

82-141-10195

BETTER RESOURCES LIMITED

GEOLOGICAL REPORT

OF

A RECONNAISSANCE GEOLOGICAL SURVEY

CONDUCTED ON

THE GUS CLAIM

KEY CLAIM GROUP

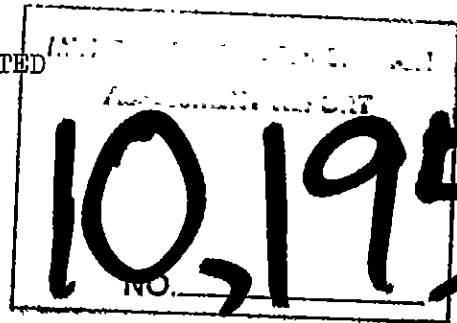
NICOLA MINING DIVISION

N.T.S. SHEET 921/2

LAT. $50^{\circ} 13'N$. LONG. $121^{\circ} 00'W$.

OWNED BY

BETTER RESOURCES LIMITED



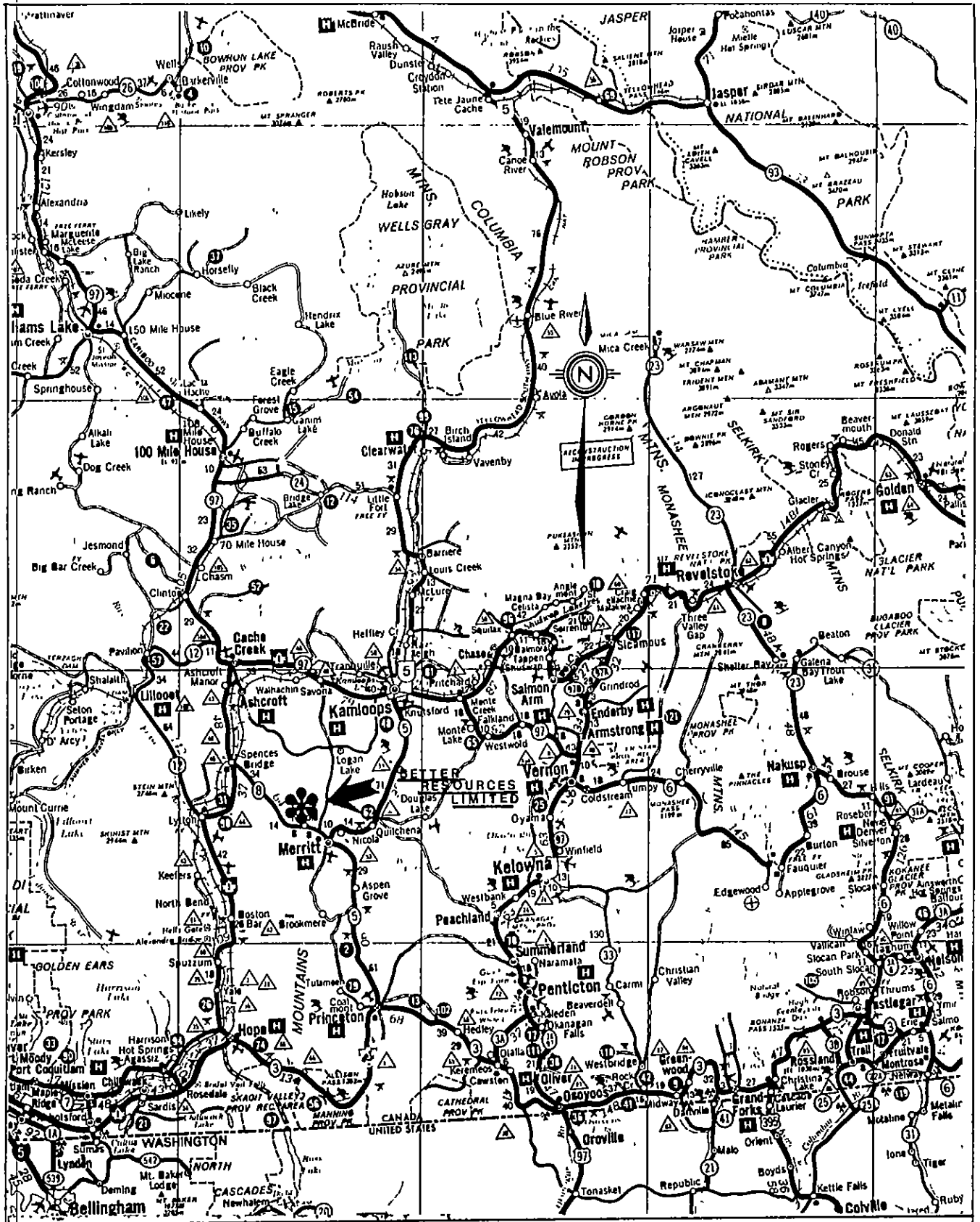
PREPARED BY

JAMES F. BRISTOW, P. ENG.

MARCH 1982

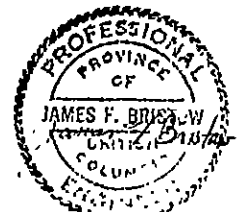
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INDEX MAP

SCALE 1:80,000 J.F.B. MARCH 1982



James F. Bristow P. Eng.

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INTRODUCTION

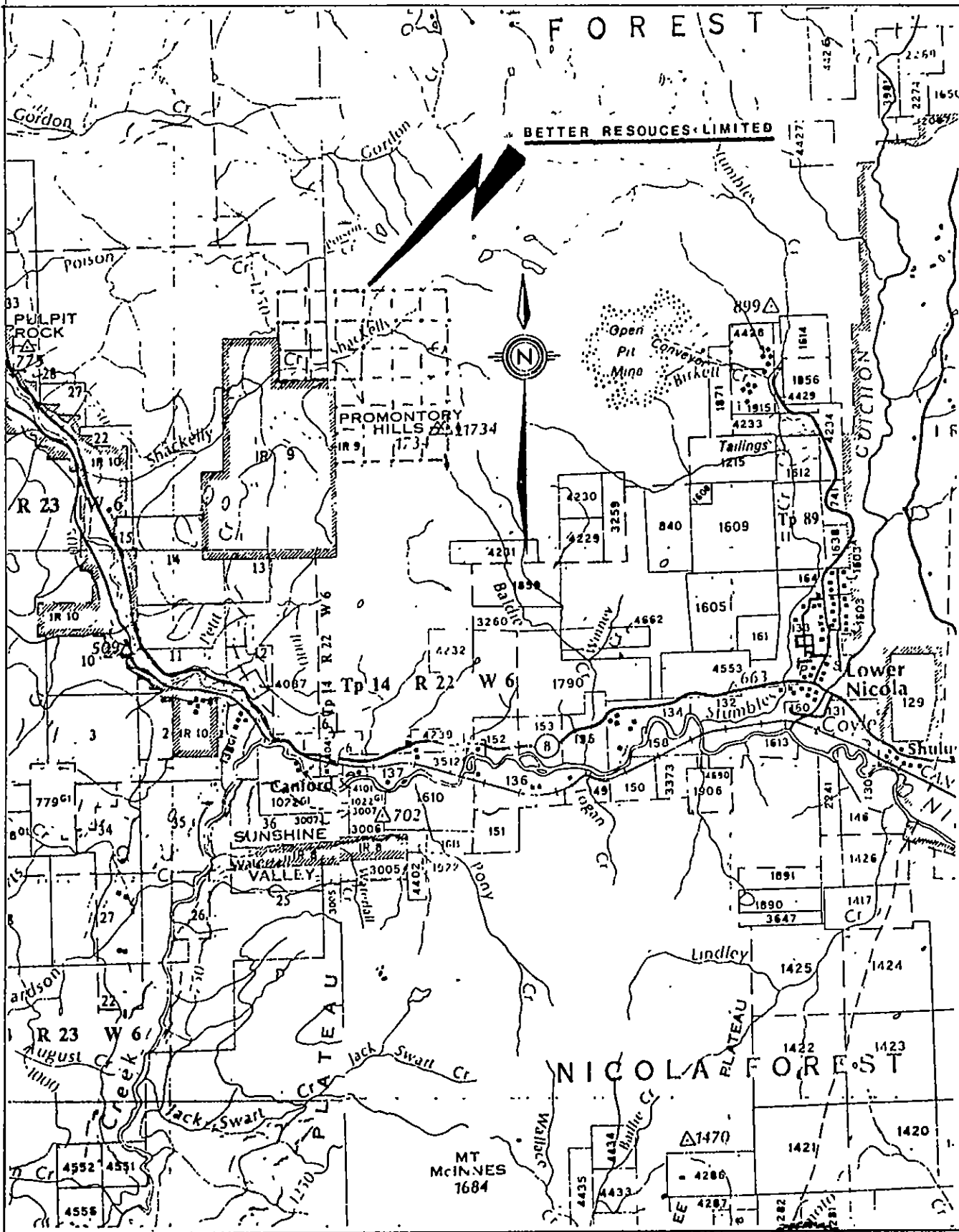
Location and Access

The Gus Claim forms the northwest part of the Key Claim Group located on the south facing slope of the Promontory Hills approximately 2 km. northwest of the Forestry Lookout and immediately adjacent to Indian Reserve No. 9.

Inter connecting gravel logging roads provide access to the property from No. 8 highway at Dot (8.5km.) and from Lower Nicola via Promontory Hills road (18.5 km.). On property access is provided by skid roads, cut lines and cattle trails.

Topography

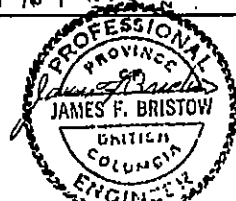
Elevations on the property range between 1025 m and 1500 m. In general the local topography is rolling, however a 50 metre deep channel containing Shackelly Creek cuts southwest through the area. The south facing slope of this channel is open range land sparsely wooded with ponderosa pine. The north facing slope is heavily wooded with spruce, lodgepole pine and alder.



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AREA MAP

SCALE 1:100,000 J.F.B. MARCH 1982



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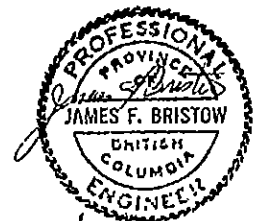
Property Description

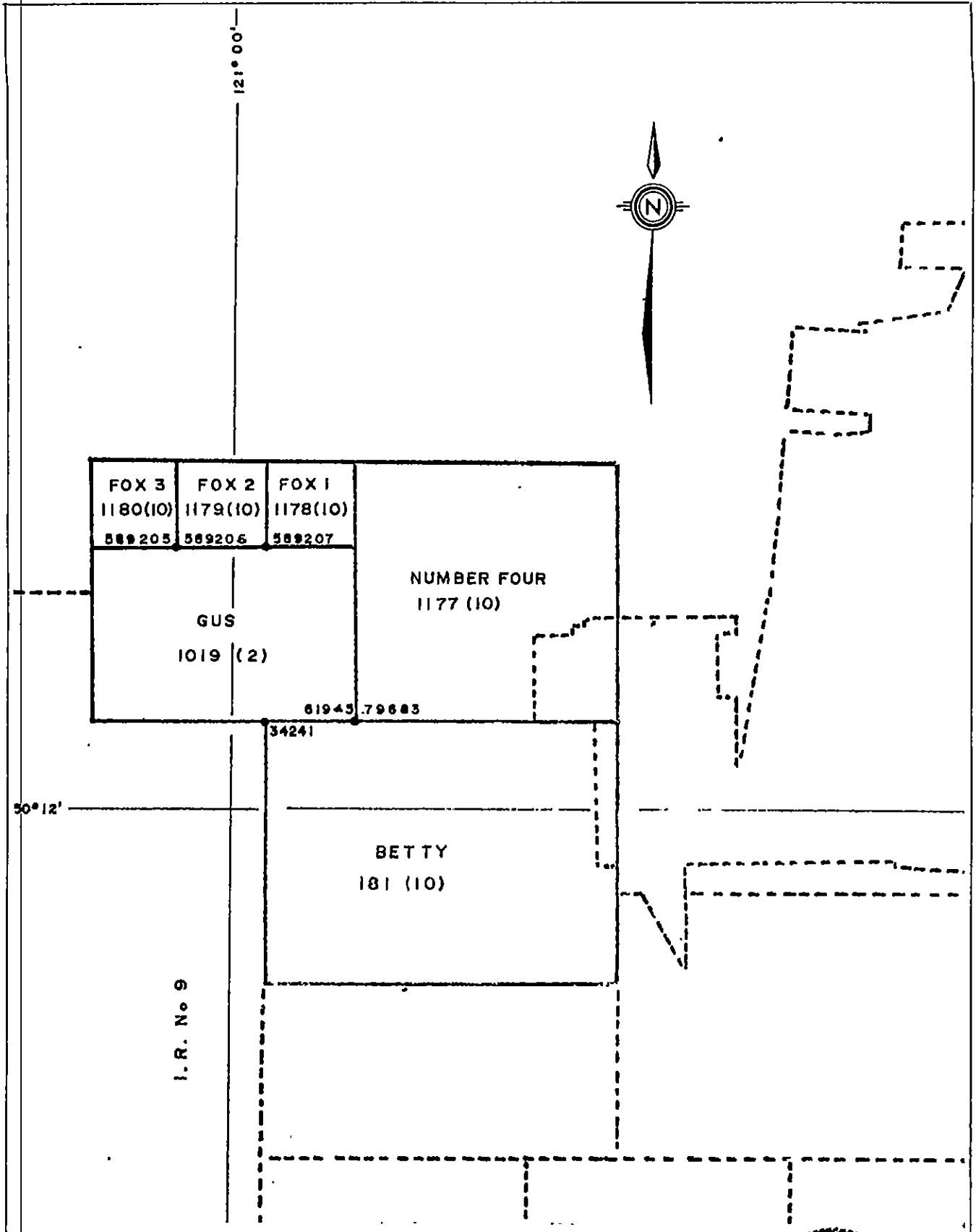
The Key Group is owned by Better Resources Limited of Vancouver, B.C. and consists of the following contiguous claims;

<u>Claim Name</u>	<u>Units</u>	<u>Record Date</u>	<u>Record No.</u>	<u>Valid to</u>
Gus	6	27 Feb. 1981	1019	27 Feb. 1982 *
Number Four	9	9 Oct. 1981	1177	9 Oct. 1982 *
Fox #1	1	9 Oct. 1981	1178	9 Oct. 1982 *
Fox #2	1	9 Oct. 1981	1179	9 Oct. 1982 *
Fox #3	1	9 Oct. 1981	1180	9 Oct. 1982 *
Betty	12	5 Oct. 1976	181	5 Oct. 1982

These claims were located by compass and chain. The recently staked claims cover in part an area previously held by Torwest Resources (1962) Ltd. (Marb Claims). The area currently covered by the Betty Claim was originally staked in 1957 by Placer Development Ltd. following the discovery of Craigmont Mines. After extensive magnetometer and I.P. surveys 5 surface diamond drill holes were completed. Placer relinquished the claims in 1975. Detailed geological mapping and an additional magnetometer survey was completed in 1975 and 1976. The area was restaked as the Betty Claim in 1976 under the modified grid. The 1978 Craigmont Mines Limited optioned the Betty Claim and drilled two surface diamond drill holes totalling 992.7 metres. This option was terminated May 1981.

*Additional assessment work was submitted for most claims in the Key Claim Group at Victoria, B.C. on November 23, 1981.

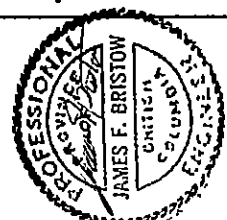




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CLAIM MAP

SCALE 1:31,680 J.F.B. MARCH 1982



James F. Bristow P. Eng.

The Key Claim Group is of interest to Better Resources Limited as it is on strike $2\frac{1}{2}$ - 5 kilometres west from the Craigmont orebodies. The claims are within the contact aureole of the Guichon Batholith and cover Triassic Nicola group rocks which form the host for the Craigmont orebodies. Because of the favourable geological environment it was felt that this area was worthy of additional exploration work.

Summary of Work Done

Geological mapping on the Key Claim Group was conducted between September 11, 1981 and October 7, 1981, in conjunction with road rehabilitation, grid preparation, a magnetometer survey and diamond drillsite preparation. However, the geological mapping was confined almost entirely to the Gus Claim. A 29 km. blazed and flagged compass line grid was used for ground control. Cross lines were at 60 metre intervals with a 30 metre station spacing.

Thirty-three rock samples were collected during the course of the survey and brought back to the office for further study. Nine samples were selected and sent to Vancouver Petrographics Ltd. for slab and thin section preparation.

The material from Vancouver Petrographics Ltd. was forwarded to Dr. Ken Northcote and Associates Limited for identification. Detailed rock descriptions are attached - appendix II.

A geological Map Figure G - 1G was prepared showing major rock unit boundaries. Detailed contoured magnetics aided in the positioning of the inferred rock unit boundaries in areas of heavy glacial till.

DETAILED TECHNICAL DATA & INTERPRETATION

Purpose of Geological Survey

The purpose of the current geological mapping program was to collect sufficient data to postulate the nature of the major rock units underlying the Gus Claim. Special attention was given to the search for limy horizons that might be a suitable host rock for Cragmont Skarn type mineralization.

Regional Geological Setting

In general the Promontory Hill area is underlain by a complex suite of westerly trending, steeply dipping upper Triassic Nicola series rocks. They are composed of predominantly andesitic fragmental and volcanic flows, feldspathic greywache, minor argillaceous siltstones and several relatively persistent limestone bands. This series lies to the south of and semi-concordant with the multistage Late Triassic Guichon Batholith and is intruded in the southeast by the Coyle Stock. Cretaceous Kingsvale group agglomerate and flow rocks form a veneer up to plus 200 metres thick over the Nicola Series between the Cragmont Mines plantsite and Promontory Hill and also west of the Betty Claim. Heavy overburden in much of the remaining areas make location of major rock unit boundaries very difficult and inaccurate.

It is generally agreed that the orebodies at Cragmont are hosted by limy sedimentary rocks near a volcanic - sedimentary contact lying within the alteration aureole of the Guichon Batholith.

Detailed Geology

Mapping of the Gus Claim suggests that the area is underlain by a complex assemblage of plutonic - volcanic/sedimentary rocks which are contained in a contact environment. Unfortunately, much of the claim is covered by extensive glacial overburden which makes interpretation of the limited geological data difficult. This is especially true of the area immediately adjacent to and south of Shackelly Creek. However, with the aid of a detailed magnetic survey the following geological interpretation was prepared, Figure G-1G and certain general observations were made, namely;

1) The southeast portion of the claim is likely underlain by Hornfels Sediments and/or Metavolcanic rocks.

2) The west central to north eastern portion of the claim is underlain by hybrid diorite and quartz diorite rocks of the main Guichon Batholith.

3) The western portion of the claim north of Shackelly Creek between lines L 0+00E and L 4+20E is underlain by a northerly trending belt of Metavolcanics.

During the mapping program a number of boulders of Marble/Skarn float were noted. However, the only outcrop of skarn found occurs at L 12+00E, 6+60N. It has a surface area of approximately 425 m² and is composed of calcareous rocks which have been altered in part to Hematitic Skarn. Much of the skarn appears brecciated and contains epidote, garnet, actinolite and chlorite. Minor chalcopryrite and malachite were noted in both marble and Hematitic Skarn rocks. Traces of chalcopryrite, pyrite and malachite were also noted in areas of brecciation within the hybrid dioritic rocks.

Petrographic Study

The petrographic study conducted by Dr. Ken Northcote and Associated Limited on the nine selected rock samples from the Gus Claim confirm that the area is underlain by a plutonic - volcanic/sedimentary contact environment. Further it confirmed that the rocks in the skarn outcrop are microscopically as well as megascopically similar to the skarn assemblages present at nearby Craigmont Mines Limited.

CONCLUSIONS

The geological mapping program conducted on the Gus Claim established that;

(a) Sedimentary and volcanic rocks underly a portion of the area and lie immediately adjacent to hybrid dioritic rocks of the Guichon Batholith north of Shackelly Creek.

(b) The sedimentary rocks contain at least one calcareous member which is suitable host for Craigmont type skarn mineralization.



ITEMIZED COST STATEMENT

1. Geological Mapping

James F. Bristow, P. Eng.
10 days @ \$250.00/day \$2,500.00

2. Camp Costs (only mapping portion of camp costs)

Accommodations \$341.43
Meals 89.58
431.01

3. Petrographic Study

Vancouver Petrographics Limited \$ 60.75
Dr. Ken Northcote and Assoc. Ltd. 290.45
351.20

4. Report Preparation, Data Plotting Etc.

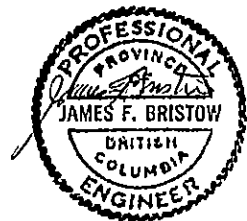
James F. Bristow, P. Eng.
2 days @ \$250.00/day \$500.00
Drafting, printing, typing services 245.00
745.00

TOTAL EXPENSES \$4,027.21

As all petrographic and mapping results are included it is felt that the major portion of the above total expense is eligible for assessment work credits.

Therefore:

Anticipated Total Allowable Expense \$4,000.00



ACKNOWLEDGEMENTS

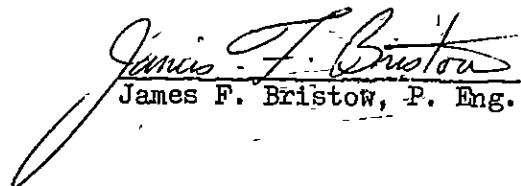
Dr. Ken Northcote for his petrographic work which made the preparation of this short report possible. However, all omissions and any errors are the sole responsibility of the writer.

QUALIFICATIONS & CERTIFICATION

I, James F. Bristow, of 1840 Penshurst in the Municipality of Saanich, Province of British Columbia, hereby certifies as follows;

1. I am a graduate of the University of British Columbia with a B.A. Degree (Geology and Physics).
2. I am a Professional Engineer registered in the Province of British Columbia.
3. I am a member of the Canadian Institute of Mining and Metallurgy, and the Associated Scientific and Technical Societies of South Africa.
4. I have actively practiced my profession in mineral exploration and mining geology since my graduation in 1957.
5. That this report is based on data either gathered by myself or by persons working directly under my supervision during the period 11th September 1981 to 7th October 1981.
6. That I am a director of Better Resources Limited and hold a direct interest in securities of this company.

Dates at Victoria, British Columbia, this 15 TH.
day of March, 1982.


James F. Bristow, P. Eng.

APPENDIX I

ROCK SAMPLE LIST

-17-

ROCK SAMPLE LIST

SPECIMEN NO.	THIN SECTION NO.	TYPE	DESCRIPTION
S-1	-	outcrop	Diorite
S-2	-	outcrop	Diorite
S-3	-	float	White Marble
S-4	-	outcrop	Diorite
S-5	-	outcrop	Diorite - leucocratic
S-6	-	outcrop	Diorite - breccia
S-7	-	outcrop	Diorite - Transitional border phase
S-8	-	outcrop	Quartz Diorite Equigranular
S-9	-	float	Hornfels
S-10	Ts-1	outcrop	Metasediment
S-11	-	outcrop	Breccia - Diorite/Metavolcanic
S-12	-	outcrop	Diorite
S-13A	Ts-2	outcrop	Skarn hematitic
S-13B	Ts-3	outcrop	Skarn marble
S-14	Ts-4	outcrop	Leucocratic quartz diorite
S-15	Ts-5	outcrop	Hornfels
S-16	-	outcrop	Diorite
S-17	Ts-6	outcrop	Hornfels/metavolcanic
S-18	-	outcrop	Diorite
S-19	-	outcrop	Diorite
S-20	-	outcrop	Quartz Diorite - Leucocratic
S-21	-	outcrop	Quartz Diorite - Leucocratic
S-22	-	float	Marble/epidote skarn
S-23	Ts-7	outcrop	Hornfels/Metavolcanic
S-24	-	float	Epidote Skarn
S-25	-	float	Marble/epidote skarn
S-26	-	outcrop	Hornfels/metavolcanic
S-27	-	outcrop	Hornfels/metavolcanic - Transitional phase
S-28	-	outcrop	Hornfels metavolcanic
S-29	-	outcrop	Hornfels metavolcanic
S-30	-	outcrop	Diorite
S-31	Ts-8	outcrop	Hornfels Metavolcanic/contaminated intrus.
S-32	Ts-9	outcrop	Hornfels/Metavolcanic
S-33	-	float	Magnetite Skarn

APPENDIX II

Petrographic Results by K.E. Northcote and Associates Ltd.

Thin Section Ts-1 to Ts-9 Inclusive

Thin Section Ts-1
(Sample S-10)

Rock Name Metasediment

Macroscopic

The rock is irregularly foliated-brownish grey foliated groundmass. Scattered irregular diffuse irregular clasts of feldspathic material. Most notably, granular epidote orbs and lensoids rimmed by bleached zone, feldspathic material (?)

Microscopic

Lensoids grain size <.5mm to several mm

Epidote

Carbonate

Quartz

coarse grained

Tremotite-actinolite

Groundmass grain size <.02mm to> .05mm

Quartz

Biotite

Epidote

Chlorite

very fine granular

Sericite

Carbonate

Opaque

Texture

Groundmass, foliated recrystallized, irregular interlocking grains. Probably a metasediment.

Thin Section Ts-2
(Sample S-13A)

Rock Name Skarn (hematitic)

Macroscopic

Granular, fine grained, secondary brecciated appearance. Consisting chiefly of epidote, carbonate, quartz. Linear crushed zones filled with hematite, (red streak, non-magnetic).

Microscopic

Epidote

Chlorite

Quartz

Carbonate

Actinolite

Garnet

Opaque - (a) Hematite bladed/acicular and diffuse dusting. Primarily in/
or associated with quartz-carbonate veinlets and masses.

Texture

Crushed garnet, epidote.

Interstitial diffuse irregular quartz and carbonate minor actinolite and chlorite. Crushed cataclastic texture zones running through section. Partially healed by opaque minerals-hematite.

Thin Section Ts-3
(Sample S-13B)

Rock Name

Skarn/Marble

Macroscopic

Very fine grained weak or diffuse layering epidote, garnet, carbonate producing a flesh and light grey mottling.

Microscopic

Carbonate	85%
Epidote	5%
Garnet	5/10%
Quartz	very minor 5%

Texture

Brecciated garnet grains and irregular epidote granules in a groundmass of carbonate. Carbonate irregular interlocking grains indicating a recrystallized texture. Probably originally a limestone bed.

Thin Section Ts-4
(Sample S-14)

Rock Name Leucocratic quartz diorite

Macroscopic

Fine grained leucocratic, pseudoporphyritic. Hand specimens show scattered small partly assimilated inclusions giving the rock a spotted appearance.

Disseminated magnetite.

Stained slab indicates some interstitial orthoclase.

Microscopic

grain size ranges from $\langle .02 \text{ to } \rangle$ 2mm

Plagioclase 80% An₃₀[±]

Orthoclase 5% ? partly clouded by alteration

Quartz 10%

Hornblende 5%

Biotite - Tr. shredded appearance, chloritic alteration

Alteration

Chlorite - Tr.

Sericite - Tr.

Opaque - 1% aggregates of irregular fine granules disseminated throughout rock matrix.

Texture

Very fine granular groundmass mainly plagioclase, some fine interstitial quartz. Clusters of coarser grained plagioclase and minor coarser grained quartz producing a pseudoporphyritic texture. Scattered fine granular inclusions.

Gives appearance of dyking by younger units.

Thin Section Ts -5
(Sample S-15)

Rock Name Hornfels

Macroscopic

Fine granular, medium to dark grey, mottled weak layering, cut by slightly coarser grained diffuse intrusive dykelets. Weak to moderately magnetic. No evidence of K-spar in stained slab.

Microscopic groundmass $\langle .02 \text{ to } \rangle .05\text{mm}$

Groundmass

Quartz	55%
Plagioclase	30% small granules, tendency to sericitic alteration
Biotite	10% some tendency to layering
Opaque	magnetite 5% euhedral/subhedral pyrite, trace

Alteration

Sericite
Chlorite

Diffuse dykelets coarser grained areas $\langle .05 \text{ to } \rangle 2\text{mm}$

Quartz	65%
Plagioclase	25%
Biotite	10%

Alteration

Sericite
Chlorite

Texture

Layered appearance, weak preferred orientation of Biotite.

Thin Section Ts-6
(Sample S-17)

Rock Name Hornfels metavolcanic

Macroscopic

Medium to dark grey, very fine grained weak foliation/layering; scattered soft lensoids in plane of layering. Hand specimens show suggestion of impregnation by intrusive material.

Moderate to strong magnetic. Stained slab gives no indication of K-spar.

Microscopic

Groundmass

<.02 to >.05mm

Plagioclase 40% An 35⁺ (a) unaltered
also (b) scattered relic plagioclase phenocrysts, altered.

Hornblende 35% Occurs as small disseminated granules and coarser grains forming dykelets.

Quartz 20% (?) distinguishable with difficulty from untwinned unaltered plagioclase

Epidote Minor Amounts

Opaque 5 to 10% magnetite, disseminated very fine irregular granules

Lensoids

Zeolite

(?) green acicular mineral in quartz and zeolite in lensoids

Quartz

Plagioclase

Hornblende rich dykelet

Texture

Rock fabric has weak lensoidal structure, weakly foliated/layered. Lensoidal structure evident by segregation of one or other of hornblende, plagioclase, opaque or quartz. Groundmass contains scattered relic plagioclase phenocrysts.

Thin Section Ts-7
(Sample S-23)

Rock Name Hornfels Metavolcanic with diffuse quartz
diorite dyking/impregnation.

Macroscopic

Fine grained mottled medium to dark grey; scattered slightly
coarser epidote-rich clots. Cut by diffuse dykelets or quartz diorite
impregnations.

Weak to moderately magnetic. Stained slab shows trace of K-Spar
staining not noted in thin sections.

Microscopic

Groundmass - locally iron stained grain size $\langle .02 \text{ to } \rangle 1\text{mm}$

Plagioclase An 35⁺ (a) very fine groundmass unaltered
(b) phenocrysts altered, sericitic,
oscillatory zoning

Hornblende granules

Biotite (?) chloritized, epidotized

Sphene remnants-irregular

Impregnations

Plagioclase unaltered

Quartz

Hornblende

Clots

Epidote

Minor quartz

Very minor hornblende

Texture

Fine-grained epidote-rich clots associated with diffuse
impregnations of quartz diorite (plagioclase, quartz, hornblende).
Groundmass of fine grained plagioclase, quartz hornblende with
scattered coarser altered phenocrysts suggesting a volcanic or plutonic
origin for this rock.

Thin Section Ts-8
(Sample G-31)

Rock Name Hornfels Metavolcanic/Contaminated Intrusive

Macroscopic

Medium to dark grey fine grained porphyritic speckled by black and white phenocrysts of hornblende and plagioclase. Massive, cut by diffuse more siliceous stringers or impregnations.

Moderate magnetic; stained slab indicates no K-Spar.

Microscopic

Grounmass grain size $\langle .02 \text{ to } \rangle .05\text{mm}$
Plagioclase 50% An 35[±]
Hornblende 45%
Opaque 5% Magnetite very fine irregular granules
associated with hornblende. Random distribution.

Phenocrysts grain size $\langle .5 \text{ to } \rangle 1\text{mm}$
Plagioclase 50% An 35[±]
Hornblende 50%

Altered inclusions

Epidote
Chlorite
Plagioclase phenocrysts remnants

Veinlets

Quartz - Veinlets and diffuse impregnations, altered hornblende material between grains.

Texture

Fine granular, porphyritic. Cut by thin 1mm quartz-rich veinlets.

Abundantly altered patches epidote, altered plagioclase chlorite may represent remnants of original porphyritic volcanic now invaded by contaminated porphyritic intrusions.

Thin Section Ts-9
(Sample G-32)

Rock Name Metavolcanic flow/Hornfels

Macroscopic

Mottled to spotted medium and dark grey, very fine grained, massive.

Microscopic

grain size $\langle .02 \text{ to } \rangle 0.2\text{mm}$

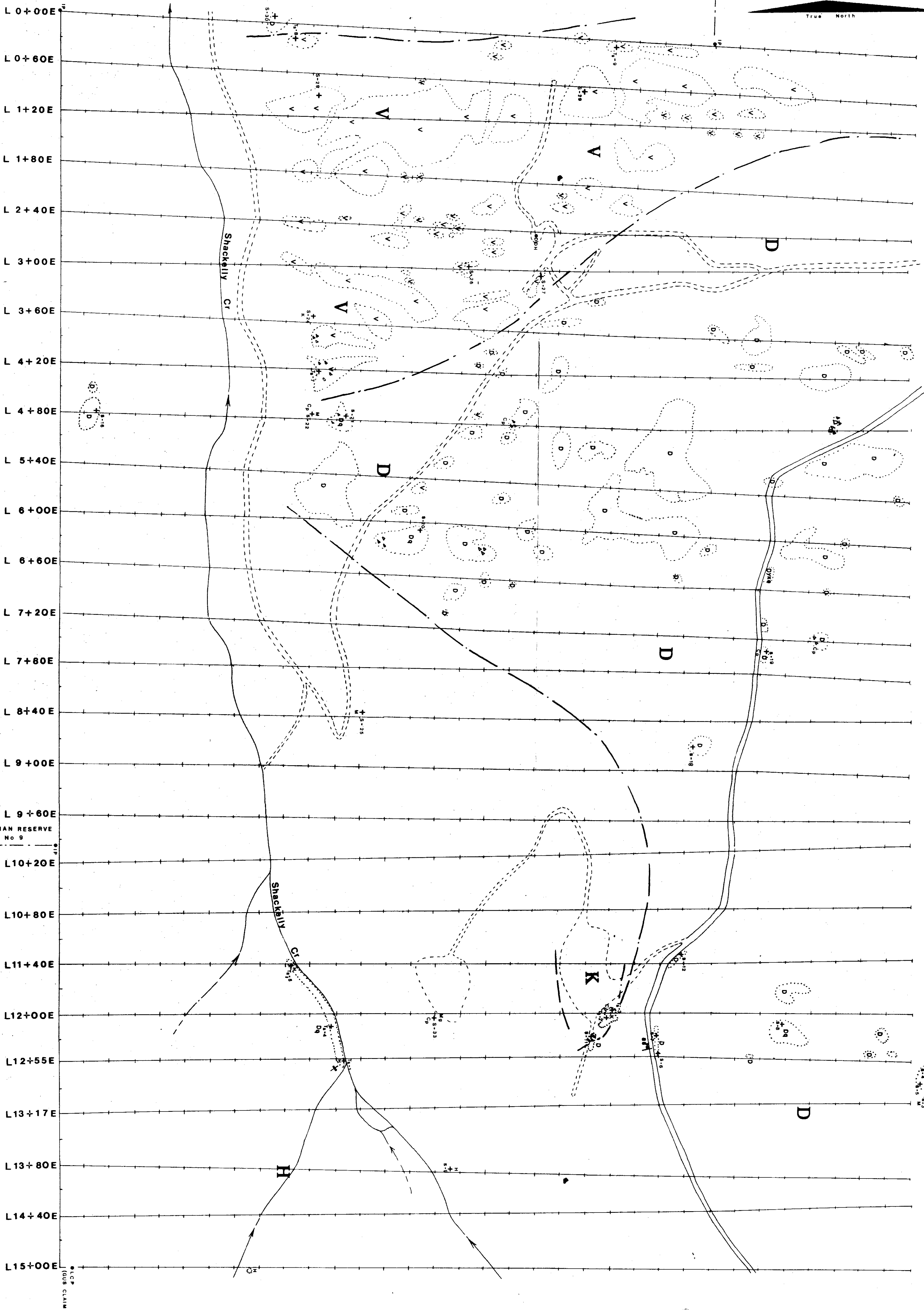
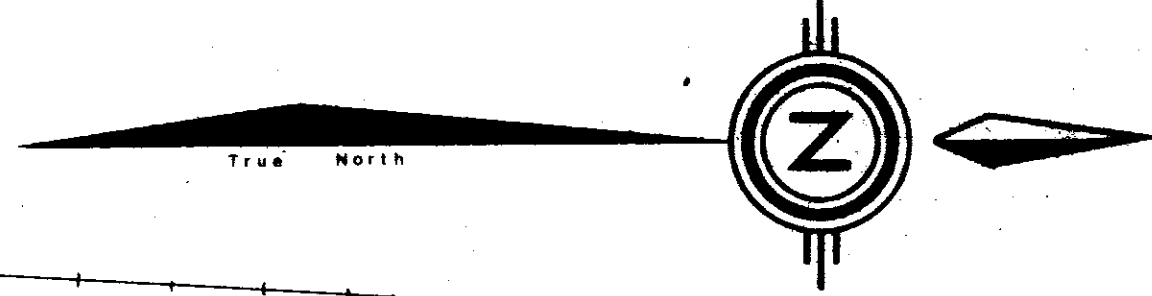
Plagioclase	80%	An 35 to 40
Actinolite	15%	
Opaque	? 5%	very fine granular. Too weakly magnetic to account for all opaque grains. Pyrite (not positively identified)

Alterations

Sericite minor amounts
Chlorite

Texture

Fine felted groundmass plagioclase crystals, strong preferred orientation/layering. Scattered inclusions similar felted volcanic flow fragments evident by iron staining, grain size differences, magnetite content.



RECONNAISSANCE GEOLOGICAL PLAN

LEGEND

- | | | |
|---|-----------------------------------|--------|
| Geological Contact (Inferred) - - - - - | Marble - - - - - | M |
| Outcrop (Approximate) - - - - - | Skarn - - - - - | K |
| Legal Corner Post - - - - - LCP ● | Hornfels Sediment - - - - - | H |
| Iron Pin - - - - - IP ● | Hornfels Metavolcanic - - - - - | V |
| Diamond Drill Hole (Approximate) - - - - - DDH ● | Diorite, Quartz Diorite - - - - - | D Dq |
| Road - - - - - | Chalcopyrite - - - - - | Cp |
| Stream - - - - - | Magnetite, Specularite - - - - - | Mg; Sp |
| Rock Specimen Location - - - - - S-1 + | Jointing - - - - - | J |
| Thin Section Location - - - - - T _s -1 + | Breccia - - - - - | B |

10,195

BETTER RESOURCES LIMITED

GUS CLAIM

NICOLA M. D.

Scale 1:2,500 J.F.B. October 21 1981

