, J. Richard Woodcock, graduated from the University of British Columbia in 1951, with a B.A.Sc. and from the California Institute of Technology, 1953, with a M.Sc.

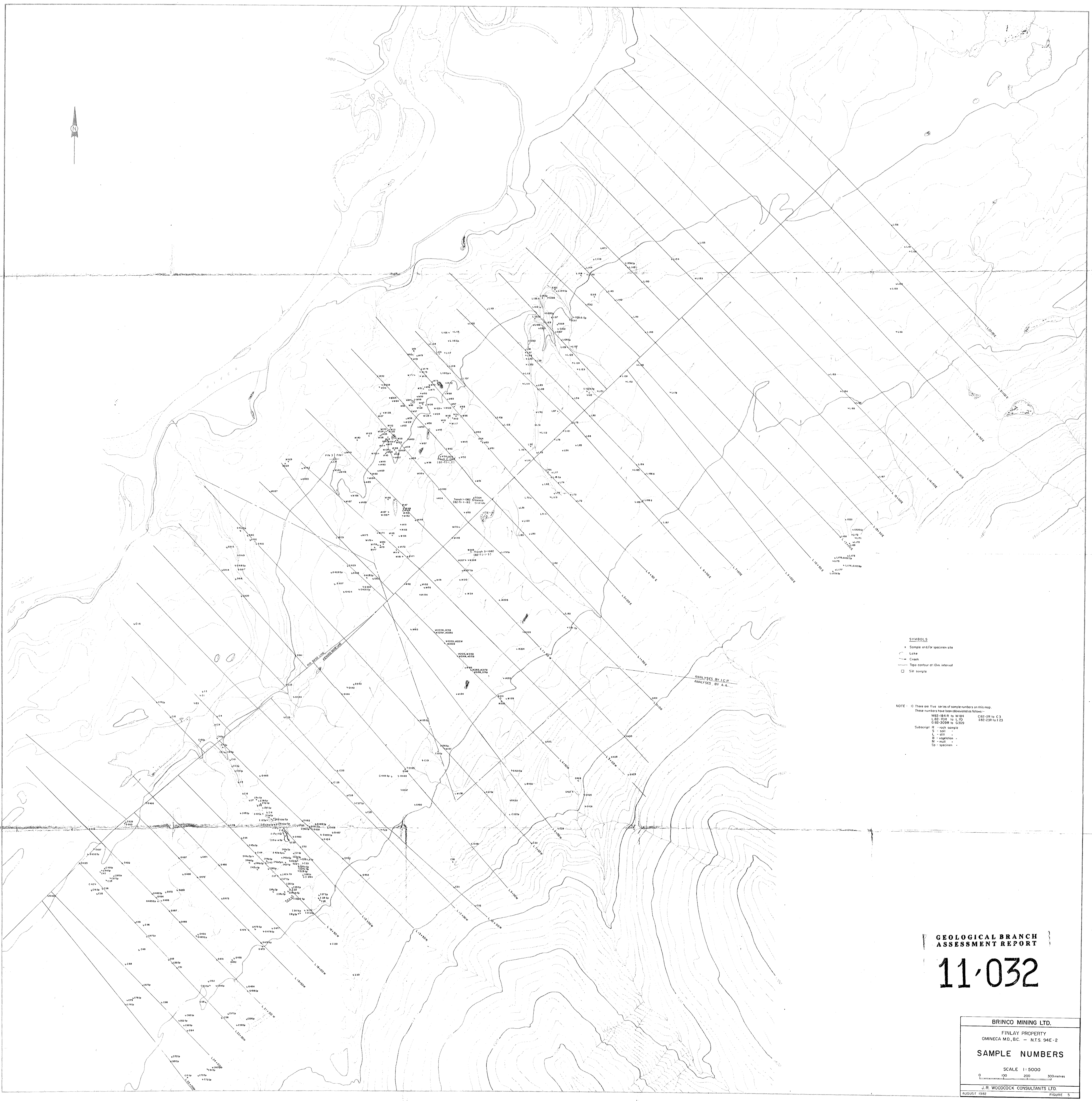
2. I am a Registered Professional Engineer in the Province of British Columbia.

3. I have practiced mineral exploration since graduation in many parts of Canada and in western United States.

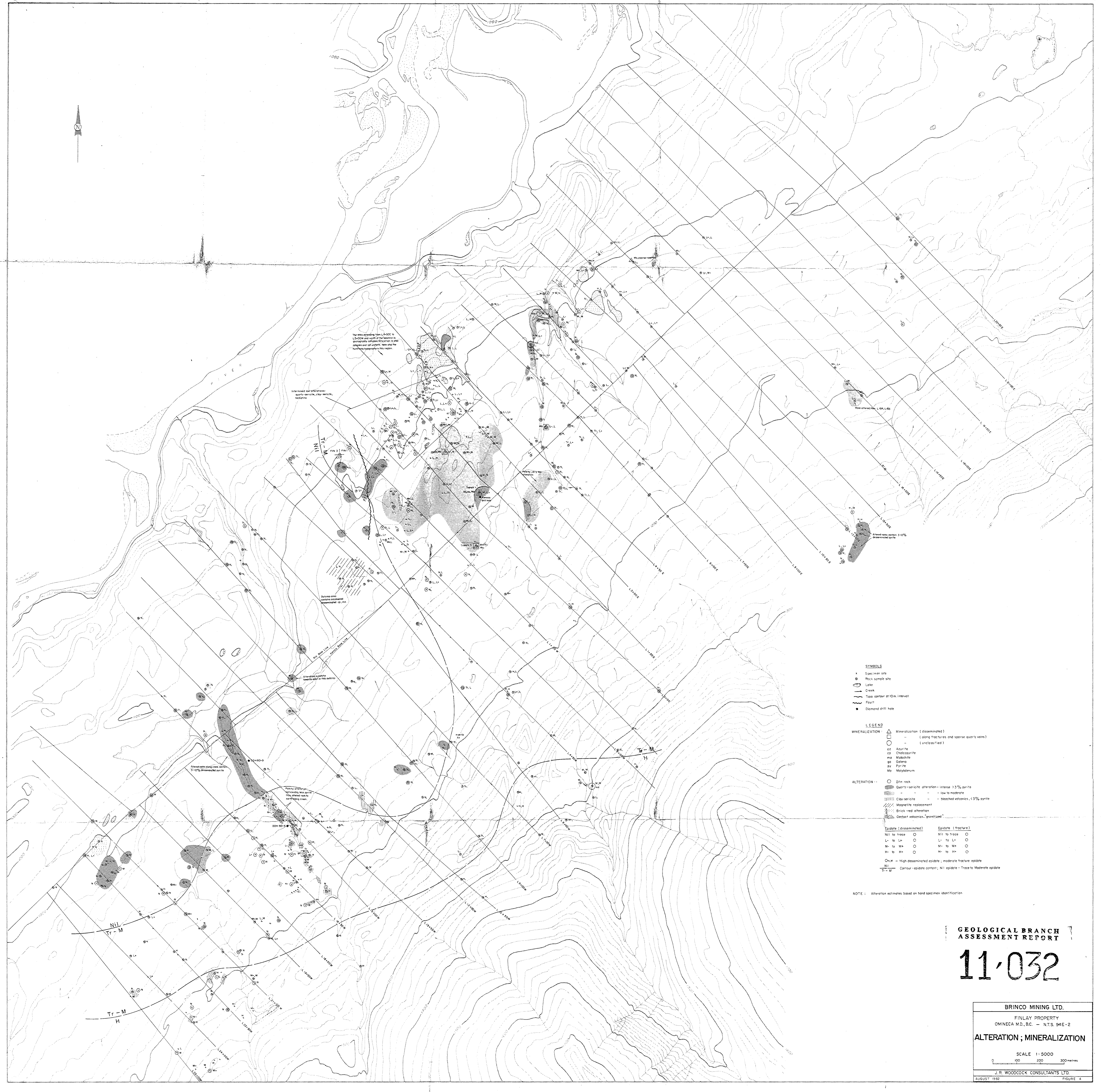
J. R. Woodcock

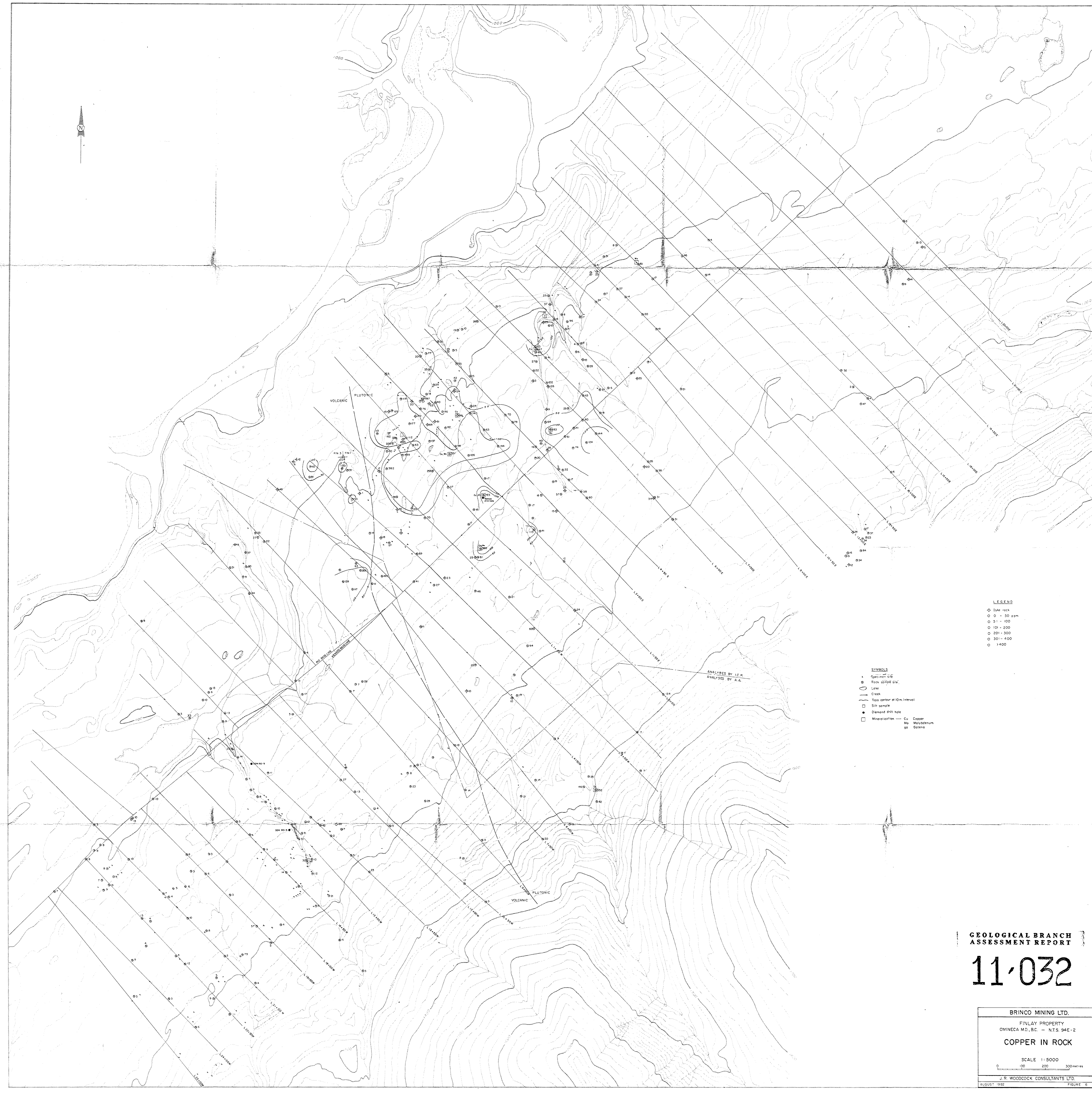
J. R. Woodcock


FIN LAKE
LEGEND
Overburden undifferentialed
Swampy areas
Glacial fluvoial deposits
Till terraces
Lateral morraines
Miscellaneous Intrusive Rocks
QMe Quartz monzonite erratics
RYp Rhyolitic quartz - feldspar porphyry
pA Porphyritic andesite
Associated Dikes
wpL White porphyritic latite
gD Dark green dolerite
gpD Dark green porphyritic dolerite
bDp Brown dolerite porphyry
Red Dike Suite
QLp Brick red quartz latite porphyry
SY Syenite
qTp Quartz trachyte porphyry
Tp / Tp#2 Trachyte porphyry ; Trachyte porphyry #2
Plutonic Suite
bGD Biotite granodiorite
mQMp Magnetite quartz monzonite porphyry
QMp Quartz monzonite porphyry
hGD Hornblende granodiorite
Volcanic Suite
V Volcanics undifferentialed
tV Crystal tuff
pV Porphyrtic volcanics
dV Dioritic volcanics
fV Felsic volcanics
hV Hornfelsed volcanics
rV Brick red volcanics
cV Contact volcanics - "granitized"
blV Bleached volcanics - clay - sericite alteration
aV Altered volcanics - quartz - sericite alteration, pyritic
Miscellaneous
cg Limonite - cemented gravel
SYMBOLS
x Sample and / or specimen site
Geological contact
Outcrop
Clearing
Mineralization
BRINCO MINING LTD.
FINLAY PROPERTY
OMINECA M.D., B.C. — N.T.S. 94E-2
GEOLOGY
SCALE 1:5000
0 100 200 300 metres
J.R. WOODCOCK CONSULTANTS LTD.
AUGUST 1982
FIGURE 3

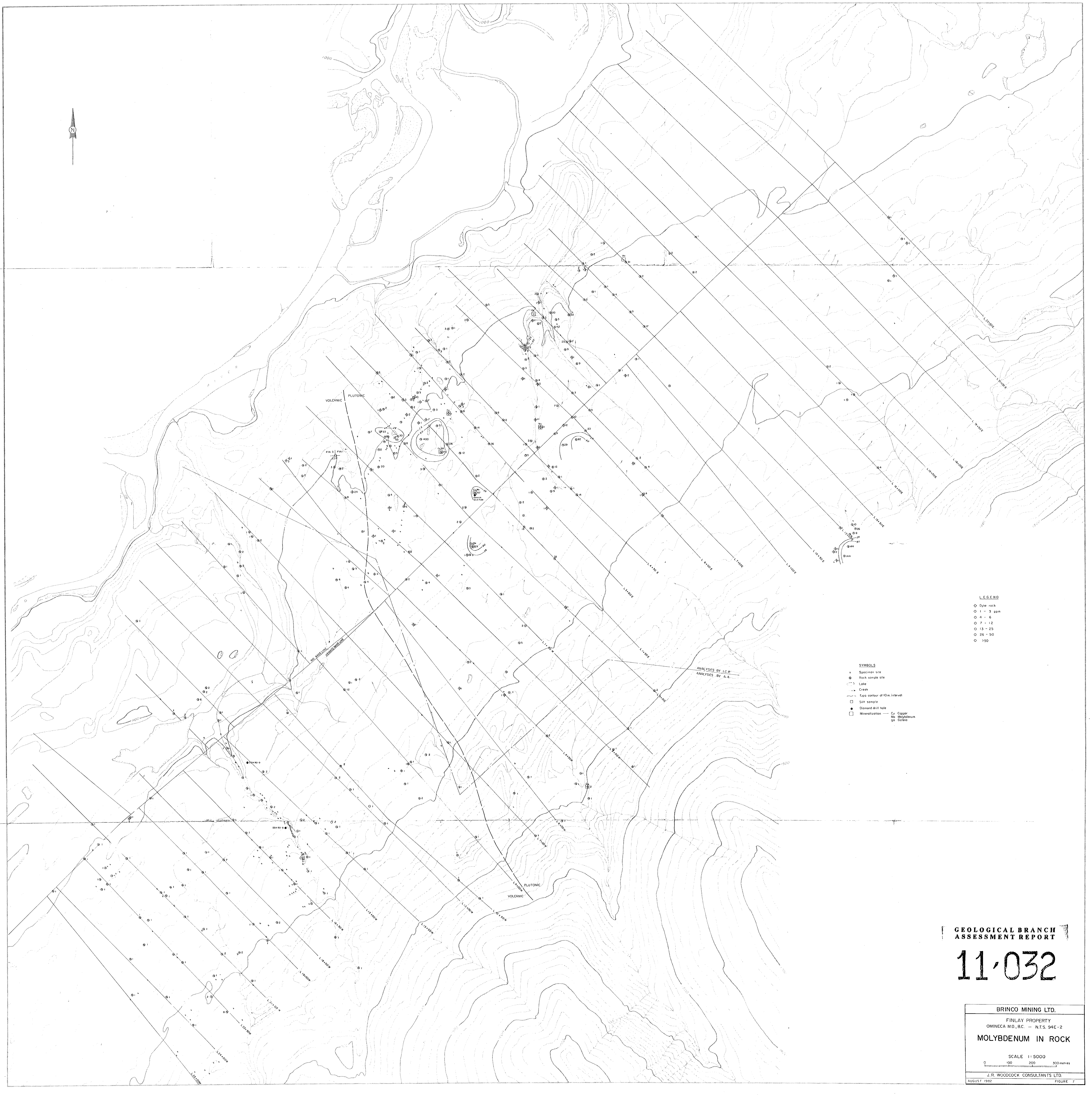


SYMBOLS
Sample and/or specimen site
Lake
Creek
Topo contour at 10m. interval
Silt sample
NOTE : 1) There are five series of sample numbers on this map.
These numbers have been abbreviated as follows :-
W82-184 R to W184
L 82-70R to L 70
G 82-309R to G309
C82-3R to C 3
I 82-23R to I 23
Subscript R - rock sample
S - soil "
L - silt "
B - vegetation "
M - mull "
Sp - specimen "
ANALYSES BY I.C.P.
ANALYSES BY A.A.
GEOLOGICAL BRANCH
ASSESSMENT REPORT
11,032
BRINCO MINING LTD.
FINLAY PROPERTY
OMINECA M.D., B.C. — N.T.S. 94E-2
SAMPLE NUMBERS
SCALE 1:5000
0
100
200
300 metres
J.R. WOODCOCK CONSULTANTS LTD.
AUGUST 1982
FIGURE 5


SYMBOLS
x Specimen site
Rock sample site
Lake
Creek
Topo. contour at 10 m. interval
Fault
Diamond drill hole
LEGEND
MINERALIZATION : Mineralization (disseminated)
" (along fractures and sparse quartz veins)
" (unclassified)
az Azurite
cp Chalcopyrite
ma Malachite
ga Galena
py Pyrite
Mo Molybdenum
ALTERATION :- Dike rock
Quartz-sericite alteration - intense >3% pyrite
" " " - low to moderate
Clay-sericite " - bleached volcanics, <3% pyrite
Magnetite replacement
Brick-red alteration
Contact volcanics "granitized."
Epidote (disseminated)
Nil to trace
L- to L+
M- to M+
H- to H+
Epidote (fracture)
Nil to trace
L- to L+
M- to M+
H- to H+
OH,M – High desseminated epidote ; moderate fracture epidote
Nil / Tr – M Contour - epidote content ; Nil epidote – Trace to Moderate epidote
NOTE : Alteration estimates based on hand specimen identification
Nil
Tr – M
H
GEOLOGICAL BRANCH
ASSESSMENT REPORT
11,032
BRINCO MINING LTD.
FINLAY PROPERTY
OMINECA M.D., B.C. – N.T.S. 94E-2
ALTERATION ; MINERALIZATION
SCALE 1:5000
0 100 200 300 metres
J.R. WOODCOCK CONSULTANTS LTD.
AUGUST 1982
FIGURE 4



N
VOLCANIC
PLUTONIC
ANALYSES BY I.C.P.
ANALYSES BY A.A.
LEGEND
Dyke rock
0 - 50 ppm
51 - 100
101 - 200
201 - 300
301 - 400
>400
SYMBOLS
Specimen site
Rock sample site
Lake
Creek
Topo contour at 10 m. interval
Silt sample
Diamond drill hole
Mineralization — Cu Copper
Mo Molybdenum
ga Galena
GEOLOGICAL BRANCH
ASSESSMENT REPORT
11,032
BRINCO MINING LTD.
FINLAY PROPERTY
OMINECA M.D., B.C. — N.T.S. 94E-2
COPPER IN ROCK
SCALE 1:5000
0 100 200 300 metres
J.R. WOODCOCK CONSULTANTS LTD.
AUGUST 1982
FIGURE 6



GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,032

BRINCO MINING LTD.

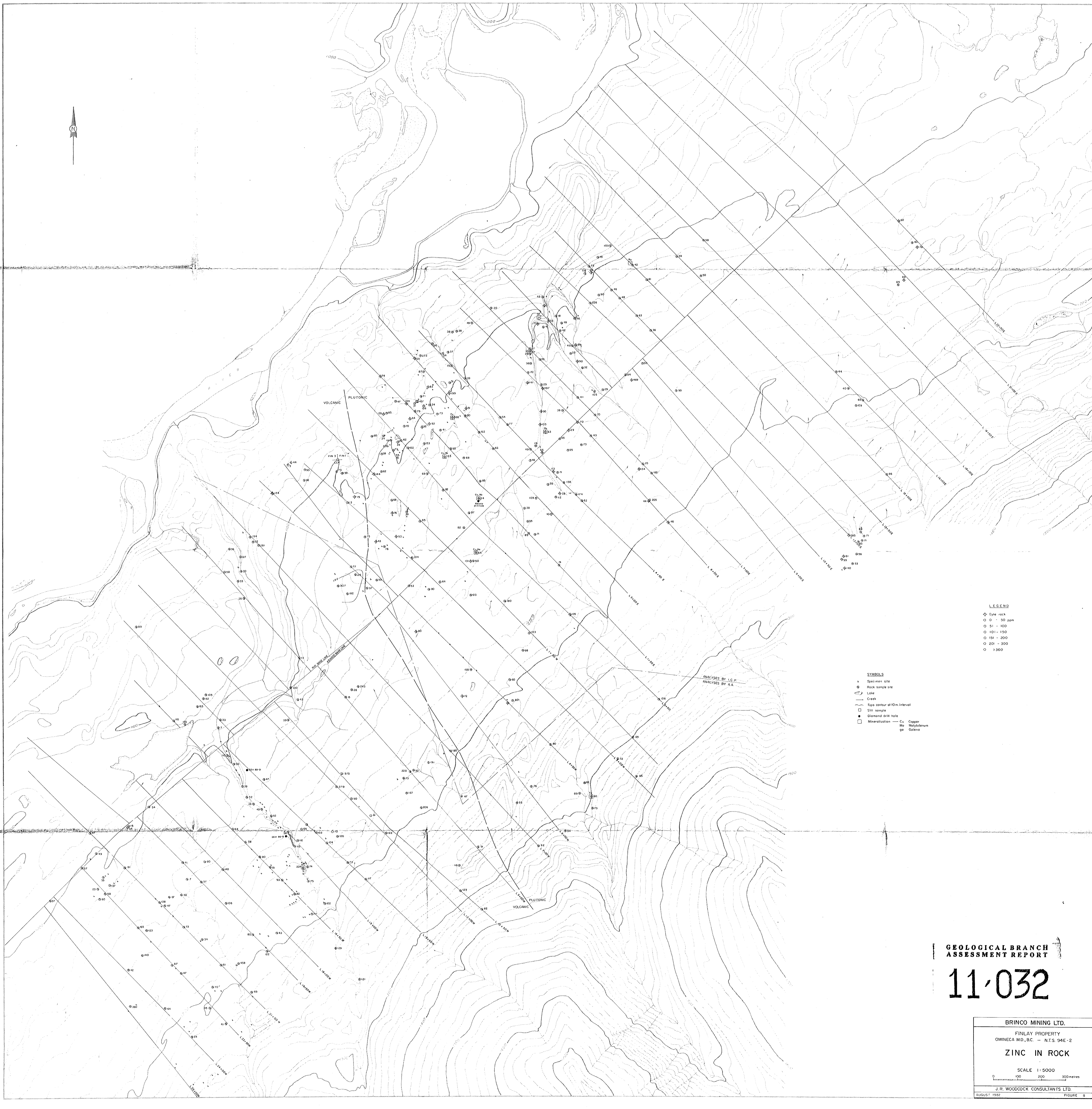
FINLAY PROPERTY
OMINECA M.D., B.C. — N.T.S. 94E-2

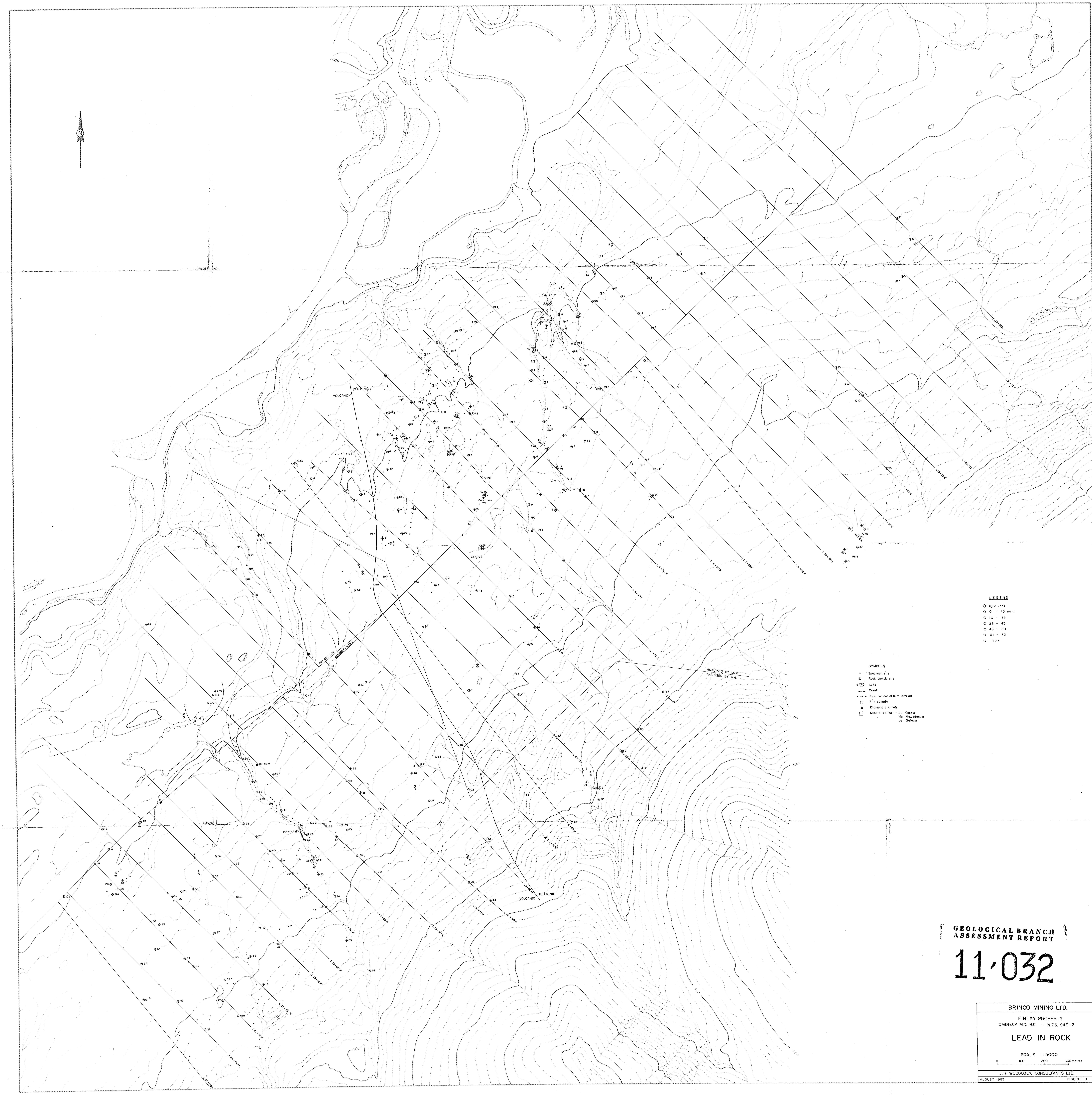
MOLYBDENUM IN ROCK

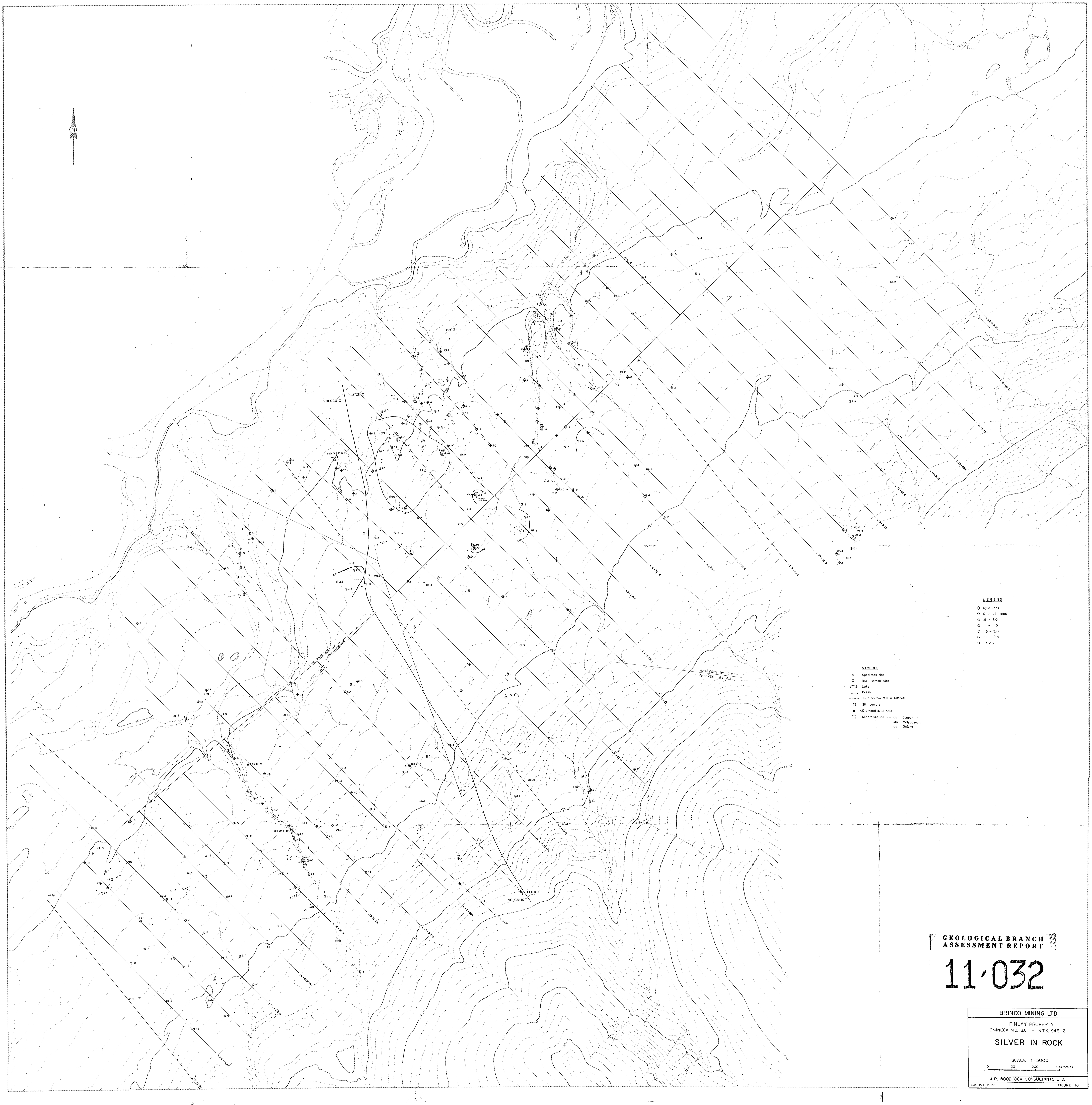
SCALE 1:5000
0 100 200 300 metres

J.R. WOODCOCK CONSULTANTS LTD.

AUGUST 1982 FIGURE 7


VOLCANIC
PLUTONIC
ANALYSES BY I.C.P.
ANALYSES BY A.A.
LEGEND
Dyke rock
0 - 50 ppm
51 - 100
101 - 150
151 - 200
201 - 300
>300
SYMBOLS
Specimen site
Rock sample site
Lake
Creek
Topo contour at 10 m. interval
Silt sample
Diamond drill hole
Mineralization — Cu Copper
Mo Molybdenum
ga Galena
GEOLOGICAL BRANCH
ASSESSMENT REPORT
11,032
BRINCO MINING LTD.
FINLAY PROPERTY
OMINECA M.D., B.C. — N.T.S. 94E-2
ZINC IN ROCK
SCALE 1:5000
0 100 200 300 metres
J.R. WOODCOCK CONSULTANTS LTD.
AUGUST 1982
FIGURE 8


VOLCANIC
PLUTONIC
ANALYSES BY I.C.P.
ANALYSES BY A.A.
LEGEND
Dyke rock
0 - 15 ppm
16 - 35
36 - 45
46 - 60
61 - 75
>75
SYMBOLS
Specimen site
Rock sample site
Lake
Creek
Topo contour at 10 m. interval
Silt sample
Diamond drill hole
Mineralization — Cu Copper
Mo Molybdenum
ga Galena
GEOLOGICAL BRANCH
ASSESSMENT REPORT
11,032
BRINCO MINING LTD.
FINLAY PROPERTY
OMINECA M.D., B.C. — N.T.S. 94E-2
LEAD IN ROCK
SCALE 1:5000
0 100 200 300 metres
J.R. WOODCOCK CONSULTANTS LTD.
AUGUST 1982
FIGURE 9



BRINCO MINING LTD.

FINLAY PROPERTY
OMINECA M.D., B.C. — N.T.S. 94E-2

SILVER IN ROCK

SCALE 1:5000

0 100 200 300 metres

J.R. WOODCOCK CONSULTANTS LTD.

AUGUST 1982 FIGURE 10

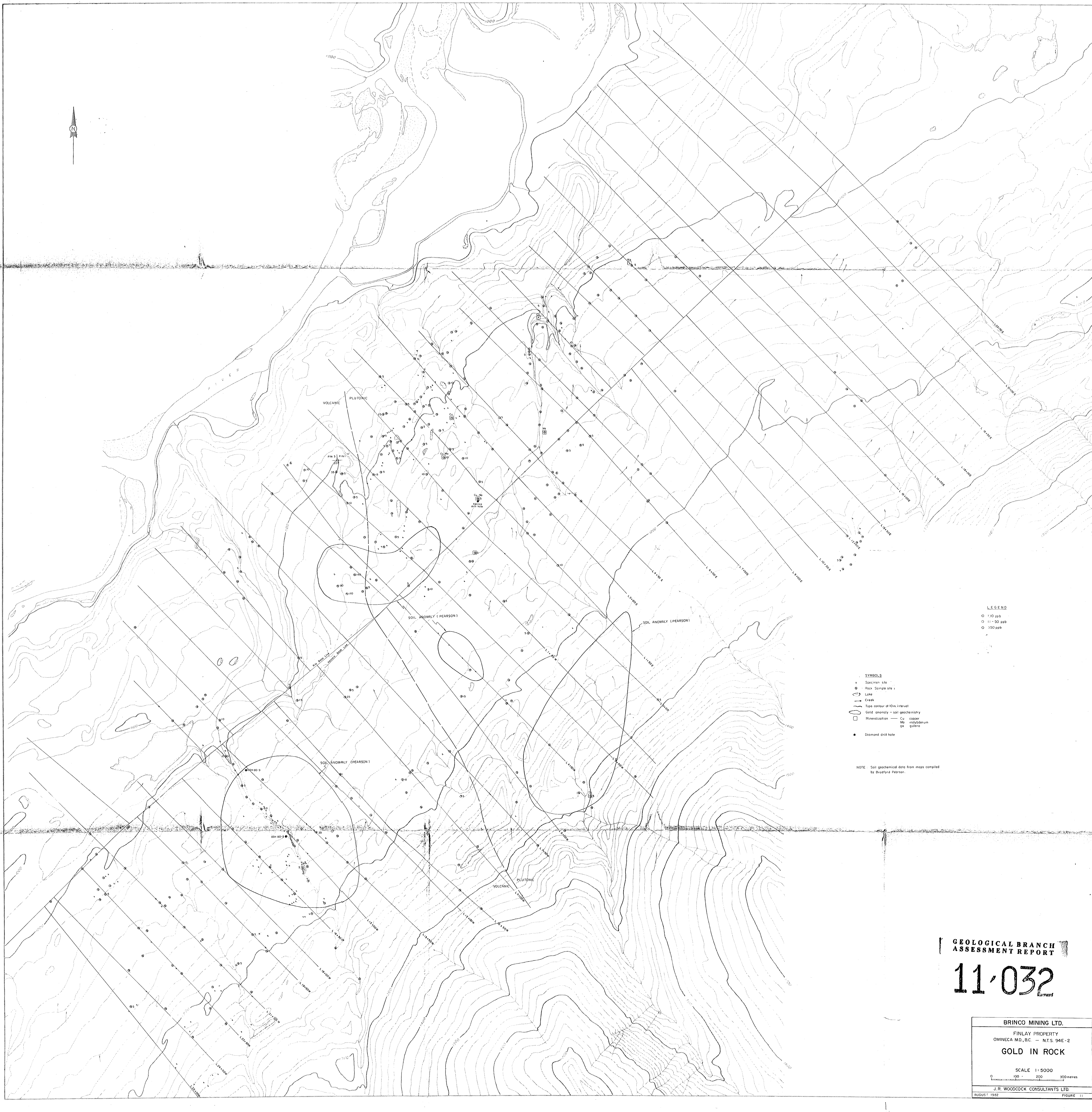

VOLCANIC
PLUTONIC
SOIL ANOMALY (PEARSON)
SOIL ANOMALY (PEARSON)
SOIL ANOMALY (PEARSON)
LEGEND
<10 ppb
11 - 50 ppb
>50 ppb
SYMBOLS
Specimen site
Rock Sample site
Lake
Creek
Topo contour at 10 m. interval
Gold anomaly - soil geochemistry
Mineralization — Cu copper
Mo molybdenum
ga galena
Diamond drill hole
NOTE: Soil geochemical data from maps compiled by Bradford Pearson.
GEOLOGICAL BRANCH
ASSESSMENT REPORT
11,032
BRINCO MINING LTD.
FINLAY PROPERTY
OMINECA M.D., B.C. — N.T.S. 94E-2
GOLD IN ROCK
SCALE 1:5000
0 100 200 300 metres
J.R. WOODCOCK CONSULTANTS LTD.
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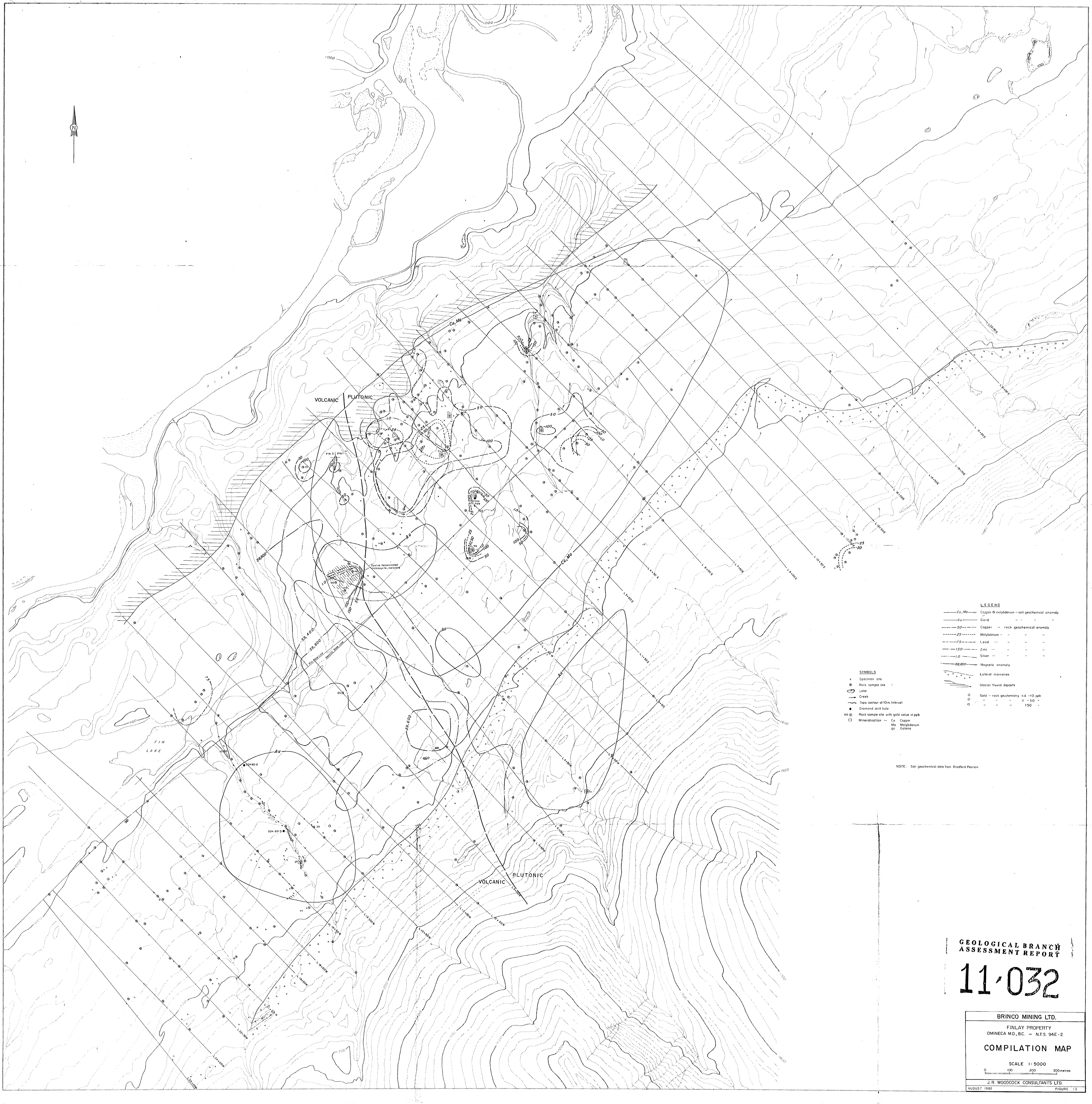
FIGURE 11

VOLCANIC
PLUTONIC
ANALYSES BY I.C.P.
ANALYSES BY A.A.
LEGEND
Dyke rock
0 - 250 ppm
251 - 500
501 - 750
751 - 1000
1001 - 1500
>1500
SYMBOLS
Specimen site
Rock sample site
Lake
Creek
Topo contour at 10 m. interval
Silt sample
Diamond drill hole
Mineralization — Cu Copper
Mo Molybdenum
ga Galena
GEOLOGICAL BRANCH
ASSESSMENT REPORT
11,032
BRINCO MINING LTD.
FINLAY PROPERTY
OMINECA M.D., B.C. — N.T.S. 94E-2
MANGANESE IN ROCK
SCALE 1:5000
0 100 200 300 metres
J.R. WOODCOCK CONSULTANTS LTD.
AUGUST 1982
FIGURE 12


VOLCANIC
PLUTONIC
Cu, Mo
Au
RIVER
FIN LAKE
Sparse disseminated molybdenite, malachite
LEGEND
Cu, Mo — Copper & molybdenum – soil geochemical anomaly
Au — Gold – " " "
50 — Copper – rock geochemical anomaly
25 — Molybdenum – " " "
75 — Lead – " " "
150 — Zinc – " " "
1.0 — Silver – " " "
58,800 — Magnetic anomaly
Lateral morraines
Glacial fluvial deposits
Gold – rock geochemistry n.d. –10 ppb
" " " 11 – 50 "
" " " >50 "
SYMBOLS
x Specimen site
Rock sample site
Lake
Creek
Topo contour at 10 m. interval
Diamond drill hole
60 Rock sample site with gold value in ppb
Mineralization — Cu Copper
Mo Molybdenum
ga Galena
NOTE: Soil geochemical data from Bradford Pearson.
GEOLOGICAL BRANCH
ASSESSMENT REPORT
11,032
BRINCO MINING LTD.
FINLAY PROPERTY
OMINECA M.D., B.C. – N.T.S. 94E-2
COMPILATION MAP
SCALE 1:5000
0 100 200 300 metres
J.R. WOODCOCK CONSULTANTS LTD.
AUGUST 1982
FIGURE 13