

5680

REPORT ON THE GEOLOGY OF THE JAWBREAKER AND
GOLD MINERAL CLAIMS OF GREAT BEAR MINING LTD.
(NPL), QUADRA ISLAND, NANAIMO MINING DIVISION,
BRITISH COLUMBIA.

Gold l - 40
Jawbreaker l - 8
Horse l - 2

#5680

Situated 9 miles north-east of Heriot Bay, Quadra Island,
Nanaimo Mining Division, B. C.

125°15' W ; 50°10' N

Submitted by: Andres Strasser, Geologist
Endorsed by: F. Holcapek, P. Eng.
Owner: Great Bear Mining Ltd. (NPL)
Work conducted by: Agilis Engineering Ltd. 4/2/35

5680

GEOLOGICAL REPORT ON THE
JAWBREAKER AND GOLD MINERAL CLAIMS
QUADRA ISLAND
NANAIMO MINING DIVISION, B.C.
for
GREAT BEAR MINING LTD. (N.P.L.)

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5680 MAP

TABLE OF CONTENTS

		Page
1-00	SUMMARY	1
2-00	CONCLUSIONS AND RECOMMENDATIONS	1
3-00	INTRODUCTION	2
4-00	LOCATION AND ACCESS	2
5-00	PROPERTY	2
6-00	PHYSIOGRAPHY	2
7-00	HISTORY	3
8-00	GEOLOGY	4
8-10	Stratigraphy	4
8-11	Quatsino Formation	4
8-12	Karmutsen Formation	5
8-13	Coast Intrusives	5
8-20	Structural Geology	5
8-30	Pleistocene	6
8-40	Mineralization	6
8-50	Detailed Geology	7
8-51	Map A	7
8-52	Map B	8
8-54	Map D	9
8-55	Contact to Coast Intrusives	10
8-56	Minor Mineralization	10
8-57	"Lucky Jim" Mine	10
8-60	Extension of Mineralized Skarn Zones	11

- # 1 Property Location Map
- 2 Detailed Maps
- 3 Geological Map

GEOLOGICAL REPORT ON THE
JAWBREAKER AND GOLD MINERAL CLAIMS
QUADRA ISLAND
NANAIMO MINING DIVISION, B.C.
for
GREAT BEAR MINING LTD. (N.P.L.)

1-00 SUMMARY

Between July 12th and August 14, 1975 the geology of the Gold and Jawbreaker Claims was mapped, old trenches were relocated and samples were taken, in order to evaluate the mineral potential of the property. This represents stage one, recommended by F. Holcapek in his report from January 15, 1975.

The claim group is located on Quadra Island, access is by B.C. ferries from Campbell River on northern Vancouver Island.

Quadra Island is underlain by rock units of the Vancouver Group which are intruded by granites of the Coast Intrusion. Mineralization follows quartz veins and skarn zones along fault contacts. Gold and silver are associated with copper sulfides, mainly arsenopyrite, chalcopyrite and pyrite.

2-00 CONCLUSIONS AND RECOMMENDATIONS

The best gold and silver values are associated with skarn zones and quartz veins. These show only a limited horizontal extension.

The sampling and geological mapping suggests that further, more detailed work should be concentrated on the skarn zones. Diamond-drilling (to a depth of about 200 feet) should show the vertical extension of the gold-bearing veins.

3-00 INTRODUCTION

One month (July 12th to August 14, 1975) was spent mapping the 48 claims of the property and taking samples from reopened old trenches as well as from new sites. The sampling was concentrated over the strongly mineralized areas.

4-00 LOCATION AND ACCESS

The Gold and Jawbreaker claims are located in the central area of Quadra Island (125° 15' W/50° 10' N) and extend from Open Bay northwards almost to Stramberg Lake. About nine miles of good gravel road connect the property with Heriot Bay, which is the nearest settlement. Several logging roads and trails cut through the northern part of the claim group.

Quadra Island lies off the north eastern coast of Vancouver Island. An hourly ferry connects Campbell River with Quathiaski Cove on Quadra Island.

5-00 PROPERTY

The property consists of the following mineral claims:

<u>Name</u>	<u>Record No.</u>	<u>Record Date</u>
Gold 1-40	37843-82	Oct. 23, 1974
Jawbreaker 1-8	37962-69	Dec. 10, 1974
Horse 1-2	37960-61	Dec. 10, 1974

The claims have been staked by Mr. Edwards of Vancouver as agent for Mr. E. Bennett of Richmond.

The Horse Claims form a separate group and have not been included in the mapping.

6-00 PHYSIOGRAPHY

The topography of the property is characterized by steep fault scarps in volcanic rocks, rounded, high hills where the Coast Intrusives underlie, and not seldom sink holes over limestone. All these features have a N 30° W trend.

The elevation of the claim group varies between sea level at Open Bay and 520 feet in the north-east corner. A creek runs along the eastern boundary into Open Bay; September Lake and several swamps and marshes lie within the area.

The whole property is heavily forested with pine, douglas fir and cedar. Underbrush follows creeks and marshes.

The climate is moderate with heavy rainfall in winter. The annual precipitation is around 60".

7-00 HISTORY

Quadra Island was first explored in the 1880's. Since then shipments of ore have been made from several properties, the most famous one being the "Lucky Jim" Mine. Copper, silver and gold were mined from a skarn-type deposit. A "steam-donkey" and the cedar-casing of the shafts are still standing and somewhat of a tourist attraction.

Trenches and diggings on the Gold and Jawbreaker Claims date back to the same period, but no findings are recorded. The area covered by the property has been explored by Prince Stewart Mines Ltd. between 1969 and 1972.

8-00 GEOLOGY

Quadra Island belongs to the Insular Geological Belt and is underlain by rock units of the Vancouver Group. These are intruded by granitic Coast Intrusives.

8-10 Stratigraphy

The Vancouver Group consists of the following units (after Miller).

Bonanza Subgroup:	Andesites, Tuffs, Agglomerates
Quatsino Formation:	Crystalline Limestone
Karmutsen Formation:	Andesitic and basaltic Flows, Pillow Lavas

8-11 Quatsino Formation (Upper Triassic)

This formation, as represented on the property, consists of mostly soft, partly silicified, dark crystalline limestone. Argillitic, silicified beds (1/10" - 1" thick) give the limestone a banded appearance and show clearly the intense isoclinal flow-folding along the contact with andesites or Coast Intrusives. Strongly recrystallized parts show as white patches on the limestone.

Along contact zones the limestone grades into a very hard, dark or light grey skarn. Quartzite occurs locally.

8-12 Karmutsen Formation (Lower to Upper Triassic)

These volcanics are mostly fine porphyritic andesites, very hard and homogeneous. Often a coarse porphyritic texture occurs, or, locally, a basaltic or pyroclastic appearance. Along contacts, the rock is slightly metamorphosed (pyroxene partly altered to amphibole).

Andesites and limestone are strongly interbedded and give the zone, locally known as the "lime-belt", its complexity. The formations usually crop out in long bands or shallow hills, striking 150 to 155°.

Very small lenses of flowfolded limestone can show up inside a solid andesite outcrop; on the other hand, small andesite blocks are found well inside the limestone.

8-13 Coast Intrusives (Jurassic to Cretaceous)

Diorites and granodiorites cut into the intensely tectonized Quatsino and Karmutsen formations in a typical batholitical manner. Stopped blocks of volcanics and limestone are found in the intrusives along the contact. Several small bosses of grandodiorite and dykes of younger andesites intrude into the Vancouver Group.

8-20 Structural Geology

The interbedded andesite and limestone show a very constant strike of 150 - 155° and stand vertical to subvertical. Normal block faulting in the Karmutsen Formation is common, the fault scarps running 180 to 145°. The south-west blocks are the downthrow blocks.

8-30 Pleistocene

A big part of the Island and of the property is covered by glacio-alluvial deposits. They cover the main contacts. Many glacier-transported boulders of granodiorite and diorite are found throughout the area.

8-40 Mineralization

Mineralization occurs in Karmutsen Volcanics, there usually disseminated, and as vein deposits in skarn zones together with quartz. Pyrite, chalcopyrite, pyrrhotite and arsenopyrite are most common. In lesser amounts and only locally are found: chalcocite, bornite, galena, sphalerite, pentlandite, pyrolusite and malachite. Gold and silver are associated with arsenopyrite, chalcopyrite and pyrite. The sulfides are of hydrothermal and metasomatic origin and seem to be related to the acidic Coast Intrusives and to the younger andesites (although a direct relationship could not be established.)

The best mineralization is found in two narrow and interrupted zones following the skarns (See Geological Map). Lower values are shown along the contact with Coast Intrusives. In many places the andesite contains finely disseminated pyrite, chalcopyrite and arsenopyrite, concentrated at the contact with limestone.

The surface of the mineralized zones is usually highly oxydized, and over the quartzveins a typical gossan occurs. The weathering follows fracture zones and extends to a depth of one to six feet. Secondary enrichment seems to be common.

8-50 Detailed Geology

8-51 Map A (on Gold 3)

Over the central area of Map A the bedrock has been exposed by bulldozing a few years ago.

A wide band of soft, banded limestone strikes north-northeast and thins out as it is compressed by volcanics. Slickensided surfaces in the andesite indicate tectonic activity.

On both sides of the limestone irregular quartz veins, up to three feet wide, are exposed. Lenses of skarn and andesite are found in the quartz. The veins run parallel to the limestone, but cut into the andesite. Arsenopyrite, pyrite, chalcopyrite, pyrrhotite and pyrolusite occur in the quartz veins, finely disseminated pyrite and chalcopyrite in the andesite close to the contact. The limestone shows local staining of malachite.

Chips samples and selected grabs samples were taken and assayed:

<u>Sample</u>	<u>Rock</u>	<u>Length</u>	<u>Cu(%)</u>	<u>Ni(%)</u>	<u>Ag(oz/t)</u>	<u>Au(oz/t)</u>
TA 1	Andesite	5'	0.03		0.01	<0.003
TA 2	Quartz	2½'	0.11		0.01	<0.003
TA 3	Limestone	1'	0.01		0.12	<0.003
TA 4	Andesite	5'	0.26		0.10	<0.003
TA 5	Quartz	5'	0.01		0.01	<0.003
TA 6	Andesite	3'	0.02		0.01	<0.003
G17	Andesite		0.01		0.03	<0.003
G3	Quartz		0.02	0.01	0.01	<0.003
G4	Quartz		2.52	0.01	0.15	0.008

8-52 Map B (on Jawbreaker 3)

A skarn deposit is found close to the drill site PS DDH #6 of Prince Stewart Mines Ltd. The core samples show mineralization at various depths, always associated with a light grey skarn. On the surface the skarn shows many lenses and small blocks of andesite and is dissected by quartz veins. Arsenopyrite, pyrite, pyrrhotite and chalcopyrite are the main sulfides. The andesite is porphyritic and contains disseminated pyrite and arsenopyrite. Radiating hornblende crystals indicate a slight metamorphism of the andesite along the contact.

<u>Sample</u>	<u>Rock</u>	<u>Length</u>	<u>Cu(%)</u>	<u>Ag(oz/t)</u>	<u>Au(oz/t)</u>
TB 1	Skarn	3'	<0.01	<0.01	0.003
TB 2	Skarn	4'	0.06	0.02	0.080
TB 3	Skarn	3'	0.06	0.01	0.010
TB 4	Skarn	4'	0.02	0.38	0.118
GL9	Andesite		0.01	<0.01	<0.003

8-53 Map C (on Gold 5)

In the area of Map C many old trenches are found. Mineralization seems to follow the two limestone bands striking about 155°. The southern part of the eastern limestone zone is partly skarnetized and intersected by quartz veins. This is where the best mineralization occurs (arsenopyrite, pyrrhotite, pyrite and chalcopyrite, minor bornite and pyrolusite).

The western limestone band shows mineralization on the contact with andesite, where small quartz veins and fractured andesite carry arsenopyrite and pyrite. The limestone itself is barren.

Chips samples from trench C (newly blasted) and selected grabs samples give the following values:

<u>Sample</u>	<u>Rock</u>	<u>Length</u>	<u>Cu(%)</u>	<u>Ag(oz/t)</u>	<u>Au(oz/t)</u>
TC 1	Skarn	5'	0.25	0.05	0.088
TC 2	Skarn	5'	0.10	0.04	0.022
TC 3	Skarn	5'	0.30	0.24	0.516
TC 4	Skarn	5'	0.20	0.05	0.460
TC 5	Skarn	5'	0.03	0.01	0.036
TC 6	Skarn	5'	0.02	0.04	0.392
TC 7	Skarn	5'	0.23	0.02	0.148
G 13	Skarn		0.23	0.32	0.660
G 14	Skarn		0.39	0.61	1.060
G 20	Andesite		0.03	0.12	0.132
G 21	Quartz		0.06	0.01	0.025
G 1	Andesite		0.02	0.03	<0.003
G 22	Andesite		0.03	0.01	0.010
G 23	Andesite		0.03	0.002	0.100

g-54 Map D (on Gold 3)

North of the Village Bay Road a highly mineralized skarn zone shows in an old trench. Arsenopyrite is the most common sulfide, besides chalcopyrite, pyrrhotite, pyrite, bornite, and pyrolysite. Quartz veins cut irregularly through the outcrop. The andesite is metamorphosed towards the contact and often shows small veinlets of arsenopyrite, as in TD 4.

The zone narrows out towards north where skarn is replaced by limestone. The southern extension is covered by glacial deposits.

<u>Sample</u>	<u>Rock</u>	<u>Length</u>	<u>Cu(%)</u>	<u>Ag(oz/t)</u>	<u>Au(oz/t)</u>
TD 1	Skarn	4'	0.06	0.008	0.062
TD 2	Skarn	4'	0.59	0.72	0.286
TD 3	Skarn	4'	0.11	0.02	0.088
TD 4	Andesite	3'	0.07	<0.01	0.005
G 18	Skarn		0.24	0.22	0.028

8-55 Contact to Coast Intrusives

Where the acidic Coast Intrusives penetrate the limestone, small skarn zones are frequent, often grading into a fine-grained quartzite. No mineralization was found directly at the contact, but a skarn zone about 100 feet away showed disseminated sulfides. The rock was assayed:

Cu 0.01%

Ag 0.03 oz/ton

Au 0.003 oz/ton

8-56 Minor Mineralization

Along many contacts between limestone and volcanics the andesite often shows finely disseminated pyrite and chalcopyrite. Also patches of sulfides and small quartz veins can occur in a solid andesite outcrop. However, no silver or gold values were found in these areas.

8-57 "Lucky Jim" Mine

For comparative purposes a random sample from the tailings of the old "Lucky Jim" Mine was taken. The rock, a skarn with quartz veins, carries pyrite, chalcopyrite, pyrrhotite, bornite and arsenopyrite. It shows the following values:

Cu 1.03%

Ag 0.27 oz/ton

Au 0.067 oz/ton

8-60 Extension of Mineralized Skarn Zones

The skarn zones shown on the detailed maps seem to extend only over a very limited area. They lie within the two mineralized belts mentioned under 9-40, but no connection between the zones themselves could be established.

All four localities show a very irregular pattern, as they are related to complex and only local fracture zones.

The skarn zones and quartz veins are usually narrow (one to twenty feet wide). They seem to stand more or less vertical. Secondary enrichment can be expected to a depth of 150 to 200 feet.



Respectfully submitted,

A handwritten signature in cursive script, appearing to read "A. Strasser".

Andres Strasser
Geologist

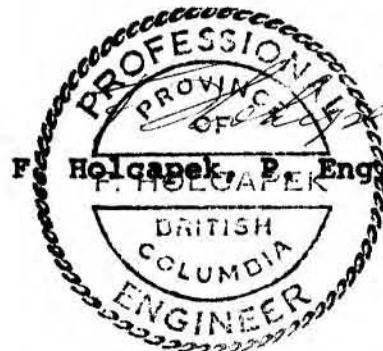
Vancouver, B.C.
August 19, 1975

CERTIFICATION

I, Ferdinand Holcapek of 92-10842 152nd Street, Surrey, British Columbia, do hereby certify that:

1. I am a graduate of the University of British Columbia, with a Bachelor of Science Degree in Geology, 1969.
2. Since graduation I have been engaged in mining exploration in British Columbia, Yukon Territory, Northwest Territories, Quebec, Nevada, Arizona, Mexico and Australia.
3. I am a registered member, in good standing, of the Association of Professional Engineers of British Columbia, the Geological Association of Canada and the Society of Exploration Geophysists.
4. The program was conducted under the supervision of the writer.

Vancouver, B.C.
October 27, 1975










400 feet to Initial Post
Gold 1 & 2



MAP A

LEGEND:

-  ANDESITE
-  LIMESTONE (soft, bonded)
-  SKARN, QUARTZ-VEINS
-  SULFIDES
-  Sinkholes over Limestone
-  Trenches
-  Old Drillholes
-  G,T Samples

5680
M-2

MAP C

600 feet to
Initial Post: Gold 5 & 6

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5680 MAP 2

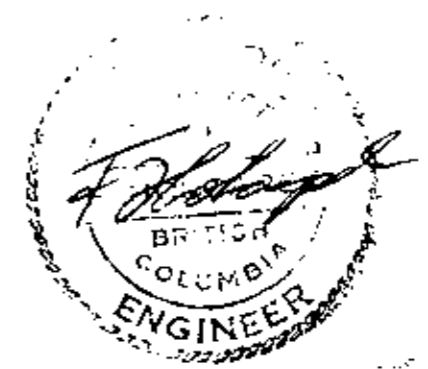
MAP B

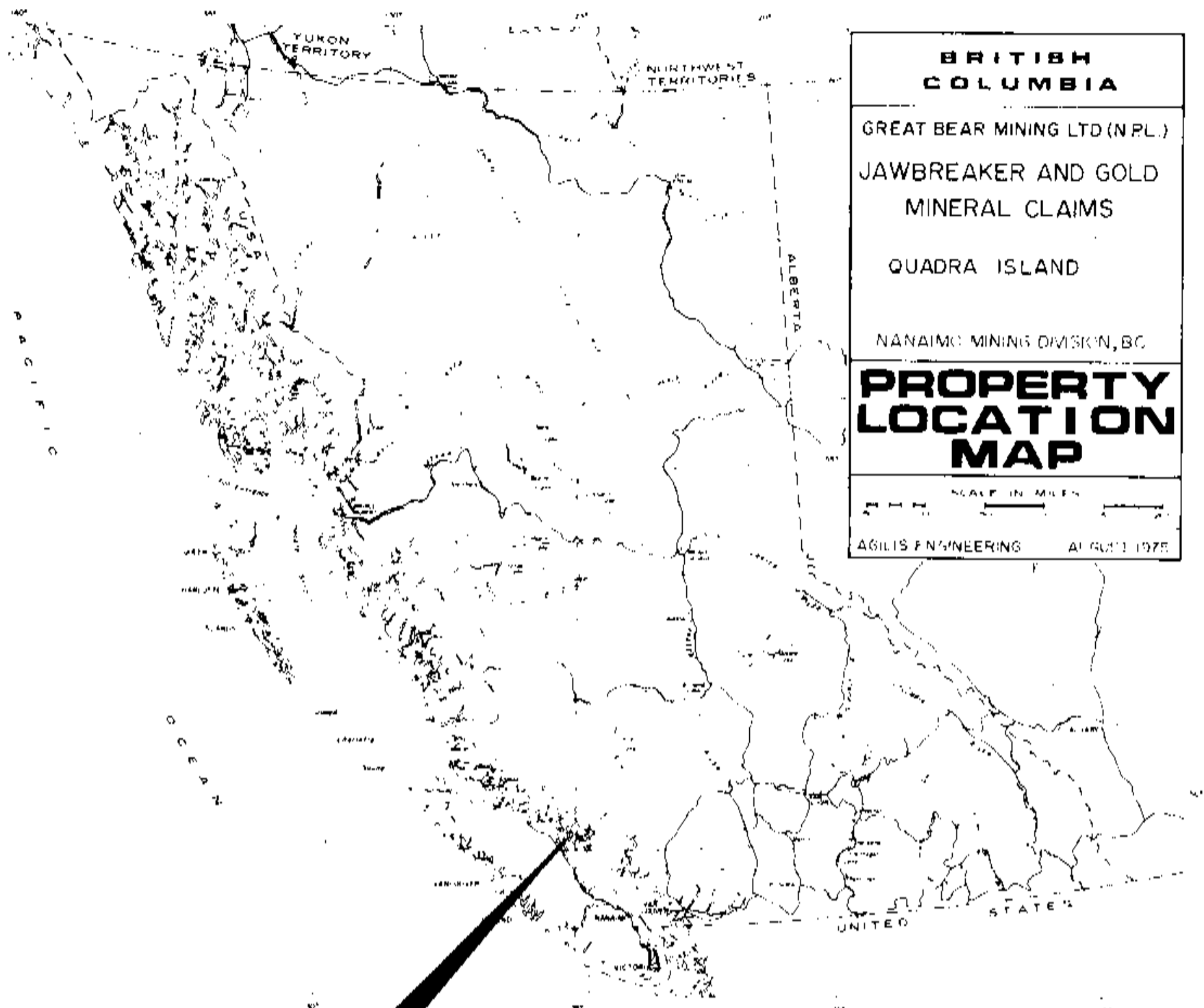
1100 feet to Initial
Post: Jawbreaker
3 & 4

MAP D

1100 feet to
Initial Post: Gold 3 & 4

GREAT BEAR MINING LTD. (N.P.L.)
JAWBREAKER AND GOLD
MINERAL CLAIMS
NANAIMO MINING DIVISION, B.C.
DETAILED MAPS
SCALE IN FEET
0 20 40
ASLIC ENGINEERING AUGUST 1975





BRITISH COLUMBIA

GREAT BEAR MINING LTD (N.P.L.)
**JAWBREAKER AND GOLD
 MINERAL CLAIMS**

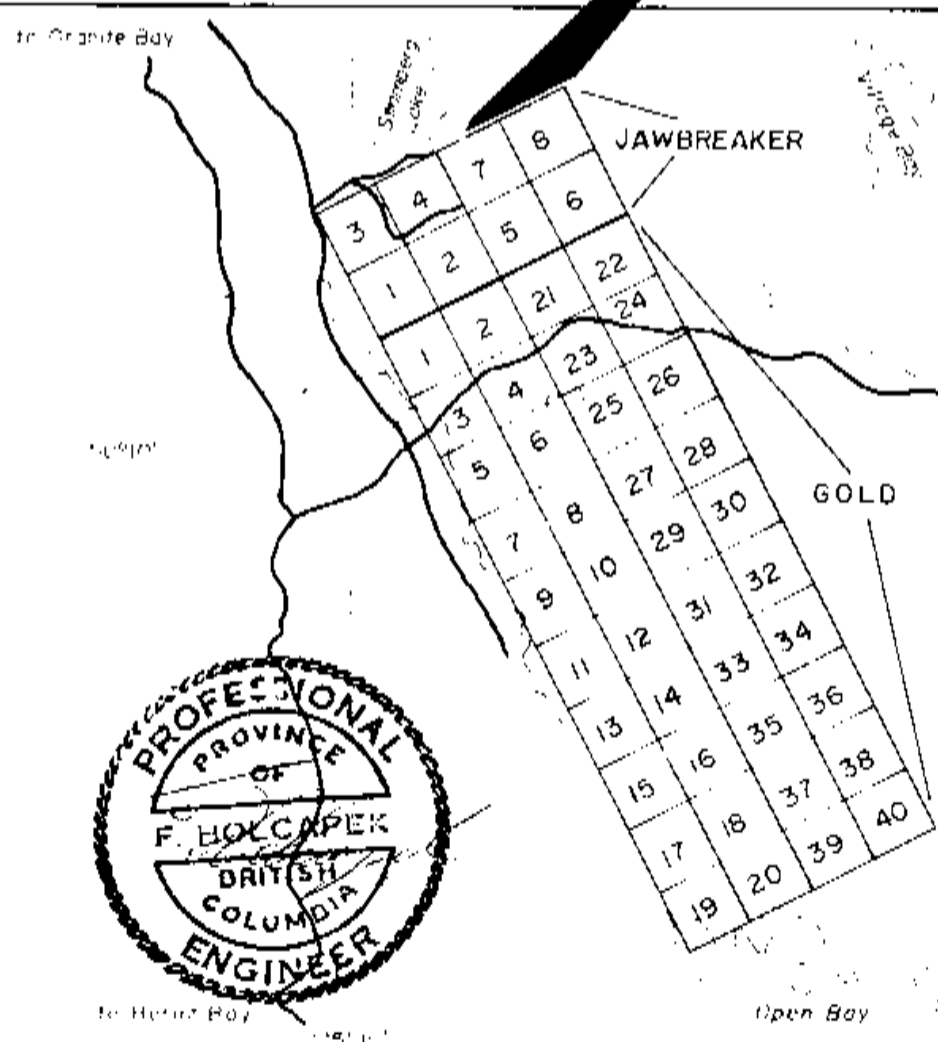
QUADRA ISLAND

NANAIMO MINING DIVISION, BC

**PROPERTY
 LOCATION
 MAP**

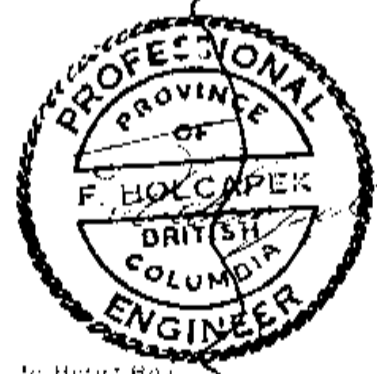
SCALE IN MILES

AGILIS ENGINEERING AUGUST 1975



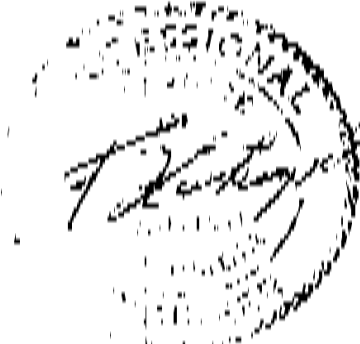
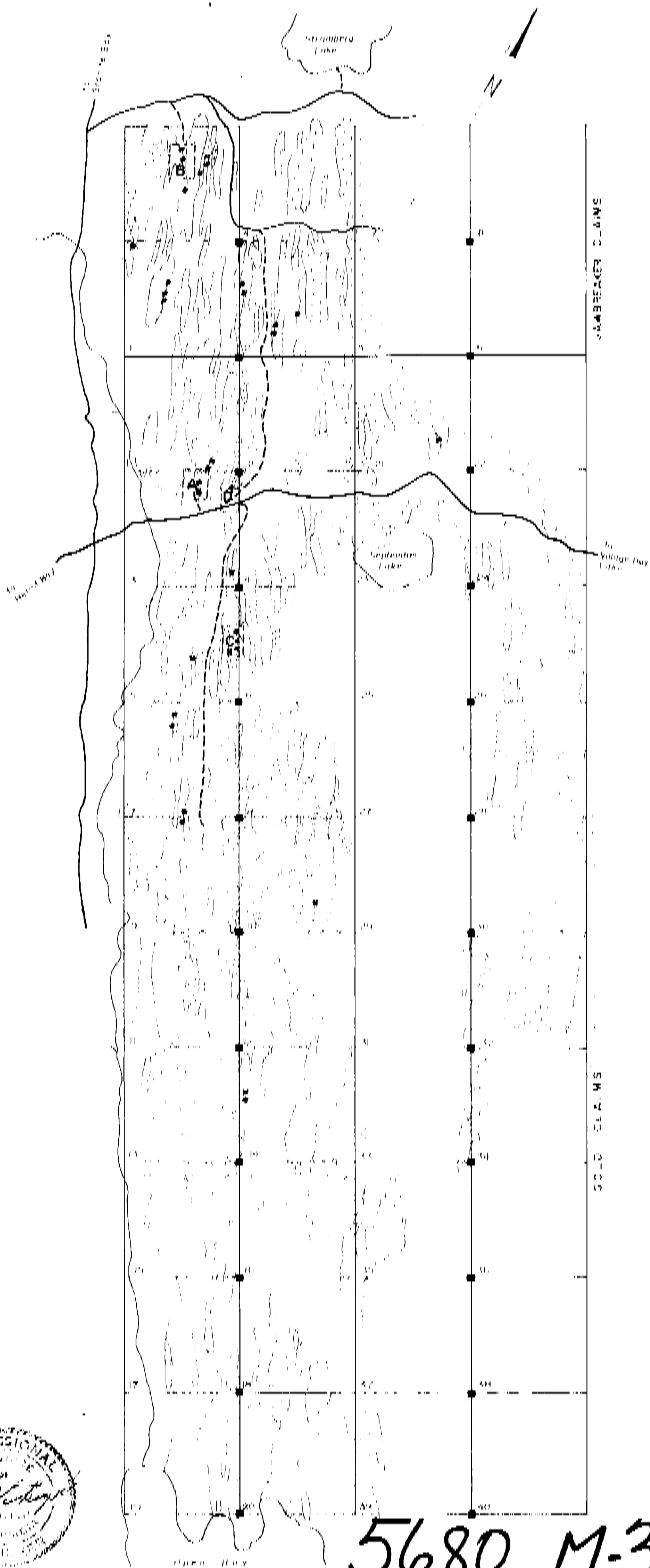
5680

M-1



QUADRA ISLAND
 MAP 92 K/3

0 1/2 1 MILE



5680 M-3

- KARMUELEN FORMATION
Andesite (porphyry to basaltic)
- QUATERNARY FORMATION
Hounded, Fine Sand, and L. Quartzite and L. Quartz
- LOW RELIEF
granulophyte and basalt
- DOTTED MAP
- SWAMP AND MARSHES
- ROADS AND TRACKS
- CLAIM POST

GREAT BEAR MINING LTD (NPL.)
 JAWBREAKER AND GOLD
 MINERAL CLAIMS
 NANAIMO MINING DIVISION, B.C.

GEOLOGICAL MAP

SCALE IN FEET
 0 ————— 1000 ————— 2000

AGLES ENGINEERING AUGUST 1927