REPORT ON

FIELD EXPLORATION PROGRAM

BRISCOE-BRYCE GOLD PROSPECT

BRYCE TOWNSHIP, ONTARIO

1984

FOR

KAPALUA GOLD MINES LTD.

Toronto, Ontario
October, 1984

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MPH CONSULTING LTD.

SUMMARY

A gold exploration program consisting of linecutting, geological mapping, prospecting and sampling, humus geochemistry, VLF-EM, magnetic and gradiometric surveying was completed during the summer of 1984 on the Briscoe-Bryce gold prospect of Kapalua Gold Mines Ltd.

The program has re-focussed attention on the No. 1 Vein Zone as the primary exploration target in that no other high priority targets have been located on the property.

The No. 1 Vein Zone saw limited production in the 1960's. The milled ore reportedly graded in the 0.5 to 0.6 oz Au per ton range. The gold occurs in quartz-pyrite-chalcopyrite vein material within a steeply dipping shear structure which is approximately conformable with host intermediate volcaniclastics. The shear is a strong, east-west trending, through-going feature which has been defined over a strike length in excess of 850 m by diamond drilling and is open both to the east and west and to depth.

The 1984 prospecting work located a number of old trenches and pits which were hitherto unknown. These yielded values of up to 0.34 oz Au/ton over narrow (1 ft. or less) quartz vein widths. The amount of old trenching on the property is impressive and attests to a widespread distribution of small, narrow gold zones on the property.

Geologically, the bulk of the property was determined to be underlain by intermediate Skead pyroclastic/fragmental rocks, in contact to the north with older Catharine basalts.

The magnetics and gradiometrics emphasized the general west-southwest bedrock trends and provided much structural information. There is an obvious magnetic/gradiometric distinction between the Skead and Catharine rock types with the latter characterized by much higher magnetic intensities and gradients.

The VLF surveying located numerous anomalies most of which are felt to be conductive overburden/topographic effects, although several are interpreted as possible shear zones.

Geochemically, two areas warrant further consideration. These are located immediately to the south of Honeymoon Lake and to the north of the No. 1 Vein Zone and are characterized by distinctly anomalous to high background/marginal anomalous gold values respectively.

It is recommended that further efforts be mainly in the form of diamond drilling and that this be concentrated on the No. 1 Vein Zone, the economic potential of which has only been superficially examined. A minor amount of IP testing of geophysical targets located by the present program is also recommended. A total of 5,000 ft. of BQ diamond drilling is recommended at a cost of $200,000.

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1.0 INTRODUCTION

Initial interest in the Briscoe property stemmed from reports of limited gold production in the 1960's from a narrow but high grade quartz vein zone.

Following field confirmation that one main gold zone ("No. 1 Vein Zone") and several lesser zones were indeed present, the main Briscoe property consisting of 10 patented claims was acquired in 1980 by Yvanex Developments Ltd. and Windjammer Power and Gas Ltd., parent companies of the present Kapalua Gold Mines Ltd. A patented half-lot tied on to the east of the Briscoe property and 21 surrounding unpatented claims were subsequently acquired by option and staking.

A 1980 program over part of the property completed by MPH on behalf of Windjammer-Yvanex consisted of geological reconnaissance and surface trenching and sampling along with a program of linecutting and ground geophysical surveying (magnetics, VLF-EM, selective Induced Polarization). The most significant result here was a surface trench on the main vein which returned 0.204 oz Au/ton over 10 ft. (Line 1+00E). This was followed in the spring of 1981 by a 4,489 ft. diamond drilling program which tested the No. 1 Vein Zone and several subsidiary geophysical targets. This drilling, along with some previous work, established that the No. 1 Vein Zone was a stratiform feature which persisted for in excess of 850 m and was open at both ends and to depth. Potentially ore-grade material was intersected in some of the 1981 holes, e.g., 0.41 oz Au/ton over 3.2 ft. true width in hole 2, 0.20 oz Au/ton over 3.8 ft. true width in hole 5.

No further work was carried out until August of 1984 when a program consisting of linecutting and geophysical-geochemical-geological surveying was completed. This work is the subject of this report. The exploration approach is described, exploration results are presented and

recommendations are made to further explore the property, all in a framework of previous mining exploration on the claims.

Expenditure details re OMEP program OM84-6-C-162 will be presented to Kapalua under separate cover.

Technical Data Statements related to the field work are presented as Appendix 1 to this report.

2.0 LOCATION, ACCESS AND INFRASTRUCTURE

The property is located approximately 30 miles (50 km) south of Kirkland Lake in northeastern Ontario.

The claims are readily accessible via Highway 560 which leads to Charlton from TransCanada Highway, No. 11, at Englehart, Ontario. Concession roads and finally a bush road lead directly to the property from the end of Highway 560 (Figure 1).

The one mile bush road to the property was constructed by former operators and is best traversed by 4-wheel drive or all-terrain vehicle.

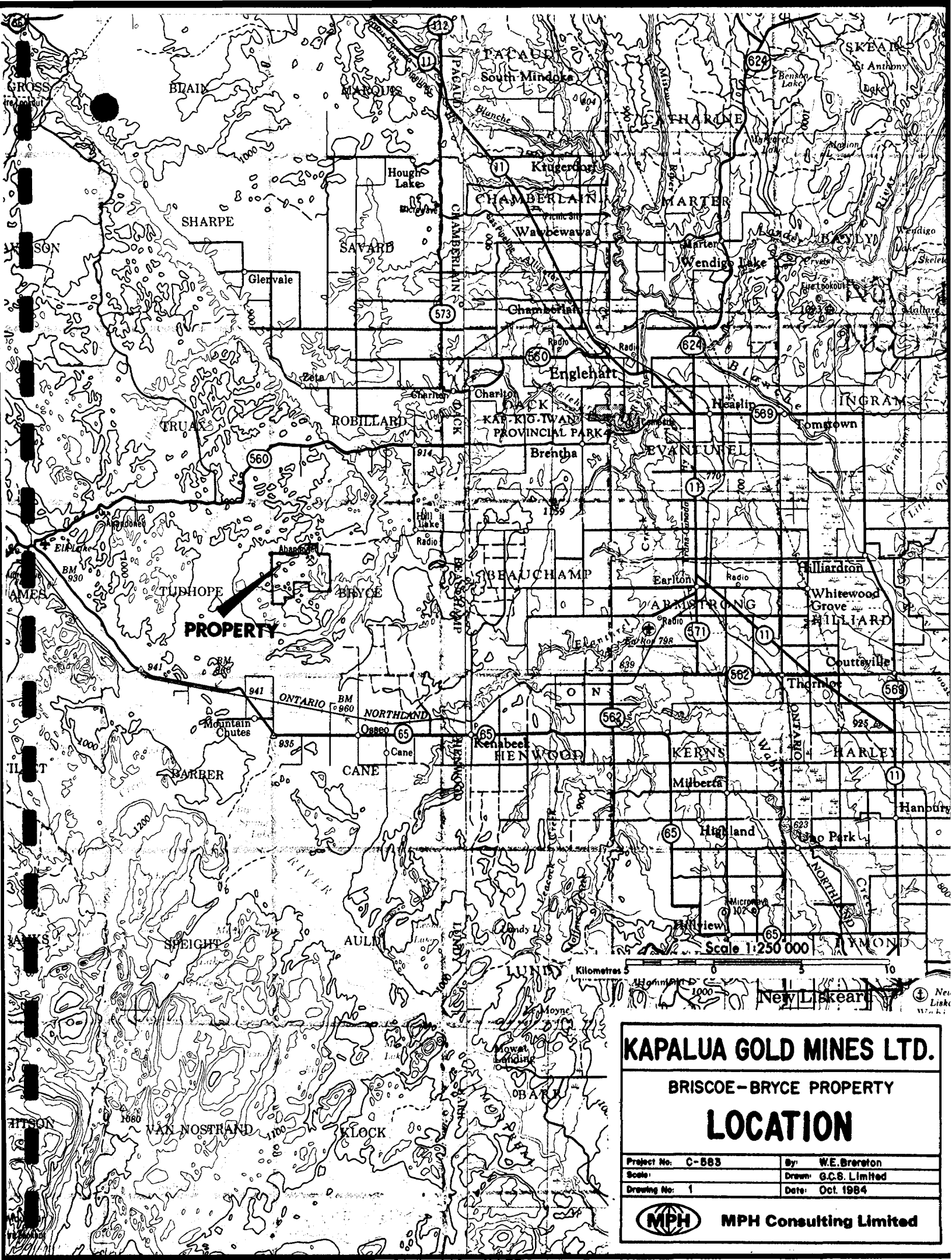
Bush roads also lead into adjoining Tudhope Township from Highway 65, 4 miles south of the property at Leeville. Hydro-electric power and a spur-line of the Ontario Northland Railway are located at Leeville. There is also hydro-electric power transmission to the Hills Lake fish hatchery less than 5 miles by road to the east.

Kirkland Lake, population 12,000, serves as the main center of service and supply in the area along with the smaller centers of Swastika and Englehart. Most forms of mining exploration support requirements are available in the area including fixed and rotary wing aircraft, food, fuel, accomodation and diamond drill contractors, along with a skilled labour pool from which to draw a potential mining work force.

Local economy is based on the mining, logging, farming, tourist and government service industries.

It should be noted that active logging operations have been carried out very recently in the northeast portion of the property, resulting in the destruction of some of the old grid and many of the drill sites on the No. 1 Vein Zone.

The closest gold mills potentially available at present for custom milling are at Kirkland Lake (Macassa Division, Willroy Mines Ltd. - 40 miles by road via Highways 573, 11 and 66) and at Virginiatown (Kerr Addison Mines Ltd. - 50 miles by road via Highways 624 and 66).


PROPERTY
Scale 1:250 000
Kilometres 5 0 5 10
KAPALUA GOLD MINES LTD.
BRISCOE-BRYCE PROPERTY
LOCATION
Project No: C-583
By: W.E.Brereton
Scale:
Drawn: G.C.S. Limited
Drawing No: 1
Date: Oct. 1984
MPH Consulting Limited
GROSS
BLAIN
MARQUIS
PACAUD
South Mindoka
CATHARINE
SKEAN
Hough Lake
CHAMBERLAIN
MARTER
SHARPE
SAVARD
Waybewawa
Wendigo Lake
Glenvale
Chamberlain
Englehart
Zeta
Charlton
BLACK
KAP-KO-TWAN PROVINCIAL PARK
Hearlip
INGRAM
Tomstown
TRUAX
ROBILLARD
Brentha
EVANTUREL
Hill Lake
Elk Lake
Abanakoked
TUDHOPE
BRYCE
BEAUCHAMP
Earlton
Hilliardton
Whitewood Grove
HILLIARD
ARMSTRONG
Courtevile
Thornloe
ONTARIO NORTHLAND
Mountain Chutes
Osseo
Cane
Kenabeek
HENWOOD
KERNS
HARLEY
BARBER
CANE
Milberta
Highland
Hanbury
Lake Park
SPEIGHT
AULD
LUNDY
Millview
Hammond
New Liskeard
St. Moyne
Mowat Landing
OBARA
VAN NOSTRAND
KLOCK

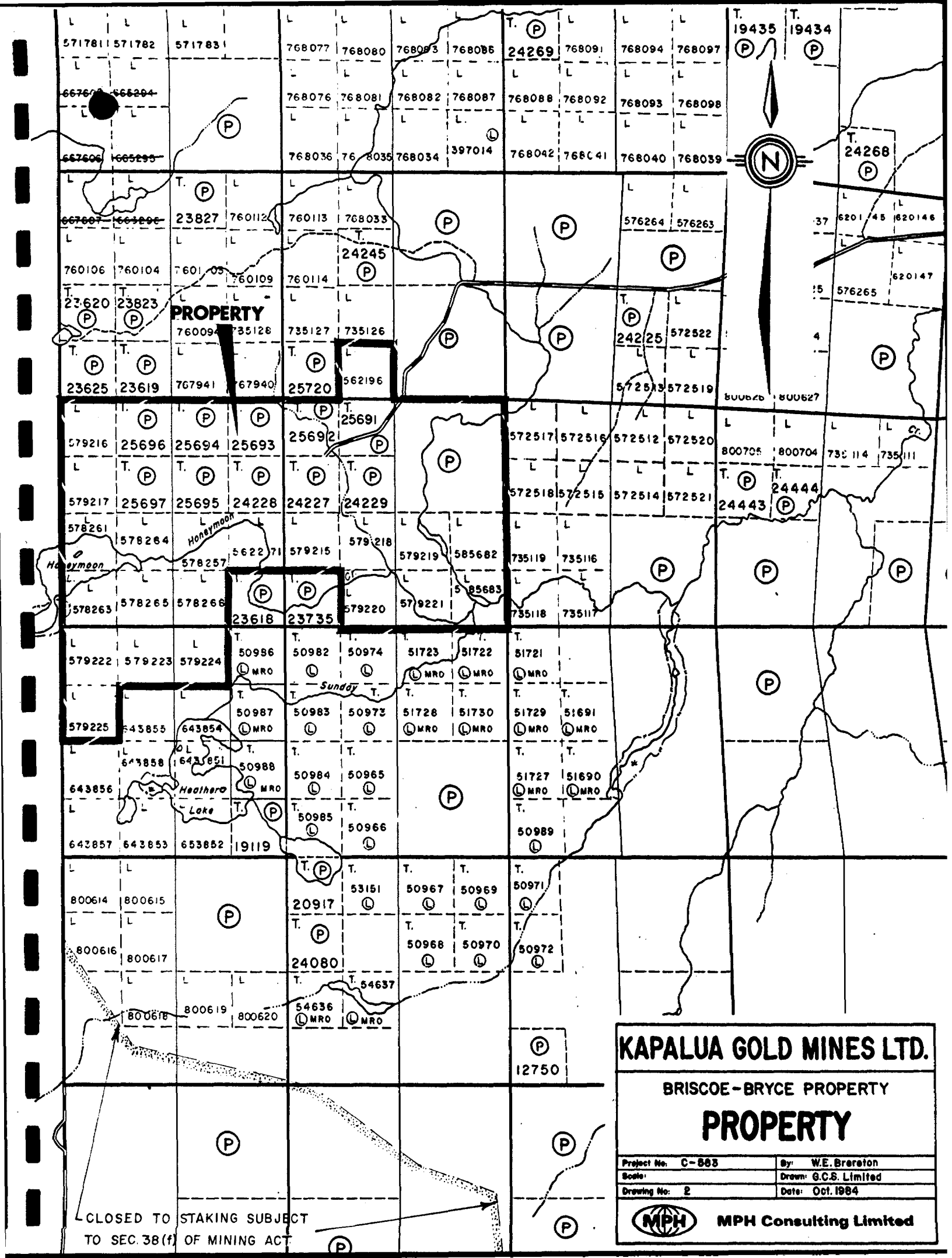
3.0 PROPERTY

The property on which exploration work was completed consists of 31 patented and unpatented mining claims and one patented half-lot totalling 1,400 acres more or less in Bryce Township, District of Timiskaming, Larder Lake Mining Division, Ontario as follows:

Claim No.	Location	Status	Recording Date
T 25691	NE 1/4 N 1/2 Lot 10 Con. 4	Patented	
T 25692	NW 1/4 N 1/2 Lot 10 Con. 4	Patented	
T 25693	NE 1/4 N 1/2 Lot 11 Con. 4	Patented	
T 25694	NW 1/4 N 1/2 Lot 11 Con. 4	Patented	
T 25695	SW 1/2 N 1/2 Lot 11 Con. 4	Patented	
T 25696	NE 1/4 N 1/2 Lot 12 Con. 4	Patented	
T 25697	SE 1/4 N 1/2 Lot 12 Con. 4	Patented	
T 24227	SW 1/4 N 1/2 Lot 10 Con. 4	Patented	
T 24228	SE 1/4 N 1/2 Lot 11 Con. 4	Patented	
T 24229	SE 1/4 N 1/2 Lot 10 Con. 4	Patented	
L 578257	NW 1/4 S 1/2 Lot 11 Con. 4	Unpatented	Sept. 8/80
L 578261	NW 1/4 S 1/2 Lot 12 Con. 4	Unpatented	Oct. 7/80
L 578263	SW 1/4 S 1/2 Lot 12 Con. 4	Unpatented	Oct. 7/80
L 578264	NE 1/4 S 1/2 Lot 12 Con. 4	Unpatented	Sept. 8/80
L 578265	SE 1/4 S 1/2 Lot 12 Con. 4	Unpatented	Sept. 8/80
L 578266	SW 1/4 S 1/2 Lot 11 Con. 4	Unpatented	Sept. 8/80
L 579215	NW 1/4 S 1/2 Lot 10 Con. 4	Unpatented	Oct. 23/80
L 579216	NW 1/4 N 1/2 Lot 12 Con. 4	Unpatented	Oct. 10/80
L 579217	SW 1/4 N 1/2 Lot 12 Con. 4	Unpatented	Oct. 10/80
L 579218	NE 1/2 S 1/2 Lot 10 Con. 4	Unpatented	Oct. 23/80
L 579219	NW 1/4 S 1/2 Lot 9 Con. 4	Unpatented	Oct. 23/80
L 579220	SE 1/4 S 1/2 Lot 10 Con. 4	Unpatented	Oct. 23/80
L 579221	SW 1/4 S 1/2 Lot 9 Con. 4	Unpatented	Oct. 23/80
L 579222	NW 1/4 S 1/2 Lot 12 Con. 3	Unpatented	Oct. 23/80
L 579223	NE 1/4 S 1/2 Lot 12 Con. 3	Unpatented	Oct. 23/80
L 579224	NW 1/4 N 1/2 Lot 11 Con. 3	Unpatented	Oct. 23/80
L 579225	SW 1/4 N 1/2 Lot 12 Con. 3	Unpatented	Oct. 23/80
L 585682	NE 1/4 S 1/2 Lot 9 Con. 4	Unpatented	Oct. 23/80
L 585683	SE 1/4 S 1/2 Lot 9 Con. 4	Unpatented	Oct. 23/80
L 562196	SE 1/4 S 1/2 Lot 10 Con. 5	Unpatented	June 26/81
L 562271	NE 1/4 S 1/2 Lot 11 Con. 4	Unpatented	June 30/81
North Half	Lot 9 Con. 4	Patented	

Surface rights are also held on patented claim T 24227. Mining rights only are held on the balance of the patents.

Figure 2 presents disposition of the claims.


PROPERTY
Honeymoon
Honeymoon
Sunday
Heather
Lake
CLOSED TO STAKING SUBJECT
TO SEC. 38(f) OF MINING ACT
KAPALUA GOLD MINES LTD.
BRISCOE-BRYCE PROPERTY
PROPERTY
Project No: C-583
By: W.E. Brereton
Scale:
Drawn: G.C.S. Limited
Drawing No: 2
Date: Oct. 1984
MPH Consulting Limited

4.0 HISTORY AND PREVIOUS WORK

4.1 General

Moorhouse (1941) reports on the history of the Bryce area as follows:

> "The area was opened up as a result of the influx of prospectors and mining men into the district of Timiskaming and the building of the T. and N.O. railway. During the height of the Cobalt development it was prospected for silver and was traversed by the Gowganda trail, along which men and supplies reached the Gowganda camp. Little or no trace of that famous road is now visible, owing to the fires which subsequently swept the area and the abundant, rapid-growing second growth. It was at this time that Tudhope township was mapped for the Ontario Bureau of Mines by C.W. Knight.
>
> No silver deposits of importance were located, although several shafts were sunk on veins in various localities in the western part of Tudhope township. Some work was done on gold prospects in the southwestern part of Bryce township.
>
> In 1921 and 1922 a geological survey of the Blanche River area was made by A.G. Burrows and P.E. Hopkins, and their map includes Robillard, Dack, Bryce and Beauchamp townships. Reports on the prospects then known may be found in the report.
>
> In October, 1922, the area was swept by a devastating bush fire, which took several lives and destroyed towns, farm-houses and timber.
>
> Up to this time some evidences of gold mineralization had been discovered, but active prospecting for gold was not carried on till the late twenties. At this time an aggressive campaign of prospecting was instituted by George Tough on a large block of ground in the eastern part of Tudhope township and the western part of Bryce; some work was also done by Aladdin Syndicate in the northwestern part of Bryce township. Following this, there was a lull in prospecting activity. In 1934 interest was again aroused in the area by the discovery of native gold on the farm of Frederick Estival in Bryce township. In the following years the development of the Britcana property and the discovery of the Briscoe, the Libby, and many others resulted in considerable activity in the area. In 1937 and 1938, interest in the

area lagged, and by 1940, practically no prospecting was being carried on."

"Sixty to seventy-five per cent of the farm lots in the townships of Robillard, Dack, and Beauchamp have been partially cleared and cultivated. The population in these townships includes a considerable number of French-Canadians, especially in the southern part of Beauchamp township; a large number of Irish-and German-Canadians, chiefly from the Ottawa valley; and many of English birth, including veterans of the Imperial Army who homesteaded veteran lots. Many of the inhabitatnts have lived in the area since the country was opened up during the development of the Cobalt and Gowganda silver camps."

Following a revival in the price of gold in the 1970's, the Bryce township area has seen considerable mining activity both by major and junior mining interests. Much of the township is staked at this time.

4.2 History of the Briscoe-Bryce Property

4.2.1 No. 1 Vein Zone

The original discovery of the Briscoe-Bryce No. 1 Vein Zone was made in the summer of 1935 by Tom and Ed Briscoe by finding mineralized float on the old wagon road through this area. They then dug trenches immediately up-ice and found visible gold and heavy pyrite mineralization in place. These discovery trenches would be in the area of the present head frame around line 0+00. Between 1935 and 1937, much laborious trenching was done between the present two shafts and eastwards by hand, horse-drawn scoop or scraper and by drilling and blasting.

The property was then optioned to Noranda during this period (1936?) who drilled approximately 2,000 ft. in the area of the present headframe. Their best hole returned 0.22 oz Au/ton over 3.2 ft. just east of present line 1+00E.

A diamond drilling program was carried out in 1937 by Halcrow Swayze Gold Mines Ltd. followed by a massive trenching and sampling effort by this same company the next year (1938). This latter work is reported by Moorhouse (1941):

> "... after trenching had exposed the mineralized zone in some 15 pits ... sampling indicated an ore shoot 450 ft. long and 3 to 4 ft. wide, averaging 0.20 to 0.28 ounces of gold per ton".

More detailed sampling saw the "ore zone" subdivided into a series of individual shoots as follows:

"A" Oreshoot - This was exposed on surface for a length of 135 ft. It is reported as averaging 0.29 oz Au per ton over an average width of 4.0 ft. Mining Projects of Canada Ltd. subsequently extended this oreshoot an additional 185 ft. to the east by diamond drilling. Gold values in the drill-indicated extension are low being in the 0.04 to 0.06 oz per ton range. Somewhere in this period, a shaft was sunk to a vertical depth of 32 ft. on the "A" Zone (present 0+25N, 1+00E). This shaft was subsequently timbered in 1962. Harold Briscoe Sr. showed the author assay results which indicated that a 1,990 lb. bulk sample from the shaft on the "A" zone returned 0.76 oz Au per ton and 0.40% Cu. There was no silver assay performed.

"B" Oreshoot - This is located immediately west of "A" and is reported to average 0.373 oz gold per ton across an average width of 1.6 ft. for a length of 165 ft.

"C" Oreshoot - This is reported as grading 0.194 oz Au per ton across an average width of 3.0 ft. for a length of 80 ft. based on surface sampling. There is an approximately 60 ft.

section of "very low-grade material" separating the "B" and "C" oreshoots. A 3,216 lb. bulk sample taken from the shaft on the "C" oreshoot returned 0.38 oz Au and 1.10 oz Ag per ton according to old assay results. Additionally, it is reported that virtually every round in the decline exposed visible gold.

November 1938 saw the incorporation of Briscoe Bryce Mines Ltd.

In 1939, the property was optioned to Mining Projects of Canada Ltd. who carried out 1,500 ft. of core drilling, mainly under the east end of the then surface workings. This extended the vein zone a further 185 ft. to the east as noted previously.

In 1954, Halliwell Gold Mines Ltd. optioned the property and carried out some X-ray drilling. This was followed in 1955-57 by more drilling and trenching by the Briscoes.

A 40° decline shaft was sunk to an inclined depth of 80 ft. at the west end of the surface zone in 1959 (present baseline, 0+00).

A 9 ft. by 11 ft. headframe was subsequently erected over this in 1962 (Plates 1 and 2). Prior to this in 1960-1961, a 60-75 ton per day mill was purchased from New Telluride Mines Ltd. and then moved and set up by the creek on the Briscoe property at present baseline, 2+75E.

Following improvements to the mill and access road, milling operations had commenced when, in early 1966, the mill burned down "before steady production had been achieved" (Hopkins,

1975 - Plates 3 and 4). The operation appears to have been a relatively crude one. Harold Briscoe Sr. reports that probably no more than 100 tons of ore was actually milled although grades were reportedly in the 0.5 to 0.6 oz Au/ton range.

In 1966-67, Trihope Mining and Exploration Ltd. carried out a major program of linecutting, geological and geophysical surveys and drilling (2,195 ft.) on a 61 claim property which encompassed the 10 Briscoe claims. They drilled only two holes on the main vein zone.

Rip Van Winkel Syndicate optioned the property and carried out 1,066 ft. of AXT diamond drilling on the main vein zone and "Contact Zone" in 1974-1975. Core recoveries appear to have been poor on the main vein given the vuggy, friable nature of some of the vein material relative to the small core size. The program was abandoned due to exhaustion of funds. The Rip Van Winkel work is very important in that it established continuity of the vein to at least present section 3+40E, well beyond the old surface workings.

It is interesting to note that Rip Van Winkel attempted a last hole on present line 4+00E which they lost in overburden. Windjammer-Yvanex hole 81-4, directly under the old Rip Van Winkel set-up, was one of the better holes in the 1981 program!

4.2.2 Contact Zone

Another zone of mineralization on the present property has a longer, albeit somewhat less encouraging history of exploration than the No. 1 Vein Zone. This is the so-called Contact Zone located parallel to and approximately 1 claim north of the No. 1 Vein Zone.

Considerable work was carried out in the early 1930's trying to trench a unit of laminated pyritic, carbonatized, sericitic, silicified tuffs and sediments at the contact between Catharine basalts to the north and Skead pyroclastics to the south. This contact was apparently only exposed by trenching in two locations over a strike length of over 3 miles. A large, T-shaped trench was dug through shallow overburden on this zone in the northeast corner of present claim 25697 in 1937 ("Bailey T-trench"). Sampling of the trench by the Krone Mining Syndicate that same year reportedly yielded an arthimetic average of 0.114 oz Au/ton across 60 ft. In 1938 or 1939, prospector Austin Dumond reportedly drilled 4 X-ray holes under the zone. Core recovery was poor and gold assays were negligible but his sludge samples reportedly assayed in the 2 to 8 oz Au/ton range.

In 1967, two diamond drill holes were drilled 2,100 ft. west-southwest of Bailey's T-trench for Trihope Mining and Exploration Co. to investigate a VLF-EM conductor on the Contact Zone. These holes would be located in the southwest corner of present claim 579217. Although no ore values were reported, the drilling did intersect bands of interflow tuffaceous and cherty sediments with pyrite and up to 1% chalcopyrite.

In 1975 the Rip Van Winkel Syndicate investigated the zone in the immediate area of the old Bailey trench with a total of 328.6 ft. in two diamond drill holes. Both holes intersected the silicified, sericitized, pyritized Contact Zone which varied in width from 13.3 ft. (Hole 1) to 30 ft. (Hole 2). Assay results were "dissappointing" with the best value being 0.03 oz Au over 10 ft.

The only other known surface exposure of the Contact Zone is on the old Towne-Currie claim (present claim 562196). Here, interflow sedimentary material is exposed in a large trench near the east claim boundary. This zone is much narrower (½ - 1 ft.) relative to that to the west around the Bailey trench and old Trihope holes. It appears to be a relatively minor part with the main Zone located to the south under overburden.

4.2.3 South Zone

Another historical zone of mineralization on the property is the so-called "South Zone". This is located approximately 800 ft. south-southeast of and parallel to the No. 1 Vein Zone. It reportedly consisted of a strong shear zone or zones between schisted dacitic rocks to the south and a more massive unit to the north. In the context of this report this zone is defined by a belt of showings which can be traced intermittently at a strike of 065° - 070° from south of Honeymoon Lake across virtually the entire property. Early prospecting south of Honeymoon Lake reported an exposure of silicified shear material carrying pyrite, chalcopyrite and gold. Also, old reports indicate that the former owners of claim 401691 (Bryce Gold Mining Syndicate) uncovered a shear zone here mineralized with quartz-carbonate and chalcopyrite. There is also reported at this location an 8 inch quartz vein containing native copper and erratic gold values. The above claim is equivalent to present claim 578265.

Many old trenches and pits have been seen during field work on the property on this general South Zone. Some of these are huge and witness the removal of many tons of rock material.

4.2.4 Other

In his 1941 report, Moorhouse refers to additional gold showings in the southeast corner of the J.R. Campbell half lot, south again of the above "South Zone". He notes that:

> "Mineralization seen by the writer consisted of disseminated pyrite in a silicified zone of tuff which has a maximum width of 1 foot and a strike of N65°E, and in the southwest corner, a sheared zone in agglomerate mineralized by rather heavy pyrite. No information is at hand regarding values obtained."

It is of interest that the No. 2 vein of the adjoining Britcana Mines property strikes onto the southeast corner of the J.R. Campbell option. The above vein was a relatively narrow although high grade structure which may re-appear on the previous J.R. Campbell ground which is now held by Kapalua.

Also, there are old reports of a shipment to the Noranda smelter of good grade gold ore (0.5 oz/ton) from the J.R. Campbell claim (H. Briscoe, Sr., pers. comm.). This whole area was examined in the course of the present program and further comments are presented elsewhere in the report.

4.2.5 1980-81 Program

The next activity on the property was in 1980 following its acquisition by the present interests. Programs of geological reconnaissance and surface trenching and sampling along with linecutting and geophysical surveying (magnetics, VLF-EM, selected Induced Polarization) were completed in the fall of 1980 over part of the property encompassing the No. 1 Vein Zone and most of the Contact and South Zones. The results of this work were reported upon to Yvanex and Windjammer in an

MPH report entitled "Exploration Report, Briscoe Bryce Gold Prospect, Bryce Township, Ontario" dated March, 1981. Further details regarding old work, particularly drilling, are presented in that report.

In the course of the above program, considerable difficulty was encountered in reaching bedrock with a backhoe in the vicinity of the previously reported "A", "B" and "C" oreshoots. Clay overburden in these areas is deeper than 15 ft., the maximum penetration capability of the backhoe.

Sampling at the top of the now filled-in #1 shaft beneath the headframe appears to confirm previously indicated gold tenors. A 0.7 m chip sample across the vein exposed on the west wall of the shaft returned 0.414 oz Au per ton. Four selected grab samples returned 0.270, 0.184, 0.149 and 0.254 oz Au per ton. Two massive pyrite grab samples from the decline returned Au values in the 0.02 oz range.

Sampling in the area of the No. 2 shaft on the "A" oreshoot (line 1+00E) returned the most encouragement of the program to date. A 3.0 m chip sample on the east wall of trench #5 on the vein at line 1+00E returned a weighted average of 0.204 oz per ton Au. A 2.6 m chip sample across the west face of the adjoining No. 2 shaft returned a weighted average of 0.270 oz per ton Au.

Examination of selected grab sample values from within the zone strongly suggested that the average grade in a bulk sample would be higher, possibly substantially so, than the above values. For example, in the above trench, the central 1.0 m chip sample returned only 0.002 oz Au per ton yet a grab sample, #5, from within this zone returned 0.63 oz Au

per ton. Likewise, the northernmost chip sample returned 0.002 oz Au per ton across 0.5 m yet two grab samples from within this zone returned 0.72 oz Au and 1.04 oz Au per ton respectively. The latter value represents a sample across a 0.3 m massive pyrite pod on the west side of the trench.

The old Bailey T-trench was located during the exploration program. An attempt to completely excavate the old trench with the backhoe was only partially successful.

A portion of the actual Contact Zone was exposed immediately north of an old cribbed, water-filled shaft at the T-junction in the trench. All quartz $\pm$ sulphide mineralization was blasted and sampled. There were no gold values of economic significance in any of the samples with the highest value of 0.03 oz Au per ton being from a thin massive pyrite band immediately adjoining the old shaft. It is probable that the best mineralization is present at the bottom of the shaft. This could not be sampled during the work as this area of the trench was beyond the reach of the backhoe.

An additional trench to the north that reached bedrock likewise failed to return any values of significance.

Grab samples collected from the trench on the old Towne-Currie claim also failed to return any gold values of interest.

Although low in an economic sense, the values are in accord with previous drill results and indicate that this interflow unit is distinctly anomalous geochemically in gold. Such a unit may have acted as a source rock or protore for subsequent gold concentrations in favourable structures although

the possibility of a higher grade gold concentration along the Contact Zone cannot be ruled out.

The original assay value of 0.114 oz Au per ton over 60 ft. in the Bailey T-trench must be totally discounted. If real, it is possible that the value represented a surface enrichment not representative of the underlying bedrock.

Geophysically, there is a complex and very low amplitude yet definite IP response from the No. 1 Vein Zone. The PFE signature improves to the east and to depth. The host shear zone appears as a distinct anomaly in the IP resistivity data. The anomaly is indicative of a vertical source which extends to the subcrop overburden interface. There is no magnetic or VLF signature associated with the No. 1 Vein Zone.

Induced Polarization surveying over the Contact Zone indicates a strong resistivity - PFE anomaly. The IP anomalies probably relate to pyrite-chalcopyrite mineralization known to be present in the interflow sedimentary Contact Zone. There is a strong VLF response over the Contact Zone.

Results of this work were deemed sufficiently encouraging to recommend a program of diamond drill testing of primarily the No. 1 Vein Zone. This was carried out in the spring of 1981.

The 1981 drilling on the No. 1 Vein Zone in combination with previous work established that the vein extends from at least 0+50W to 8+00E, a distance of 850 meters (2800 ft.). The vein is open in both directions and to depth.

The drilling was carried out on 100 m centres east of the old surface workings towards a previously unexplored area. The grades in the 1981 drilling in this eastern sector are, in general, significantly better than grades in the previous drilling under the old workings.

Drill results on the No. 1 Vein Zone are summarized following:

Hole No.	Collar (m)	Intersection oz Au/ True Width (ft)	Vertical Depth (ft)
1	1+00E, 0+50S	0.11 over 1.0 ft	200
2	2+00E, 0+50S	0.41 over 3.2 ft	243
3	3+08E, 0+25S	0.80 over 1.0 ft	145
4	4+00E, 0+15S	0.73 Au, 0.56 Ag 0.44% Cu over 1.6 ft	129
5	5+00E, 0+25S	0.20 over 3.8 ft	99
* 10	4+50E, 1+50S	see below	
11	6+00E, 0+80S	0.05 over 1.7 ft	247
12	abandoned in overburden		
12A	7+00E, 0+40S	0.055 over 1.0 ft	248
13	8+00E, 0+40S	0.155 over 3.5 ft236 (#2 vein)	
		0.27 over 0.8 ft (#1 vein)	269

*It appears that Hole 10 did not intersect the No. 1 Vein Zone. A narrow quartz-pyrite vein was intersected at the approximate projected location of the vein at depth. A 1.0 ft section returned 0.03 oz Au. Completion of subsequent Holes 11, 12 and 13, however, indicated that this may not be the main vein. It is therefore concluded that the dip of the

main vein steepens to vertical or possibly to steep north at depth in this region.

The No. 1 Vein Zone consists of quartz-pyrite ± chalcopyrite vein material occupying a strong shear structure in intermediate volcaniclastics. Individual veins are conformable with the shearing which is in turn conformable with the host rock units. Maximum width of gold-bearing vein material to date is approximately 4 ft. Minimum width is 1 ft.

The No. 1 Vein Zone shows a distinct stratigraphic control, being located in a chloritic tuffaceous unit in the basal portion of an intermediate, ashy feldspar porphyritic volcaniclastic which is in turn located between two thick units of coarse intermediate fragmental.

Gold values are closely restricted to a narrow, generally central quartz-sulphide vein within the shear. These high-grade sections often assay more than 1 oz per ton Au.

Subordinate veins on either side or sections of mineralized shear material generally do not carry gold values.

Carbonatization is ubiquitous within the shear along with variable silicification, pyritization and sericitization. There may be some green chromian mica. The zone of shearing and hydrothermal alteration may be up to 10 ft. or more in width.

Gold values generally show a 1:1 correlation with copper values. Textural relationships indicate that the Au-Ag-Cu mineralization may be paragenetically later than the quartz-pyrite mineralization.

There is minor sphalerite and galena within the vein zone.

The easternmost hole, #13, intersected a second Au vein identical to, but stratigraphically beneath the No. 1 Vein.

Four holes were drilled elsewhere on the property to test geophysical targets (holes 6, 7, 8 and 9). Hole 6 was drilled on an IP/VLF target that was possibly a faulted off or en-echelon continuation to the west of the No. 1 Vein Zone. Holes 7 and 8 were drilled on the general South Zone trend. Hole 9 was drilled on the Contact Zone. No gold intersections of potential economic significance were recorded. These holes were technically successful, however, in that the cause of the geophysical anomalies has been adequately explained in every case.

5.0 EXPLORATION PROGRAM - 1984

5.1 Personnel

The following personnel of MPH Consulting Limited, Toronto, were involved with the 1984 project for various intervals during the exploration program.

Project Consultant: W.E. Brereton, M.Sc.(A), P.Eng.
Senior Geologist: N.O. Willoughby, B.Sc.
Geophysical Technician: D. Hall
Geochemical/Sampling Technician: G. Sinclair, B.A.
Geochemical Consultant: J.M. Siriunas, M.A.Sc., P.Eng.
Geophysical Consultant: D. Jones, M.Sc., P.Geoph.

The exploration program was completed in the period mid-July to late August, 1984.

5.2 Field Operations

5.2.1 Linecutting

Linecutting was carried out by Ingamar Explorations Ltd. of Connaught, Ontario under contract to MPH.

The old grid had to be re-cut virtually in entirety in that some of it had been completely destroyed by logging operations and the balance had grown in.

A grid was established, utilizing the old baseline, so as to completely cover the entire property. Baseline station 0+00 on line 0+00 is located at the headframe on the No. 1 Vein Zone per the previous grid. Lines were cut at 100 meter intervals (Plate 5).

Sub-baselines were cut where necessary to circumvent bodies of water.

In all, a total of 35.8 miles (57.3 km) of line was cut, chained and picketed at 25 m intervals.

5.2.2 Geological Mapping

The entire property was geologically and topographically mapped at a scale of 1:2,500 utilizing the line grid for mapping control. Predominant rock types in the often abundant outcrop areas were recorded along with structural data in the form of strikes and dips, etc. Airphotos were used to aid in determining structures (faults, lineaments) and delineating outcrop areas.

The geological results and interpretation are presented as Map 1.

5.2.3 Magnetomter Survey

The main purposes of carrying out detailed magnetics in a situation such as this are to:

a) directly locate concentrations of magnetic minerals which may have direct or indirect economic significance (e.g. pyrrhotite association with gold at Detour Mine, magnetite with base metals at Matagami Lake Mine);

b) map lithology via susceptibility contrasts between different rock types;

c) interpret structure via patterns, including warps and dislocations, in magnetic trends.

Both b) and c) could be as important as a) in the case of a non-magnetic ore mineral or zone which showed some association with a magnetically traceable lithology or a magnetically inferred structure.

A proton magnetometer was used on the Kapalua project. This type of magnetometer utilizes the precession of spinning protons of a hydrogen atom within a hydrocarbon fluid as a measurement technique. These spinning magnetic dipoles are polarized by applying a magnetic field provided by a current within a coil of wire. When the current is discontinued the protons precess about like a spinning top with the earth's field supplying the precessing force. The proton precesses at an angular frequency W (known as the Lamar precession frequency) which is porportional to the magnetic field strength F so that:

$$W = \gamma_p F$$

This constant is the gyromagnetic ratio of the proton which is known to an accuracy of 0.25×10^{-4}. Since precise frequency measurements are relatively easy it is clear that the magnetic field can be determined to the same accuracy. The proton, being a moving charge, induces a voltage in the coil which varies with the precession frequency. Thus the magnetic field can be determined from the equation:

$$F = W / \gamma_p = 2\pi f / \gamma_p$$

The reading unit is the nanoTesla (1 nT = 1 gamma) and the reading is the absolute value of the earth's total field for that station. Repeatability is usually within one gamma for a particular station.

Magnetic surveying was carried out on the Kapalua project using an EDA PPM-500 microprocessor-controlled portable field magnetometer. This unit stores the magnetic field data in a solid state memory. The magnetometer also stores the line number and the automatically updated station number. It contains a timing device which records the time of the readings. These magnetometers have the capacity to allow a full day's work without filling up the available memory.

A microprocessor-controlled base station recorder, in this case an EDA PPM-400, was operated at a fixed base location simultaneously with the field unit. This unit records total magnetic field data and the time of reading at pre-set intervals through the day. The timing devices in both magnetometers are synchronized prior to commencement of that day's surveying. On completion of the daily work the two instruments are connected together and the field data is transferred to the base station.

Software built into the base station recorder has the capability to reduce the field data to a preset datum, and to correct for diurnal variations. In our experience, the time required to correct the field data from one day's surveying is approximately 10-15 minutes. The corrected data is generally output onto a small thermal printer. The data can then be transferred by hand onto a field map.

Instrument specifications for the EDA PPM-500 and 400 as utilized for the Kapalua surveying are presented as Appendix 2 to this report.

A total of 11 claims was covered by the magnetic surveying representing the balance of the property which was not surveyed during the 1980 program. All readings were taken at 25 m stations with intermediate readings as required.

Magnetic survey results are presented on Map 2. The results of the 1984 surveying have been integrated with the previous results to provide a complete magnetic map of the entire property.

The magnetic data are shown as a series of isomagnetic contours superimposed on a map of corrected magnetic values recorded at each station. Contour intervals were chosen to suitably highlight magnetic features of the survey area.

5.2.4 VLF-EM Survey

The VLF-EM method employs as a source, one of the numerous submarine communications transmitters in the 15 to 25 kHz band located throughout the world. At the surface of the earth these radio waves propogate predominantly in a single mode along the earth-air interface. This mode is known as the "surface wave". Over flat homogeneous ground and in the absence of vertical conductive discontinuities, the magnetic field components of this radio wave is horizontal and perpendicular to its direction of propogation.

Where non-horizontal variably conductive structures such as faults, contacts, sulphide bodies, etc. give rise to changes in ground resistivities, secondary modes are generated which produce a vertical magnetic field component. This produces an elliptical polarization of the total field in a plane perpendicular to the direction of propogation.

Commercial VLF instruments enable detection of these conductive disturbances by measuring the tilt angle of the major axis of the polarization ellipse. On flat homogeneous ground the tilt angle will be zero, but in the vicinity of conducting disturbances, it will acquire a finite value.

Direction of tilt indicates direction of the disturbing structure. Ability to deduce such parameters as depth, depth extent, dip, and width of anomalous structures is minimal. Fortunately, this does not seriously affect location of points where VLF profiles cross the upper limit of dipping structures which can be identified as areas of greatest change in tilt angle per unit of distance.

A Geonics EM-16 unit utilizing the Cutler, Maine transmitting station at 17.8 kHz was used during the present survey. This station was selected to provide optimum coupling with the generally east-west trends in the area.

Instrument specifications are given in Appendix 2.

Again, the old VLF data have been incorporated with the new to provide complete VLF coverage over the property (Map 3). Note that there is an in-phase shift between the present and previous VLF data in that Seattle was used for the previous survey versus Cutler for the present. Both stations provide essentially the same coupling with the rock units on the property however, such that the two sets of the data are entirely compatible.

The VLF-EM data are presented as profiles with positive to the left and negative to the right such that a true crossover

is indicated by the VLF profile crossing a gridline from left to right while looking north up the line.

A further manipulation was performed on the VLF dip angle namely the calculation of a VLF 'first derivative'. This consists simply of subtracting dip angle values for adjoining stations and contouring the results. Conductor trends are often more obvious from such a contour presentation relative to dip angle profiles.

5.2.5 Gradiometer Survey

A magnetic gradiometer survey was subsequently carried out over most of the property (Plate 6).

This survey consists essentially of taking simultaneous magnetic readings with two sensors separated by a fixed and constant difference. The difference between the two readings divided by the separation distance is the vertical magnetic gradient. The resulting value is therefore diurnal-free.

The main strength of the gradiometer is as a geological mapping tool. This is a result of the far superior resolving power of vertical gradient measurements relative to total field data.

The gradiometer greatly improves anomaly resolution with gradient anomalies typically being narrower than the associated total field anomaly. Also, resolution of closely spaced zones is enhanced as the gradiometer is able to distinguish two thin dykes at 0.85 of their depth of burial compared to the 1.15 limit of the total field measurement.

Ability to more accurately delineate vertical geological contacts is the major advantage of vertical gradient data. Inspection of total field data and the corresponding vertical gradient data produced from a wide, dipping dyke indicates that there are two crossovers from positive to negative values for the vertical gradient profile with the zero gradient values occurring close to either of the contacts. The total field profile for the wide dipping dyke shows a diffuse pattern with no distinctive feature coincident with the edge of the dyke. Moreover, it can be shown mathematically that the line joining the vertical maximum and minimum gradient values crosses the vertical gradient profile itself at the point where the contact is located.

Thus, the zero contour line for vertical gradient data will delineate the contacts of major rock formations having some measurable magnetization contrast with adjacent formations in a reasonably accurate manner. As such, it can be a very powerful mapping tool in overburden covered areas. This was deemed to be important given the indicated stratigraphic nature of much of the gold mineralization on the Bryce property.

An EDA PPM-500 vertical gradient system was used for data gathering. This is the only gradiometer system on the market at this time where the magnetic data from both sensors is collected simultaneously.

Readings were taken at 25 m intervals with intermediate stations when required (Map 4). Instrument specifications are presented as Appendix 2.

5.2.6 Geochemistry

The sampling of surficial organic litter (humus) has been used extensively for gold exploration in the Abitibi greenstone belt of Canada and elsewhere in the world. Test surveys over known gold deposits in the Abitibi indicated that 23 of 25 deposits sampled showed anomalous biogeochemical zones associated with the gold deposit. Further, the decaying humus layer showed a pronounced increase in gold content versus the live vegetation (Hoffman and Broker, 1983).

On the Kapalua property, it was hoped that the geochemistry would aid in finding "blind" or buried gold deposits and would assist in prioritizing the various geophysical anomalies.

The survey consisted of the collection in the field of 20 to 50 grams of decaying humic material at each station. The samples were then shipped to the Nuclear Activation Services Limited, laboratory in Hamilton, Ontario where the following process is utilized in the analysis for gold.

a) screen at -30 mesh, dry and macerate
b) 8 grams of material is then briquetted in a press at 30,000 psi to form a briquette 40 mm by 6 mm thick
c) batch irradiate with neutron flux in nuclear reactor
d) allow samples to decay for 4-7 days and count off-coming radiation with a germaniun detector linked to a multichannel analyzer/computer system
e) intensity of a certain band width of the decay radiation is directly proportional to gold content thereby giving a reading of the gold content of the sample in ppb. Detection limit in this case was 1 ppb.

Only gold was analysed for in the total 1,013 samples that was collected.

Samples were taken over most of the property. Average sample spacing was 50 m with a number of samples at 25 m. Several lines of sampling were carried out over the No. 1 Vein Zone to determine the response from known gold mineralization which would be of assistance in interpreting the results from the balance of the property.

Geochemical results are presented as Map 5.

Analytical sheets are presented in Appendix 3.

5.2.7 Prospecting, Sampling, Panning

Some time was spent by the field crew in prospecting the property, examining and re-sampling old trenches and panning a number of the creeks on the property (Plate 7).

A total of 28 rock and 5 pan concentrate samples was collected and assayed for gold.

All assay/analytical work was carried out by Swastika Laboratories Ltd. at Swastika utilizing atomic absorption techniques. The certificate of analysis is presented in Appendix 3. Results are plotted on Maps 1 (rocks) and 5 (pan concentrates).

6.0 REGIONAL GEOLOGY AND MINERALIZATION

6.1 Geology

The property is situated within the southwestern extension of the volcanic and pyroclastic pile of "Cycle II" volcanism of the Kirkland Lake region of the Archean Abitibi orogenic belt. (OGS Map 2484 - Lithostratigraphic Map of the Abitibi Subprovince, 1984).

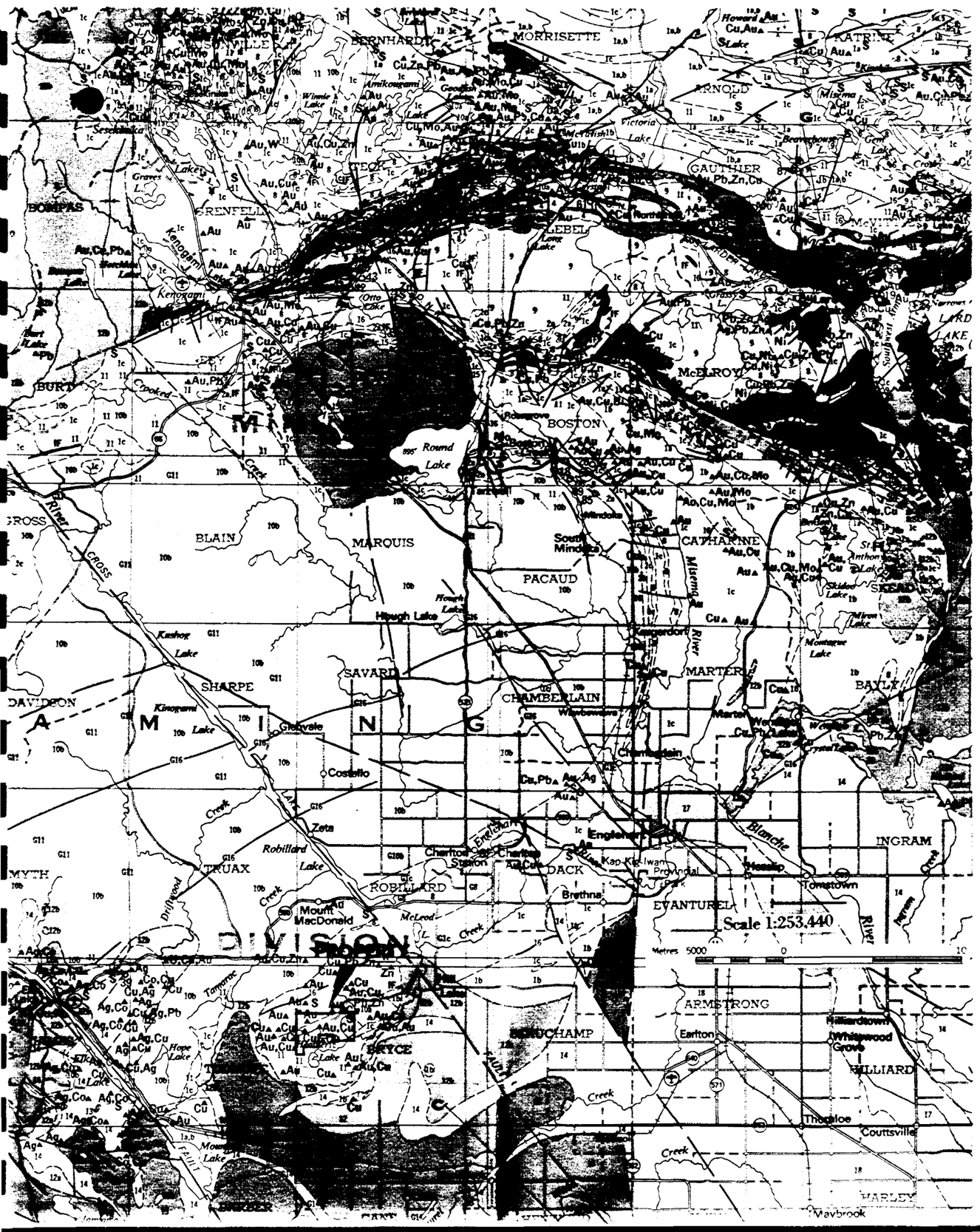
Volcanic units in this region are wrapped around the Round Lake biotite granite pluton such that trends in the area of the present property trend west-southwest swinging to the northeast near Englehart to east-west south of Kirkland Lake (Figure 3).

The volcanic cycle is subdivided into three main groups. The basal Wabewawa Group of ultramafic to mafic layered flows plus komatiites, Mg-rich tholeiitic basalt and attendant plugs and sills occurs north of the property and is exposed at Charlton and to the east on Highway 560.

The boundary between the Catharine and overlying Skead groups is traced across the northern portion of the present property.

The Catharine Group comprises Mg-rich and Fe-rich tholeiitic basalt flows with Fe-rich tholeiites predominating at the top of the group. Minor interflow chert plus graphite and argillite have also been identified in this group.

The Skead Group consists mainly of massive calc-alkaline volcanic fragmental rocks of basalt, andesite, dacite and rhyolite composition. Some flows are present in the group. The fragmental rocks range from crystal tuff to tuff-breccia and flow breccia. The coarser fragmental rocks contain a wide variety of felsic fragments. The main source of the volcanic ejecta appears to have been a large volcanic centre in Skead Township to the north of the present



LEGEND

CENOZOIC

PLEISTOCENE AND RECENT

Till, varved clay, sand, gravel, peat.

UNCONFORMITY

MESOZOIC

—19— *19 Kimberlite: dikes.*

INTRUSIVE CONTACT

PALEOZOIC

LOWER AND MIDDLE SILURIAN

18 *18 Thornloe Formation: limestone, dolomite, sandstone. Wabi Formation: limestone, shale.*

MIDDLE AND UPPER ORDOVICIAN

17 *17 Dawson Point Formation: shale. Farr Formation: limestone. Bucke Formation: limestone, shale. Guigues Formation: sandstone.*

UNCONFORMITY

PRECAMBRIAN

LATE PRECAMBRIAN

MAFIC INTRUSIVE ROCKS

—16— *16 Diabase: dikes.*

INTRUSIVE CONTACT

MIDDLE PRECAMBRIAN

ALKALIC INTRUSIVE ROCKS

15 Syenite, nepheline syenite.

MAFIC INTRUSIVE ROCKS[e]

—14— *14 Diabase, granophyre: sheets and dikes.*

INTRUSIVE CONTACT

HURONIAN SUPERGROUP

COBALT GROUP

Lorrain Formation

13 Quartzite, arkose.

Gowganda Formation

12 *12 Unsubdivided.*
12a Firstbrook Member: argillite, greywacke, siltstone, arkose.
12b Coleman Member: conglomerate, arkose, greywacke, quartzite, argillite.

UNCONFORMITY

EARLY PRECAMBRIAN

MAFIC INTRUSIVE ROCKS[b]

11 Diabase: dikes.

INTRUSIVE CONTACT

FELSIC INTRUSIVE ROCKS[c]

10 *10a Quartz porphyry, quartz-feldspar porphyry, feldspar porphyry, granophyre, felsite*[d]
10b Trondhjemite, granodiorite, quartz monzonite: simple batholiths and stocks[d]
10c Trondhjemite, granodiorite, quartz monzonite, quartz diorite, aplite, pegmatite, migmatite: complex batholiths.

9 *9 Syenite, monzonite, feldspar porphyry*[d]

METAMORPHOSED MAFIC AND ULTRAMAFIC ROCKS[e]

8 *8 Gabbro, diorite, lamprophyre.*

7 *7 Peridotite, dunite, pyroxenite, serpentinite*[f]

INTRUSIVE CONTACT

METASEDIMENTS[g]

6 Conglomerate, greywacke, siltstone, slate, argillite[h]

5 *5 Greywacke, siltstone, slate, argillite and minor pebble conglomerate*[i]

METAVOLCANICS[g]

ALKALIC METAVOLCANICS[h]

4 *4 Trachyte, leucitic trachyte; flows, tuff, breccia.*

ULTRAMAFIC METAVOLCANICS[k]

3 *3 Serpentinized dunitic and peridotitic flows.*

FELSIC METAVOLCANICS[i]

2 *2 Unsubdivided.*
2a Pyroclastic rocks.
2b Flows.

INTERMEDIATE AND MAFIC METAVOLCANICS[j]

1 *1 Unsubdivided.*
1a Intermediate flows.
1b Intermediate pyroclastic rocks.
1c Mafic flows and pyroclastic rocks.

KAPALUA GOLD MINES LTD.

BRISCOE-BRYCE PROPERTY

GEOLOGY

Project No.	C-585	By:	W.E. Brereton
Scale:		Drawn:	G.C.S. Limited
Drawing No.	3	Date:	Oct. 1984

MPH Consulting Limited

property area. Recent government mapping (1979) has indicated an additional volcanic center in the vicinity of Heather Lake immediately south of the present ground. Interbedded cherty iron formation and calc-alkalic tuff also are characteristic of the group.

Porphyry and lamprophyre dykes intrude the volcanic rocks. An elliptical stock of feldspar porphyry (Britcana porphyry) containing several gold veins is centered 2 km east of the subject property.

The Archean-Huronian unconformity is located approximately 5 km south of the property. Huronian group metasedimentary rocks (conglomerate, siltstone, argillite, etc.) are intruded by Nipissing diabase dyke swarms. These latter rocks host the Cobalt silver deposits.

The property is located between two major regional faults striking N40°W, the Cross Lake Fault and the Montreal River Fault. A study of the fracture pattern in Bryce Township indicates 3 prominent fracture directions; northwest, northeast to east-northeast and north-south. A major northeast-trending airphotographic linear, the "Sunday Creek Linear" passes to the south of the property. These fractures are important in that most of the gold mineralization recognized to date in the area is controlled by one of the above fracture directions, e.g. the Briscoe-Bryce No. 1 Vein Zone along an east-northeast structure.

6.2 Mineralization

A 1941 Ontario Department of Mines report describes 34 gold prospects in the Bryce-Robillard area (Moorhouse, 1941). This author classified the more important gold occurrences into a number of types according to structure and mineralization as follows:

a) mineralized shear zones

b) mineralized porphyries

c) mineralized joints and shear zones in granite

The first group consists of deposits that occur in: 1) northeast-trending zones; 2) north-south zones; and 3) northwest-trending zones. In the northeast-trending zones, three types were recognized; i) those mineralized with disseminated pyrite and other sulphides with quartz; ii) those mineralized with massive pyrite $\pm$ quartz; and iii) those mineralized with pyrite accompanied by chrome mica and quartz.

The Briscoe-Bryce No. 1 Vein Zone would be an excellent example of a mineralized shear zone of type ii).

There is an additional and very important type of gold occurrence in the area, namely gold associated with laminated interflow sedimentary horizons consisting of cherty and tuffaceous material containing stratiform laminae and disseminations and stringers of pyrite and chalcopyrite. These units are typically sheared and show varying degrees of sericitization, carbonatization and chloritization. This variety would be analogous to Moorhouse's "mineralized shear zones of type a-1". The Contact Zone on the Briscoe-Bryce property and reported occurrences on the J.R. Campbell property would be of this type. Much of the ore from some of the world's major gold deposits such as Amoco's Detour deposit and the Dome Mine at is Timmins derived from ore bodies of this type.

The only serious attempt at commercial gold production in the area was from the Briscoe-Bryce No. 1 Vein Zone. There are no accurate records of the work but, according to Harold Briscoe, Sr., a total of approximately 100 tons of ore was milled in a 60-75 ton per day mill installed on the property in the mid 1960's. The rock milled was taken from the decline and No. 1 and No. 2 shafts on the "A" and

"C" zones respectively. Average grade of the mill feed is reported to have been in the 0.5 to 0.6 oz per ton range. The operation appears to have been relatively crude. In any event, the mill burned down in 1967 "before steady production had been achieved".

7.0 EXPLORATION RESULTS

7.1 Geology

The property is underlain by a steeply dipping, west-southwest trending belt of predominately intermediate tuffaceous and fragmental rocks (Skead Group) underlain to the north by older basalt-andesite (Catharine Group). Pillow structures in Catharine rocks indicate stratigraphic tops to the south.

Exposures of a quartz-feldspar porphyry intrusive ("Britcana Porphyry") are located immediately to the northeast of the property.

Several mafic to intermediate dykes and sills, both drill-indicated and mapped on surface, are scattered across the property.

7.1.1 Lithologies

a) Fragmental/Pyroclastic Rocks

The majority of the property is underlain by interbedded fine and coarse fragmental rocks (units 2 and 3 respectively) of the Skead Group. Extensive exposures occur in the west, central, southwest and east portions of the claim group (Plates 8 and 9).

Grey green to light grey green, fine to medium-grained, generally massive feldspar crystal tuff and crystal lithic tuff (ash flow tuff?) is the predominant rock unit (unit 2a). White to light pink, frequently euhedral plagioclase feldspar crystals, which measure 2 mm on average, comprise 5 to 40% of the rock.

The groundmass is generally very fine grained, chloritic and/or siliceous.

Small, less than 4 mm, rounded dark green chlorite blebs and white to grey, rounded to elliptical siliceous lithic clasts (rhyolite?) measuring up to 1 cm long are scattered throughout the unit but generally constitute less than 20% of the rock. In areas of less intense schistosity, especially in the southwest, small chloritic tabular blebs are clearly pseudomorphs after amphibole phenocrysts.

Occassional angular to sub-rounded quartz crystals and pyrite cubes are scattered throughout the unit.

Locally (outcrop scale), the rock is porphyritic with crystal concentrations often being irregular and patchy. Such irregular clast/crystal distributions are common to pyroclastic debris flows.

Chloritic tuff (unit 2b) is a fine-grained, green to grey-green rock which is comprised of 10 to 30% rounded to elliptical chlorite blebs or irregular clots measuring from 2 mm to less than 1 cm in diameter (Plate 10). Feldspar crystals are typically lacking. Minor angular quartz crystals were noted.

The coarser intermediate fragmental rocks (unit 3) form distinctive wide to narrow mappable units on the property. This type is composed of a rather chaotic mixture of lapilli tuff and tuff-breccia (agglomerate, block tuff). Lapilli and breccia fragments and clasts constitute approximately 5 to 25% or more of the rock. The finer matrix of groundmass material consists of chloritic tuff and feldspar crystal $\pm$ lithic tuff, not unlike the rocks of unit 2.

Lapilli tuff (unit 3a) consists of varying proportions of sub-rounded to elliptical, white to grey and grey-green dacitic to rhyolitic clasts along with green, rounded to angular chloritic/andesitic clasts all in the size range of less than 1 cm wide by up to 3 cm long (Plate 11).

Irregular patches of chloritic material occur frequently and represent chlorite alteration of andesite and andesite tuff fragments.

Very poorly sorted tuff-breccia (unit 3b) is well exposed on the east shore of Honeymoon Lake (Plate 12). Breccia fragments comprise angular to rounded, andesite to rhyolite tuffs and flows hosted by a fine to medium-grained crystal and/or lithic tuff plus chloritic tuff groundmass.

Up to 50% or more of the rock consists of breccia fragments. Fragments measure from lapilli sizes through to blocks of up to 20 cm by 40 cm or more.

The poor sorting, lack of any internal bedding and generally chaotic nature of these rocks suggest a pyroclastic flow (debris flow) origin rather than pyroclastic ejection (i.e. air or water fall) derivation.

There appears to be some thickening and thinning and pinching out of these units along strike as suggested by the surface geology and geophysical information. The unit in the immediate vicinity of the No. 1 Vein Zone exhibits some pinching and swelling.

A thick unit of coarse fragmentals in the northeast portion of the property appears to thin rapidly to the west.

This would be consistent with a volcanic source to the east of the property, possibly in the area now occupied by the Britcana Porphyry. This may further suggest that the latter is a syn-or post-volcanic pluton which occupies the throat of a previous volcanic neck.

b) Tuffaceous Metasediments and Chert

Three exposures of fine-grained, laminated tuffaceous rocks interbanded with chert were encountered during the mapping program. Tuffaceous interflow metasediments were also previously intersected in diamond drill hole 81-9 on the Contact Zone and in hole 81-12A on the Briscoe-Bryce No. 1 Vein Zone.

One outcrop is located at line 9+00E, 2+25S and consists of grey-green, finely laminated intermediate tuff interlayered with thin, (less than 1 cm), milky white to greyish white chert bands. Minor disseminated pyrite occurs in the tuff. The tuffaceous unit is sericitized.

As indicated previously the Contact Zone is exposed in two locations. Thinly laminated, interbedded chert and andesitic tuff containing 5 to 15% pyrite and minor chalcopyrite is exposed in trench 84-11 located on line 9+00E, 4+10N. The zone measures 0.7 m in width and is siliceous and chloritic. Geophysical (VLF-EM) results suggest that the main portion of the Contact Zone may be 50 m to the south of this trench in an overburden covered area.

Laminated sulphidic cherty-tuffaceous rocks are also exposed at the Bailey-T trench (line 9+50W, 3+50N).

c) Mafic Metavolcanic Rocks

Mafic metavolcanics (unit 1) of the Catharine Group are fine to very fine-grained green to dark green rocks. They are generally massive and appear to be of primarily basaltic composition. In places, the rock is amygdaloidal containing sparse, scattered chlorite amygdules. Pillow structures were not observed.

Fine-grained green to light green chloritic tuff (unit 1a) was identified in diamond drill hole 81-9 and in the 1980 trenching of the Contact Zone and probably represents the dying stages of Catharine Group volcanism.

d) Intrusive Rocks

A narrow (3 m) sill of medium-grained equigranular, green pyroxenite (unit 5a) is exposed between lines 11+00W and 9+00W at 0+18N. The rock is slightly serpentinized.

A fine-grained mafic dyke (unit 5b) was intersected in diamond drill holes 81-10 and 81-11. It is not exposed on surface.

Previous workers (Trihope Mining, 1967) reportedly delineated several north-northeast trending diabase dykes although these were not located during the present program.

Intermediate quartz-feldspar porphyry (unit 6) is exposed in the northeast corner of the property. These outcroppings represent the western extent of the Britcana Porphyry centered 2 km to the east. The rock is dark grey-green to grey and is characterized by 15 to 20% white to pink subhedral feldspar phenocrysts and 5% sub-rounded

white quartz phenocrysts in a silicified, chloritized aphanitic to very fine-grained groundmass.

A small exposure of feldspar porphyry is located 20 m east of line 9+00W, 5+50N. The exposure coincides with a feldspar porphyry sill mapped by Trihope Mining (1967).

7.1.2 Structure

Rock units on the property strike east-northeast and are steeply to vertically dipping. There is no evidence of any fold closures in the property area. Stratigraphic tops in the area are indicated to be to the southeast based on government regional mapping.

A number of northerly trending "breaks" are inferred on the property based on various disruptions and dislocations in ground geophysical trends (particularly magnetics) and the recognition of numerous airphoto linears on the claims. By far the most prominent in the latter regard is a north-northeasterly lineament which crosses the east end of the No. 1 Vein Zone in the area of line 9+50E (Map 1).

Several other northerly fractures are present in the east part of the property in the area of lines 12+00E to 14+00E based on geophysical evidence, geological observation of fracturing and shattering in the rocks and presence of airphoto lineaments.

Additional northerly fracture zones are also indicated in the area of lines 6+00W to 8+00W and 11+00W to 12+00W based on similar reasoning.

The amount, if any, of horizontal displacement on these fractures is uncertain. It appears that, in general, displacement may be relatively limited, e.g., 50 m or less. This conclusion is based on certain marker units, particularly the geophysical inferred Contact Zone, which appears to cross the entire property in relatively undisturbed fashion.

Possible fault offsets at the east end of the No. 1 Vein Zone, however, should be considered in any further drilling here.

Numerous, generally concordant shear zones manifested by extreme schistosity along with sericitization and chloritization occur throughout the property within the fragmental and tuffaceous rocks. These shears are often the locus of variable quartz-sulphide mineralization.

A strong, 8 m wide shear zone accompanied by quartz veining occurs at line 2+00W, 3+25S. The zone has been traced 30 m west and 15 m east of the line before it disappears under overburden cover. This structure was pitted and trenched (trenches 84-1, 2) by previous workers (discussion to follow).

A locally intense shear zone measuring up to 15 m wide is located at 4+25S between 7+80W and 9+20W and has been traced for over 160 m in outcrop. Quartz veining and pervasive platey schistosity with chlorite, sericite and minor disseminated pyrite mineralization characterize the zone. This shear is probably the strongest on the property, even more intense than that hosting the No. 1 Vein. This structure has been investigated by previous workers in a number of trenches, including some of remarkably large proportions.

7.2 Alteration, Mineralization and Sampling

Numerous narrow quartz veins, both crosscutting and concordant with schistosity/bedding, are found at various locations across the property.

Concordant veins are generally hosted by shear zones accompanied by pervasive sericitization, carbonatization and chloritization. Crystal and/or lithic clasts are frequently difficult or impossible to discern in areas of extreme schistosity and alteration.

Crosscutting veins throughout the property are accompanied by silicification and minor carbonatization of the host rocks.

Fragmental and tuffaceous rocks are variously carbonatized and chloritized. Rocks in the area of the Britcana Porphyry are extensively carbonatized. A brownish weathering rind on outcrop surface is a good indicator of carbonatization. Silicification is noted in the vicinity of faults.

A number of mineralized zones which were trenched and pitted by previous workers were located, cleaned out, mapped and sampled during the 1984 prospecting and mapping program.

Results of this work are presented as a series of trench map insets on Map 1. A summary of economic and geological characteristics of the trenches is presented in Table 1.

Three grab samples of quartz veining containing disseminated pyrite, chalcopyrite and malachite in the trenches designated 84-3 (line 7+00W, 5+00S, South Zone) returned assays of 980, 690 and 345 ppb (0.03, 0.02, 0.01 oz/ton) Au (samples 7334, 35 and 36 respectively). The host lithology is lapilli tuff (unit 3b).

TABLE 1 : TRENCH DATA SUMMARY AND ASSAY RESULTS

TRENCH NUMBER	LOCATION	GEOLOGY	MINERALIZATION	GRAB SAMPLE NO.	ASSAY (ppb Au)
84-1	Line 2+00W, 3+28S	Concordant 0.3 m wide quartz vein hosted by sericitized, carbonatized, sheared and schistose feldspar crystal and lithic tuff; vein dips 20° to the south.	Barren quartz vein	7332	10
84-2	Line 2+58W, 3+25S	Quartz vein in carbonatized, sericitized shear zone within feldspar crystal and lithic tuff.	Minor disseminated pyrite in quartz vein	7333	10
84-3	Line 7+00W, 5+00S	Narrow concordant mineralized quartz veins hosted by lapilli tuff and tuff breccia	5-15% pyrite, lesser chalcopyrite, malachite	7334 7335 7336	980 690
84-4	Line 8+50W, 4+25S	Concordant to crosscutting quartz veins and veinlets within shear zone in schistose, sericitized carbonatized feldspar crystal tuff. Zone traced east at least to line 8+00W.	Minor disseminated pyrite in tuff and quartz vein	Not Sampled	
84-5	Line 2+00W, 1+00S	Two semi-concordant 0.30 m wide quartz veins hosted by carbonatized feldspar porphyry crystal tuff.	Minor disseminated pyrite	7337 7338	20 NIL
84-6	Line 7+00W, 3+35S	Semi-concordant quartz vein measuring 0.30 m wide hosted by feldspar crystal tuff	Minor pyrite	7339	NIL
84-7	Line 10+00W, 4+50S	Narrow concordant quartz-carbonate vein within sheared and carbonatized feldspar crystal tuff	Up to 15% pyrite in quartz vein	7341 7342	NIL

TABLE 1 : TRENCH DATA SUMMARY AND ASSAY RESULTS

TRENCH NUMBER	LOCATION	GEOLOGY	MINERALIZATION	GRAB SAMPLE NO.	ASSAY (ppb Au)
84-8	Line 10+00E, 8+70S	A series of pits and trenches expose a pyritic shear zone within feldspar crystal and lithic tuff. Some quartz-carbonate veinlets. Zone measures less than 0.30 m wide and was traced over a length of 100 m.	Up to 5-10% disseminated pyrite	7346 7348	260 11,930 (10,970 on re-assay)
84-9	Line 14+00W, 1+50N	Several pits and trenches expose a quartz vein hosted by lapilli tuff (MacDougall Occurrence)	5-10% pyrite, minor chalcopyrite, malachite, azurite	7343	3,220 (3,770 on re-assay)
84-10	Line 9+00E, 4+10N	Narrow (0.30 m) pyritic chert/quartz band within andesitic tuff (Contact Zone).	10-15% pyrite cubes, blebs, fine disseminations	7320	100

Probably the most significant discovery was in trench 84-8 (line 10+00E, 8+70S) which exposes a quartz and quartz-carbonate vein/stringer system mineralized with pyrite, chalcopyrite and hosted by feldspar crystal lithic tuff (unit 2a). Two grab samples (7346 and 7348 respectively) returned 260 and 11,930 ppb Au (the latter returned 10,970 ppb Au on re-analysis). Using an average of 11,500 ppb Au, this represents a value of 0.34 oz Au/ton. This mineralized zone is less than 1 foot in width.

A quartz vein mineralized with pyrite, chalcopyrite, malachite and azurite was trenched on line 14+00W, 1+50N (trench 84-9). Grab samples assayed 3,255 ppb (0.095 oz/ton) Au and 1,860 ppb (0.05 oz/ton) Au (samples 7343 and 7350 respectively). This is the MacDougall occurrence in Moorhouse's 1941 report.

All of these veins are narrow (less than 0.7 m) and generally of short strike length, not exceeding 10 m in length, based on the trenching. Although possibly not of any immediate economic significance in themselves, these gold values emphasize the widespread distribution of gold mineralization on the property and suggest the possibility of more substantial gold concentrations in the area.

A 0.4 m wide, poorly mineralized quartz vein at line 12+50W, 4+80S assayed 320 ppb Au (sample 7323).

A 0.4 m wide by 15 m long pyritic lens containing up to 45% pyrite and hosted by tuff breccia is located at line 11+00E, 5+00S. A grab sample assayed 90 ppb Au (sample 7327). This zone, even though assay values are very low, is interpreted to be significant in that it may indicate potential for stratiform pyritic gold deposits in the pyroclastic rocks.

A 0.3 m wide pyritic quartz vein or chert zone in altered mafic metavolcanics and tuff is exposed in a trench (84-10) at line 9+00E, 4+20N. A grab sample (7320) assayed 100 ppb Au. This is part of the Contact Zone on the old Towne-Currie Claim (claim 562196).

A total of 5 samples was panned from gravelly material from various creeks on the property (Map 6). Panning conditions were generally poor with most of the creeks being of the muddy variety with abundant beaver dams. Samples were panned down to a black sand concentrate which was then analysed for gold.

Sample GS-84-S-5 averaged 11,280 ppb (0.33 oz/ton) Au. This sample was taken from the small creek immediately downstream from the old Briscoe mill. As such, the value probably represents contamination from the milling process.

Pan sample 7331 taken from Honeymoon Creek on line 12+00W returned the slightly anomalous value of 430 ppb Au. This may have some significance in that the westward projection of the structure which hosts the No. 1 Vein Zone passes immediately to the north near the baseline.

7.3 Magnetometer Survey

The current magnetic data appear to have meshed very accurately with the old information (Map 2) in that previously established trends continue through the recently surveyed area.

There are two distinct magnetic domains on the property, an area of higher magnetic relief and intensity to the north and northwest with generally low magnetic activity over the remainder of the property. The former domain reflects relatively more magnetic Catharine basalts while the latter is characteristic of the Skead

pyroclastic/fragmental rocks. The actual contact appears to be defined almost exactly by the 59,400 nT contour.

The general west-southwest trend of the volcanic units is well illustrated by the magnetic trends.

A number of sharp, localized, magnetic highs within the Catharine basalts, e.g., along the north ends of lines 2+00W, 3+00W and 11+00W, are probably reflective of relative magnetite concentrations within these rocks. Disposition of magnetic contours indicates a steep south dip in accord with geological observations.

The total field data in general do not appear to be too useful in differentiating between the various pyroclastic/fragmental units of the Skead Group. This is interpreted to be a reflection of a compositional similarity between the various lithologic types. All would appear to have a relatively consistent, low magnetic susceptibility resulting in the observed bland magnetic pattern.

There are no anomalies which are interpreted as being reflective of pyrrhotite ($\pm$ pyrite) concentrations considering the EM results in conjunction with the magnetics.

Structurally, there is a great deal of information which was gained from the magnetic results, particularly in the form of fault/fracture zones. The more prominent of these are displayed on Map 1. Such features are reflected magnetically as truncations, dislocations and offsets in magnetic trends.

7.4 VLF-EM Survey

Numerous VLF-EM conductor axes are present on the property, both in the current surveying as well as in the past work.

Map 3 presents actual VLF profiles. Map 4 presents VLF first derivative calculations. The latter, in effect, defines a conductive axis as a contour minima rather than a profile inflection and is often much more readily interpretable than the profile information.

Virtually all of the VLF responses are interpreted to be due to shearing and/or conductive overburden/topographic effects. The latter are of no interest in an exploration context. The fact that they are detected at all is, in the main, a reflection of the relatively very high frequencies employed in VLF surveying. Such features are often detected at outcrop/swamp interfaces and reflect the pronounced lateral resistivity change in this situation. Other VLF features on the property are seen to follow creek beds, a reflection in whole or in part of conductive clay material in the creek valley.

Most of the VLF features located by the present survey are interpreted to be conductive overburden effects. Good examples of this would be the north-northeast trending anomaly on claims 579222 and 579225 which follows a creek valley and/or break in slope for virtually its entire length. The anomaly which passes very near the No. 1 post of claim 579220 and that crossing the northwest part of claim 585682 are also interpreted to be spurious conductive overburden effects.

Shear zones host most of the known gold mineralization to date in the area. The ability to detect these by VLF was one of the reasons the method was selected.

Possible shear zones located by the 1984 surveying are reflected by the VLF anomalies in the southeast corner of claim 579224 and in the southwest portion of claim 585682. The VLF feature which crosses

midway along the boundary between claims 579223 and 579224 may be a shear feature with some overburden enhancement.

The most spectacular VLF feature is that on the Contact Zone on claim 562916, particularly on line 9+00E. Previous trenching and drilling has established that the VLF conductivity is due to a zone of sheared and altered sediments with variable but locally substantial (to 25%) pyrite $\pm$ chalcopyrite. The intensity of the response on claim 562196 is somewhat surprising however and may be reflective of a larger/more sulphide-rich zone than is indicated to the north on surface.

7.5 Gradiometer Survey

The main purpose of this work was to assist in mapping various of the geological units in areas of overburden cover, the resolving power of gradiometer data being much greater than that of total field information.

Results are presented on Map 5.

As with the total field data, the most obvious feature is the transition in the area of 4+00N from relatively low gradients in the south to much higher and more erratic gradients to the north. This transition corresponds to the transition from Skead Pyroclastics in the south to Catharine Basalts in the north.

Internal subdivisions within the two groups based on the gradiometry are less straightforward. Areas of very high positive or negative gradients within the basalts appear to generally define relatively magnetite-rich flows or portions of flows (e.g., claim 562196). Some of the very narrow high gradient closures may also be defining one contact of magnetically distinct units. Such a situation may be present in the northeast corner of claim 579216 where very local gradient features at 8+00N and 9+00N on line 11+30W may be defining

the edges of a thicker magnetite-rich unit rather than each being reflective of a separate zone.

The gradient pattern within the Skead fragmental/pyroclastic rocks is generally chaotic with few clearcut trends. This is in accord with total field and geological observations of a general magnetic-compositional homogeneity within these rocks.

Note that the much smoother pattern in the area between 4+00S and 4+00N on Map 5a (east sheet) is more a reflection of less data, i.e., wider line spacing, than any profound change in the geology. This is, however, one area where the gradiometry might be mapping stratigraphy. With reference to Map 1a, it can be seen that the various "zero contours" in this area fit fairly well with contacts of fine/coarse fragmental units as defined by drilling and surface mapping. This relationship has been used to interpret some rock contacts here which are not exposed, particularly the north contact of the thick unit of pyroclastic tuff-breccia in the footwall of the No. 1 Vein.

This type of relationship was utilized wherever possible in assisting the geological interpretation.

Numerous fault/fracture features can also be inferred from the gradiometer data by various truncations and dislocations in gradient trends. These have been incorporated into the geological interpretation. One of the more prominent of these is located in the southeast portion of the claims.

7.6 Geochemical Survey

Results of the humus sampling are presented on Map 6.

Evaluation of the geochemical results suggest an anomalous threshold in the area of 10 ppb Au; i.e. values greater than this may be considered anomalous and may have some exploration significance.

In general, there are no well defined gold geochemical trends that may be indicative of a substantial bedrock gold concentration.

The "calibration" lines of samplings that were carried out over the No. 1 Vein Zone (line 2+00W, 1+00E, 3+00E, 6+00E, and 8+00E) did not show any anomalous response over the known mineralization. It would appear that the dense clay overburden over most of this zone has effectively masked the subsurface mineralization from the surface vegetation. Overburden depths are known to be up to 25 m (line 4+00E).

One geochemical feature of possible interest in the area of the No. 1 Vein Zone is present to the north of the vein, particularly on line 8+00E and to a lesser extent on line 1+00E, of somewhat increased although not distinctly anomalous gold values (i.e. 5-8 ppb). These may somehow be related to the No. 1 Vein or may be a very subtle response to another parallel zone of mineralization to the north of the known structure.

The one area where the geochemistry is more clearly reflective of possible bedrock gold mineralization is in the area immediately south of Honeymoon Lake, particularly on line 18+00W. Values here range up to a distinctly anomalous 530 ppb Au (station 2+25S). The field mapping and prospecting did not locate any gold zones in this immediate area, although old reports do refer to gold mineralization near the south shore of Homeymoon Lake. Further investigation should be carried out here.

Other high values are scattered somewhat erratically in the southeast and extreme northwest portion of the property. These do not form any discernible pattern that might relate to a potential bedrock gold zone.

In general, the geochemistry may be somewhat more representative of bedrock in the west portion of the property in that this area is characterized by generally higher relief and better drainage with less overburden cover than in the east.

8.0 CONCLUSIONS AND RECOMMENDATIONS

Evaluation of the exploration data gathered in the course of the 1984 program on the Briscoe-Bryce property (linecutting, geology, prospecting, VLF-EM, magnetics, geochemistry, gradiometry) permits a number of conclusions including:

a) There is widespread, albeit generally non-economic gold mineralization on the property. This appears to be restricted almost entirely to the Skead pyroclastic/fragmental rocks. Discovery of a very weakly auriferous, stratiform pyritic zone within these rocks suggest that there may be potential for this type of gold deposit on the property along with the quartz vein type. Such pyritic deposits are known elsewhere in the region in Skead rocks, e.g. the Cathroy Larder deposit.

b) The main exploration focus on the property remains the No. 1 Vein Zone.

A program of additional exploration is recommended to further evaluate the gold potential of this property as follows:

A) Follow-up to present program

A limited program of IP surveying should be initiated to test for potentially auriferous pyrite concentration in Skead pyroclastics as follows:

Line	From	To
18+00W	0+00	12+00S
16+00W	1+00N	10+50S
9+00E	6+00N	15+00S
10+00E	1+50N	15+00S

The surveying on line 9+00E would also investigate a strong VLF response on the Contact Zone, the potentially geochemical anomalous zone north of the No. 1 Vein Zone and the Vein Zone itself. All inclusive cost of

this work is estimated at $7,000. Exact survey specifications as to array, dipole spacing, etc. will be presented to Kapalua following conversations with our geophysical staff.

B) Additional drilling (BQ) on No. 1 Vein Zone

Previous shallow drilling here has established the presence of potentially economic gold contents in a strong shear structure. The latter is open at both ends and to depth.

Drill investigation of the No. 1 Vein Zone should continue along strike to the east. Drilling should resume on section 9+00E and then continue eastward on 100 m sections until the zone disappears or the property boundary is reached. An allotment of 375 m (1,250 ft.) in 4-5 holes should be provided for this work.

Some deeper holes should be drilled between sections 0+00 and 6+00E to determine continuity of this higher grade times thickness portion to depth. Recommended holes, subject to some modification depending on actual field conditions are as follows:

Section	Departure	Length
0+50E	0+60S	130 m
1+50E	0+70S	160 m
2+50E	0+70S	160 m
3+50E	0+70S	160 m
4+50E	0+70S	160 m
5+50E	0+70S	160 m
		930 m (3,000 ft.)

All holes should be drilled grid north at -60°.

A further 2-3 hole, 750 ft. allowance should be made to test new targets contingent on results in phase (A) and/or to test the west strike extension of the No. 1 Vein Zone for a grand total of 5,000 ft. at $40 ft. or $200,000.00.

Further recommendations will be presented to Kapulua on completion of the above program and an assessment of results relative to our exploration models for the property.

Respectfully submitted,

MPH CONSULTING LIMITED

W.E. Brereton, P. Eng.

N.O. Willoughby, B. Sc.

REFERENCES

Hoffman, E.L., and Brooker, E.J., 1983: Biogeochemical Propsecting for Gold with Reference to some Canadian Gold Deposits; Paper presented to Organic Matter, Biological System and Mineral Exploration Symposium, UCLA, February 14-18, 1983.

Hopkins, A., 1978: Report on the Gold Prospect of the Rip Van Winkel Syndicate in Bryce and Tudhope Townships, N.E. Ontario; private report to Rip Van Winkel Syndicate.

Johns, G.W., Hoyle, Warren and Good, David. 1981: Precambrian Geology of the Hill Lake Area, Bryce and Robillard Townships, Timiskaming District; Ontario Geological Survey Preliminary Map, P. 2415.

Moorhouse, W.W., 1941: Geology of the Bryce-Robillard Area in ODM Annual Report, Vol. 1, Part 4, 1941.

CERTIFICATE OF QUALIFICATIONS AND LETTER OF CONSENT

I, W.E. Brereton, of Toronto, Ontario, do hereby certify that:

1. I am a consulting geologist with an office at 2406-120 Adelaide Street West, Toronto, Ontario, Canada.

2. I obtained a B.Sc. (Hon.) degree in Geology and Physics from Queen's University in 1971, and a M.Sc. (A) from McGill University in 1977.

3. I have practiced my profession continuously since graduation and have been in private independent practice since 1977.

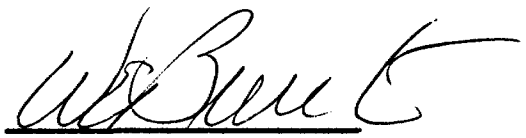
4. I have based my conclusions and recommendations contained in this report on my experience and knowledge of the geology of the area and on results of the field work carried out on the property under my supervision during the months of August and September, 1984.

5. I am a member of the Association of Professional Engineers of the province of Ontario.

6. I have no interest, either direct or indirect in Kapalua Gold Mines Ltd. or any of Kapalua's subsidiaries, nor do I expect to receive or acquire any such interest.

7. I consent to the use of this report in any prospectus to be filed by the company.

Toronto, Ontario
October, 1984



W.E. Brereton, P.Eng.

CERTIFICATE OF QUALIFICATIONS AND LETTER OF CONSENT

I, N.O. Willoughby of 651 Cosburn Avenue, Toronto, Ontario certify that:

1. I hold a Bachelor of Science Degree (Honours) in Applied Geology from Carleton University, Ottawa, Ontario.

2. I have practiced my profession continuously since graduation and have been in private practice since 1975.

3. I have based my conclusions and recommendations contained in this report on my experience and knowledge of the geology of the area and on results of the field work carried out on the property under my supervision during the months of August and September, 1984.

4. I hold no interest, directly or indirectly, in this property other than professional fees, nor do I expect to receive any interest in the property or in Kapalua Gold Mines Ltd., or any of its subsidiary companies.

5. I consent to the use of this report in any prospectus to be filed by the company.

N.O. Willoughby

Toronto, Ontario
October, 1984

N.O. Willoughby, B.Sc.(Hons.)

APPENDIX 1

Ontario

Ministry of Natural Resources

File L578257

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) Gradiometry, Geological, Geochemical

Township or Area Bryce Twp.

Claim Holder(s) Kapalua Gold Mines Ltd.

Survey Company MPH Consulting Limited

Author of Report W.E. Brereton

Address of Author #2406-120 Adelaide St. W., Toronto, Ont.

Covering Dates of Survey Aug. 1 - Oct. 10/84
(linecutting to office)

Total Miles of Line Cut 35.8

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
–Electromagnetic	
–Magnetometer	
–Radiometric	
–Other Gradiometry	20
Geological	20
Geochemical	40

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: October 16, 1984 SIGNATURE: _____
Author of Report or Agent

Res. Geol. _____ Qualifications _____

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
L	578257
	261
	263
	264
	265
	266
	579215
	216
	217
	218

If space insufficient, attach list

TOTAL CLAIMS 10

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken 578257 - 266, 579215 - 218

Total Number of Samples approx. 450

Type of Sample Humus (minor rock, stream samples)
(Nature of Material)

Average Sample Weight 30 grams

Method of Collection grubhoe

Soil Horizon Sampled A0

Horizon Development -

Sample Depth 5 - 15 cm.

Terrain generally flat with 10-15% outcrop; mature mixed bush with some cedar swamp

Drainage Development generally well drained

Estimated Range of Overburden Thickness 0 - 100 ft.

SAMPLE PREPARATION
(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis -30 mesh

General sample prepped by X-Ray Laboratories, Toronto

ANALYTICAL METHODS

Values expressed in: per cent ☐
p. p. m. ☐
p. p. b. ☒

Cu, Pb, Zn, Ni, Co, Ag, Mo, As,-(circle)

Others Au

Field Analysis (_____ tests)
Extraction Method _____
Analytical Method _____
Reagents Used _____

Field Laboratory Analysis
No. (_____ tests)
Extraction Method _____
Analytical Method _____
Reagents Used _____

Commercial Laboratory (_____ tests)
Name of Laboratory Swastika and N.A.S.
Extraction Method _____
Analytical Method _____
Reagents Used _____

General Swastika - standard gold AA on rocks
Nuclear Activation Services - humus samples - screen at -30 mesh, dry, macerate, briquette, irradiate in nuclear reactor and count off-coming radiation which is directly proportional to gold content

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS - If more than one survey, specify data for each type of survey

Number of Stations 704 Number of Readings 750

Station interval 25 m Line spacing 100 m

Profile scale

Contour interval Gradiometry - 1 nT/m

MAGNETIC

Instrument

Accuracy – Scale constant

Diurnal correction method

Base Station check-in interval (hours)

Base Station location and value

ELECTROMAGNETIC

Instrument

Coil configuration

Coil separation

Accuracy

Method: ☐ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency
(specify V.L.F. station)

Parameters measured

GRAVITY

Instrument

Scale constant

Corrections made

Base station value and location

Elevation accuracy

DU PO ZA N RESISTIVITY

Instrument

Method ☐ Time Domain ☐ Frequency Domain

Parameters – On time Frequency

– Off time Range

– Delay time

– Integration time

Power

Electrode array

Electrode spacing

Type of electrode

ELECTRICAL

Instrument _____ Range _____

Survey Method _____

_____

Corrections made _____

_____

RADIOMETRIC

Instrument _____

Values measured _____

Energy windows (levels) _____

Height of instrument _____ Background Count _____

Size of detector _____

Overburden _____

(type, depth – include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey Gradiometry

Instrument EDA PPM 500

Accuracy 0.1 nT/m

Parameters measured Vertical gradient of earth's magnetic field

_____

Additional information (for understanding results) _____

_____

_____

AIRBORNE SURVEYS

Type of survey(s) _____

Instrument(s) _____

(specify for each type of survey)

Accuracy _____

(specify for each type of survey)

Aircraft used _____

Sensor altitude _____

Navigation and flight path recovery method _____

_____

Aircraft altitude _____ Line Spacing _____

Miles flown over total area _____ Over claims only _____

Ontario

Ministry of Natural Resources

File L579215

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) VLF, Magnetics, Gradiometry, Geochemical, Geological

Township or Area Bryce Twp.

Claim Holder(s) Kapalua Gold Mines Ltd.

Survey Company MPH Consulting Limited

Author of Report W.E. Brereton

Address of Author #2406-120 Adelaide St. W., Toronto, Ont

Covering Dates of Survey Aug. 1 - Oct. 10, 1984
(linecutting to office)

Total Miles of Line Cut 35.8

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
–Electromagnetic	20
–Magnetometer	20
–Radiometric	
Gradiometry –Other	20
Geological	20
Geochemical	40

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: Oct. 16, 1984 SIGNATURE: _____
Author of Report or Agent

Res. Geol. _____ Qualifications _____

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
L	579219
	579220
	579221
	579222
	579223
	579224
	579225
	585682
	585683
	562196
	562271

TOTAL CLAIMS 11

If space insufficient, attach list

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken 579219 - 225, 585682 - 683, 562196, 562271

Total Number of Samples 495 ±

Type of Sample Humus (minor rock, stream samples)
(Nature of Material)

Average Sample Weight 30 grams

Method of Collection grubhoe

Soil Horizon Sampled A0

Horizon Development -

Sample Depth 5 - 15 cm

Terrain generally flat with 10-15% outcrop; mature mixed bush with some cedar swamp

Drainage Development generally well drained

Estimated Range of Overburden Thickness 0 - 100 ft.

SAMPLE PREPARATION
(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis -30 mesh

General samples prepped by X-Ray Laboratories, Toronto

ANALYTICAL METHODS

Values expressed in: per cent ☐ p. p. m. ☐ p. p. b. ☒

Cu, Pb, Zn, Ni, Co, Ag, Mo, As,-(circle)

Others Au

Field Analysis (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Field Laboratory Analysis

No. (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Commercial Laboratory (_____ tests)

Name of Laboratory Swastika and N.A.S.

Extraction Method _____

Analytical Method _____

Reagents Used _____

General Swastika - standard gold AA on rocks
Nuclear Activation Services
humus samples - screen at -30 mesh, dry, macerate, briquette, irradiate in nuclear reactor and count off-coming radiation which is directly proportional to gold content

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS If more than one survey, specify data for each type of survey

Number of Stations 715 Number of Readings 750 ±

Station interval 25 m Line spacing 100 m

Profile scale VLF:1 cm = 10%

Contour interval Mag - 25 nT, Gradiometry - 1 nT/m

MAGNETIC

Instrument EDA PPM 500

Accuracy – Scale constant 1 nT

Diurnal correction method Base station EDA PPM 400

Base Station check-in interval (hours)

Base Station location and value

ELECTROMAGNETIC

Instrument Geonics VLF EM-16

Coil configuration

Coil separation

Accuracy 1%

Method: ☐ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency Cutler; 24.0 kHz
(specify V.L.F. station)

Parameters measured Inphase and quadrature of total EM field

GRAVITY

Instrument

Scale constant

Corrections made

Base station value and location

Elevation accuracy

INDUCED POLARIZATION / RESISTIVITY

Instrument

Method ☐ Time Domain ☐ Frequency Domain

Parameters – On time Frequency

– Off time Range

– Delay time

– Integration time

Power

Electrode array

Electrode spacing

Type of electrode

[illegible] POTENTIAL

Instrument _____ Range _____

Survey Method _____

_____

Corrections made _____

_____

[illegible] METRIC

Instrument _____

Values measured _____

Energy windows (levels) _____

Height of instrument _____ Background Count _____

Size of detector _____

Overburden _____

(type, depth – include outcrop map)

[illegible] (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey Gradiometry

Instrument EDA PPM 500

Accuracy 0.1 nT/m

Parameters measured Vertical gradient of earth's magnetic field

_____

Additional information (for understanding results) _____

_____

_____

[illegible] SURVEYS

Type of survey(s) _____

Instrument(s) _____

(specify for each type of survey)

Accuracy _____

(specify for each type of survey)

Aircraft used _____

Sensor altitude _____

Navigation and flight path recovery method _____

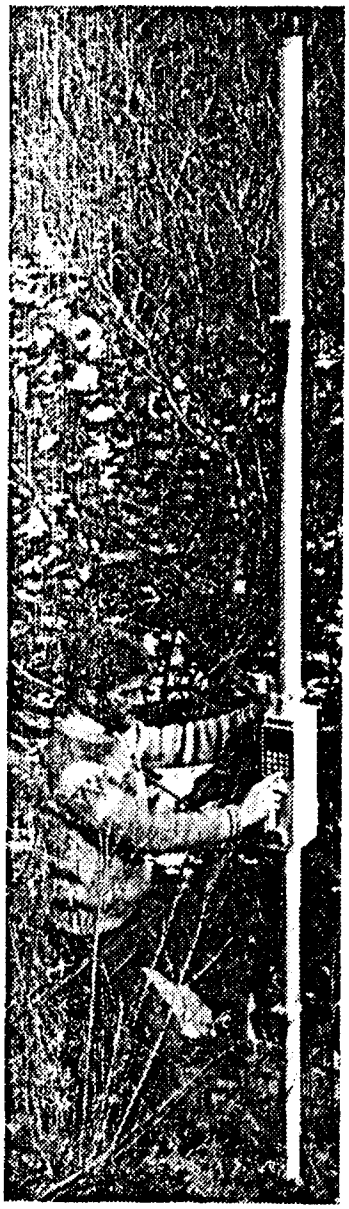
_____

Aircraft altitude _____ Line Spacing _____

Miles flown over total area _____ Over claims only _____

APPENDIX 2

GEM IMAG PPM-500 Vertical Gradiometer



Description

The PPM-500 microprocessor-based vertical gradiometer provides the operator with an accurate means of measuring both the total field and the gradient of the total field. It reads and records the measurements of both sensors SIMULTANEOUSLY to calculate the true gradient measurement.

This simultaneous, and not sequential, measurement of both sensors totally removes the effect of diurnal variations and magnetic storm interferences from the data.

Features

In a typical gradient survey, the PPM-500 offers the operator:

•A visual readout and storage of the following information in an absolutely secure memory that prevents data loss or tampering:
- the gradient of the total field
- total magnetic field magnitude of upper sensor
- time of measurement
- grid coordinates
- statistical error of total field reading
- signal strength and decay rate measurement of both sensors

•A choice of three output modes:
- to a DCU-200 magnetic cassette recorder
- to a DCU-040 or DCU-400 thermal printer
- to any RS-232C compatible microcomputer

Benefits

READS BOTH SENSORS SIMULTANEOUSLY

The PPM-500 Vertical Gradiometer reads both sensors simultaneously and not sequentially. The induced effects of diurnal variations and magnetic storms are both removed from the data.

IMPROVED DATA DURING MAGNETIC STORMS

Gradient surveys can be conducted during magnetic storms resulting in no lost survey time. The quality of the gradient data measured by the PPM-500 is enhanced further because both sensors are simultaneously read.

NO DIURNAL CORRECTIONS REQUIRED

The simultaneous polarization of both sensors cancels the effect of diurnal magnetic variations.

BETTER RESOLUTION OF TOTAL FIELD ANOMALIES

The PPM-500 more sharply defines the magnetic responses determined by total field data. Closely-spaced anomalies are individually delineated rather than being identified collectively under one broad magnetic response.

DIRECT DELINEATION OF VERTICAL CONTACTS

The PPM-500 identifies vertical contacts expressed at the zero line of gradient contour or profile values. It is an ideal contact mapping tool especially in vertical to near-vertical contact or fault zones. Vertical dyke-like bodies can also be mapped effectively.

ENHANCES NEAR SURFACE ANOMALIES

The PPM-500 emphasizes shallow, near-surface sources (higher frequency anomalies) relative to deeper responses (lower frequency). This provides an approximate "on-the-spot" depth estimate of the anomalous source.

AUTOMATICALLY REMOVES REGIONAL GRADIENT

The ability of the PPM-500 to differentiate between higher and lower frequency responses effectively removes background regional gradients from anomalous residual responses.

GRADIENT AND TOTAL FIELD READINGS STORED SIMULTANEOUSLY

The PPM-500's ability to simultaneously record in memory both the gradient and total field measurements as well as their respective statistical error enhances data interpretation. The use of both type of data offer the geophysicist unique alternatives in the interpretation of magnetic field data, ie. gradient vector diagrams. The total field data can also be automatically corrected with the PPM-375 Portable/Base Station or the PPM-400 Base Station Magnetometers

VARIOUS SENSOR CONFIGURATIONS

A choice of four sensors are presently available:
- an in-line gradiometer sensor as shown in the photograph,
- a remote gradiometer sensor,
- an in-line total field sensor,
- a remote total field sensor

PPM-350 features are also part of the PPM-500. Additional information can be obtained in the PPM-350 brochure.

Specifications

Dynamic Range	18,000 to 103,000 gammas
Capture Range	±25% relative to ambient field strength of last stored value
Tuning Method	Tuning value is calculated accurately utilizing a specially developed tuning algorithm.
Display Resolution	0.1 gamma
Processing Sensitivity	±0.02 gamma
Mathematical Truncation Error	±0.02 gamma
Statistical Error Resolution	0.01 gamma
Absolute Accuracy	±15 ppm at 23°C, 50 ppm over the operating temperature range
Memory Capacity	1140 readings standard, upgradeable to 2140 readings
Display	Custom-designed, ruggedized liquid crystal display with an operating temperature range from -40°C to +55°C. The display contains six numeric digits, decimal point, battery status monitor, signal decay rate and signal amplitude monitor and function descriptors. Upon exceeding 100,000 gammas, the display rolls over eliminating first significant digit.
Gradient Tolerance	5,000 gammas per meter (typical)
Test Mode	A) Diagnostic testing data and programmable memory B) Self test (hardware)
Sensors	Optimized miniature design. Magnetic cleanliness is consistent with the specified absolute accuracy.
Sensor Separation	1 meter standard. Sensors balanced to an accuracy of 0.5%
Environmental Range	-40°C to +55°C; 0-100% relative humidity; weatherproof
Power Supply	Non-magnetic rechargeable sealed lead-acid battery cartridge.
Battery Cartridge Life	2,000 to 5,000 readings, depending upon ambient temperature and rate of readings.
Weight and Dimensions	
Instrument Console	4.5kg, 41 x 11 x 15cm
Lead-Acid Battery	2.0kg, 9.5 x 11 x 13.5cm
Sensor	2.5kg, 5.6cm diameter x 230cm
System Complement	Instrument console; sensor, backpole, power supply and charger, harness assembly, operations manual.

```
PPM500 #230025 B=69
03/03 12:04:26
OP   #1
12:04:18 57387.4 .14      -100     50   88
            17.4
12:04:49 57389.7 .13      -100      0   88
            17.9
12:04:57 57389.5 .16      -100    -50   88
            18.1
12:05:05 57393.1 .19      -100   -100   88
            18.1
12:05:13 57387.3 .23      -100   -150   88
            18.2
12:05:33 57387.9 .14      -200   -175   88
            16.2
12:05:42 57391.6 .18      -200   -150   88
            16.6
12:05:49 57389.4 .14      -200   -100   88
            16.3
12:06:02 57392.1 .15      -200    -50   88
            16.7
12:06:10 57386.6 .16      -200     -0   88
            17.0
```

PPM-500 DATA BLOCK contains:

time of reading, total field reading, gradient measurement (directly beneath total field reading), statistical error, line & station number, normalized decay rate and amplitude of sensor signal.

E D A Instruments Inc.
1 Thorncliffe Park Drive
Toronto, Ontario
Canada M4H 1G9
Telex: 06 25222 EDA TOR
Cable: Instruments Toronto
(416) 425-7800

In U.S.A.
E D A Instruments Inc
5151 Ward Road
Wheat Ridge, Colorado
U.S.A. 80033
Telex: 00 450681 DVR
(303) 422-9112

PPM SERIES Portable Magnetometers

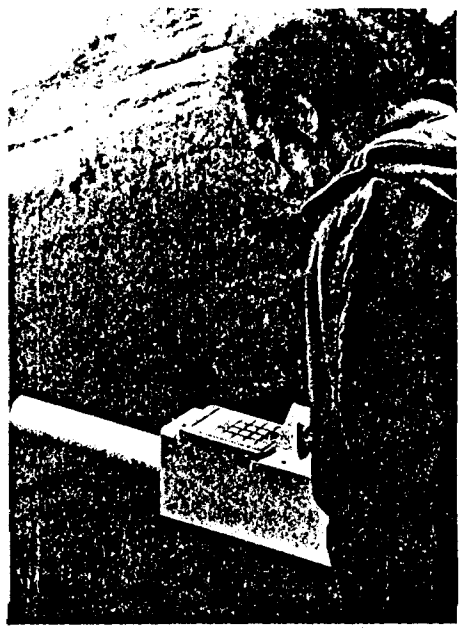
EDA

General Description

The portable PPM Series magnetometers consist of four standard field units which have a number of common features and specifications. They represent the most advanced application of microprocessor technology, sophisticated software and system design available to date.

Standard features of all units include:

- Improved accuracy.
- Enhanced data reliability and validity.
- Automatic fine tuning.
- Programmable 24 hour clock.
- 5000nT per metre gradient tolerance.
- Unique interchangeable sensor design.
- Only two simple controls, a keypad and mode switch.
- Custom-designed low temperature LCD which displays field reading, error, time, signal quality and decay rate, battery status and descriptors.
- Elimination of all cables by attaching sensor to console.
- Patent pending signal processing technique.
- Statistical error analysis of signal.
- Keypad with audio feedback.
- Switch selectable test mode to verify subsystem status and system performance.



- Internal lithium battery back-up system to protect status tables, programmes and data.
- Constant energy polarization.
- Convenient snap-in power cartridges containing any disposable "C" cells or rechargeable sealed lead acid batteries.
- Operating temperature – 30°C to +50°C.
- Rugged custom designed aluminum investment cast case offering complete protection against rain and dust.
- Lightweight construction. Weighs as little as 4.0kg.

PPM-200 Total Field Magnetometer

As the basic unit in the series, the PPM-200 measures the earth's magnetic field to sensitivities of 0.1nT and displays the resulting data on the high visibility LCD. This unit has automatic power-off capability to prevent the unnecessary consumption of power. The standard sensor attached to the main electronics console leaves the operator with complete freedom from cables and the incessant problems they create. This unit can be upgraded at a later date to higher capability levels by adding additional electronics, memory and software subroutines.

PPM-300 Total Field Magnetometer

This model is the most advanced field magnetometer in the world. In addition to providing the total field magnitude and time, it also records on its internal solid state memory, the grid co-ordinates (line and station) and reading error. The non-volatile memory can store up to 700 data blocks, therefore eliminating any need to record data manually. Accumulated data is regularly transferred into either of two Data Collection Units, the DCU-100 Thermal Printer or the DCU-200 Magnetic Cassette Recorder. The use of the latter unit permits the complete computer handling of data which includes background and diurnal corrections, automatic plotting and routine geophysical interpretation.

PPM-400 Base Station Magnetometer

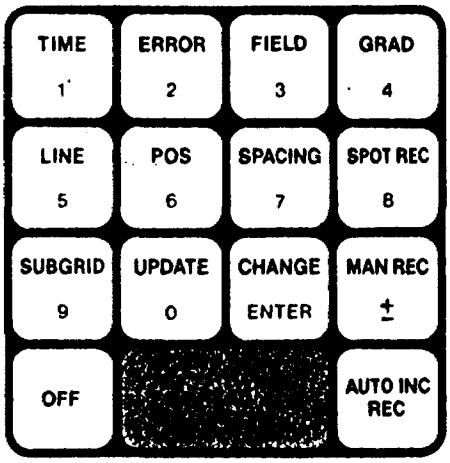
This integral sensor and console package is the first magnetometer specifically designed for base station applications, which include airborne and ground survey corrections. It's unique configuration allows it to be set up above the ground and away from hazards and local magnetic interferences. Unlike other base station magnetometers which have a limited number of switch selected sample periods and limited versatility, the PPM-400 is completely programmable through its keypad. This includes operator selection of either relative (differential) or absolute measurements. As in the PPM-300, all data is stored internally in a high capacity non-volatile memory which is transferred periodically into either the DCU-100 or DCU-200. Also unique to this instrument is a "snooze" alarm to conserve power. In simple terms, the microprocessor acts as an alarm clock and turns power-draining circuits off following each reading and automatically powers up just prior to taking a subsequent reading.

PPM Series
Portable Magnetometers

EDA

PPM-500 Magnetic Gradiometer

With a sensitivity of better than 0.1nT per metre, the PPM-500 represents the world's first inexpensive high reliability vertical gradiometer. In addition to providing the differential reading between the two sensors, the upper of which is typically three metres above the ground, it also provides the absolute measurement of the total field. All readings are taken simultaneously. Other features such as grid co-ordinate incrementing, time recording, statistical error analysis and data storage are identical to those in the PPM-300.



NOT ACTUAL SIZE

The PPM Series joins a successful line of advanced instruments and systems used in the fields of geophysics, geochemistry, and environmental monitoring.

DATA COLLECTION UNITS

General Description

These compact and sturdy field portable data recording devices may service any number of PPM-300's, 400's or 500's. Each is either battery or AC powered, and meets with the high standards of reliability customary to EDA's products.

DCU-100 Thermal Printer

This data recorder prints 20 characters per line at a rate of 1.5 lines per second, thus providing a listing of daily results.

DCU-200 Magnetic Cassette Recorder

Data recorded from the magnetometers in this manner may be computer processed in the field or office to speed operations and reduce human error. Computer compatible RS-232 I/O port allows direct input to most computers.

EDA Instruments Inc., Head Office: 1 Thorncliffe Park Drive, Toronto, Canada M4H 1G9
Telephone: (416) 425 7800, Telex: 06 23222 EDA TOR, Cables: INSTRUMENTS TORONTO

In USA, **EDA Instruments Inc.**, 5151 Ward Road, Wheat Ridge, Colorado 80033
Telephone: (303)422-9112

EM16

VLF Electromagnetic Unit

Pioneered and patented exclusively by Geonics Limited, the VLF method of electromagnetic surveying has been proven to be a major advance in exploration geophysical instrumentation.

Since the beginning of 1965 a large number of mining companies have found the EM16 system to meet the need for a simple, light and effective exploration tool for mining geophysics.

The VLF method uses the military and time standard VLF transmissions as primary field. Only a receiver is then used to measure the secondary fields radiating from the local conductive targets. This allows a very light, one-man instrument to do the job. Because of the almost uniform primary field, good response from deeper targets is obtained.

The EM16 system provides the *in-phase* and *quadrature* components of the secondary field *with the polarities indicated.*

Interpretation technique has been highly developed particularly to differentiate deeper targets from the many surface indications.

Principle of Operation
The VLF transmitters have vertical antennas. The magnetic signal component is then horizontal and concentric around the transmitter location.

Specifications

Source of primary field	VLF transmitting stations.
Transmitting stations used	Any desired station frequency can be supplied with the instrument in the form of plug-in tuning units. Two tuning units can be plugged in at one time. A switch selects either station.
Operating frequency range	About 15-25 kHz.
Parameters measured	(1) The vertical in-phase component (tangent of the tilt angle of the polarization ellipsoid). (2) The vertical out-of-phase (quadrature) component (the short axis of the polarization ellipsoid compared to the long axis).
Method of reading	In-phase from a mechanical inclinometer and quadrature from a calibrated dial. Nulling by audio tone.
Scale range	In-phase ± 150%; quadrature ± 40%.
Readability	± 1%.
Reading time	10-40 seconds depending on signal strength.
Operating temperature range	—40 to 50° C.
Operating controls	ON-OFF switch, battery testing push button, station selector, switch, volume control, quadrature, dial ± 40%, inclinometer dial ± 150%.
Power Supply	6 size AA (penlight) alkaline cells. Life about 200 hours.
Dimensions	42 x 14 x 9 cm (16 x 5.5 x 3.5 in.)
Weight	1.6 kg (3.5 lbs.)
Instrument supplied with	Monotonic speaker, carrying case, manual of operation, 3 station selector plug-in tuning units (additional frequencies are optional), set of batteries.
Shipping weight	4.5 kg (10 lbs.)

GEONICS LIMITED
Designers & manufacturers of geophysical instruments
subsidiary of Daering Milliken Inc.
2 Thorncliffe Park Drive, Toronto/Ontario/Canada M4H 1H2
Tel: 425-1824
Cables: Geonics

APPENDIX 3

SWASTIKA LABORATORIES LIMITED

P.O. BOX 10, SWASTIKA, ONTARIO P0K 1T0
TELEPHONE: (705) 642-3244
ANALYTICAL CHEMISTS • ASSAYERS • CONSULTANTS

Certificate of Analysis

Certificate No. 58493 Date: Aug. 24, 1984

Received Aug. 20, 1984 34 Samples of ore and sand and split core

Submitted by M.P.H. Consulting Ltd., Toronto, Ontario Job#C-583 per: G. Sinclair

SAMPLE NO.	GOLD PPB	SAMPLE NO.	GOLD PPB
GS-84-5-1	20	7333	10
4	Nil	7334	980
5	9740	7335	690
	12820	7336	430
GS-84-5-6	Nil		260
7319	10	7337	20
7320	100	7338	Nil
7321	Nil	7339	Nil
7322	10	7340	50
7323	320	7341	Nil
7324	Nil	7342	20
7325	Nil	7343	3220
7326	30		3770
		second pulp	3150
7327	90		2880
	90	7344	20
7328	20	> 7346	260
7329	40	> 7348	11930
7330	Nil		10970
7331	430	7349	980
7332	10	7350	1860

Per G. Lebel, Manager

ESTABLISHED 1928

X-RAY ASSAY LABORATORIES LIMITED

1885 LESLIE STREET, DON MILLS, ONTARIO M3B 3J4

PHONE 416-445-5755 TELEX 06-986947

CERTIFICATE OF ANALYSIS

TO: MPH CONSULTING LIMITED
ATTN: D. HALL
120 ADELAIDE STREET WEST, SUITE 2406
TORONTO, ONTARIO
M5H 1T1

CUSTOMER NO. 665

DATE SUBMITTED
20-AUG-84

REPORT 22438

REF. FILE 17849-SR

1 SOIL,1013 HUMUS

WERE ANALYSED AS FOLLOWS:

	METHOD	DETECTION LIMIT
AU PPB	FADCP	2.000
AU PPB	NA	1.000

DATE 24-SEP-84

X-RAY ASSAY LABORATORIES LIMITED

CERTIFIED BY .....

LIST OF SAMPLES NOT ANALYSED

BB-228-84-HUMUS	BB-310-84-HUMUS
BB-230-84-HUMUS	BB-312-84-HUMUS
BB-232-84-HUMUS	BB-314-84-HUMUS
BB-234-84-HUMUS	BB-378-84-HUMUS
BB-236-84-HUMUS	BB-380-84-HUMUS
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BB-308-84-HUMUS	BB-430-84-HUMUS
BB-432-84-HUMUS	BB-434-84-HUMUS

364
1039
1040

SAMPLE	AU PPB
88-82-64-SOIL	9

SAMPLE	AU PPB
BB-1-84-HUMUS	5
BB-2-84-HUMUS	3
BB-3-84-HUMUS	5
BB-4-84-HUMUS	2
BB-5-84-HUMUS	4
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BB-47-84-HUMUS	1
BB-48-84-HUMUS	3
BB-49-84-HUMUS	3
BB-50-84-HUMUS	2

SAMPLE	AU PPB
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BB-52-84-HUMUS	2
BB-53-84-HUMUS	6
BB-54-84-HUMUS	4
BB-55-84-HUMUS	3
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BB-100-84-HUMUS	2
BB-101-84-HUMUS	5

SAMPLE	AU PPB
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BB-104-84-HUMUS	1
BB-105-84-HUMUS	1
BB-106-84-HUMUS	4
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BB-150-84-HUMUS	1
BB-151-84-HUMUS	3

SAMPLE	AU PPB
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BB-155-84-HUMUS	4
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BB-170-84-HUMUS	4
BB-171-84-HUMUS	2
BB-172-84-HUMUS	4
BB-173-84-HUMUS	3
BB-174-84-HUMUS	4
BB-175-84-HUMUS	3
BB-176-84-HUMUS	4
BB-177-84-HUMUS	3
BB-178-84-HUMUS	3
BB-179-84-HUMUS	2
BB-180-84-HUMUS	<1
BB-181-84-HUMUS	1
BB-182-84-HUMUS	2
BB-183-84-HUMUS	2
BB-184-84-HUMUS	3
BB-185-84-HUMUS	1
BB-186-84-HUMUS	4
BB-187-84-HUMUS	1
BB-188-84-HUMUS	1
BB-189-84-HUMUS	1
BB-190-84-HUMUS	<1
BB-191-84-HUMUS	1
BB-192-84-HUMUS	1
BB-193-84-HUMUS	1
BB-194-84-HUMUS	1
BB-195-84-HUMUS	2
BB-196-84-HUMUS	1
BB-197-84-HUMUS	2
BB-198-84-HUMUS	2
BB-199-84-HUMUS	1
BB-200-84-HUMUS	2
BB-201-84-HUMUS	1

SAMPLE	AU PPB
BB-202-84-HUMUS	<1
BB-203-84-HUMUS	1
BB-204-84-HUMUS	2
BB-205-84-HUMUS	<1
BB-206-84-HUMUS	2
BB-207-84-HUMUS	<1
BB-208-84-HUMUS	1
BB-209-84-HUMUS	2
BB-210-84-HUMUS	2
BB-211-84-HUMUS	2
BB-212-84-HUMUS	<1
BB-213-84-HUMUS	3
BB-214-84-HUMUS	2
BB-215-84-HUMUS	1
BB-216-84-HUMUS	2
BB-217-84-HUMUS	2
BB-218-84-HUMUS	3
BB-219-84-HUMUS	2
BB-220-84-HUMUS	1
BB-221-84-HUMUS	1
BB-222-84-HUMUS	1
BB-223-84-HUMUS	2
BB-224-84-HUMUS	2
BB-225-84-HUMUS	2
BB-226-84-HUMUS	3
BB-227-84-HUMUS	2
BB-229-84-HUMUS	1
BB-231-84-HUMUS	1
BB-233-84-HUMUS	1
BB-235-84-HUMUS	1
BB-237-84-HUMUS	3
BB-239-84-HUMUS	4
BB-241-84-HUMUS	3
BB-242-84-HUMUS	1
BB-244-84-HUMUS	3
BB-246-84-HUMUS	4
BB-249-84-HUMUS	3
BB-252-84-HUMUS	3
BB-254-84-HUMUS	<1
BB-255-84-HUMUS	2
BB-256-84-HUMUS	2
BB-257-84-HUMUS	1
BB-258-84-HUMUS	3
BB-259-84-HUMUS	3
BB-260-84-HUMUS	2
BB-261-84-HUMUS	2
BB-262-84-HUMUS	2
BB-263-84-HUMUS	8
BB-264-84-HUMUS	5
BB-265-84-HUMUS	4

SAMPLE	AU PPB
BB-266-84-HUMUS	<1
BB-267-84-HUMUS	2
BB-268-84-HUMUS	4
BB-269-84-HUMUS	4
BB-270-84-HUMUS	3
BB-271-84-HUMUS	<1
BB-272-84-HUMUS	4
BB-273-84-HUMUS	4
BB-274-84-HUMUS	4
BB-275-84-HUMUS	1
BB-276-84-HUMUS	1
BB-277-84-HUMUS	1
BB-278-84-HUMUS	2
BB-279-84-HUMUS	7
BB-280-84-HUMUS	5
BB-281-84-HUMUS	2
BB-282-84-HUMUS	7
BB-283-84-HUMUS	7
BB-285-84-HUMUS	4
BB-286-84-HUMUS	1
BB-287-84-HUMUS	4
BB-288-84-HUMUS	1
BB-289-84-HUMUS	<1
BB-290-84-HUMUS	3
BB-291-84-HUMUS	1
BB-292-84-HUMUS	2
BB-293-84-HUMUS	3
BB-294-84-HUMUS	<1
BB-295-84-HUMUS	4
BB-296-84-HUMUS	3
BB-297-84-HUMUS	3
BB-298-84-HUMUS	4
BB-300-84-HUMUS	3
BB-302-84-HUMUS	3
BB-304-84-HUMUS	3
BB-306-84-HUMUS	2
BB-307-84-HUMUS	3
BB-309-84-HUMUS	2
BB-311-84-HUMUS	2
BB-313-84-HUMUS	3
BB-315-84-HUMUS	3
BB-316-84-HUMUS	2
BB-317-84-HUMUS	3
BB-318-84-HUMUS	4
BB-319-84-HUMUS	1
BB-320-84-HUMUS	1
BB-321-84-HUMUS	2
BB-322-84-HUMUS	4
BB-323-84-HUMUS	4
BB-324-84-HUMUS	2

SAMPLE	AU PPB
BB-325-84-HUMUS	1
BB-326-84-HUMUS	4
BB-327-84-HUMUS	5
BB-328-84-HUMUS	4
BB-329-84-HUMUS	3
BB-330-84-HUMUS	3
BB-331-84-HUMUS	3
BB-332-84-HUMUS	2
BB-333-84-HUMUS	2
BB-334-84-HUMUS	3
BB-335-84-HUMUS	1
BB-336-84-HUMUS	4
BB-337-84-HUMUS	4
BB-338-84-HUMUS	4
BB-339-84-HUMUS	3
BB-340-84-HUMUS	1
BB-341-84-HUMUS	3
BB-342-84-HUMUS	2
BB-343-84-HUMUS	2
BB-344-84-HUMUS	2
BB-345-84-HUMUS	2
BB-346-84-HUMUS	2
BB-347-84-HUMUS	2
BB-348-84-HUMUS	3
BB-349-84-HUMUS	2
BB-350-84-HUMUS	1
BB-351-84-HUMUS	3
BB-352-84-HUMUS	1
BB-353-84-HUMUS	3
BB-354-84-HUMUS	2
BB-355-84-HUMUS	3
BB-356-84-HUMUS	1
BB-357-84-HUMUS	2
BB-358-84-HUMUS	3
BB-359-84-HUMUS	2
BB-360-84-HUMUS	7
BB-361-84-HUMUS	2
BB-362-84-HUMUS	4
BB-363-84-HUMUS	6
BB-365-84-HUMUS	4
BB-366-84-HUMUS	13
BB-367-84-HUMUS	<1
BB-368-84-HUMUS	3
BB-369-84-HUMUS	3
BB-370-84-HUMUS	2
BB-371-84-HUMUS	3
BB-372-84-HUMUS	6
BB-373-84-HUMUS	2
BB-374-84-HUMUS	1
BB-375-84-HUMUS	<1

SAMPLE	AU PPB
BB-376-84-HUMUS	4
BB-377-84-HUMUS	1
BB-379-84-HUMUS	4
BB-381-84-HUMUS	2
BB-383-84-HUMUS	2
BB-385-84-HUMUS	3
BB-386-84-HUMUS	2
BB-388-84-HUMUS	15
BB-390-84-HUMUS	530
BB-392-84-HUMUS	1
BB-394-84-HUMUS	2
BB-396-84-HUMUS	4
BB-398-84-HUMUS	1
BB-400-84-HUMUS	3
BB-401-84-HUMUS	58
BB-402-84-HUMUS	1
BB-403-84-HUMUS	<1
BB-404-84-HUMUS	3
BB-405-84-HUMUS	4
BB-409-84-HUMUS	3
BB-410-84-HUMUS	<1
BB-411-84-HUMUS	2
BB-412-84-HUMUS	<1
BB-413-84-HUMUS	1
BB-415-84-HUMUS	3
BB-416-84-HUMUS	1
BB-417-84-HUMUS	8
BB-418-84-HUMUS	3
BB-419-84-HUMUS	2
BB-420-84-HUMUS	2
BB-421-84-HUMUS	2
BB-422-84-HUMUS	1
BB-423-84-HUMUS	2
BB-424-84-HUMUS	3
BB-425-84-HUMUS	1
BB-426-84-HUMUS	2
BB-427-84-HUMUS	3
BB-428-84-HUMUS	520
BB-429-84-HUMUS	1
BB-431-84-HUMUS	3
BB-433-84-HUMUS	1
BB-435-84-HUMUS	3
BB-436-84-HUMUS	1
BB-437-84-HUMUS	1
BB-438-84-HUMUS	1
BB-439-84-HUMUS	1
BB-440-84-HUMUS	1
BB-441-84-HUMUS	3
BB-442-84-HUMUS	3
BB-443-84-HUMUS	4

SAMPLE	AU PPB
BB-444-84-HUMUS	4
BB-445-84-HUMUS	<1
BB-446-84-HUMUS	2
BB-447-84-HUMUS	3
BB-448-84-HUMUS	2
BB-449-84-HUMUS	4
BB-450-84-HUMUS	<1
BB-451-84-HUMUS	3
BB-452-84-HUMUS	<1
BB-453-84-HUMUS	1
BB-454-84-HUMUS	4
BB-455-84-HUMUS	2
BB-456-84-HUMUS	1
BB-457-84-HUMUS	3
BB-459-84-HUMUS	2
BB-460-84-HUMUS	1
BB-461-84-HUMUS	1
BB-462-84-HUMUS	5
BB-463-84-HUMUS	1
BB-464-84-HUMUS	5
BB-465-84-HUMUS	4
BB-466-84-HUMUS	1
BB-467-84-HUMUS	2
BB-468-84-HUMUS	2
BB-469-84-HUMUS	4
BB-470-84-HUMUS	2
BB-471-84-HUMUS	2
BB-472-84-HUMUS	4
BB-473-84-HUMUS	1
BB-474-84-HUMUS	3
BB-475-84-HUMUS	2
BB-476-84-HUMUS	1
BB-477-84-HUMUS	<1
BB-478-84-HUMUS	3
BB-479-84-HUMUS	3
BB-480-84-HUMUS	3
BB-482-84-HUMUS	3
BB-483-84-HUMUS	1
BB-484-84-HUMUS	<1
BB-485-84-HUMUS	2
BB-486-84-HUMUS	<1
BB-487-84-HUMUS	<1
BB-488-84-HUMUS	3
BB-489-84-HUMUS	5
BB-490-84-HUMUS	2
BB-491-84-HUMUS	2
BB-492-84-HUMUS	6
BB-493-84-HUMUS	4
BB-494-84-HUMUS	3
BB-495-84-HUMUS	3

SAMPLE	AU PPB
BB-496-84-HUMUS	4
BB-497-84-HUMUS	4
BB-498-84-HUMUS	2
BB-499-84-HUMUS	2
BB-500-84-HUMUS	5
BB-501-84-HUMUS	2
BB-502-84-HUMUS	1
BB-503-84-HUMUS	5
BB-504-84-HUMUS	6
BB-505-84-HUMUS	4
BB-506-84-HUMUS	2
BB-507-84-HUMUS	4
BB-508-84-HUMUS	3
BB-509-84-HUMUS	3
BB-510-84-HUMUS	2
BB-511-84-HUMUS	1
BB-512-84-HUMUS	1
BB-513-84-HUMUS	1
BB-514-84-HUMUS	2
BB-515-84-HUMUS	4
BB-516-84-HUMUS	1
BB-517-84-HUMUS	1
BB-518-84-HUMUS	2
BB-519-84-HUMUS	3
BB-520-84-HUMUS	5
BB-521-84-HUMUS	2
BB-522-84-HUMUS	2
BB-523-84-HUMUS	3
BB-524-84-HUMUS	3
BB-525-84-HUMUS	1
BB-526-84-HUMUS	2
BB-527-84-HUMUS	2
BB-528-84-HUMUS	4
BB-529-84-HUMUS	2
BB-530-84-HUMUS	4
BB-531-84-HUMUS	4
BB-532-84-HUMUS	1
BB-533-84-HUMUS	3
BB-534-84-HUMUS	1
BB-535-84-HUMUS	2
BB-536-84-HUMUS	1
BB-537-84-HUMUS	2
BB-538-84-HUMUS	<1
BB-539-84-HUMUS	1
BB-540-84-HUMUS	2
BB-541-84-HUMUS	3
BB-542-84-HUMUS	86
BB-543-84-HUMUS	2
BB-544-84-HUMUS	2
BB-545-84-HUMUS	3

SAMPLE	AU PPB
BB-546-84-HUMUS	3
BB-547-84-HUMUS	3
BB-548-84-HUMUS	3
BB-549-84-HUMUS	<1
BB-550-84-HUMUS	2
BB-551-84-HUMUS	1
BB-552-84-HUMUS	1
BB-553-84-HUMUS	<1
BB-554-84-HUMUS	<1
BB-555-84-HUMUS	2
BB-556-84-HUMUS	3
BB-557-84-HUMUS	1
BB-558-84-HUMUS	<1
BB-559-84-HUMUS	2
BB-560-84-HUMUS	4
BB-561-84-HUMUS	2
BB-562-84-HUMUS	3
BB-563-84-HUMUS	2
BB-564-84-HUMUS	3
BB-565-84-HUMUS	1
BB-566-84-HUMUS	3
BB-567-84-HUMUS	1
BB-568-84-HUMUS	3
BB-569-84-HUMUS	1
BB-570-84-HUMUS	1
BB-571-84-HUMUS	3
BB-572-84-HUMUS	4
BB-573-84-HUMUS	4
BB-574-84-HUMUS	3
BB-575-84-HUMUS	2
BB-576-84-HUMUS	2
BB-577-84-HUMUS	2
BB-578-84-HUMUS	2
BB-579-84-HUMUS	<1
BB-580-84-HUMUS	2
BB-581-84-HUMUS	4
BB-582-84-HUMUS	2
BB-583-84-HUMUS	4
BB-584-84-HUMUS	1
BB-585-84-HUMUS	1
BB-586-84-HUMUS	<1
BB-587-84-HUMUS	3
BB-588-84-HUMUS	4
BB-589-84-HUMUS	<1
BB-590-84-HUMUS	1
BB-591-84-HUMUS	40
BB-592-84-HUMUS	4
BB-593-84-HUMUS	<1
BB-594-84-HUMUS	1
BB-595-84-HUMUS	1

SAMPLE	AU PPB
BB-596-84-HUMUS	3
BB-597-84-HUMUS	1
BB-598-84-HUMUS	4
BB-599-84-HUMUS	2
BB-600-84-HUMUS	1
BB-601-84-HUMUS	3
BB-602-84-HUMUS	1
BB-603-84-HUMUS	4
BB-604-84-HUMUS	3
BB-605-84-HUMUS	<1
BB-606-84-HUMUS	25
BB-607-84-HUMUS	7
BB-608-84-HUMUS	5
BB-609-84-HUMUS	1
BB-610-84-HUMUS	<1
BB-611-84-HUMUS	1
BB-612-84-HUMUS	1
BB-613-84-HUMUS	3
BB-614-84-HUMUS	3
BB-615-84-HUMUS	1
BB-616-84-HUMUS	1
BB-617-84-HUMUS	1
BB-618-84-HUMUS	1
BB-619-84-HUMUS	3
BB-620-84-HUMUS	4
BB-621-84-HUMUS	3
BB-622-84-HUMUS	3
BB-623-84-HUMUS	1
BB-624-84-HUMUS	1
BB-625-84-HUMUS	1
BB-626-84-HUMUS	3
BB-627-84-HUMUS	<1
BB-628-84-HUMUS	3
BB-629-84-HUMUS	3
BB-630-84-HUMUS	2
BB-631-84-HUMUS	<1
BB-632-84-HUMUS	3
BB-633-84-HUMUS	2
BB-634-84-HUMUS	2
BB-635-84-HUMUS	1
BB-636-84-HUMUS	2
BB-637-84-HUMUS	4
BB-638-84-HUMUS	1
BB-639-84-HUMUS	2
BB-640-84-HUMUS	6
BB-641-84-HUMUS	2
BB-642-84-HUMUS	<1
BB-643-84-HUMUS	2
BB-644-84-HUMUS	4
BB-645-84-HUMUS	4

SAMPLE	AU PPB
BB-646-84-HUMUS	3
BB-647-84-HUMUS	3
BB-648-84-HUMUS	2
BB-649-84-HUMUS	5
BB-650-84-HUMUS	7
BB-651-84-HUMUS	5
BB-652-84-HUMUS	2
BB-653-84-HUMUS	2
BB-654-84-HUMUS	8
BB-655-84-HUMUS	2
BB-656-84-HUMUS	6
BB-657-84-HUMUS	<1
BB-658-84-HUMUS	1
BB-659-84-HUMUS	2
BB-660-84-HUMUS	4
BB-661-84-HUMUS	1
BB-662-84-HUMUS	3
BB-663-84-HUMUS	2
BB-664-84-HUMUS	4
BB-665-84-HUMUS	3
BB-666-84-HUMUS	3
BB-667-84-HUMUS	4
BB-668-84-HUMUS	3
BB-669-84-HUMUS	1
BB-670-84-HUMUS	2
BB-671-84-HUMUS	2
BB-672-84-HUMUS	1
BB-673-84-HUMUS	4
BB-674-84-HUMUS	4
BB-675-84-HUMUS	4
BB-676-84-HUMUS	5
BB-677-84-HUMUS	1
BB-678-84-HUMUS	5
BB-679-84-HUMUS	4
BB-680-84-HUMUS	2
BB-681-84-HUMUS	3
BB-682-84-HUMUS	6
BB-683-84-HUMUS	3
BB-684-84-HUMUS	4
BB-685-84-HUMUS	<1
BB-686-84-HUMUS	6
BB-687-84-HUMUS	1
BB-688-84-HUMUS	6
BB-689-84-HUMUS	2
BB-690-84-HUMUS	4
BB-691-84-HUMUS	6
BB-692-84-HUMUS	6
BB-693-84-HUMUS	2
BB-694-84-HUMUS	3
BB-695-84-HUMUS	<1

SAMPLE	AU PPB
BB-696-84-HUMUS	110
BB-697-84-HUMUS	3
BB-698-84-HUMUS	11
BB-699-84-HUMUS	3
BB-700-84-HUMUS	3
BB-701-84-HUMUS	1
BB-702-84-HUMUS	2
BB-703-84-HUMUS	2
BB-704-84-HUMUS	3
BB-705-84-HUMUS	4
BB-706-84-HUMUS	1
BB-707-84-HUMUS	10
BB-708-84-HUMUS	3
BB-709-84-HUMUS	5
BB-710-84-HUMUS	2
BB-711-84-HUMUS	3
BB-712-84-HUMUS	3
BB-713-84-HUMUS	4
BB-714-84-HUMUS	<1
BB-715-84-HUMUS	2
BB-716-84-HUMUS	4
BB-717-84-HUMUS	2
BB-718-84-HUMUS	7
BB-719-84-HUMUS	2
BB-720-84-HUMUS	1
BB-721-84-HUMUS	3
BB-722-84-HUMUS	2
BB-723-84-HUMUS	2
BB-724-84-HUMUS	2
BB-725-84-HUMUS	2
BB-726-84-HUMUS	4
BB-727-84-HUMUS	2
BB-728-84-HUMUS	4
BB-729-84-HUMUS	1
BB-730-84-HUMUS	1
BB-731-84-HUMUS	3
BB-732-84-HUMUS	1
BB-733-84-HUMUS	2
BB-734-84-HUMUS	2
BB-735-84-HUMUS	3
BB-736-84-HUMUS	2
BB-737-84-HUMUS	2
BB-738-84-HUMUS	3
BB-739-84-HUMUS	6
BB-740-84-HUMUS	1
BB-741-84-HUMUS	2
BB-742-84-HUMUS	3
BB-743-84-HUMUS	1
BB-744-84-HUMUS	2
BB-745-84-HUMUS	3

SAMPLE	AU PPB
BB-746-84-HUMUS	3
BB-747-84-HUMUS	3
BB-748-84-HUMUS	4
BB-749-84-HUMUS	4
BB-750-84-HUMUS	1
BB-751-84-HUMUS	3
BB-752-84-HUMUS	4
BB-753-84-HUMUS	3
BB-754-84-HUMUS	<1
BB-755-84-HUMUS	2
BB-756-84-HUMUS	2
BB-757-84-HUMUS	40
BB-758-84-HUMUS	1
BB-759-84-HUMUS	4
BB-760-84-HUMUS	2
BB-761-84-HUMUS	4
BB-762-84-HUMUS	6
BB-763-84-HUMUS	3
BB-764-84-HUMUS	2
BB-765-84-HUMUS	3
BB-766-84-HUMUS	4
BB-767-84-HUMUS	1
BB-768-84-HUMUS	6
BB-769-84-HUMUS	4
BB-770-84-HUMUS	1
BB-771-84-HUMUS	3
BB-772-84-HUMUS	2
BB-773-84-HUMUS	3
BB-774-84-HUMUS	1
BB-775-84-HUMUS	4
BB-776-84-HUMUS	12
BB-777-84-HUMUS	2
BB-778-84-HUMUS	3
BB-779-84-HUMUS	2
BB-780-84-HUMUS	2
BB-781-84-HUMUS	1
BB-782-84-HUMUS	1
BB-783-84-HUMUS	4
BB-784-84-HUMUS	2
BB-785-84-HUMUS	2
BB-786-84-HUMUS	5
BB-787-84-HUMUS	2
BB-788-84-HUMUS	5
BB-789-84-HUMUS	2
BB-790-84-HUMUS	2
BB-791-84-HUMUS	4
BB-792-84-HUMUS	2
BB-793-84-HUMUS	2
BB-794-84-HUMUS	2
BB-795-84-HUMUS	1

SAMPLE	AU PPB
BB-796-84-HUMUS	2
BB-797-84-HUMUS	2
BB-798-84-HUMUS	2
BB-799-84-HUMUS	2
BB-800-84-HUMUS	1
BB-801-84-HUMUS	3
BB-802-84-HUMUS	2
BB-803-84-HUMUS	2
BB-804-84-HUMUS	2
BB-805-84-HUMUS	3
BB-806-84-HUMUS	4
BB-807-84-HUMUS	1
BB-808-84-HUMUS	1
BB-809-84-HUMUS	7
BB-810-84-HUMUS	5
BB-811-84-HUMUS	1
BB-812-84-HUMUS	7
BB-813-84-HUMUS	1
BB-814-84-HUMUS	3
BB-815-84-HUMUS	4
BB-816-84-HUMUS	4
BB-817-84-HUMUS	2
BB-818-84-HUMUS	2
BB-819-84-HUMUS	3
BB-820-84-HUMUS	<1
BB-821-84-HUMUS	1
BB-822-84-HUMUS	2
BB-823-84-HUMUS	3
BB-824-84-HUMUS	6
BB-825-84-HUMUS	1
BB-826-84-HUMUS	1
BB-827-84-HUMUS	2
BB-828-84-HUMUS	1
BB-829-84-HUMUS	3
BB-830-84-HUMUS	2
BB-831-84-HUMUS	6
BB-832-84-HUMUS	3
BB-833-84-HUMUS	2
BB-834-84-HUMUS	1
BB-835-84-HUMUS	2
BB-836-84-HUMUS	1
BB-837-84-HUMUS	<1
BB-838-84-HUMUS	2
BB-839-84-HUMUS	4
BB-840-84-HUMUS	3
BB-841-84-HUMUS	3
BB-842-84-HUMUS	3
BB-843-84-HUMUS	2
BB-844-84-HUMUS	2
BB-845-84-HUMUS	1

SAMPLE	AU PPB
BB-846-84-HUMUS	3
BB-847-84-HUMUS	1
BB-848-84-HUMUS	3
BB-849-84-HUMUS	3
BB-850-84-HUMUS	6
BB-851-84-HUMUS	4
BB-852-84-HUMUS	3
BB-853-84-HUMUS	3
BB-854-84-HUMUS	4
BB-855-84-HUMUS	3
BB-856-84-HUMUS	3
BB-857-84-HUMUS	2
BB-858-84-HUMUS	6
BB-859-84-HUMUS	7
BB-860-84-HUMUS	6
BB-861-84-HUMUS	9
BB-862-84-HUMUS	6
BB-863-84-HUMUS	4
BB-864-84-HUMUS	3
BB-865-84-HUMUS	1
BB-866-84-HUMUS	<1
BB-867-84-HUMUS	2
BB-868-84-HUMUS	2
BB-869-84-HUMUS	3
BB-870-84-HUMUS	1
BB-871-84-HUMUS	2
BB-872-84-HUMUS	<1
BB-873-84-HUMUS	<1
BB-874-84-HUMUS	3
BB-875-84-HUMUS	3
BB-876-84-HUMUS	2
BB-877-84-HUMUS	3
BB-878-84-HUMUS	1
BB-879-84-HUMUS	1
BB-880-84-HUMUS	1
BB-881-84-HUMUS	3
BB-882-84-HUMUS	3
BB-883-84-HUMUS	5
BB-884-84-HUMUS	2
BB-885-84-HUMUS	3
BB-886-84-HUMUS	1
BB-887-84-HUMUS	4
BB-888-84-HUMUS	3
BB-889-84-HUMUS	<1
BB-890-84-HUMUS	4
BB-891-84-HUMUS	1
BB-892-84-HUMUS	2
BB-893-84-HUMUS	2
BB-894-84-HUMUS	4
BB-895-84-HUMUS	1

SAMPLE	AU PPB
BB-896-84-HUMUS	2
BB-897-84-HUMUS	2
BB-898-84-HUMUS	2
BB-899-84-HUMUS	2
BB-900-84-HUMUS	1
BB-901-84-HUMUS	2
BB-902-84-HUMUS	2
BB-903-84-HUMUS	2
BB-904-84-HUMUS	2
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BB-907-84-HUMUS	4
BB-908-84-HUMUS	2
BB-909-84-HUMUS	2
BB-910-84-HUMUS	4
BB-911-84-HUMUS	1
BB-912-84-HUMUS	3
BB-913-84-HUMUS	3
BB-914-84-HUMUS	3
BB-915-84-HUMUS	4
BB-916-84-HUMUS	6
BB-917-84-HUMUS	4
BB-918-84-HUMUS	3
BB-919-84-HUMUS	6
BB-920-84-HUMUS	<1
BB-921-84-HUMUS	<1
BB-922-84-HUMUS	2
BB-923-84-HUMUS	2
BB-924-84-HUMUS	1
BB-925-84-HUMUS	2
BB-926-84-HUMUS	4
BB-927-84-HUMUS	4
BB-928-84-HUMUS	3
BB-929-84-HUMUS	1
BB-930-84-HUMUS	1
BB-931-84-HUMUS	4
BB-932-84-HUMUS	2
BB-933-84-HUMUS	4
BB-934-84-HUMUS	5
BB-935-84-HUMUS	2
BB-936-84-HUMUS	3
BB-937-84-HUMUS	<1
BB-938-84-HUMUS	1
BB-939-84-HUMUS	4
BB-940-84-HUMUS	2
BB-941-84-HUMUS	2
BB-942-84-HUMUS	3
BB-943-84-HUMUS	3
BB-944-84-HUMUS	1
BB-945-84-HUMUS	<1

SAMPLE	AU PPB
BB-946-84-HUMUS	3
BB-947-84-HUMUS	<1
BB-948-84-HUMUS	5
BB-949-84-HUMUS	2
BB-950-84-HUMUS	2
BB-951-84-HUMUS	6
BB-952-84-HUMUS	5
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BB-954-84-HUMUS	3
BB-955-84-HUMUS	3
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BB-957-84-HUMUS	5
BB-958-84-HUMUS	1
BB-959-84-HUMUS	3
BB-960-84-HUMUS	12
BB-961-84-HUMUS	1
BB-962-84-HUMUS	2
BB-963-84-HUMUS	5
BB-964-84-HUMUS	3
BB-965-84-HUMUS	4
BB-966-84-HUMUS	1
BB-967-84-HUMUS	1
BB-968-84-HUMUS	1
BB-969-84-HUMUS	2
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BB-974-84-HUMUS	3
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BB-976-84-HUMUS	1
BB-977-84-HUMUS	2
BB-978-84-HUMUS	3
BB-979-84-HUMUS	<1
BB-980-84-HUMUS	2
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BB-982-84-HUMUS	1
BB-983-84-HUMUS	1
BB-984-84-HUMUS	1
BB-985-84-HUMUS	<1
BB-986-84-HUMUS	2
BB-987-84-HUMUS	1
BB-988-84-HUMUS	1
BB-989-84-HUMUS	4
BB-990-84-HUMUS	5
BB-991-84-HUMUS	<1
BB-992-84-HUMUS	1
BB-993-84-HUMUS	3
BB-994-84-HUMUS	3
BB-995-84-HUMUS	1

SAMPLE	AU PPB
BB-996-84-HUMUS	1
BB-997-84-HUMUS	<1
BB-998-84-HUMUS	<1
BB-999-84-HUMUS	2
BB-1000-84-HUMUS	3
BB-1001-84-HUMUS	3
BB-1002-84-HUMUS	1
BB-1003-84-HUMUS	2
BB-1004-84-HUMUS	2
BB-1005-84-HUMUS	4
BB-1006-84-HUMUS	2
BB-1007-84-HUMUS	2
BB-1008-84-HUMUS	2
BB-1009-84-HUMUS	7
BB-1010-84-HUMUS	3
BB-1011-84-HUMUS	2
BB-1012-84-HUMUS	3
BB-1013-84-HUMUS	5
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BB-1015-84-HUMUS	2
BB-1016-84-HUMUS	3
BB-1017-84-HUMUS	2
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BB-1504-84-HUMUS	2
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BB-1507-84-HUMUS	3
BB-1508-84-HUMUS	3
BB-1509-84-HUMUS	4
BB-1510-84-HUMUS	3
BB-1511-84-HUMUS	3
BB-1512-84-HUMUS	1
BB-1513-84-HUMUS	3
BB-1514-84-HUMUS	6
BB-1515-84-HUMUS	2
BB-1516-84-HUMUS	5
BB-1517-84-HUMUS	1
BB-1518-84-HUMUS	4
BB-1519-84-HUMUS	4
BB-1520-84-HUMUS	3
BB-1521-84-HUMUS	4
BB-1522-84-HUMUS	4
BB-1523-84-HUMUS	4
BB-1524-84-HUMUS	2
BB-1525-84-HUMUS	<1
BB-1526-84-HUMUS	2

SAMPLE	AU PPB
BB-1527-84-HUMUS	2
BB-1528-84-HUMUS	1
BB-1529-84-HUMUS	3
BB-1530-84-HUMUS	3
BB-1531-84-HUMUS	1
BB-1532-84-HUMUS	3
BB-1533-84-HUMUS	1
BB-1534-84-HUMUS	3
BB-1535-84-HUMUS	1
BB-1536-84-HUMUS	4
BB-1537-84-HUMUS	4
BB-1538-84-HUMUS	3
NC TAG-HUMUS	5

X-RAY ASSAY LABORATORIES
LIMITED

1885 LESLIE STREET • DON MILLS ONTARIO M3B 3J4 • (416) 445-5755

COPY TO:

[illegible] CONSULTING LIMITED
[illegible] D. HALL
[illegible] ELGLINTINE STREET WEST, SUITE 2406
[illegible], ONTARIO
[illegible]

BRULE
C 583

SAMPLE

[illegible] CONSULTING LIMITED
[illegible] D. HALL
[illegible] ELGLINTINE STREET WEST, SUITE 2406
[illegible], ONTARIO
[illegible]

CUSTOMER NO. 685

INVOICE NO.	INVOICE DATE	WORK ORDER NO.	DATE RECEIVED
22438	24-SEP-84	17849	20-SEP-84

TERMS

TERMS NET 30 DAYS
1.5% PER MONTH INTEREST ON ACCOUNT OVER 30 DAYS

	CLIENT PROJECT NO.		TYPE OF SAMPLES SUBMITTED
			HUMUS

	SHIPPED VIA	WAY BILL NO.	SHIPPED FROM
	SELF		

	DESCRIPTION METHOD	XRAL CODE	UNIT COST	AMOUNT
1	AU,FPB	2,10, 7, 0, 0, 0	7.00	7.00
1003	AU,BIOGEOCHEMISTRY, REGULAR DETECTION LIMIT	13, 2,20, 0, 0, 0	6.50	6584.50
1	SOIL, DRYING & SCREENING	99, 2, 0, 0, 0, 0	0.70	0.70
1003	HUMUS, DRYING & BLENDING	99, 2, 0, 0, 0, 0	0.70	709.10
	12 HRS. SORTING & LISTING	1000, 4, 0, 0, 0, 0	360.00	360.00

Paid W&B
R.9797

RECEIVED
OCT 23 1984
MINING LANDS SECTION

SUB-TOTAL $ 7661.30

SHIPPING CHARGES	CUSTOM BROKERAGE	TELEX	MINIMUM CHARGES
OTHER			SURCHARGE - RUSH SERVICE

TOTAL IN CANADIAN FUNDS $ 7661

9932

SEP 05 1984

SWASTIKA LABORATORIES LIMITED

P.O. BOX 10, SWASTIKA, ONTARIO P0K 1T0 TELEPHONE: (705) 642-3244

SOLD TO

MPH Consulting Limited
2406 - 120 Adelaide St. W.
Toronto, Ontario
M5H 1W5
Att'n: Mr. N. Willoughby

SHIP TO SAME

1.5% late charge over 30 days
(annual rate 18%)

DATE	SHIPPED VIA	FED. LICENCE NO.	PROV. LICENCE NO.	YOUR ORDER NO.	OUR ORDER NO.	TERMS	SALESMAN
Aug. 31/84				Job C-583		Net 30 days	

QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
34	Au Assays PPB	$ 8.50	$ 289.00
34	Sample handling	2.75	93.50
	Cert. No. 58493 Aug. 24/84 G. Sinclair		
	N. D. Willoughby Paid		
	C-583		
	R.9655	TOTAL	$ 382.50

MOORE BUSINESS FORMS 3 7060E

ANALYTICAL CHEMISTS • ASSAYERS • CONSULTANTS

FACTURE / INVOICE

ESTABLISHED 1928

APPENDIX 4

PLATE 1 (upper left): View to east of headframe,
Briscoe-Bryce No. 1 Vein

PLATE 2 (upper right): Decline into No. 1 shaft, east side,
Briscoe-Bryce No. 1 Vein

PLATE 3 (bottom): Logged area and main road to headframe

PLATE 4 (upper): Cabin-core shack east of headframe

PLATE 5 (lower): The baseline at line 7+00W, view to east

PLATE 6 (upper): Gradiometer surveying

PLATE 7 (lower): Panning Creek at line 9+00E, 2+00S

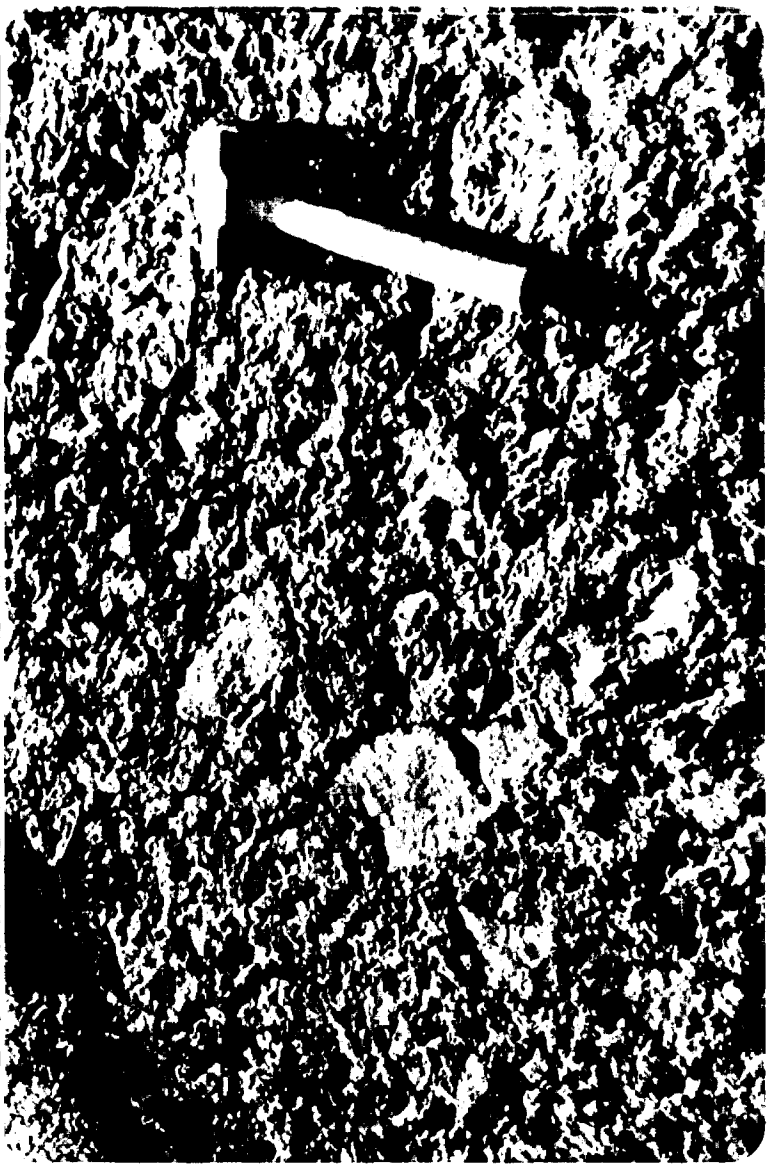
PLATE 8 (upper): North shore of Honeymoon Lake viewed from baseline. Note outcrop in center of photo

PLATE 9 (lower): Outcrop distribution along south shore of Honeymoon Lake viewed from the baseline

PLATE 10 (upper left): Chlorite clots, patches in lapilli tuff outcrop at baseline - line 12+00W

PLATE 11 (upper right): Outcrop of mixed lapilli tuff and tuff breccia on the east shore of Honeymoon Lake south of the baseline

PLATE 12 (bottom): Outcrop of poorly sorted tuff breccia on the east shore of Honeymoon Lake south of the baseline



900

Mining Lands Section

File No 2.7340

Control Sheet

TYPE OF SURVEY

✓ GEOPHYSICAL

✓ GEOLOGICAL

✓ GEOCHEMICAL

✓ EXPENDITURE

MINING LANDS COMMENTS:

L.I.S.

Return to A.F.P.O.

J. Hurst E. Dennis K.

Signature of Assessor

84-11-05 / Jan. 29/85

Date

Ministry of Natural Resources
Ontario

Report of Work
(Geophysical, Geological, Geochemical and Expenditures)

Mining Act

Instructions: – Please type or print.
– If number of mining claims traversed exceeds space on this form, attach a list.
Note: – Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.
– Do not use shaded areas below.

Type of Survey(s): Assaying, Analytical

Township or Area: Bryce

Claim Holder(s): Kapalua Gold Mines Ltd.

Prospector's Licence No.: T-1439

Address: 1800 - 540 5th Avenue S.W., Calgary, Alta. T2P 0M2

Survey Company: MPH Consulting Limited

Date of Survey (from & to): 15 Day | 10 Mo. | 84 Yr. | 30 Day | 9 Mo. | 84 Yr.

Total Miles of line Cut: -----

Name and Address of Author (of Geo-Technical report): W.E. Brereton #2406-120 Adelaide St. W., Toronto, Ontario M5H 1T1

Credits Requested per Each Claim in Columns at right

		Days per Claim
Special Provisions For first survey: Enter 40 days. (This includes line cutting) For each additional survey: using the same grid: Enter 20 days (for each)	Geophysical	
	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	
Man Days Complete reverse side and enter total(s) here	Geophysical	Days per Claim
	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	
Airborne Credits Note: Special provisions credits do not apply to Airborne Surveys.		Days per Claim
	Electromagnetic	
	Magnetometer	
	Radiometric	

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
L	578257	~~3025~~ GK
	261	~~3060~~ GL
	263	25
	264	25
	265	25
	266	25
	579215	25
	216	25
	217	25
	218	25
	219	25
	220	25
	221	25
	222	25
	223	25
	224	25
	225	25
	585682	~~25~~15 GK
	683	2510 GK
	562196	25
	562271	25

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.

Total number of mining claims covered by this report of work.: 21

Expenditures (excludes power stripping)

Type of Work Performed: Assaying, Analytical

Performed on Claim(s): as listed

Calculation of Expenditure Days Credits

Total Expenditures				Total Days Credits
$ 8,043.80	÷	15	=	536

Instructions: Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

For Office Use Only

Total Days Cr. Recorded	Date Recorded	Mining Recorder
535	NOV - 9 1984	
	Date Approved as Recorded: 85.2.1	Branch Director

Date: October 16/84

Recorded Holder or Agent (Signature): X

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying: W.E. Brereton, 120 Adelaide Street West, Suite 2406 M5H 1T1

Date Certified: October 16, 1984

Certified by (Signature):

1362 (81/9)

Lands Management Branch

Ontario Ministry of Natural Resources

Report of Work
(Geophysical, Geological, Geochemical and Expenditures)

Mining Act

2.13HD

ORI. 21A.

Instructions: – Please type or print.
– If number of mining claims traversed exceeds space on this form, attach a list.
Note: – Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.
– Do not use shaded areas below.

#324

(File L579215)

Type of Survey(s)	Township or Area
Magnetic, VLF-EM, Gradiometer, Geology, Geochemistry	Bryce Twp.

Claim Holder(s)	Prospector's Licence No.
Kapalua Gold Mines Ltd.	T-1439

Address: 1800, 540-5th Avenue S.W., Calgary, Alberta, T2P 0M2

Survey Company	Date of Survey (from & to)	Total Miles of line Cut
MPH Consulting Limited	From: 1 Day, 8 Mo., 84 Yr. To: 17 Day, 8 Mo., 84 Yr.	38

Name and Address of Author (of Geo-Technical report): W.E. Brereton, 2406, 120 Adelaide Street West, Toronto, Ontario M5H 1T1

Credits Requested per Each Claim in Columns at right

		Days per Claim
Special Provisions: For first survey: Enter 40 days. (This includes line cutting) For each additional survey: using the same grid: Enter 20 days (for each)	Geophysical	
	- Electromagnetic	20 ✓
	- Magnetometer	20 ✓
	- Radiometric	
	- Other	20
	Geological	20 ✓
	Geochemical	40 ✓
Man Days: Complete reverse side and enter total(s) here	Geophysical	Days per Claim
	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	
Airborne Credits: Note: Special provisions credits do not apply to Airborne Surveys.		Days per Claim
	Electromagnetic	
	Magnetometer	
	Radiometric	

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.	Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
L	579219				
	579220				
	579221				
	579222				
	579223				
	579224				
	579225				
	585682				
	585683				
	562196				
	562271				

RECEIVED
AUG 27 1984
MINING LANDS SECTION

LARDER LAKE MINING DIV.
RECEIVED
AUG 22 1984
AM 7 8 9 10 11 12 1 2 3 PM 4 5 6

Total number of mining claims covered by this report of work: 11

Expenditures (excludes power stripping)

Type of Work Performed:

Performed on Claim(s):

Calculation of Expenditure Days Credits

Total Expenditures: $ ÷ 15 = Total Days Credits

Instructions: Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

For Office Use Only

Total Days Cr. Recorded	Date Recorded	Mining Recorder
1320	AUG 22 1984	
	Date Approved as Recorded: See Revised Statement	Branch Director

Date	Recorded Holder or Agent (Signature)
Aug 20/84	

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying: W.E. Brereton, 2406, 120 Adelaide Street West. Toronto, Ontario M5H 1T1

Date Certified	Certified by (Signature)
Aug 20/84	

Land Management Reserve

Ministry of Natural Resources
Ontario

Report of Work
(Geophysical, Geological, Geochemical and Expenditures)

Mining Act

2.1340

Oct 21

Instructions: - Please type or print
- If number of mining claims traversed exceeds space on this form, attach a list.
Note: - Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.
- Do not use shaded areas below.

(Type L 578257)

#325

Type of Survey(s)	Township or Area
Gradiometer, Geology, Geochemistry	Bryce Twp.

Claim Holder(s)	Prospector's Licence No.
Kapalua Gold Mines Ltd.	T-1439

Address: 1800, 540-5th Avenue S.W., Calgary, Alberta T2P 0M2

Survey Company	Date of Survey (from & to) Day / Mo. / Yr.	Total Miles of line Cut
MPH Consulting Limited	1 6 84 / 17 8 84	38

Name and Address of Author (of Geo-Technical report)
W.E. Brereton, 2406, 120 Adelaide Street West, Toronto, Ontario M5H 1T1

Credits Requested per Each Claim in Columns at right

Special Provisions		Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	Geophysical	
	- Electromagnetic	
	- Magnetometer	
For each additional survey: using the same grid: Enter 20 days (for each)	- Radiometric	
	- Other	20
	Geological	20
	Geochemical	40

Man Days		Days per Claim
Complete reverse side and enter total(s) here	Geophysical	
	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	

Airborne Credits		Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	
	Magnetometer	
	Radiometric	

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.	Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
L	578257				
	578261				
	578263				
	578264				
	578265				
	578266				
	579215				
	579216				
	579217				
	579218				

RECEIVED
AUG 27 1984
MINING LANDS SECTION

LARDER LAKE MINING DIV.
RECEIVED
AUG 21 1984
AM 7 8 9 10 11 12 1 2 3 4 5 6 PM

Total number of mining claims covered by this report of work: 10

Expenditures (excludes power stripping)

Type of Work Performed

Performed on Claim(s)

Calculation of Expenditure Days Credits

Total Expenditures $ ÷ 15 = Total Days Credits

Instructions
Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

For Office Use Only

Total Days Cr. Recorded	Date Recorded	Mining Recorder
800	AUG 22 1984	
	Date Approved as Recorded: See Revised Statement	Branch Director

Date: Aug 20/84 Recorded Holder or Agent (Signature)

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying
W.E. Brereton, 2406-120 Adelaide Street West, Toronto, Ontario M5H 1T1

Date Certified: Aug 20/84 Certified by (Signature)

1362 (81/9)

Our File: 2.7340

October 26, 1984

Mining Recorder
Ministry of Natural Resources
4 Government Road East
Kirkland Lake, Ontario
P2N 1A2

Dear Sir:

We received reports and maps on October 23, 1984 for a Geophysical(Electromagnetic and Magnetometer), and Gradiometer Geological and Geochemical Survey submitted under Special Provisions (credit for Performance and Coverage) on Mining Claims L 579219 et al in the Township of Bryce.

This material will be examined and assessed and a statement of assessment work credits will be issued.

We do not have a copy of the report of work which is normally filed with you prior to the submission of this technical data. Please forward a copy as soon as possible.

Yours sincerely,

S.E. Yundt
Director
Land Management Branch

Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3
Phone:(416)965-4888

S. Hurst:ig

cc: Kapalua Gold Mines Ltd.
Suite 1800
540 - 5th Avenue S.W.
Calgary, Alberta
P2P 0M2

cc: MPH Consulting Limited
2406 - 120 Adelaide St. W.
Toronto, Ontario
M5H 1W5
Attn: Mr. N. Willoughby

1984 11 28

Your File: 325 & 324
Our File: 2.7340

Mining Recorder
Ministry of Natural Resources
4 Government Road East
Kirkland Lake, Ontario
P2N 1A2

Dear Sir:

RE: Notice of Intent dated November 9, 1984.
Geophysical (Electromagnetic & Magnetometer) and Gradiometer, Geological & Geochemical Survey on Mining Claims L 579219 et al in the Township of Bryce.

The assessment work credits, as listed with the above-mentioned Notice of Intent, have been approved as of the above date.

Please inform the recorded holder of these mining claims and so indicate on your records.

Yours sincerely,

S.E. Yundt
Director
Land Management Branch

Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3
Phone:(416)965-6918

S. Hurst:sc

cc: Kapalua Gold Mines Limited
Suite 1800
540 - 5th Avenue S W
Calgary, Alberta
T2P 0M2

cc: W.E. Brereton
Suite 2406
120 Adelaide Street West
Toronto, Ontario
M5H 1T1

cc: Mr. G.H. Ferguson
Mining & Lands Commissioner
Toronto, Ontario

cc:Resident Geologist
Kirkland Lake, Ontario

Ministry of Natural Resources
Ontario

Technical Assessment Work Credits

File 2.7340

Date 1984 11 09

Mining Recorder's Report of Work No. 325

Recorded Holder: KAPALUA GOLD MINES LTD

Township or Area: BRYCE TOWNSHIP

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical	
Electromagnetic _____ days	
Magnetometer _____ days	
Radiometric _____ days	
Induced polarization _____ days	
Other _____ days	
Section 77 (19) See "Mining Claims Assessed" column	
Geological _____ days	
Geochemical 40 days	L 578257-61 578263 to 266 inclusive 579215 to 218 inclusive
Man days ☐ Airborne ☐	
Special provision ☒ Ground ☒	
☒ Credits have been reduced because of partial coverage of claims.	
☐ Credits have been reduced because of corrections to work dates and figures of applicant.	

Special credits under section 77 (16) for the following mining claims

No credits have been allowed for the following mining claims

☐ not sufficiently covered by the survey ☐ Insufficient technical data filed

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical — 80; Geological — 40; Geochemical — 40; Section 77(19) — 60:

Ministry of Natural Resources
Ontario

Technical Assessment Work Credits

File 2.7340

Date 1984 11 09

Mining Recorder's Report of Work No. 324

Recorded Holder: KAPALUA GOLD MINES LTD

Township or Area: BRYCE TOWNSHIP

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical	L 579219 to 225 inclusive 585682-83 562196 562271
Electromagnetic 20 days	
Magnetometer 20 days	
Radiometric ____ days	
Induced polarization ____ days	
Other 20 days	
Section 77 (19) See "Mining Claims Assessed" column	
Geological 20 days	
Geochemical 40 days	
Man days ☐ Airborne ☐	
Special provision ☒ Ground ☒	
☒ Credits have been reduced because of partial coverage of claims.	
☐ Credits have been reduced because of corrections to work dates and figures of applicant.	

Special credits under section 77 (16) for the following mining claims

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The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical — 80; Geological — 40; Geochemical — 40; Section 77(19)—60:

828 (83/6)

Ministry of Natural Resources
Ontario

Technical Assessment Work Credits

File 2.7340

Date 1984 11 09

Mining Recorder's Report of Work No. 325

Recorded Holder: KAPALUA GOLD MINES LTD

Township or Area: BRYCE TOWNSHIP

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical	
Electromagnetic _____ days	
Magnetometer _____ days	
Radiometric _____ days	
Induced polarization _____ days	
Other GRADIOMETER 20 days	L 578257 578263 to 266 inclusive 579215 to 218 inclusive
Section 77 (19) See "Mining Claims Assessed" column	
Geological 20 days	
Geochemical _____ days	
Man days ☐ Airborne ☐	
Special provision ☒ Ground ☒	
☐ Credits have been reduced because of partial coverage of claims.	
☐ Credits have been reduced because of corrections to work dates and figures of applicant.	

Special credits under section 77 (16) for the following mining claims

5 DAYS GRADIOMETER
5 DAYS GEOLOGY

L 578261

No credits have been allowed for the following mining claims

☐ not sufficiently covered by the survey ☐ Insufficient technical data filed

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical — 80; Geological — 40; Geochemical — 40; Section 77(19)—60:

828 (83/61

Ministry of Natural Resources

Ontario

Nov.26/84

1984 11 09

Your File: 325 & 324
Our File: 2.7340

Mining Recorder
Ministry of Natural Resources
4 Government Road East
Kirkland Lake, Ontario
P2N 1A2

Dear Sir:

Enclosed are two copies of a Notice of Intent with statements listing a reduced rate of assessment work credits to be allowed for a technical survey. Please forward one copy to the recorded holder of the claims and retain the other. In approximately fifteen days from the above date, a final letter of approval of these credits will be sent to you. On receipt of the approval letter, you may then change the work entries on the claim record sheets.

For further information, if required, please contact Mr. R.J. Pichette at 416/965-4888.

Yours sincerely,

S.E. Yundt
Director
Land Management Branch

Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3

RJ S. Hurst:mc

Encls.

cc: Kapalua Gold Mines Ltd
Suite 1800
540 - 5th Avenue S W
Calgary, Alberta
T2P 0M2

cc: W.E. Brereton
Suite 2406
120 Adelaide Street West
Toronto, Ontario
M5H 1T1

phone 365-0930

cc: Mr. G.H. Ferguson
Mining & Lands Commissioner
Toronto, Ontario

845

Ministry of Natural Resources

Ontario

Notice of Intent

for Technical Reports

1984 11 09

2.7340/325 & 324

An examination of your survey report indicates that the requirements of The Ontario Mining Act have not been fully met to warrant maximum assessment work credits. This notice is merely a warning that you will not be allowed the number of assessment work days credits that you expected and also that in approximately 15 days from the above date, the mining recorder will be authorized to change the entries on his record sheets to agree with the enclosed statement. Please note that until such time as the recorder actually changes the entry on the record sheet, the status of the claim remains unchanged.

If you are of the opinion that these changes by the mining recorder will jeopardize your claims, you may during the next fifteen days apply to the Mining and Lands Commissioner for an extension of time. Abstracts should be sent with your application.

If the reduced rate of credits does not jeopardize the status of the claims then you need not seek relief from the Mining and Lands Commissioner and this Notice of Intent may be disregarded.

If your survey was submitted and assessed under the "Special Provision-Performance and Coverage" method and you are of the opinion that a re-appraisal under the "Man-days" method would result in the approval of a greater number of days credit per claim, you may, within the said fifteen day period, submit assessment work breakdowns listing the employees names, addresses and the dates and hours they worked. The new work breakdowns should be submitted direct to the Land Management Branch, Toronto. The report will be re-assessed and a new statement of credits based on actual days worked will be issued.

LOT 12

LOT 11

CONC. III

TUDHOPE TWP.

BRYCE TWP.

CONC. C.

579216

25696

25694

579217

25693

25695

278261

578264

578257

582271

578263

578265

578266

579222

579223

579224

579225

CONTACT ZONE

HONEYMOON LAKE CONDUCTIVE ZONE

81-9

81-8

?

ROAD

TIMBER ROAD

WINTER ROAD

FOREST AREA

BL 0+00

14+00W 13+00W 12+00W 11+00W 10+00W 9+00W 8+00W 7+00W 6+00W 5+00W 4+00W

15+00W 16+00W 17+00W 18+00W 19+00W 20+00W 21+00W

7+00N 6+00N 5+00N 4+00N 3+00N 2+00N 1+00N 0+00 1+00S 2+00S 3+00S 4+00S 5+00S 6+00S 7+00S 8+00S 9+00S 10+00S 11+00S 12+00S 13+00S

REGIONAL LOCATION MAP

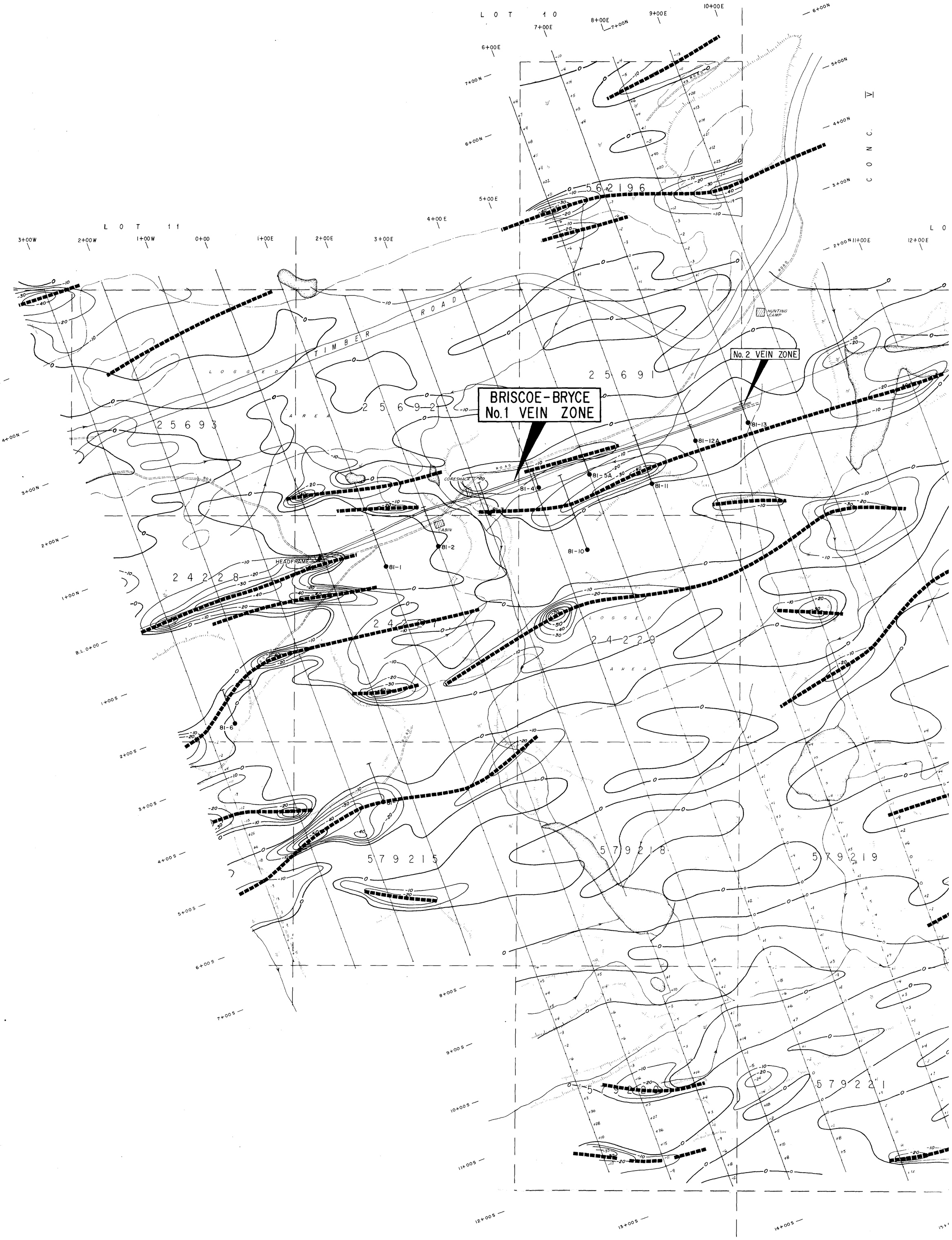
SCALE 1:1,600,000

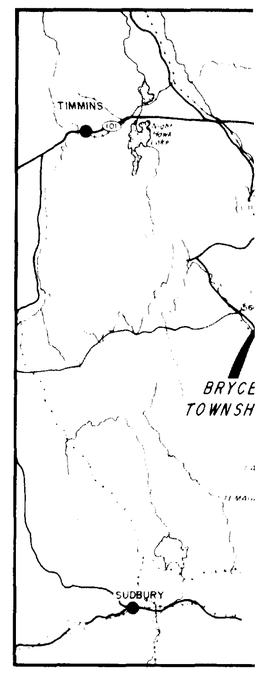
KILOMETRES

TIMMINS · Night Hawk Lake · Kirkland Lake · NORANDA · RUOYN · Charlton · Englehart · New Liskeard · BRYCE TOWNSHIP · LAKE TEMAGAMI · SUDBURY · QUEBEC · ONTARIO

INSTRU

-10% 0





LOT 12

LOT 11

5 7 9 2 1 6

2 5 6 9 6

2 5 6 9 4

5 7 9 2 1 7

2 5 6 9 7

2 5 6 9 5

2 7 8 2 6 1

5 7 8 2 6 4

5 7 8 2 5 7

5 7 8 2 6 3

5 7 8 2 6 5

5 7 8 2 6 6

5 7 9 2 2 2

5 7 9 2 2 3

5 7 9 2 2 4

5 7 9 2 2 5

81-9

81-8

CLEARED AREA

LOGGED AREA

TIMBER ROAD

HONEYMOON LAKE

WINTER ROAD

ROAD

CONC. III

TUDHOPE TWP

BRYCE TWP

14+00W 13+00W 12+00W 11+00W 10+00W 9+00W 8+00W 7+00W 6+00W 5+00W 4+00W

15+00W 16+00W 17+00W 18+00W 19+00W 20+00W 21+00W

10+00N 9+00N 8+00N 7+00N 6+00N 5+00N 4+00N 3+00N 2+00N 1+00N B.L. 0+00 1+00S 2+00S 3+00S 4+00S 5+00S 6+00S 7+00S 8+00S 9+00S 10+00S 11+00S 12+00S 13+00S


L O T 1 0
L O T 1 1
L O T
C O N C. V
BRISCOE-BRYCE
No.1 VEIN ZONE
No. 2 VEIN ZONE
TIMBER ROAD
LOGGED AREA
ROAD
HUNTING CAMP
CORESHACK
CABIN
HEADFRAME
81-1
81-2
81-3
81-4
81-5A
81-6
81-7
81-10
81-11
81-12A
81-13
562196
25692
25693
24228
24227
25691
24229
579215
579218
579219
579220
579221
3+00W
2+00W
1+00W
0+00
1+00E
2+00E
3+00E
4+00E
5+00E
6+00E
7+00E
8+00E
9+00E
10+00E
11+00E
12+00E
6+00N
7+00N
5+00N
4+00N
3+00N
2+00N
1+00N
B.L.0+00
1+00S
2+00S
3+00S
4+00S
5+00S
6+00S
7+00S
8+00S
9+00S
10+00S
11+00S
12+00S
13+00S
14+00S
15+00S

LOT 12

LOT 11

TIMMINS

Night Hawk Lake

SUDBURY

BRYC
TOWNS

579216

25696

25694

LOGGED AREA

ROAD

81-9

CLEARED AREA

TIMBER LOGGED AREA

579217

25697

25695

IV CONC.

HONEYMOON LAKE

278261

WINTER ROAD

578264

578257

562271

81-8

578263

578265

578266

TUDHOPE TWP

BRYCE TWP

579222

579223

579224

579225

III CONC.

14+00W 13+00W 12+00W 11+00W 10+00W 9+00W 8+00W 7+00W 6+00W 5+00W 4+00W

15+00W 16+00W 17+00W 18+00W 19+00W 20+00W 21+00W

7+00N 6+00N 5+00N 4+00N 3+00N 2+00N 1+00N 0+00BL

10+00N 9+00N 8+00N 7+00N 6+00N 5+00N 4+00N 3+00N 2+00N 1+00N B.L.0+00

1+00S 2+00S 3+00S 4+00S 5+00S 6+00S 7+00S 8+00S 9+00S 10+00S 11+00S 12+00S 13+00S

LOT 12

LOT 11

579216

25696

25694

LOGGED ROAD

81-9

AREA ROAD

CLEARED AREA

TIMBER ROAD

LOGGED AREA

579217

25697

25695

IV

CONC.

WINTER ROAD

278261

HONEYMOON LAKE

578264

578257

562271

ROAD

578263

578265

8-8

578266

579222

579223

579224

TUDHOPE TWP.

BRYCE TWP.

CONC. III

579225

TIMMINS

101

Night Hawk Lake

SUDBURY

17

BRYC

TOWNSH

TEMA

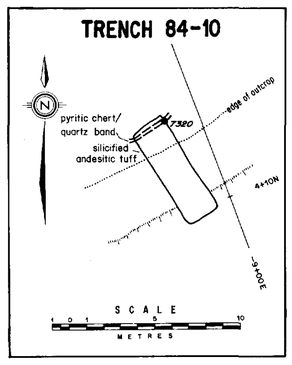
14+00W 13+00W 12+00W 11+00W 10+00W 9+00W 8+00W 7+00W 6+00W 5+00W 4+00W

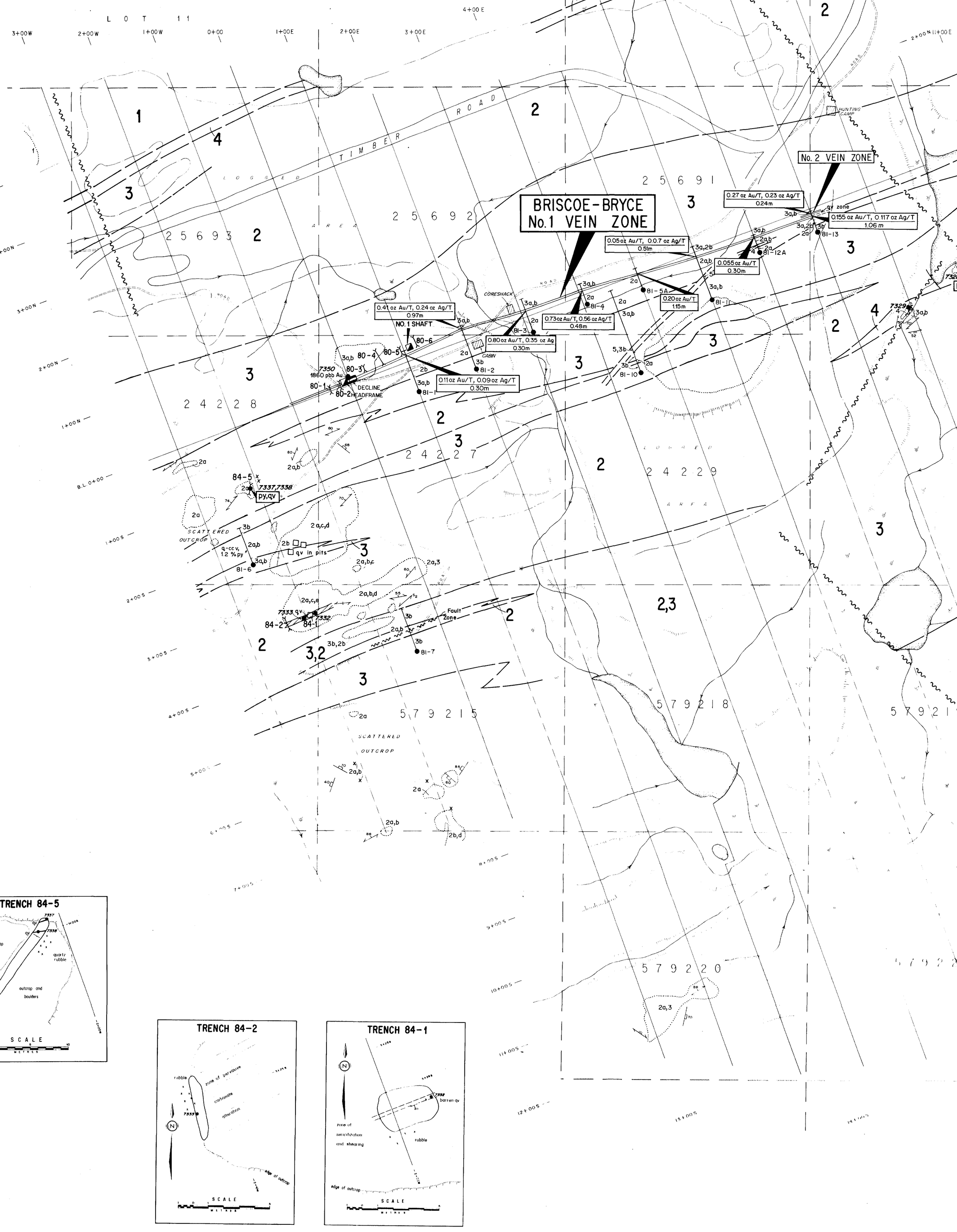
15+00W 16+00W

10+00N 9+00N 8+00N 7+00N 6+00N 5+00N 4+00N 3+00N 2+00N 1+00N 0+00 B.L.

1+00S 2+00S 3+00S 4+00S 5+00S 6+00S 7+00S 8+00S 9+00S 10+00S 11+00S 12+00S 13+00S

17+00W 18+00W 19+00W 20+00W 21+00W





LOT 12

LOT 11

TUDHOPE TWP.

BRYCE TWP.

CONC. IV

CONC. III

HONEYMOON LAKE

TIMMINS

Night Hawk Lake

SUDBURY

BRY
TOWNS

579216

579217

25696

25694

25697

25695

578261

578264

578257

562271

578263

578265

578266

579222

579223

579224

579225

SCATTERED OUTCROP

OUTCROP

LOGGED AREA

CLEARED AREA

ROAD

TIMBER ROAD

WINTER ROAD

Gossan

7325 py

py

81-9

80-2T

80-T, 3T

py, ma 7324 qv

7344 qv

7350 980 ppb Au
7343 3220, 3770 ppb Au
qv, py, mal, az, cpy
84-9

7319 3a,b

7339 qv
84-6

7334 980 ppb Au
7335 690 ppb Au
84-4
Shear Zone with qv
84-3
7336 430 ppb Au
py, cp, mal, qv

7341, 7342
py, cp
qv
84-7

7326 py
7323 320 ppb Au 2.3a qv

81-8 py

7321 qv 2a,b,d,3

TRENCH 84-6

7339 qv
scattered outcrop of feldspar crystal tuff
quartz rubble
rubble filled
SCALE METRES

TRENCH 84-3

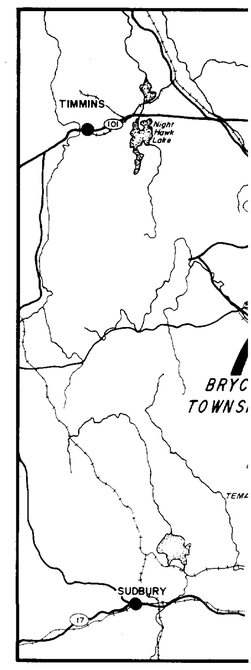
py, cp, mal
qv
7334, 7335
py, cp, mal
qv
7336
tapilli tuff, tuff breccia
SCALE METRES

TRENCH 84-7

7341
7342
narrow q-cc v (6")
feldspar crystal tuff
feldspar crystal tuff
SCALE METRES

TRENCH 84-4

qv
6 m. deep
4 m. deep
strongly schistose
sericitic tuff
bedrock exposed
SCALE METRES



LOT 12

LOT 11

579216

25696

25694

LOGGED ROAD

81-9

AREA

CLEARED AREA

ROAD

TIMBER

LOGGED AREA

579217

25697

25695

IV

N.C.

278261

HONEYMOON LAKE

578264

578257

562271

GS-84-S-1 20ppb

7331 430ppb

QTZ VEIN

578263

578265

578266

81-8

+QTZ VEIN Py, Cp

579222

579223

579224

579225

TUDHOPE TWP

BRYCE TWP

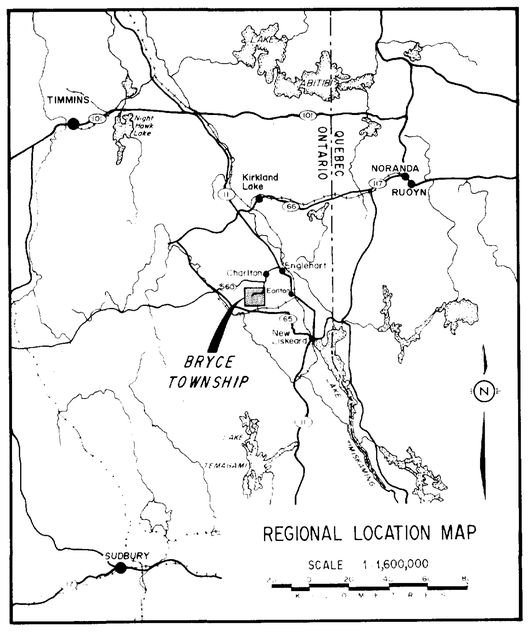
CONC. III

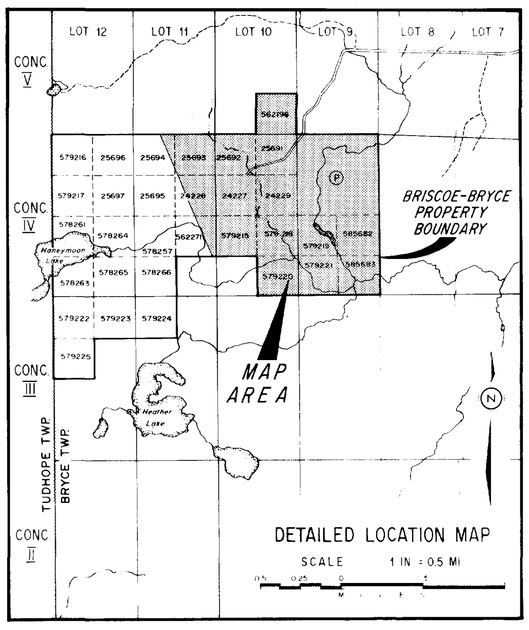
14+00W 13+00W 12+00W 11+00W 10+00W 9+00W 8+00W 7+00W 6+00W 5+00W 4+00W

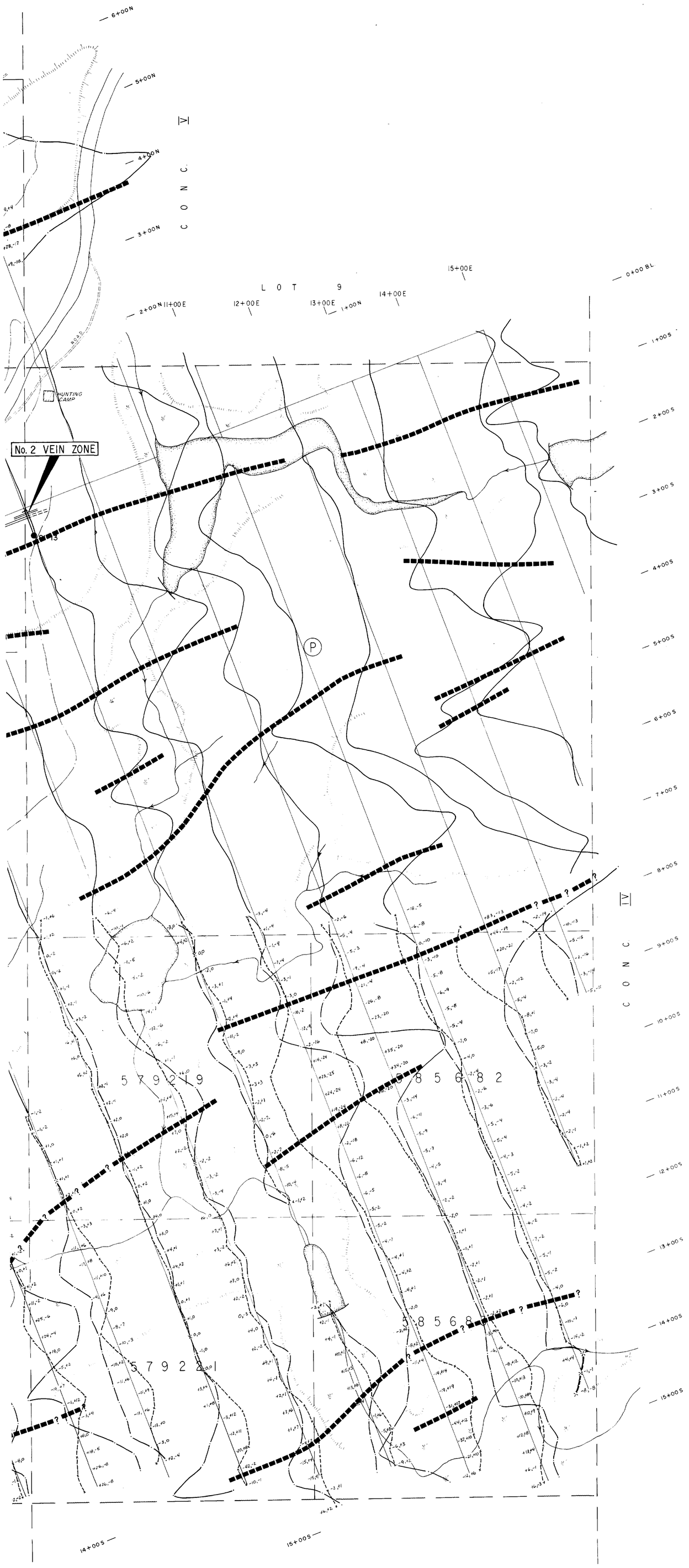
15+00W 16+00W 17+00W 18+00W 19+00W 20+00W 21+00W

10+00N 9+00N 8+00N 7+00N 6+00N 5+00N 4+00N 3+00N 2+00N 1+00N 0+00 B.L.

1+00S 2+00S 3+00S 4+00S 5+00S 6+00S 7+00S 8+00S 9+00S 10+00S 11+00S 12+00S 13+00S







LEGEND

INSTRUMENT: Geonics EM 16

VLF INPHASE DATA – 1980
(transmitting station – Seattle, Washington – 24.8 kHz)

VLF DATA – 1984
(transmitting station – Cutler, Maine – 24.0 kHz)

Inphase
Quadrature

-10% 0 +10% Plotting Scale (1 cm = 10%)

VLF Anomaly Axis

Claim Line

Concession Boundary

Boundary of Cleared Area

SCALE
100 50 0 100 200
METRES

EAST SHEET

KAPALUA GOLD MINES LTD.

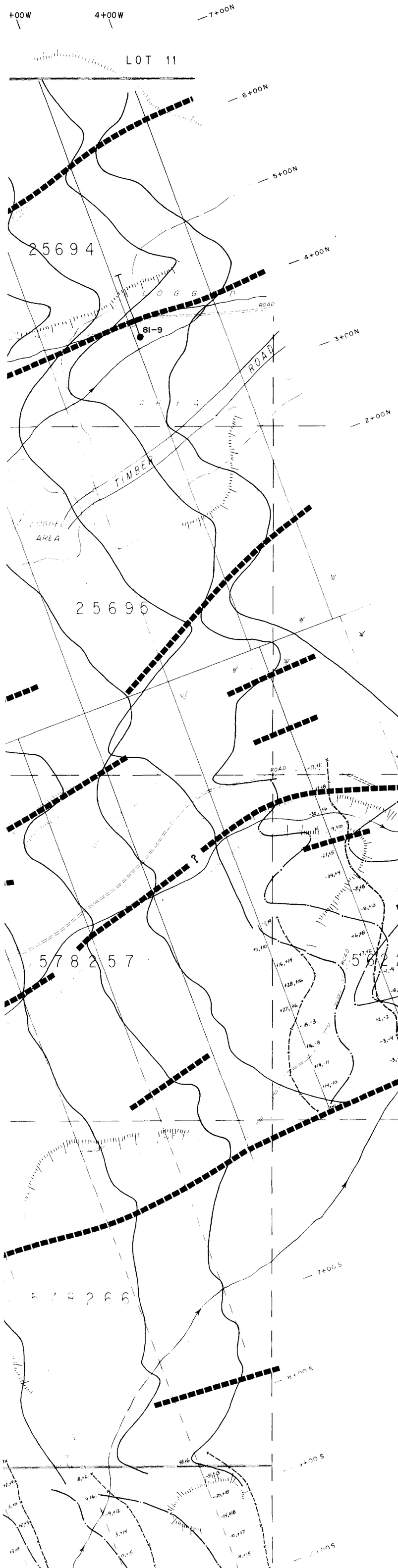
BRISCOE – BRYCE PROPERTY

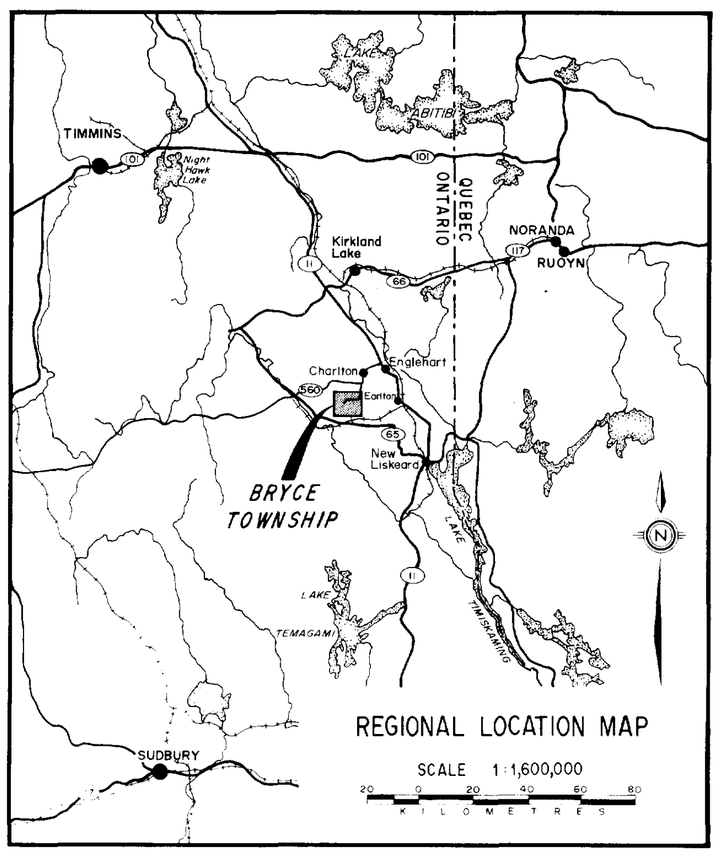
VLF-EM PROFILES

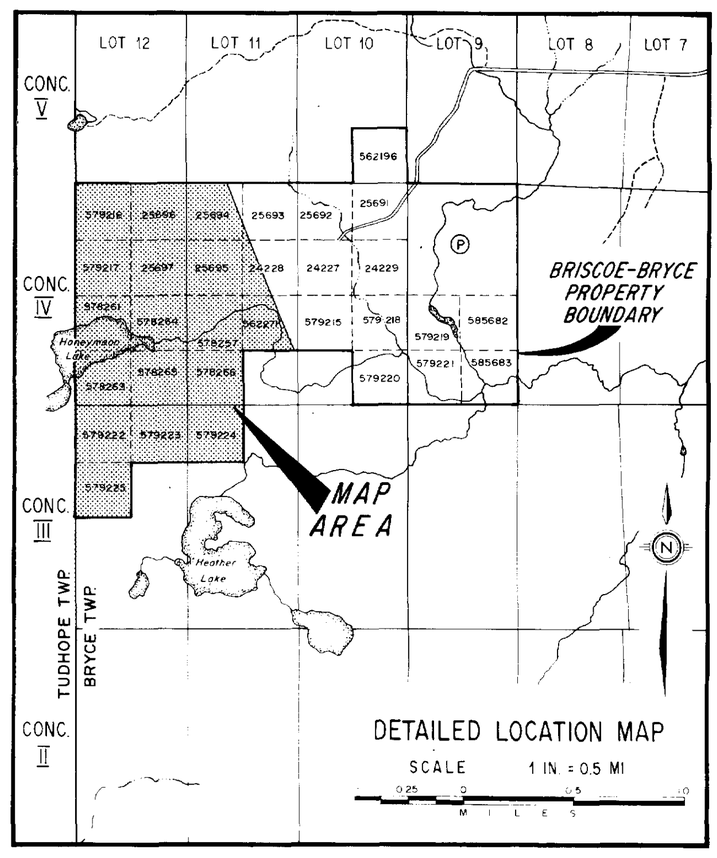
Project No: C-583	By: W.E. Brereton
Scale: 1:2,500	Drawn: GCS Limited
Drawing No: 3a	Date: September, 1984

MPH Consulting Limited

J.7340







LEGEND

INSTRUMENT: Geonics EM 16

VLF INPHASE DATA – 1980

(transmitting station – Seattle, Washington – 24.8 kHz)

VLF DATA – 1984

(transmitting station – Cutler, Maine – 24.0 kHz)

Inphase

Quadrature

-10% 0 +10% Plotting Scale (1 cm = 10%)

VLF Anomaly Axis

Claim Line

Concession Boundary

Boundary of Cleared Area

SCALE

100 50 0 100 200

METRES

WEST SHEET

KAPALUA GOLD MINES LTD.

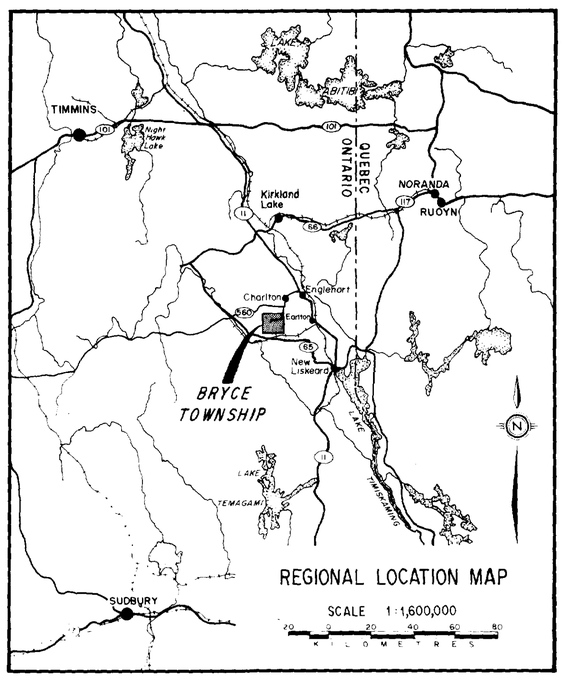
BRISCOE – BRYCE PROPERTY

VLF-EM PROFILES

Project No: C-583	By: W.E. Brereton
Scale: 1:2,500	Drawn: GCS Limited
Drawing No: 3b	Date: September, 1984

MPH Consulting Limited

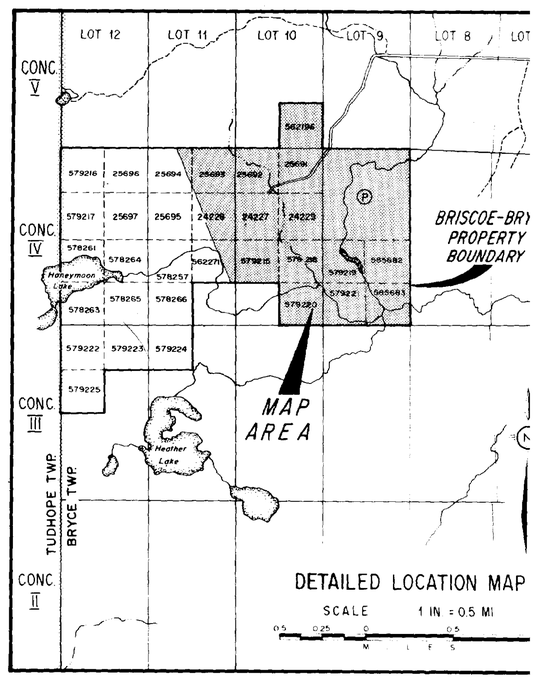
21840



REGIONAL LOCATION MAP

SCALE 1:1,600,000

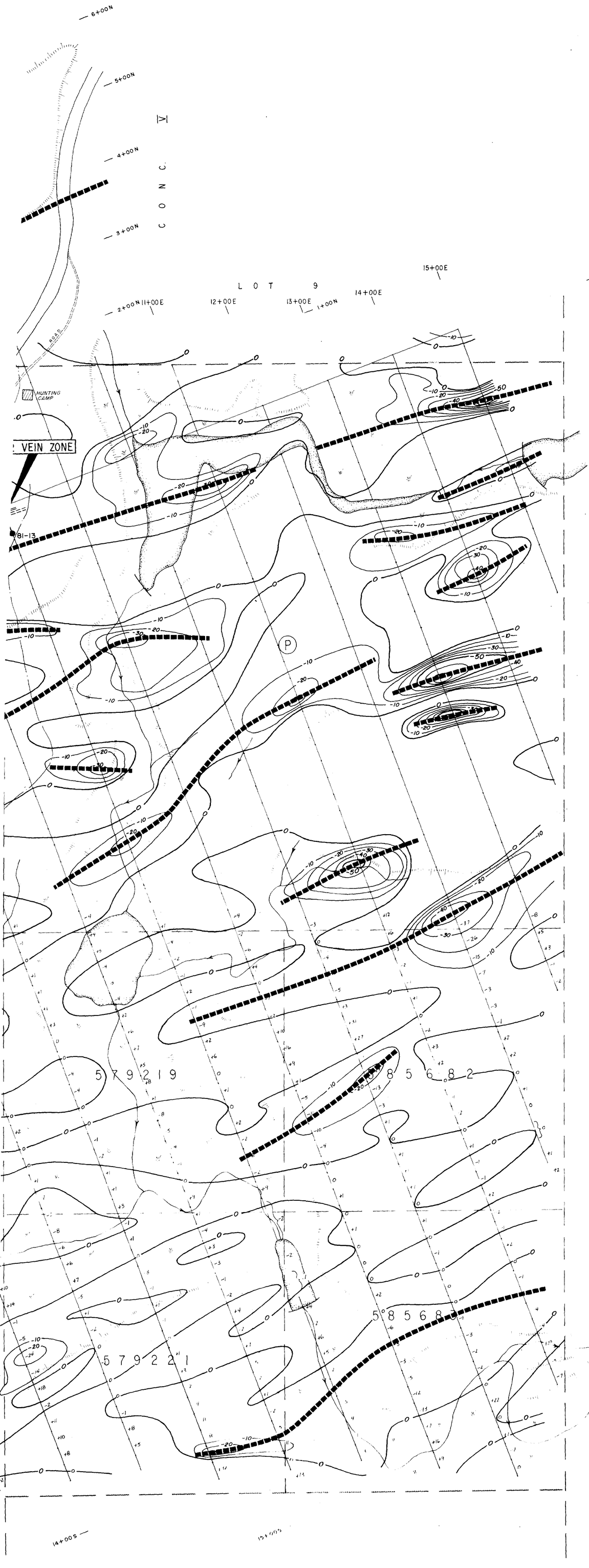
KILOMETRES



DETAILED LOCATION MAP

SCALE 1 IN = 0.5 MI

MILES



LEGEND

INSTRUMENT: Geonics EM 16

VLF DATA -1980

(transmitting station - Seattle, Washington - 24.8 kHz)

VLF DATA - 1984

(transmitting station - Cutler, Maine - 24.0 kHz)

-7 VLF-EM First Derivative (From Inphase Values)

CONTOUR INTERVAL:

10%

50%

VLF Anomaly Axis

Claim Line

Concession Boundary

Boundary of Cleared Area

N

SCALE

METRES

LAST SHEET

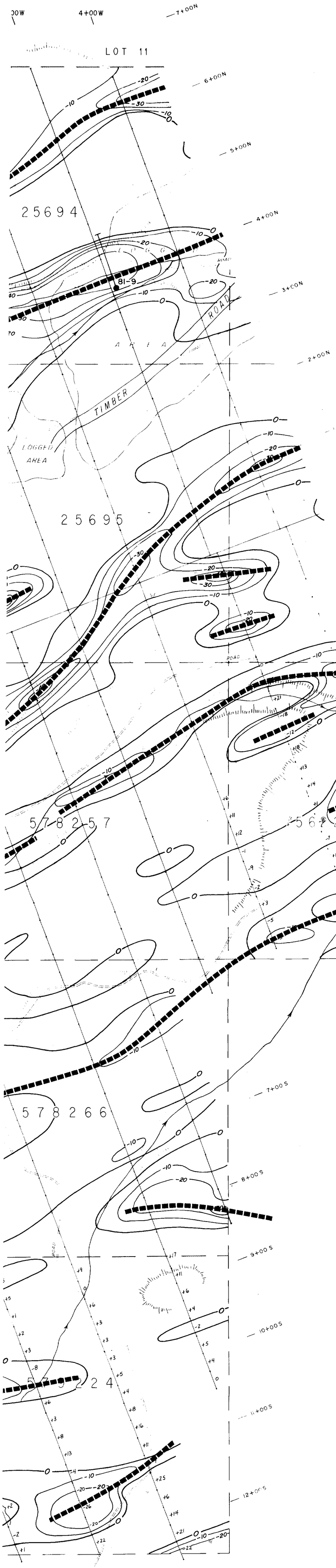
KAPALUA GOLD MINES

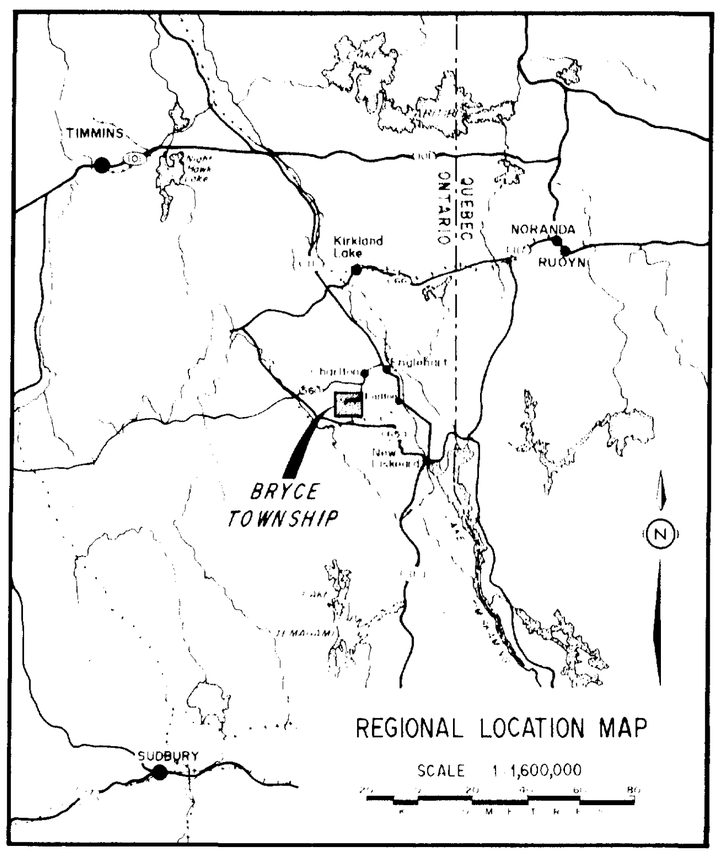
BRISCOE - BRYCE PROPERTY

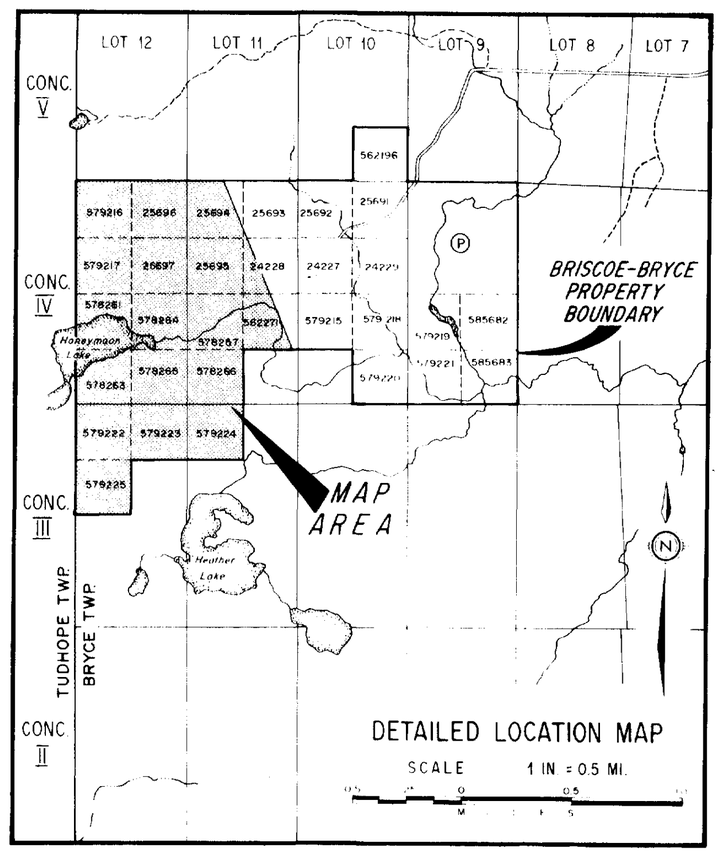
VLF-EM FIRST DERIVA

Project No: C-583	By: W.E. Brereton
Scale: 1:2,500	Drawn: GCS Limited
Drawing No: 4a	Date: September, 19

MPH Consulting Li







LEGEND

INSTRUMENT: *Geonics EM 16*

VLF DATA -1980

(transmitting station - Seattle, Washington - 24.8 kHz)

VLF DATA - 1984

(transmitting station - Cutler, Maine - 24.0 kHz)

-7 *VLF - EM First Derivative (From Inphase Values)*

CONTOUR INTERVAL:

10%

50%

VLF Anomaly Axis

Claim Line

Concession Boundary

Boundary of Cleared Area

SCALE

100 50 0 100 200

METRES

WEST SHEET

KAPALUA GOLD MINES LTD.

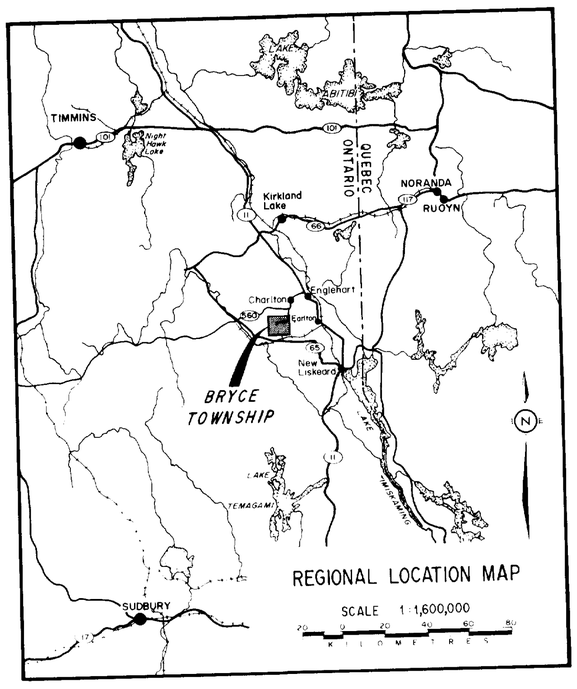
BRISCOE - BRYCE PROPERTY

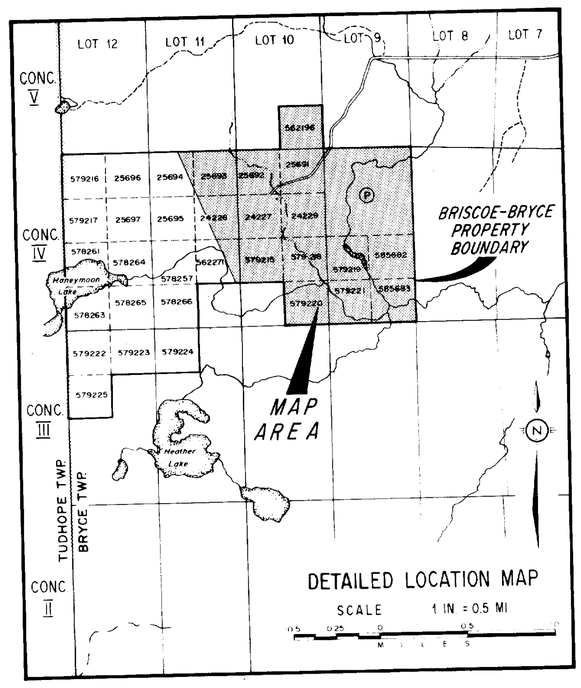
VLF-EM FIRST DERIVATIVE

Project No: C-583	By: W.E. Brereton
Scale: 1:2,500	Drawn: GCS Limited
Drawing No: 4b	Date: September, 1984

MPH Consulting Limited

21340





L E G E N D

MAGNETIC DATA – 1980

Instrument: Geometrics G-816 Proton Magnetometer

Contour Interval:

100 gammas

500 gammas

MAGNETIC DATA – 1984

58985 / 58993 / 58981

Instrument: EDA Model PPM 500

Base Station Recorder: EDA Model PPM 400

58963 *Absolute Magnetic Value (nT)*

Contour Interval:

25 nT

100 nT

Magnetic Contour

Magnetic Depression

Claim Line

Concession Boundary

Boundary of Cleared Area

S C A L E

100 50 0 100 200

METRES

EAST SHEET

KAPALUA GOLD MINES LTD.

BRISCOE – BRYCE PROPERTY

MAGNETOMETER SURVEY

Project No: C-583	By: W.E. Brereton
Scale: 1:2,500	Drawn: GCS Limited
Drawing No: 2a	Date: September, 1984

MPH **MPH Consulting Limited**

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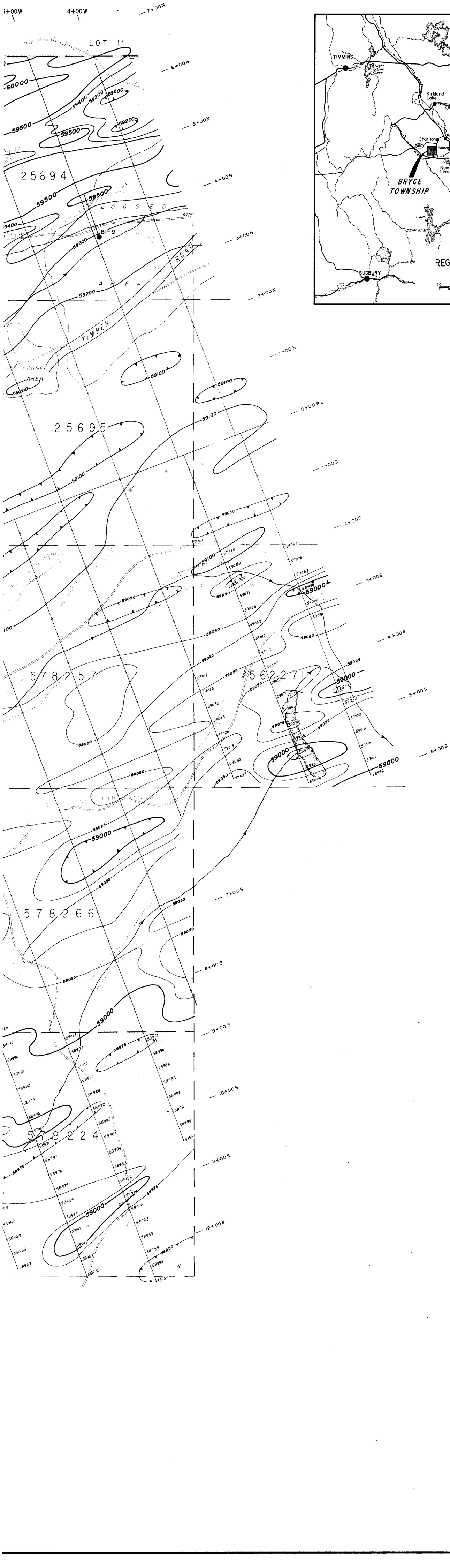

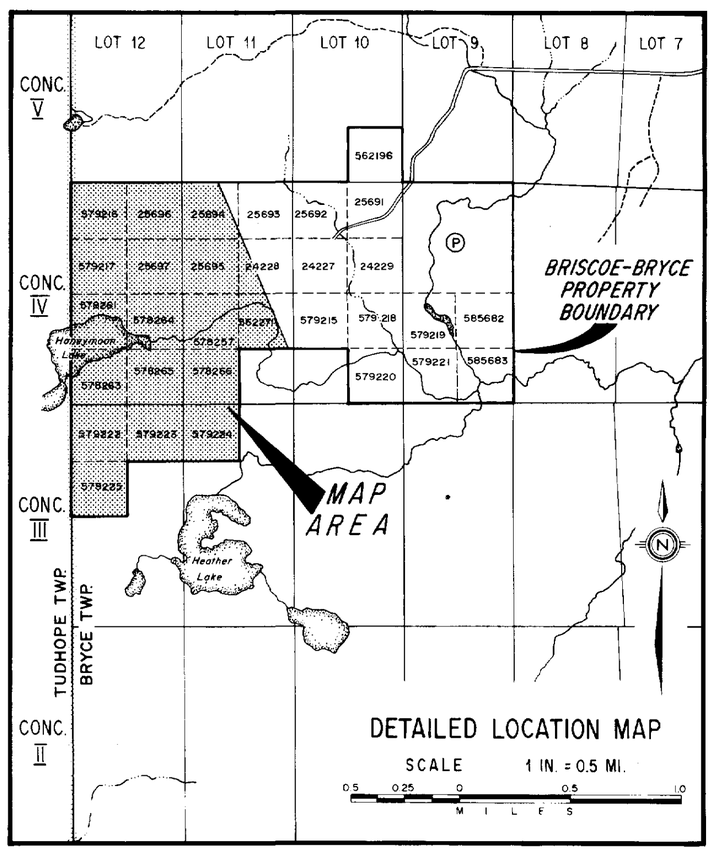

LEGEND

MAGNETIC DATA – 1980

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25 nT

100 nT

Magnetic Contour

Magnetic Depression

Claim Line

Concession Boundary

Boundary of Cleared Area

SCALE

100 50 0 100 200

METRES

WEST SHEET

KAPALUA GOLD MINES LTD.

BRISCOE – BRYCE PROPERTY

MAGNETOMETER SURVEY

Project No: C-583	**By:** W.E. Brereton
Scale: 1:2,500	**Drawn:** GCS Limited
Drawing No: 2b	**Date:** September, 1984

MPH Consulting Limited

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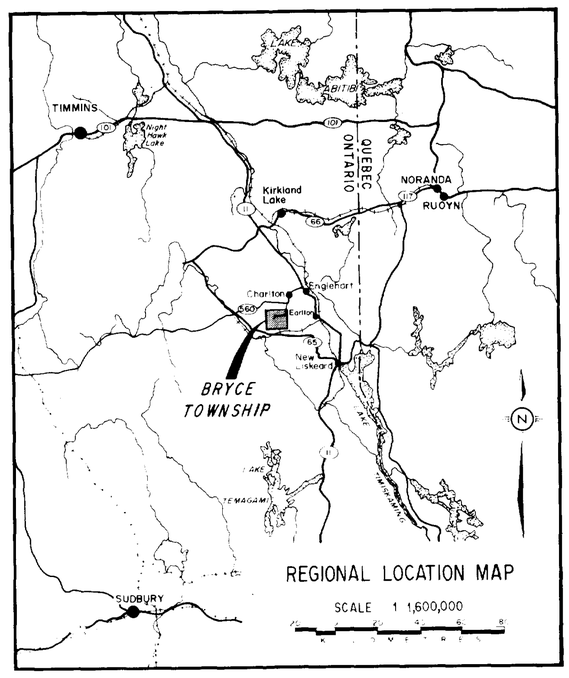

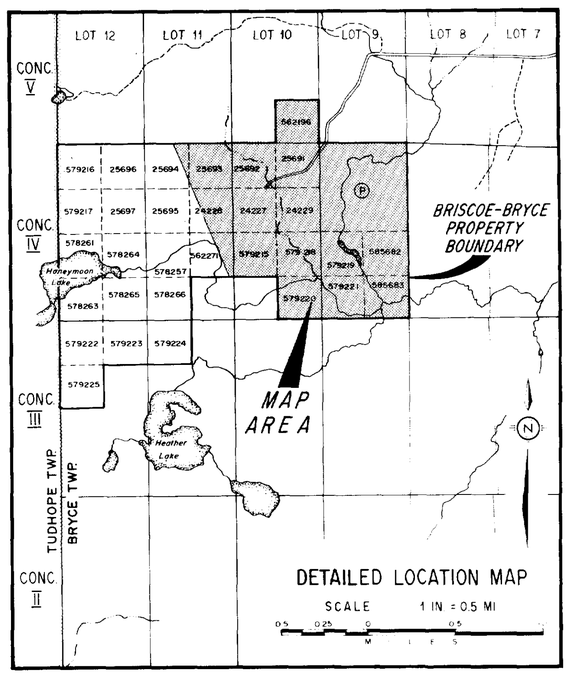

LEGEND

INSTRUMENT: EDA Model PPM 500

BASE STATION RECORDER: EDA Model PPM 400

UNIT SENSITIVITY: 0.1 nT

-21 Gradient Value (nT)

Vertical Gradient Contour

CONTOUR INTERVAL:

5 nT

25 nT

Claim Line

Concession Boundary

Boundary of Cleared Area

SCALE

100 50 0 100 200

METRES

LAST SHEET

KAPALUA GOLD MINES LTD.

BRISCOE - BRYCE PROPERTY

GRADIOMETER SURVEY

Project No: C. 583	By: W.E. Brereton
Scale: 1 2,500	Drawn: GCS Limited
Drawing No: 5a	Date: September, 1984

MPH Consulting Limited

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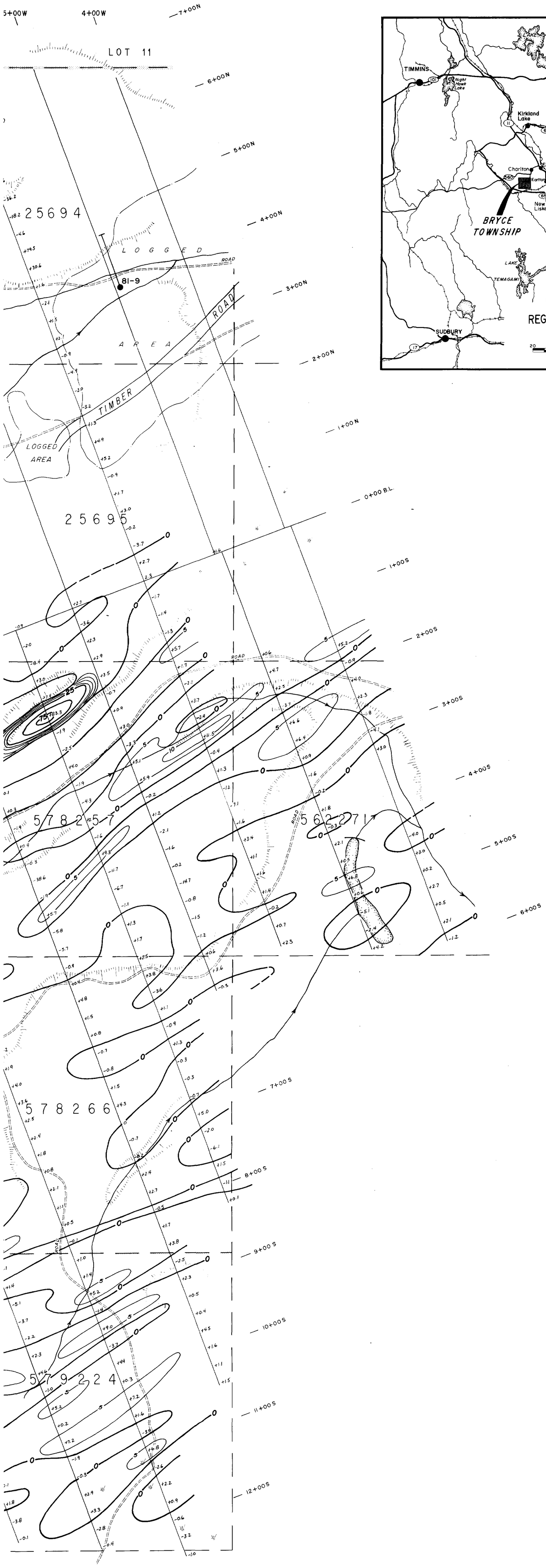

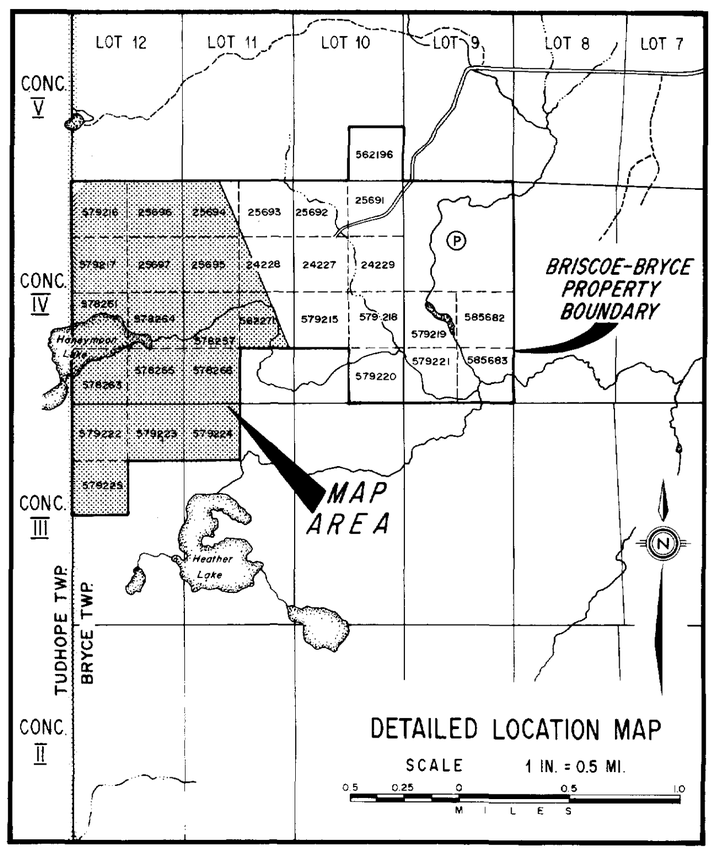

L E G E N D

INSTRUMENT: EDA Model PPM 500

BASE STATION RECORDER: EDA Model PPM 400

UNIT SENSITIVITY: 0.1nT

-2.1 — Gradient Value (nT)

Vertical Gradient Contour

CONTOUR INTERVAL:

5nT

25nT

Claim Line

Concession Boundary

Boundary of Cleared Area

S C A L E

100 50 0 100 200

METRES

WEST SHEET

KAPALUA GOLD MINES LTD.

BRISCOE - BRYCE PROPERTY

GRADIOMETER SURVEY

Project No: C-583	By: W.E. Brereton
Scale: 1:2,500	Drawn: GCS Limited
Drawing No: 5b	Date: September, 1984

MPH Consulting Limited

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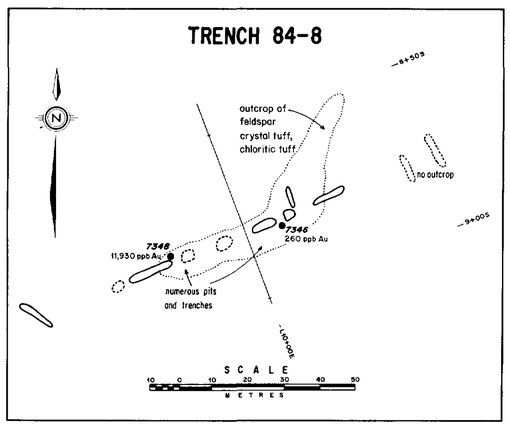
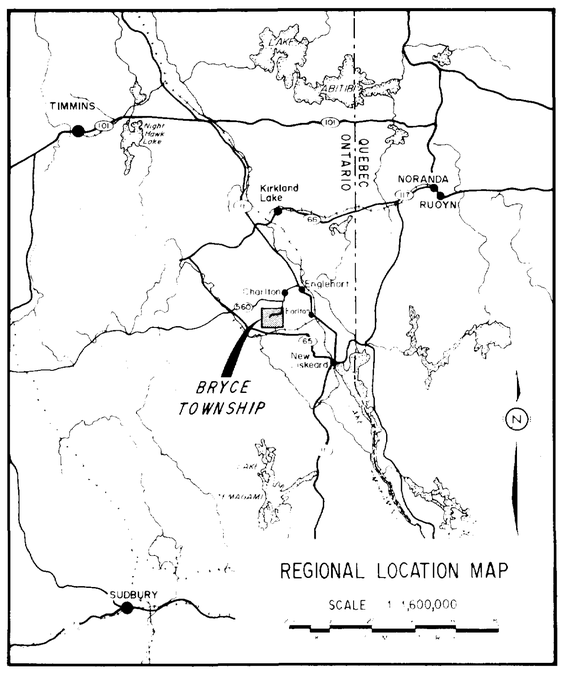
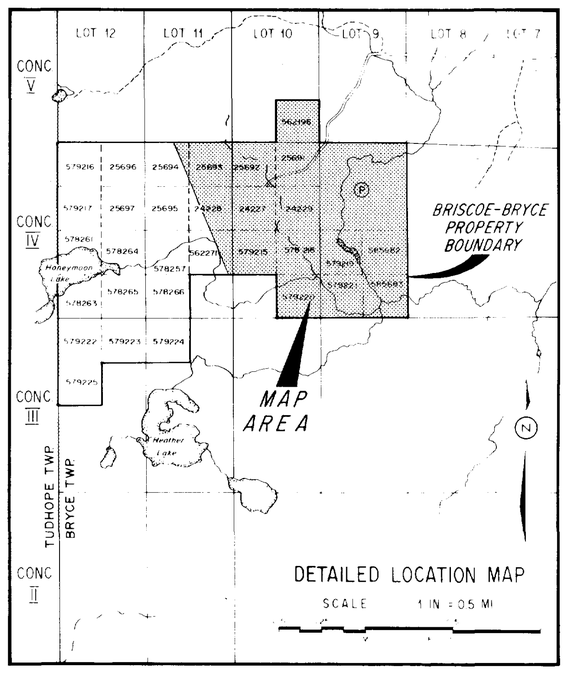






L E G E N D

LITHOLOGIES

INTERMEDIATE INTRUSIVE ROCKS

6 — *QUARTZ - FELDSPAR PORPHYRY*
- a *Silicified*
- b *Carbonatized*

ULTRAMAFIC - MAFIC INTRUSIVE ROCKS

5
- a *Pyroxenite*
- b *Fine grained mafic dyke*

SKEAD GROUP

4 — *BANDED TUFFACEOUS METASEDIMENTS, CHERT*

3 — *INTERMEDIATE TUFF-BRECCIA*
- a *Lapilli tuff*
- b *Tuff-breccia, agglomerate*

2 — *INTERMEDIATE TUFF*
- a *Feldspar crystal tuff, crystal lithic tuff*
- b *Chloritic tuff, lithic tuff*
- c *Carbonatized*
- d *Silicified*
- e *Sericitized*

CATHARINE GROUP

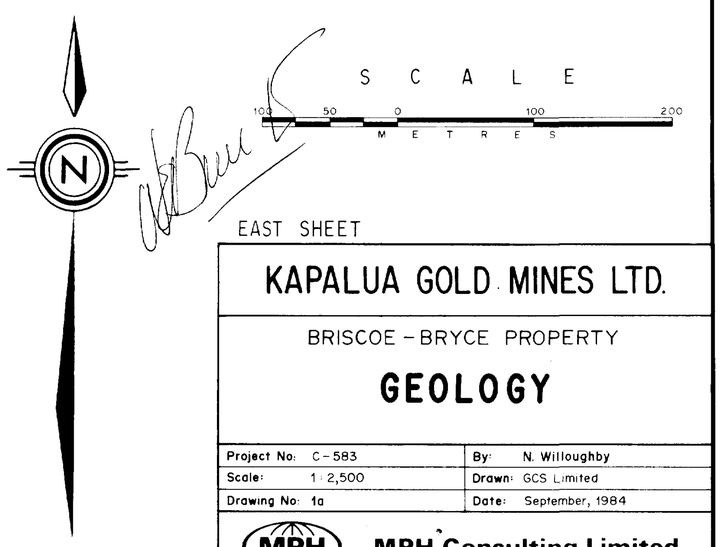
1 — *MAFIC METAVOLCANIC ROCKS*
- a *Andesitic tuff*

SYMBOLS

- *Area of outcrop*
- X — *Small outcrop*
- *Geological contact (defined, assumed, approximate)*
- *Strike and dip of foliation (inclined, steeply dipping, vertical)*
- *Strike of crenulation cleavage*
- *Strike and dip of jointing (inclined, horizontal)*
- *Interpreted fault*
- *Shear zone*
- *Glacial striae*
- *Shaft*
- *Trench* — 80 *1980 trenching*; 84 *1984 prospecting*
- *Pit*
- *Diamond drill hole, 1981 (surface projection)*
- ● **3526** 90 ppb Au — *Rock sample, sample number, analytical result*
- *Claim line*
- *Concession boundary*
- *Boundary of cleared area*

ABBREVIATIONS

Au	*Gold*	Ag	*Silver*
az	*Azurite*	cp	*Chalcopyrite*
mal	*Malachite*	py	*Pyrite*
qv	*Quartz vein*	q-ccv	*Quartz-carbonate vein*
m	*metre*	oz	*ounces*
ppb	*parts per billion*	T	*ton*



EAST SHEET

KAPALUA GOLD MINES LTD.

BRISCOE - BRYCE PROPERTY

GEOLOGY

Project No: C-583	By: N. Willoughby
Scale: 1:2,500	Drawn: GCS Limited
Drawing No: 1a	Date: September, 1984

MPH Consulting Limited

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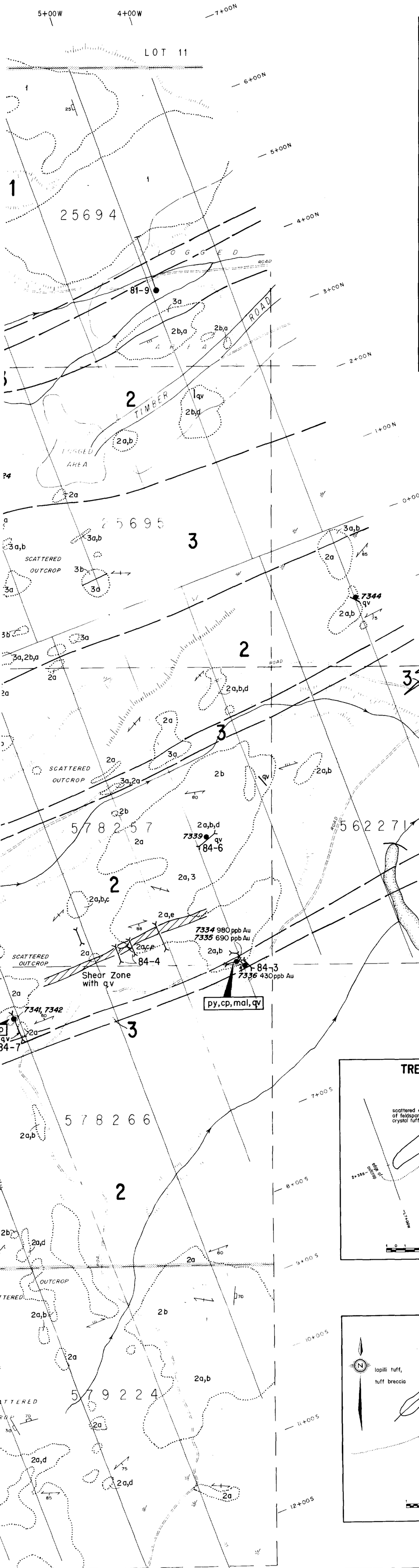

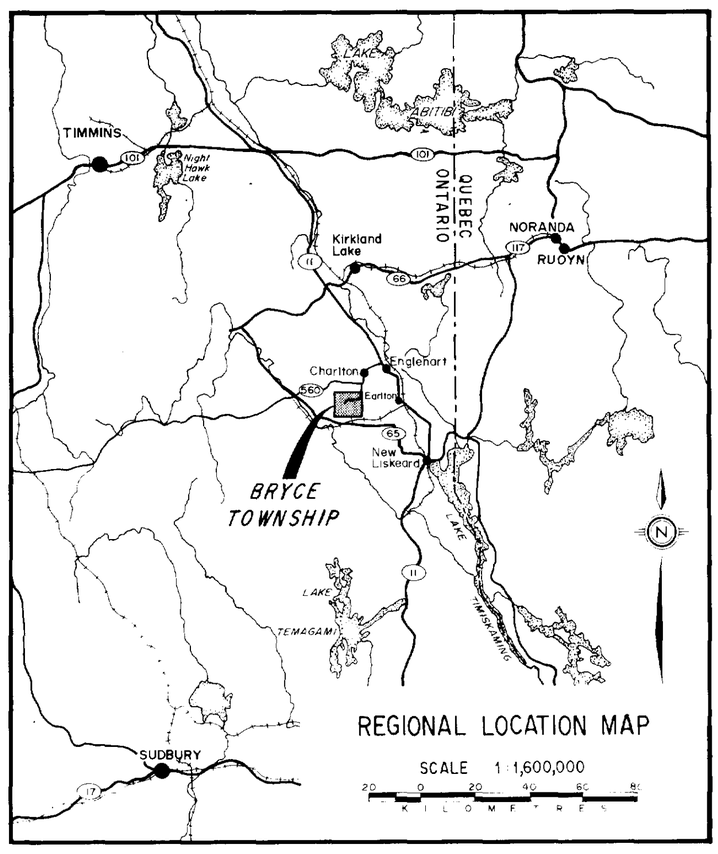

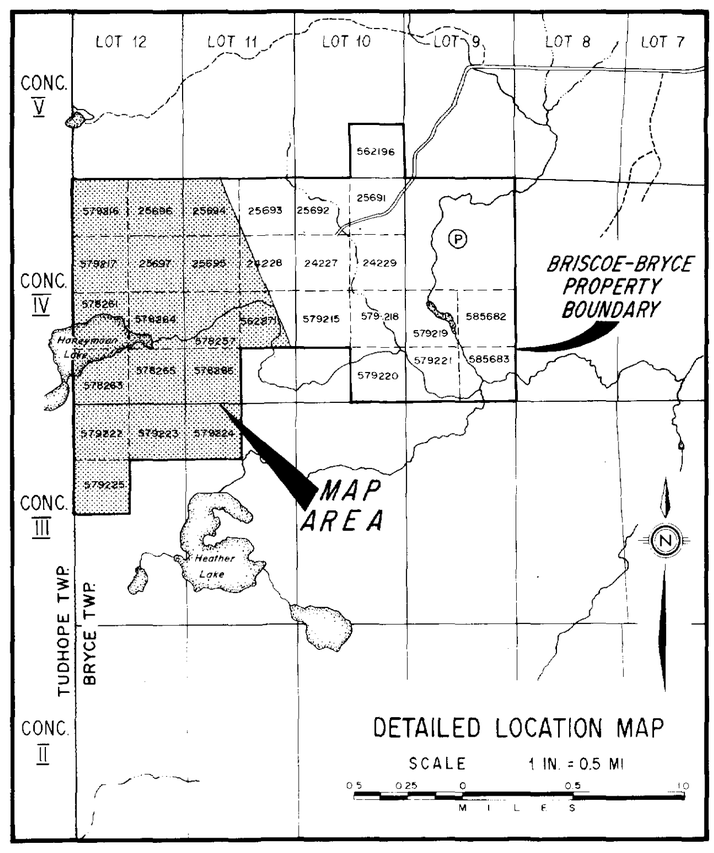

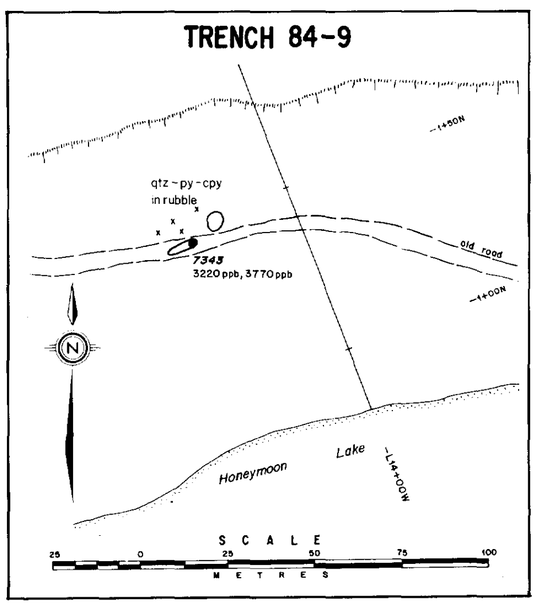

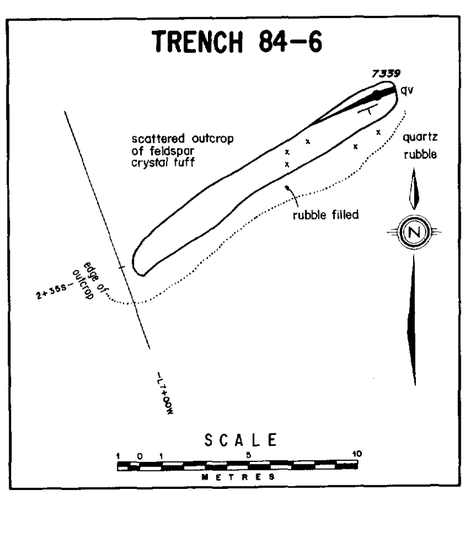

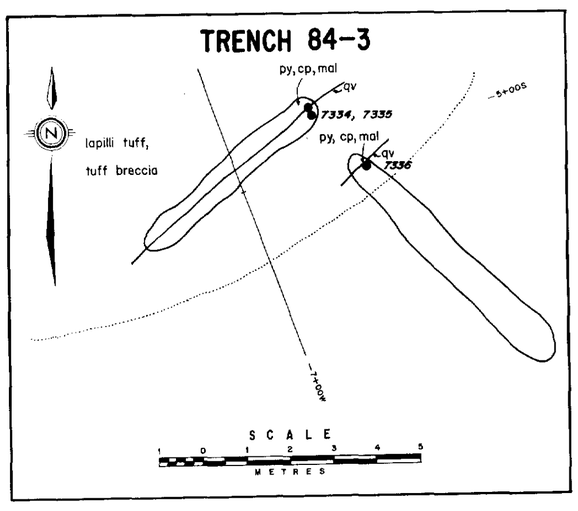

LEGEND

LITHOLOGIES

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- *Strike and dip of jointing (inclined, horizontal)*
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m	*metre*	oz	*ounces*
ppb	*parts per billion*	T	*ton*

SCALE
100 50 0 100 200
METRES

WEST SHEET

KAPALUA GOLD MINES LTD.

BRISCOE – BRYCE PROPERTY

GEOLOGY

Project No: C-583	By: N. Willoughby
Scale: 1:2,500	Drawn: GCS Limited
Drawing No: 1b	Date: September, 1984

MPH Consulting Limited

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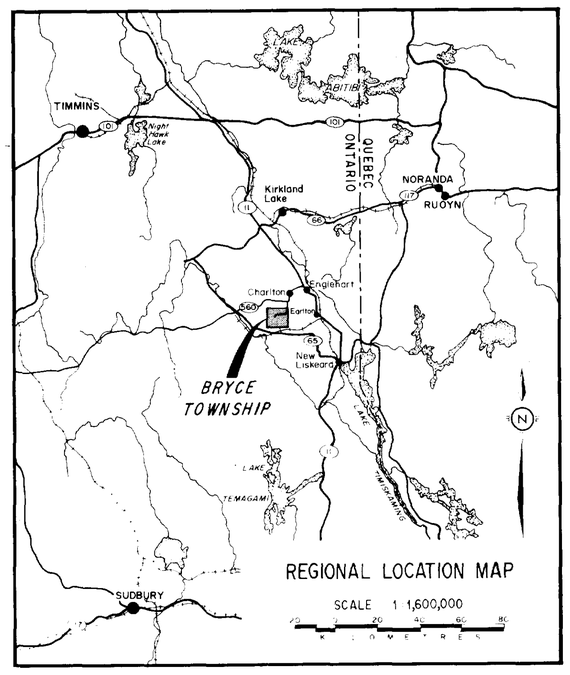
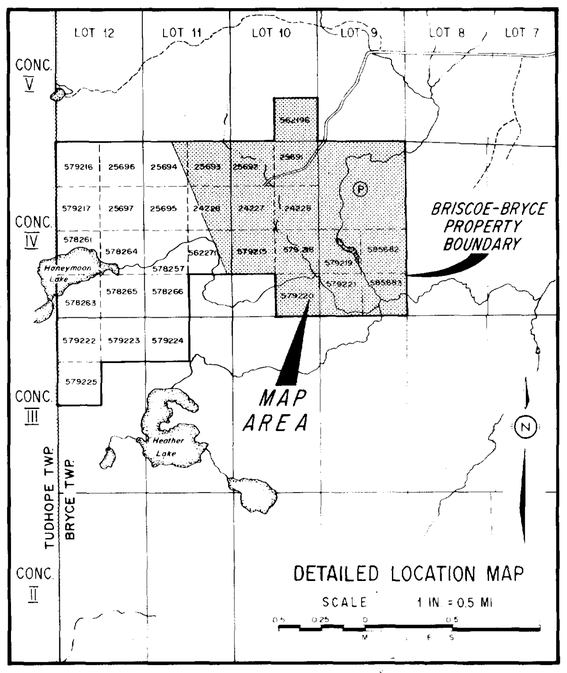
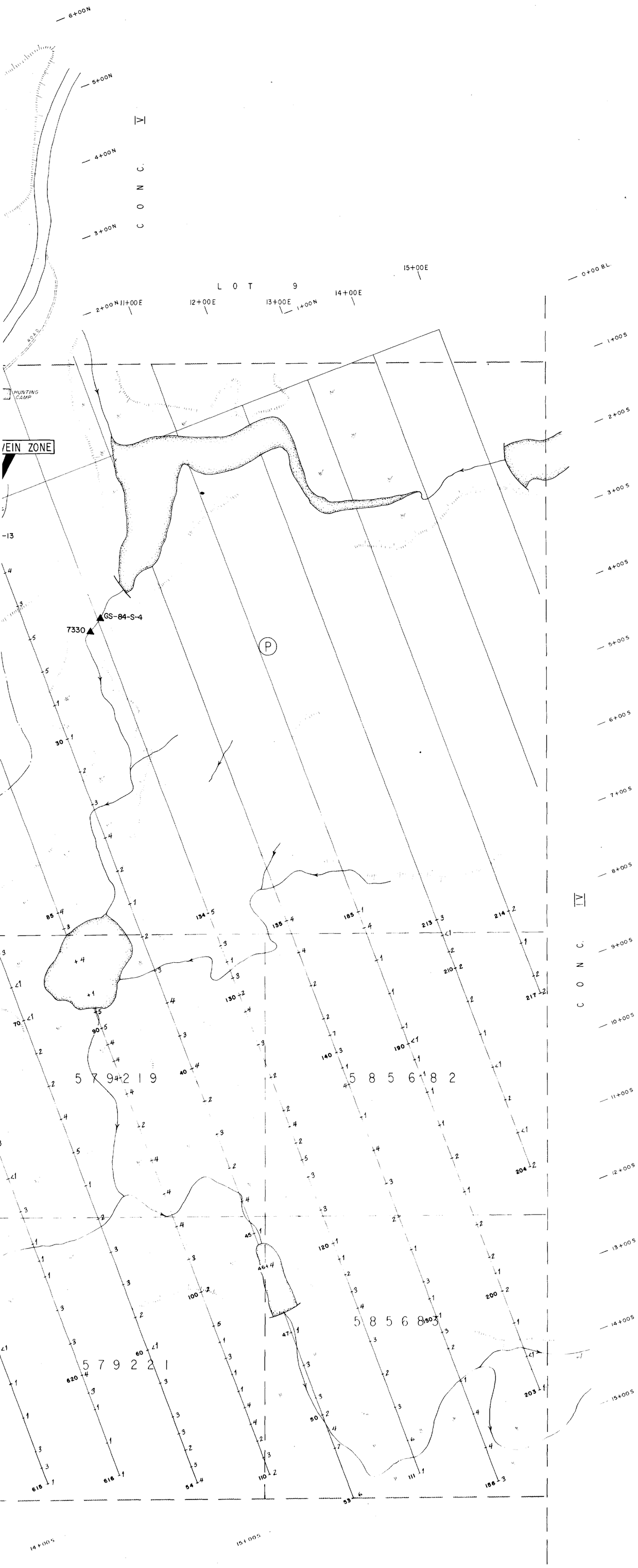






LEGEND

820 | 3 — Humus Sample Location and ppb Au

7331 ▲ 30ppb — Pan Sample Location and ppb Au

Lower Anomalous Humus Threshold — **10 ppm**

Claim Line

Concession Boundary

Boundary of Cleared Area

SCALE

100 50 0 100 200

METRES

EAST SHEET

KAPALUA GOLD MINES LTD.

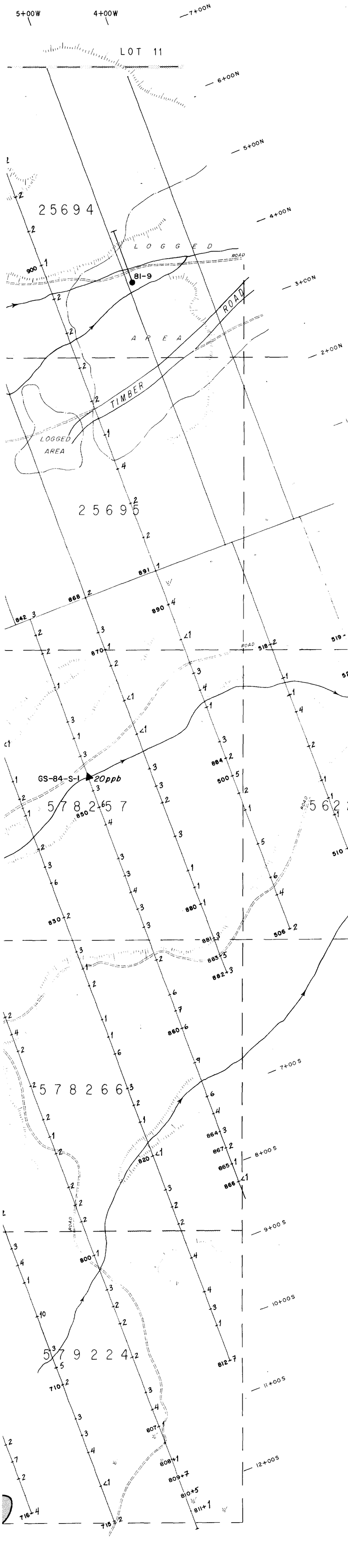
BRISCOE - BRYCE PROPERTY

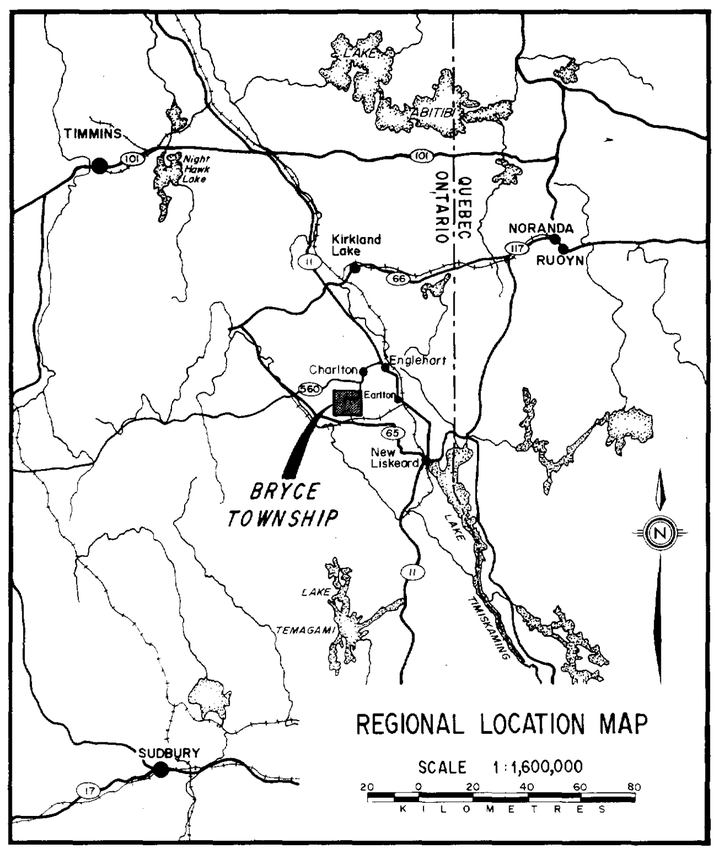
GEOCHEMISTRY SURVEY

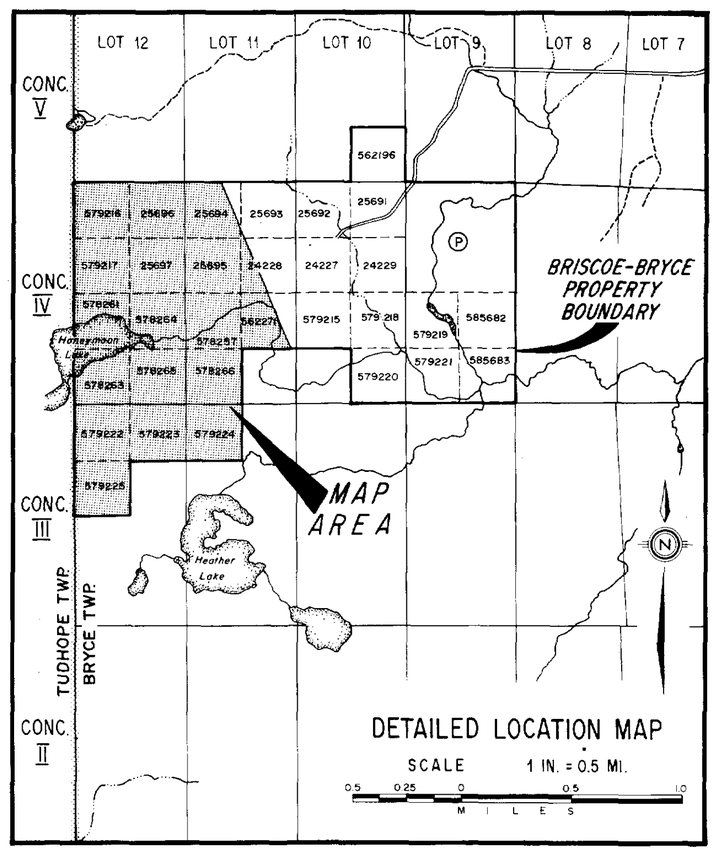
Project No: C-583	By: W.E. Brereton
Scale: 1: 2,500	Drawn: GCS Limited
Drawing No: 6a	Date: September, 1984

MPH Consulting Limited

J 1340







LEGEND

820 + 15 — Humus Sample Location and ppb Au

7331 ▲ 30ppb — Pan Sample Location and ppb Au

Lower Anomalous Humus Threshold – **10 ppm**

Claim Line

Concession Boundary

Boundary of Cleared Area

SCALE

100 50 0 100 200

METRES

WEST SHEET

KAPALUA GOLD MINES LTD.

BRISCOE – BRYCE PROPERTY

GEOCHEMISTRY SURVEY

Project No: C-583	By: W.E. Brereton
Scale: 1:2,500	Drawn: GCS Limited
Drawing No: 6b	Date: September, 1984

MPH Consulting Limited

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