

GEOLOGICAL AND GEOCHEMICAL REPORT
ON

WALDER GROUP ONE, TWO AND THREE
SKEENA MINING DIVISION

103B/6W, 52° 27' 131° 19'

OWNED BY

J. C. STEPHEN

BY

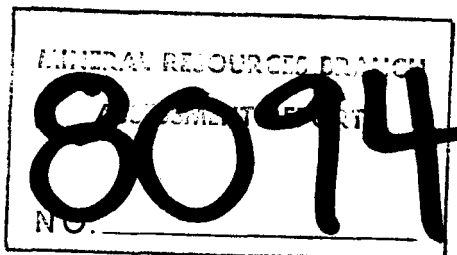
J. T. SHEARER, M.Sc.

FOR

J. C. STEPHEN EXPLORATIONS LIMITED

Field work completed between June 3 and July 25, 1979

March 31, 1980
North Vancouver, B. C.



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SUMMARY

- (1) The Alder Group One to Three were staked in June and July 1979 and are located on the north end of Burnaby Island including Huxley and Alder Islands approximately 100 Km south of Sandspit.
- (2) A crew of four men spent 48 man-days on the property between June 3rd and July 25th, 1979.
- (3) The claims are underlain by Karmutsen Formation volcanics and fault slices of incompetent Kunga Formation limestone and argillite. A post tectonic pluton, Burnaby Batholith, intrudes Kunga Fm. on the east.
- (4) Visible gold was discovered in a new showing on Alder Island. The gold is continued in a quartz breccia zone hosted by extremely silicified Kunga thin bedded, black limestones.
- (5) A total of 431 soil, 87 silt and 72 rock samples were collected and analyzed for Au, As and Sb. Geological mapping was concentrated on Alder and Huxley Islands. Prospecting was completed over most of the claims.
- (6) Follow-up soil sampling and trenching is warranted on several zones. Geological mapping is required for the entire property. An airborne magnetometer survey has been flown and several anomalies will be checked on the ground.
- (7) The property has been divided into three Groups and the following assessment credit applied:
 - Alder One - One year on all, plus 3 years on Abalone
 - Alder Two - One year on all.
 - Alder Three - One year on Alder One only.for a total of \$9,900.

INTRODUCTION

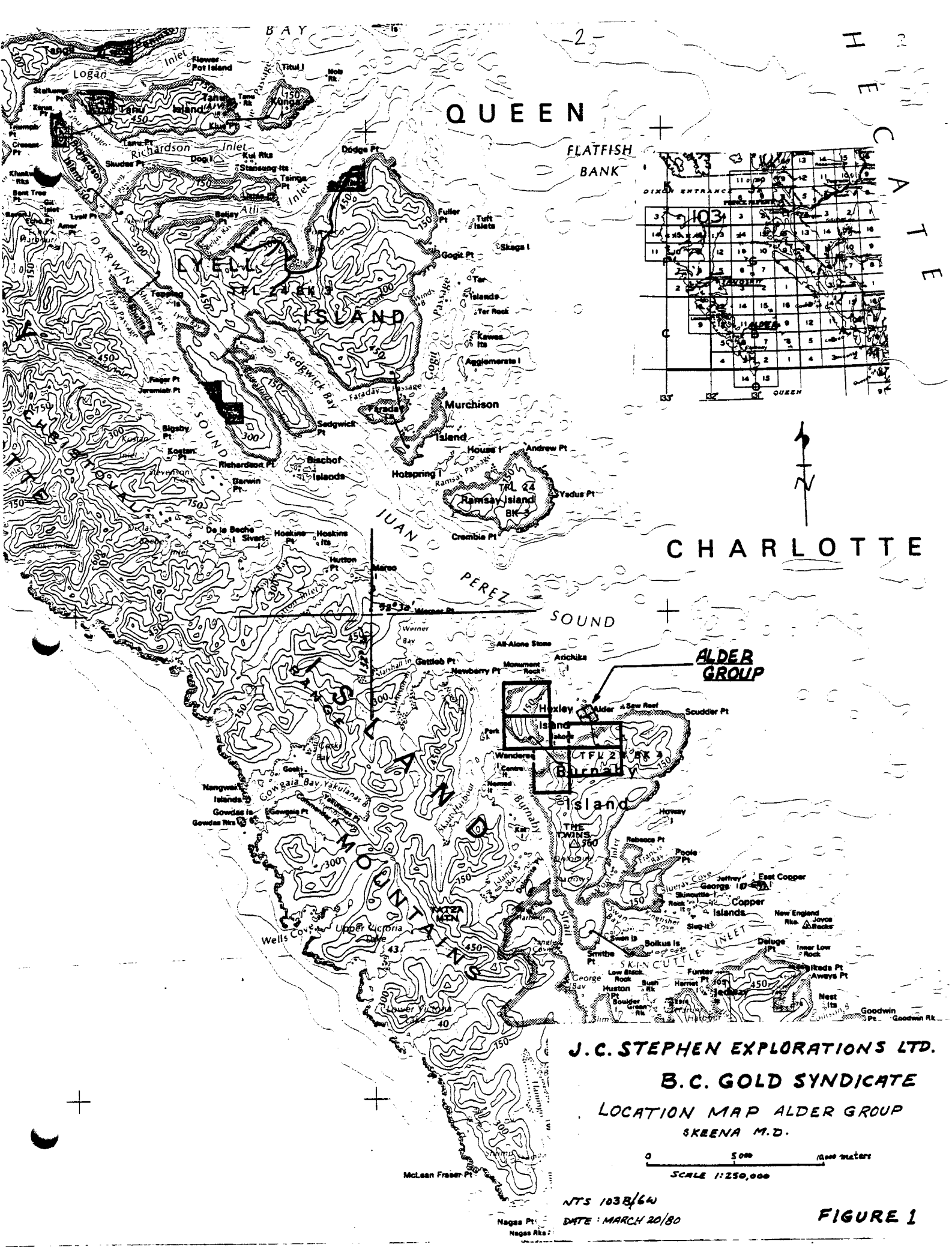
Massive pyrrhotite skarn showings on eastern Alder Island have been known since at least the early 1900's when their nickel potential was tested. Sutherland-Brown (1968) mentions these skarn zones are of interest "partly because they differ from the normal metasomatic deposits in situation and mineralogy". Alder Island is just slightly over one km in length but is underlain by some of the most complex rock assemblages in the Charlottes.

Sample results showed the skarn to be essentially devoid of gold. However, visible gold was discovered in a previously unreported drusy, quartz breccia zone hosted by extremely silicified thin bedded, black limestone on the west side of Alder Island. Similar breccia zones without visible gold but carrying slightly anomalous gold content were subsequently found on Huxley and Burnaby Islands.

Previous mineral exploration includes prospecting between 1906 - 1913 around copper-gold showings on Huxley Island and copper-nickel mineralization on Alder and "Nicks" showings on Burnaby Island. The original magnetite outcrops on the Mac property immediately south of the Alder Group were discovered by A. Heino about 1906. More recently the Mac deposit received over 1,700 m of drilling in the period 1962 - 1966 (Selnes 1963). Also in 1962-63 the Johnson Nickel showings in Section Cove were examined by Jedway Iron Ore Ltd. (Farhini and others 1963).

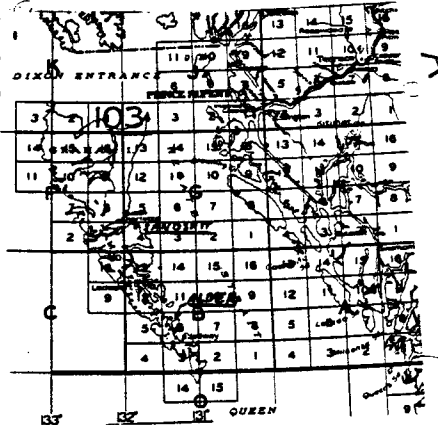
Of historical interest is the work by Francis Poole in 1862 on the south end of Burnaby Island. Exactly 100 years later a major iron deposit estimated to contain 8.2 million tons of 49.45% soluble iron was outlined by diamond drilling offshore from Poole's shafts (Western Miner 1965).

Jedway Iron Ore Ltd. began production from the Jessie deposit near Harriet Harbour in 1962 and shut down in 1968 after mining 19,267,901 tons of ore and waste of which 4,341,676 tons were ore and 2,282,835 tons of concentrate shipped.



QUEEN

FLATFISH BANK



CHARLOTTE

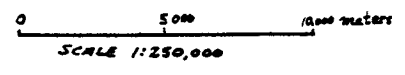
ALDER GROUP

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B. C. GOLD SYNDICATE

LOCATION MAP ALDER GROUP

SKEENA M.D.



NTS 103B/6W
DATE: MARCH 20/80

FIGURE 1

Only the most preliminary work has been completed on the Alder Group to date. Much more basic prospecting is required and a geological map of the entire property is warranted. Initial results are encouraging, but follow-up soil sampling gives characteristically low gold values. An airborne magnetometer survey has been flown and several anomalies should be investigated.

A statement of costs is tabulated in Appendix II with one years assessment applied to all claims except Alder Group Three plus an additional three years on Abalone for a total of \$9,900 credit.

PROPERTY - List of Claims

The following table shows the record data concerning Alder Groups One, Two and Three as illustrated in Figure 2:

TABLE I

<u>CLAIM NAME</u>	<u>NO. OF UNITS</u>	<u>RECORD NUMBER</u>	<u>DATE OF LOCATION</u>	<u>DATE OF RECORDING</u>	<u>EXPIRY DATE</u>
<u>ALDER GROUP ONE</u>					
Abalone 1	1	1457(6)	June 2/79	June 29/79	June 29/84
Abalone 2	1	1458(6)	June 2/79	June 29/79	June 29/84
Abalone 3	1	1459(6)	June 2/79	June 29/79	June 29/84
Abalone 4	1	1460(6)	June 2/79	June 29/79	June 29/84
Abalone FR	1	1683(7)	July 25/79	July 25/79	July 30/84
Alder Gold 1	<u>18</u>	1609(7)	July 9/79	July 30/79	July 30/81
TOTAL	23 units				
<u>ALDER GROUP TWO</u>					
Alder Gold 2	18	1610(7)	July 11/79	July 30/79	July 30/81
Alder Gold 3	<u>18</u>	1611(7)	July 10/79	July 30/79	July 30/81
TOTAL	36 units				
<u>ALDER GROUP THREE</u>					
Alder One	20	1608(7)	July 7/79	July 30/79	July 30/81
Rambler Phoenix	<u>20</u>	1612(7)	July 14/79	July 30/79	July 30/80
TOTAL	40 units				

LOCATION AND ACCESS

The claims are located on the north end of Burnaby Island and adjacent Huxley and Alder Islands as shown on Figures 1 and 2. Section Cove on Alder Gold 3 is 98 km south of Sandspit. Casual charter of fixed wing aircraft or helicopter can be made in Sandspit. Daily scheduled jet flights operate between Vancouver and Sandspit airport. A small inflatable boat was used to ferry men and equipment from a base camp on Burnaby Island to the various smaller islands.

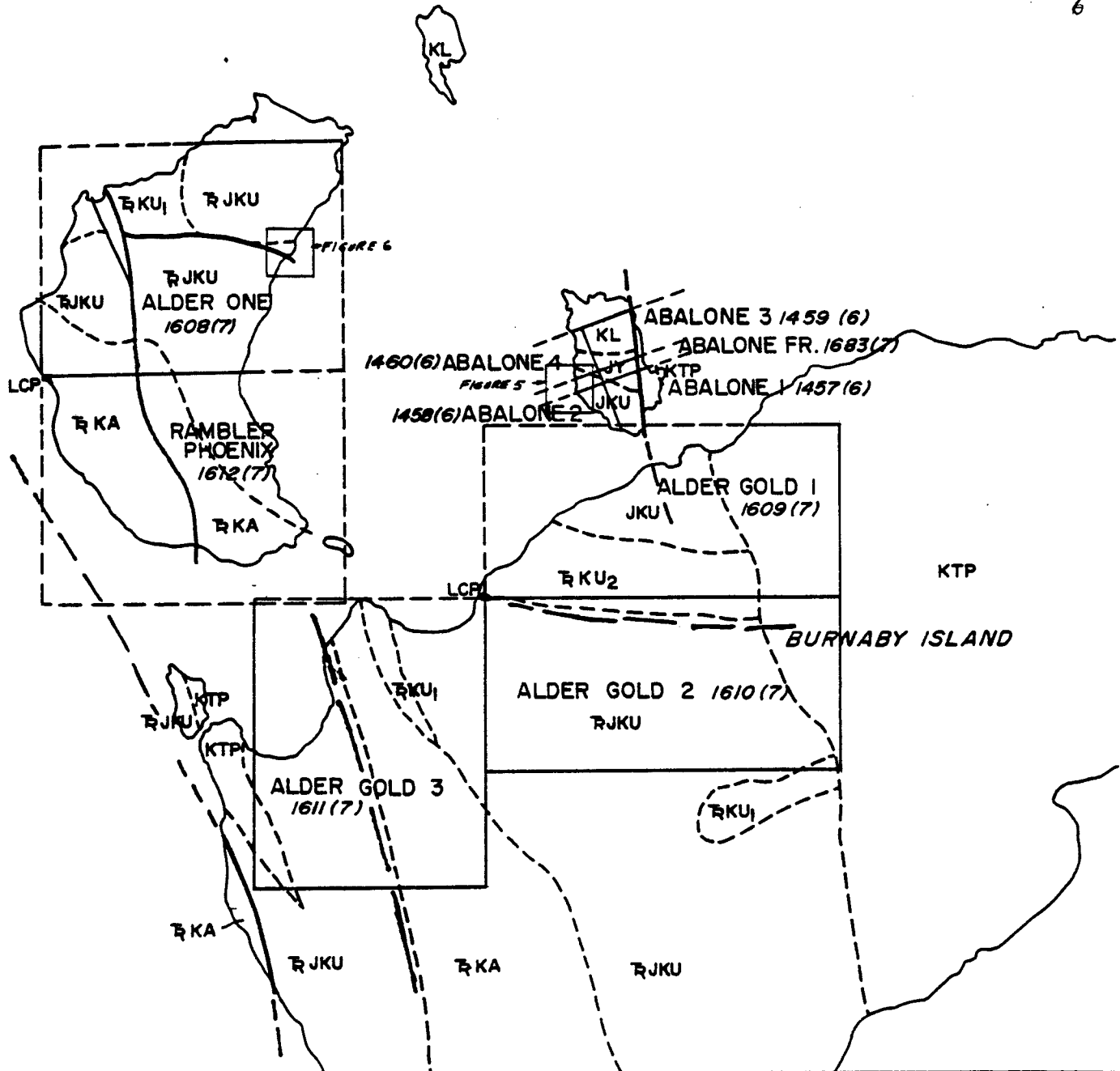
Huxley Island was almost completely logged off many years ago. It is now an incredible jungle of salal and twisted spruce thickets. In sharp contrast, Alder has not been logged and is characterized by open forest of large hemlock, cedar and spruce. Burnaby has been logged for about 150m in from the shoreline.

The claims are in the heart of the so called "Southern Moresby Wilderness Proposal". It is ironic that an area with such a long history of mining and forest industry development is referred to as wilderness. Unfortunately none of the long term planning proposals have considered mining input and the area could conceivably be alienated to mineral exploration.

FIELD PROCEDURES

Claim lines were run with a Silva compass and roughly measured for slope corrections by a Topolite Belt Chain calibrated in meters for which to manufacturer gives a 0.1% accuracy. Claim lines were marked by blazes and blue and orange flagging. The only significant departure from the true perimeter line was in the southeast corner of Alder Gold 2 where the compass was deflected by the Mac deposit.

Soil lines were established over small selected areas with the exception of the common claim line of Alder Gold 1 and 2. Samples were usually taken every 10m with some at 50 in. spacings. A grubhoe or 1m auger was used to sample the B horizon which varied from a few cm to over 75 cm in depth. Many of the soil samples collected on Alder Island were taken between 75 and 100 cm to ensure the organic component was minimized. A standard soil data sheet was



LEGEND GEOLOGY MODIFIED FROM SUTHERLAND BROWN (1968)

- KTP POST-TECTONIC INTRUSIVES DIORITE
- KL LONGARM FORMATION SANDSTONE, SHALE, SKARN
- RK U₁ MASSIVE GREY LIMESTONE
U₂ BLACK LIMESTONE
U UNDIVIDED
- JK JKU BLACK ARGILLITE
YAKOUN FORMATION: MAINLY ANDESITE AND AGGLOMERATE
- RKA KARMUTSEN FORMATION: BASALT GREENSTONE
- GEOLOGICAL CONTACT
- FAULT

SCALE 1:50,000
 Mts 0 500 1000 2000 3000Mts

B. C. GOLD SYNDICATE
ALDER CLAIM GROUP
GEOLOGY

*April 1980
 Shearer*

NTS 103 B / 6 W
 DATE JULY 1979

FIGURE 3

filled out in the field noting items such as; sample number, location, depth, horizon, colour, particle size, % organics, ph, slope, vegetation and addition remarks. Samples were placed in a waterproof kraft bag and sent to Chemex Labs Ltd., 212 Brooksbank Avenue, North Vancouver, B. C. Analytical procedures are outlined in Appendix IV.

Rock samples were usually collected as continuous chips over short intervals but in the case of channel samples a moil was used.

GEOLOGY

REGIONAL GEOLOGY

The Alder Group is underlain by two major fault slices of incompetent Kunga Formation composed mainly of thin bedded black limestone with subordinate massive grey weathering limestone and thin bedded black argillite members. These two slices both have the form of a broad, truncated, slightly tilted synclinerium. A wedge of resistant Karmutsen Formation volcanics that form a topographic ridge separates the two fault slices as shown on Figure 3. On the east, the Kunga section is intruded by the "Burnaby Batholith, a monzonitic, post tectonic pluton.

The western fault slice is part of a braided section of the Louscoone Inlet Fault system which can be traced almost 200km from Kunghit Island in the south to Rennell sound in the north. A number of post tectonic intrusives occur along this fault. Fold geometry is controlled by the location of major movements associated with these steeply dipping faults.

North of Huxley Island, a fairly large stock of Tertiary gabbro was noted on Ramsay Island. This gabbro likely represents a magma chamber related to the Masset Formation flows and coarse pyroclastics that underlie most of Ramsay Island.

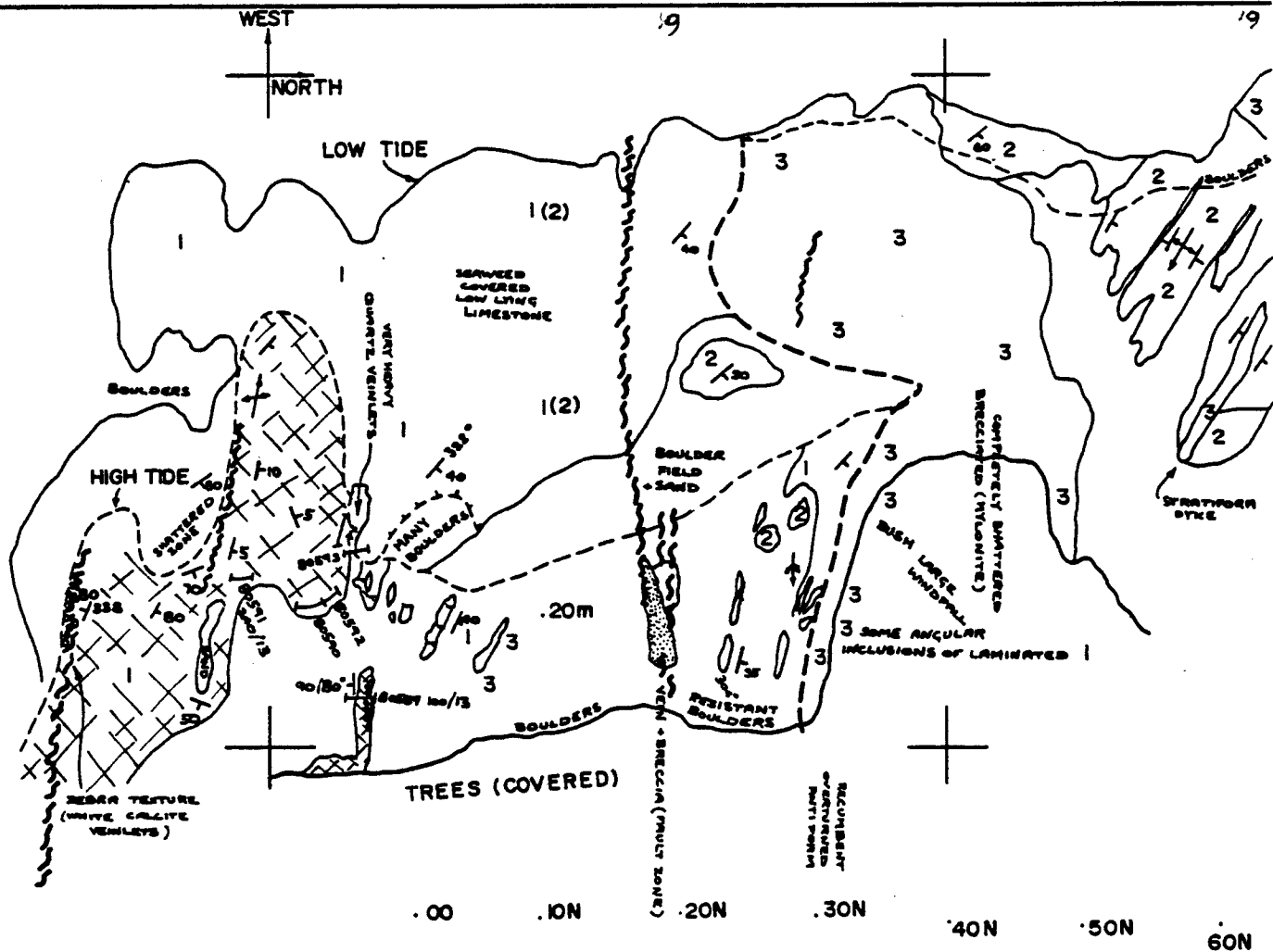
LOCAL GEOLOGY

Detail geological mapping is shown on Figures 4 (in pocket), 5 and 6. Alder Island is marked by an intense fault mylonite zone that extends its entire length on the east side. The mylonite is composed of shattered country rock, which is mainly Yukoun Fm volcanics in the south and skarn in the north, in a matrix of finely comminuted gouge. A silicified, chilled contact occurs between a hornblende monzonite on the extreme east point and sheared "greenstones". The northern one third is underlain by massive to poorly bedded garnet-actinolite-dipside-zoisite skarn with interbedded baked cherty siltstone and lenses and pods of layered carbonate. The skarn has a distinctive knobby-pitted weathering surface. Massive pyrrhotite pods with accessory chalcopyrite and molybdenite are found along the skarn and fault mylonite zones. Allemontite is associated with calcite veins and also the pyrrhotite mineralization.

Altered andesitic volcanics of the Yakoun Formation are exposed in the central portions of the Island and are in fault contact on the west shoreline with thin bedded, Kunga Formation black limestone. The complexities of faulting and folding are well exposed on the south shore. There appears to be only 30-40 m of stratigraphic section composed mainly of argillite member which is repeated many times along several hundred meters of beach. Any future mapping project must use careful measurement of the many local discontinuous stratigraphic intervals to enable correlation throughout the property. Despite a superficial resemblance between the black limestone and black argillite members a useful distinction can be made even with reconnaissance work. An area of massive grey weathering limestone was noted on the east side of the Island abutting the mylonite zone.

Amygdaloidal, basaltic dykes that have an unusual fragmental appearance cut Kunga and Yakoun Formation.

Drusy quartz breccia zones on Alder and Huxley Islands are illustrated in Figures 5 and 6. Visible gold was found in the Alder Zone along a relatively recessive area within a mass of resistant, silicified, thin bedded, black limestone. On Huxley Island the silicification extends beyond the black limestone and into an adjacent large exposure of massive grey weathering limestone as veins and stock works. Several other silicified zones similar in appearance have been found elsewhere on Huxley and Burnaby Islands.



LEGEND

	SAMPLE WIDTH	Au ppb	As ppm
80586	CHIP	2500	8
80589	1.2 m	100	13
80590	1.45 m	>10	10
80591	1.14 m	240	13
80592	1.53 m	10	13
80593	1.35 m	2700	5
80594	0.22 m	(10,000)*	9
80595	1.8 m	900	5

*0.2 oz/ton Au

- 1 BLACK THIN BEDDED LIMESTONE (SILICIFIED IN PLACES)
- 2 GREY WEATHERED LIMY AREAS (BLACK LIMESTONE)
- 3 ANDESITE DYKES
- HIGH TIDE MARK (BARNACLES AND SEAWEED)
- ~ OUTCROP LIMITS
- - - GEOLOGICAL CONTACTS
- X X X SILICIFIED ZONE DRUSY QUARTZ AND HEAVY PATCHES
- CALCITE VEINS AND LARGE PATCHES

- 80° STRIKE AND DIP
- X ANTICLINE, SYNCLINE PLUNGE DIRECTION
- RUSTY SULFIDE RICH AREAS
- I CHANNEL SAMPLES

SCALE 1:500



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B. C. GOLD SYNDICATE

ALDER ISLAND

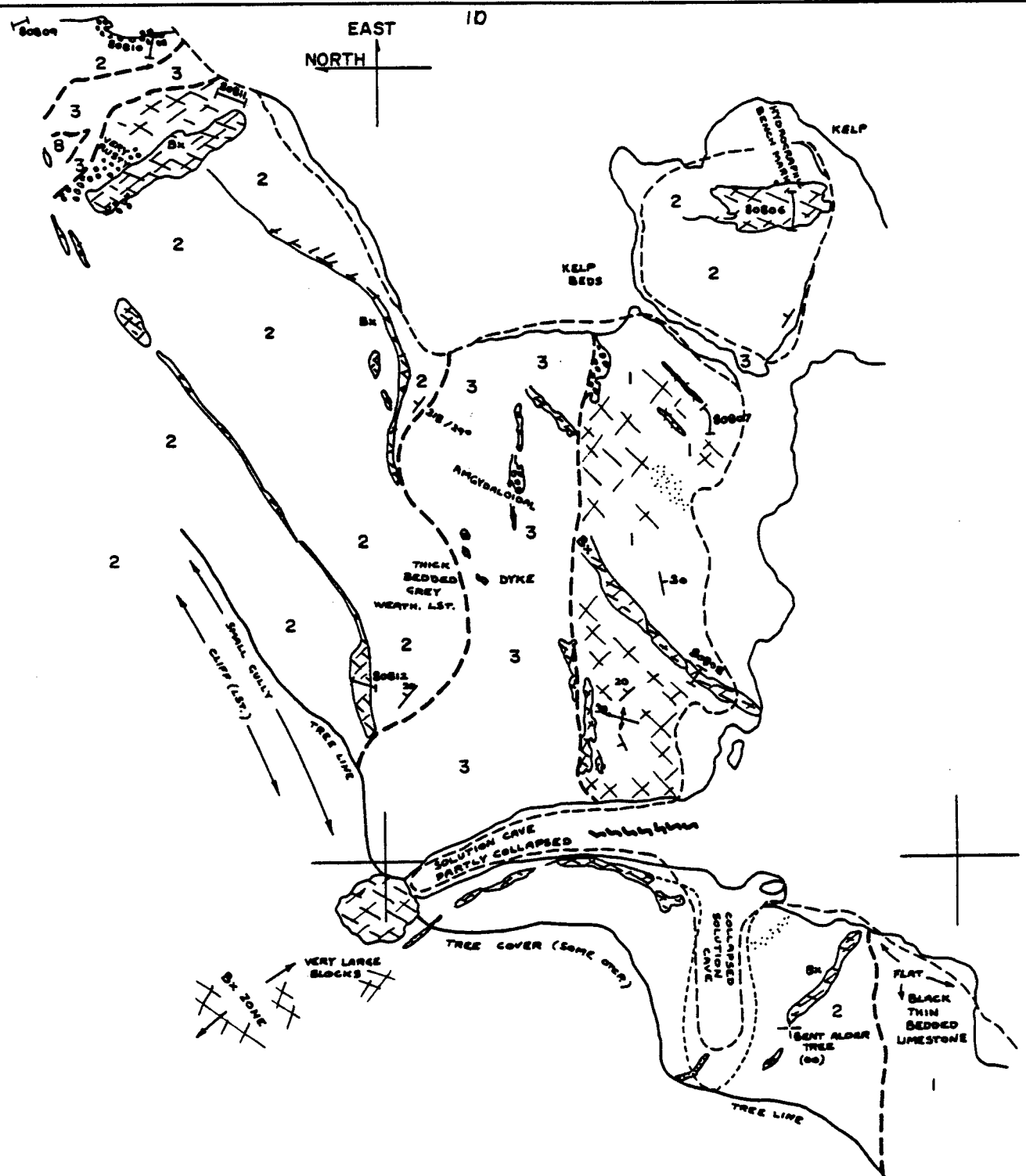
DETAIL GEOLOGY

*April 1/80
J. Stewart*

DATE JULY 2 1979

NTS 103 B / 6 W

FIGURE 5



LEGEND

- 1 BLACK THIN BEDDED LIMESTONE
- 2 THICK BEDDED GREY WEATHERING LIMESTONE
- 3 ANDESITIC DYKES
- HIGH TIDE MARK
- SEAWEED AND BARNACLES
- OUTCROP LIMITS
- - - - - GEOLOGICAL CONTACTS
- SILICIFIED ZONE AND HEAVY SILICA PATCHES
- CALCITE VEINS
- 20° STRIKE AND DIP

- RUSTY SULFIDE RICH AREAS
- CHIP SAMPLES
- X ANTICLINE SYNCLINE PLUNGE DIRECTION

SCALE 1:500
 Mts 0 5 10 15 20Mts

SAMPLE	Au	As	Sb	
WIDTH	ppb	ppm	ppm	
80806	3m	<10	9.0	0.1
80807	2m	140	450	7.0
80808	1m	200	>500	5.2
80809	9m	80	86	2.4
80810	1m	120	430	2.8
80811	2m.	40	86	1.0
80812		<10	11	0.2

J.C. STEPHEN EXPLORATIONS LTD.

B. C. GOLD SYNDICATE
 HUXLEY ISLAND
 DETAIL GEOLOGY

*Angli/50
 Shearer*

NTS 103B/6W
 DATE: JULY 17 1979
 WORK BY: JS

FIGURE 6

Geological mapping at a scale of 1:5,000 is recommended for the entire claim group with detail work where warranted. Since much of the Kunga section is very recessive, especially in the large valleys on Burnaby Island, detail attention to the creek exposures and float will be required. A base map will be constructed from airphoto enlargements with adequate control from shore-line points.

Preliminary petrographic description are contained in Appendix V. More thin sections should be cut to more closely understand lithological variability within the Kunga assemblage and alteration facies at the intrusive contact areas.

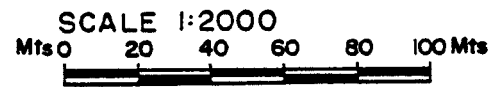
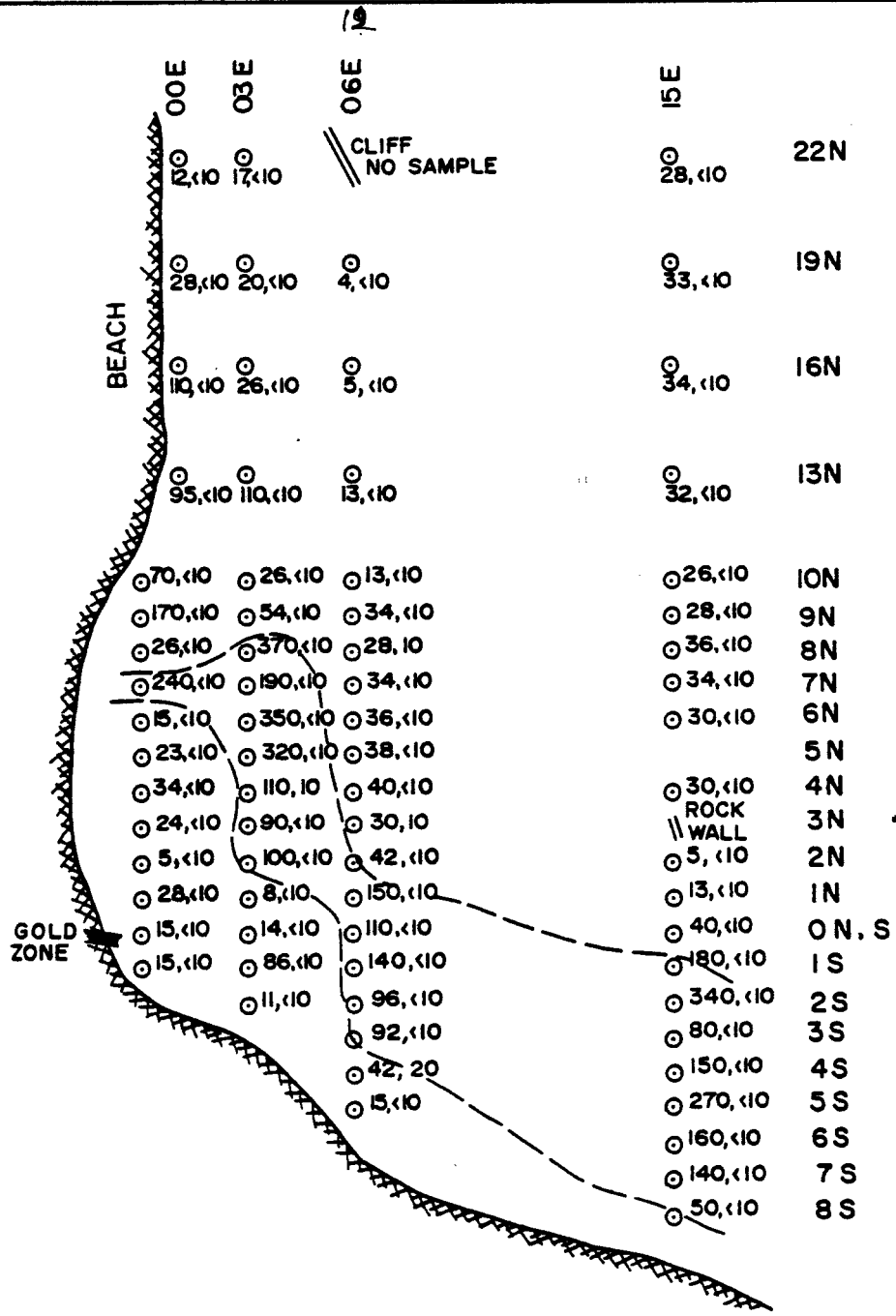
GEOCHEMISTRY

Soil samples were taken on four small detail grids at 10m spacings, along the Alder Gold 1+2 claim line at 50 in. intervals and in a reconnaissance fashion over the entire property as shown on Figures 7 (in pocket), 8 (in pocket), 9, 10, and 11. Except for the following high values all gold results are <10 ppb with a few scattered 20 ppb which are not considered significant:

(a) Alder Island	A-79-722	360 ppb	Au
	A-79-68	820 ppb	Au
	A-79-69	5500 ppb	Au
	A-79-70	3000 ppb	Au
(b) Huxley Island	H Grid		
	09S + 03W	60 ppb	Au
(c) Burnaby Island	Ag Grid along claim line		
	00 + 210 E	320 ppb	Au
	00 + 2350 E	120 ppb	Au

Each of these anomalies warrants detail follow-up sampling.

A histogram of Arsenic soil results is plotted in Appendix IV. The distribution has a simple one population shape and a threshold value of approximately 64 ppm. The highest detection limit of present work is 500 ppm As. In all cases the anomalous arsenic values correspond to low gold results. However, high arsenic soil content appears to reflect a wider, more mobile



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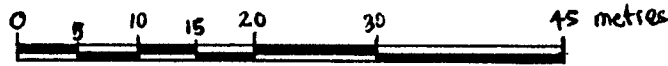
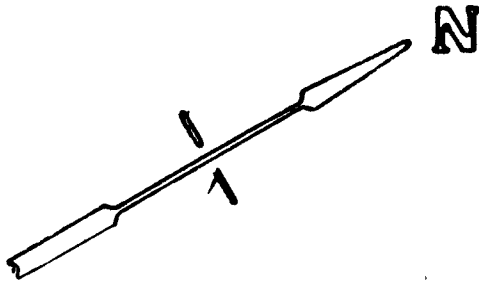
B. C. GOLD SYNDICATE
ALDER GRID
GEOCHEM SURVEY

April 1/80
J. Shearer

NTS 103 B/6W
DATE JUNE 1979

FIGURE 10

FIGURE 11

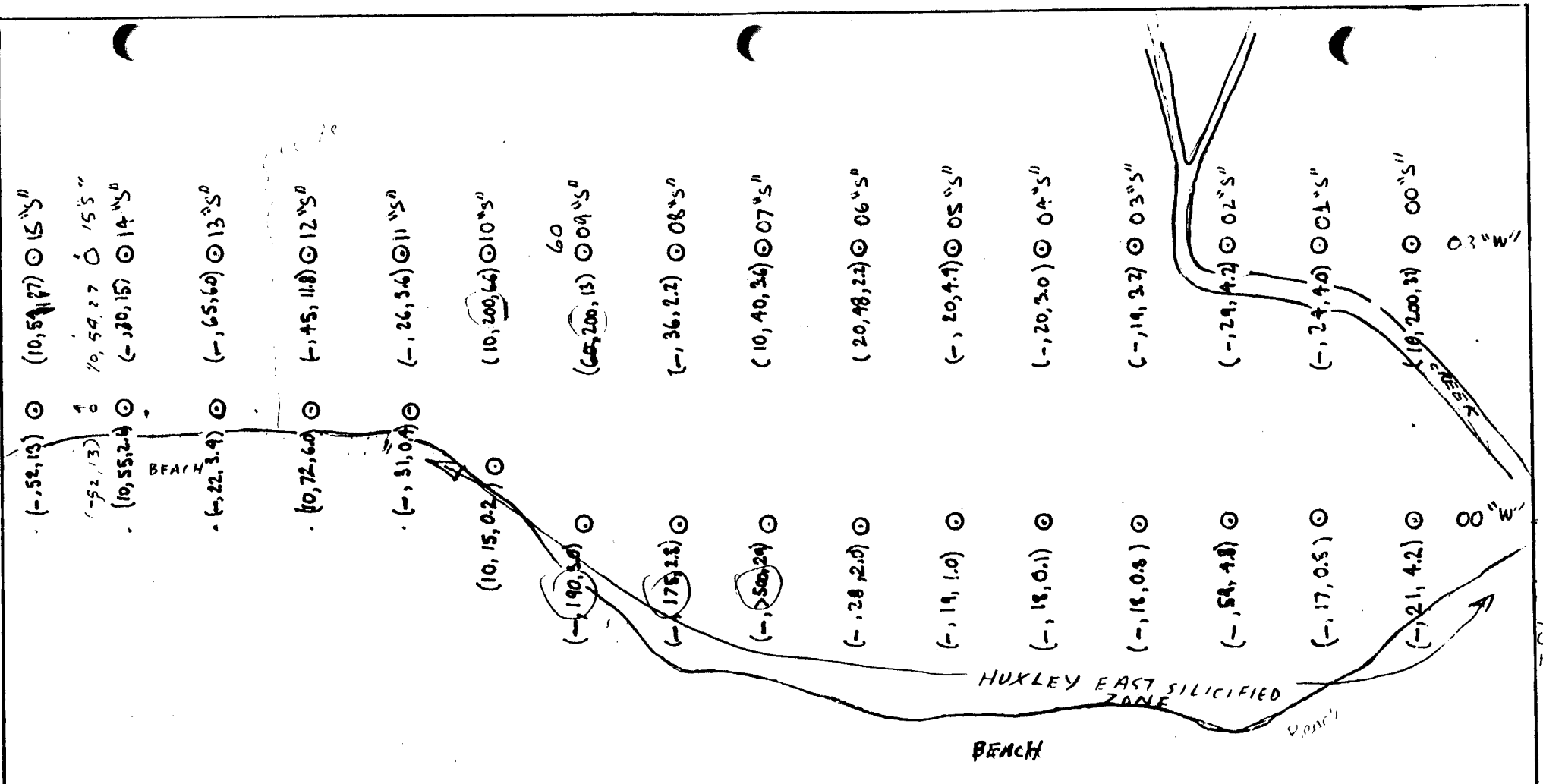


LEGEND
 ○ Soil geochem. sample
 (10, 180, 20) Au ppb, As ppm, Sb ppm
 - denotes Au being < 10 ppb.

*April 1980
Shearer*

JC. STEPHEN EXPLORATION LTD
 B.C Gold Syndicate
 HUXLEY ISLAND "H" GRID
 SOIL GEOCHEM SURVEY
 DATE: JULY 1979
 NTS: 1038/6w.
 WORK, DRAWN BY: G. Marchak
 NOTE: SOUTH "S" = 210° "W" = 300°

FIGURE . 11



-13-

indication of silicified zones as shown on Figure 10, where the 60 ppm arsenic contour follows the assumed trend of the Alder gold zone. A similar pattern occurs on Figure 11. More sampling is required to establish a definite relationship between gold and arsenic in soils. Limited antimony values correspond closely with arsenic levels with some minor exceptions.

Stream sediment samples were taken in major drainages to establish background levels. All gold results are ≤ 10 ppb. Arsenic ranged between 4.0 ppm and 510 ppm with a sample standard deviation of 55 ppm and a 30 ppm average. The creek draining toward the Mac deposit is the most notable silt anomaly.

Rock geochem samples are also shown on Figures 7, 8 and 9 (in pocket). Channel sample results are listed on Figures 5 and 6. Anomalous results of > 40 ppb Au were found in several silicified breccia zones in black limestone and argillite on all claim groups.

Areas that warrant detail soil follow-up include the eastern part of Alder Gold 1 and 2 near the hornfels contact between Kunga Fm and the Burnaby pluton, east side of Alder Island and the west part of Huxley Island. Soil profiles should be taken to ascertain the distribution of gold and arsenic and origin of soils. Heavy mineral separation techniques may enhance the information gained from soil profiles.

CONCLUSIONS AND RECOMMENDATIONS

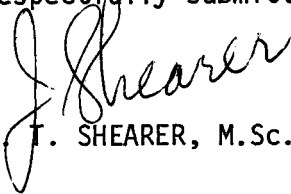
A new, visible gold occurrence was found on Alder Island hosted by brecciated, silicified, thin bedded, black limestone. Similar zones without visible gold but containing anomalous gold content were noted on both Huxley and Burnaby Islands. Other anomalous soil and rock samples warrant follow-up work.

The Alder visible gold showing should be exposed by trenching and sampled in detail. A comprehensive geological map of the entire property is a priority. Additional prospecting is needed along the south and east boundaries of the Alder Gold claims.

An airborne magnetometer survey has been completed and several anomalies will be checked on the ground in 1980.

Assessment credit totalling \$9,900 has been applied to the claims as tabulated in Appendix II.

Respectfully submitted,


J. T. SHEARER, M.Sc., F.G.A.C.

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APPENDIX I

LIST OF PERSONNEL AND DATES WORKED

APPENDIX I

LIST OF PERSONNEL AND DATES WORKED

<u>NAME</u>	<u>OCCUPATION</u>	<u>ADDRESS</u>	<u>DATE WORKED ON PROPERTY</u>
J. T. Shearer	Geologist	R. R. #1 Mason Ave, Port Coquitlam, B. C.	June 3, July 1 to 6, July 13, 15, 17, to 20, 22 to 25, 1979.
B. Atkinson	Geologist B.Sc. (Geology) McMaster Univ. 1977 3 summers experience	R. R. #1 Bright, Ontario	July 6, 13, 22 to 25, 1979.
J. D. Clarke	Prospector 4 season experience	Garibaldi Highlands Squamish, B. C.	June 3, July 6, 13, 15 July 17, to 25, 1979.
G. Marchak	Soil Sampler 1 summer experience	4455 West 1st Avenue Vancouver, B. C.	July 1 to 6, July 13, 15, July 17 to 2 , 22 to 25, 1979.

APPENDIX II

STATEMENT OF COSTS

APPENDIX II
STATEMENT OF COSTS

ALDER GROUP

Field time June 3, July 1 to 6, 13, 15, 17 to 25, 1979

WAGES AND FRINGE BENEFITS:

J. T. Shearer	14 days @ \$81.72 per day	\$ 1,144.08
B. Atkinson	6 days @ \$65.29 per day	391.74
J. D. Clarke	12 days @ \$60.26 per day	723.12
G. Marchak	16 days @ \$50.22 per day	<u>803.52</u>
	Total Wages	\$3,062.46

FOOD AND CAMP SUPPLIES:

48 man-days @ \$10.50 per man-day	504.00
Boat Rental 16 days \$23.00 per day	368.00

TRANSPORTATION - AIR:

Trans Provincial Airlines 3 Otter trips	1,296.00
4 Beaver trips	1,021.00
Vancouver Island Helicopters 5.3 hrs. @ \$341.00 per hr.	1,807.30
P.W.A. Vancouver-Sandspit 1/2 of 4 man = $\frac{639.20}{2}$	319.60

GEOCHEMISTRY:

Soil Samples - 431 samples @ \$6.25 + \$.45 = \$6.70 per sample for Au & As 48293, 49186-491890 Certificate No. 48963-68	2,887.70
Silt Samples - 87 samples @ \$6.70 per sample for Au + As Certificate No. 49187, 48963	582.90
Rock Samples - 72 samples @ \$9.25 + \$1.75 = \$11.00 per sample for Au, As + Sb Certificate No. 48961	792.00
Shipping Samples	28.00
Reproduction and Drafting	220.00
Petrology 8 thin sections @ \$5.75 each	46.00
Airphoto enlargements 14 photos @ \$15.00 each	210.00
Report Preparation, typing	<u>500.00</u>
Grand Total	\$13,644.96

ALDER GROUP (Continued)

ASSESSMENT CREDIT ALLOCATION:

Alder Group One - 18 units + 5 units = 23 units
Alder Group Two - 38 units
Alder Group Three - 40 units

Man-Days Worked:

Group One - 18 man-days (37.5%)
Group Two - 21 man-days (43.75%)
Group Three - 9 man-days (18.75%)

Group One - \$5,116.86
Group Two - \$5,969.67
Group Three - \$2,558.43

Alternate calculation for Group three (Huxley Island)

126 soils	\$1,222.20
28 silts	187.60
10 rocks	110.00
Wages 9 Man-days	574.21
Boat	250.00
18.75% of rest	<u>1,115.81</u>
Total	\$2,459.82

ASSESSMENT CREDIT:

Alder Group One - 23 units one year on all = \$2,300
plus 3 more years on Abalone = \$2,000
\$4,300

PAC: \$5,116.86 - \$4,300 = \$816.86 for PAC account

Alder Group Two - 38 units one year on all = \$3,600

PAC: \$5,969.67 - \$3,600 = \$2,369.67 for PAC account

Alder Group Three - 40 units one year on Alder One = \$2,000

PAC: \$2,558.43 - \$2,000 = \$558.43 for PAC account.

PAC account for B. C. Gold Syndicate
(J. C. Stephen Explorations Ltd.)

TOTAL PAC = \$3,744.96

TOTAL APPLIED: \$9,900

APPENDIX III

STATEMENT OF QUALIFICATIONS


J. T. SHEARER, M.Sc., F.G.A.C.

APPENDIX III
STATEMENT OF QUALIFICATIONS

I. J. T. SHEARER of the City of Port Coquitlam in the Province of British Columbia, hereby certify that:

- 1) I am a graduate of the University of British Columbia (1973) B.Sc., and University of London, Imperial College (1977) M.Sc., DIC.
- 2) I am a Fellow of the Geological Association of Canada.
- 3) I have worked continuously in Mineral Exploration since 1973 for McIntyre Mines Limited, Cities Service Minerals Corp. and J. C. Stephen Explorations Ltd.
- 4) I personally worked on Alder Groups One to Three June 3 and July 25, 1979. This report is based on an interpretation of data collected.

Dated at Vancouver, British Columbia



J. T. SHEARER, M.Sc., F.G.A.C.

APPENDIX IV

ANALYTICAL PROCEDURE

CHEMEX LABS LTD.

212 Brooksbank Avenue
North Vancouver, B. C.

Hart Bickle, Chief Geochemist
and
Arsenic Histogram

APPENDIX IV

FEB./80

Joe Shearer - J. C. Stephen Expl.

GEOCHEM PROCEDURES

PPM Antimony: a 1.0 gm sample digested with conc. HCl in hot water bath. The iron is reduced to Fe⁺² state and the Sb complexed with I⁻. The complex is extracted with TOPO-MIBK and analyzed via A.A. Correcting for background absorption 0.2 ppm ± 0.2 Detection limit.

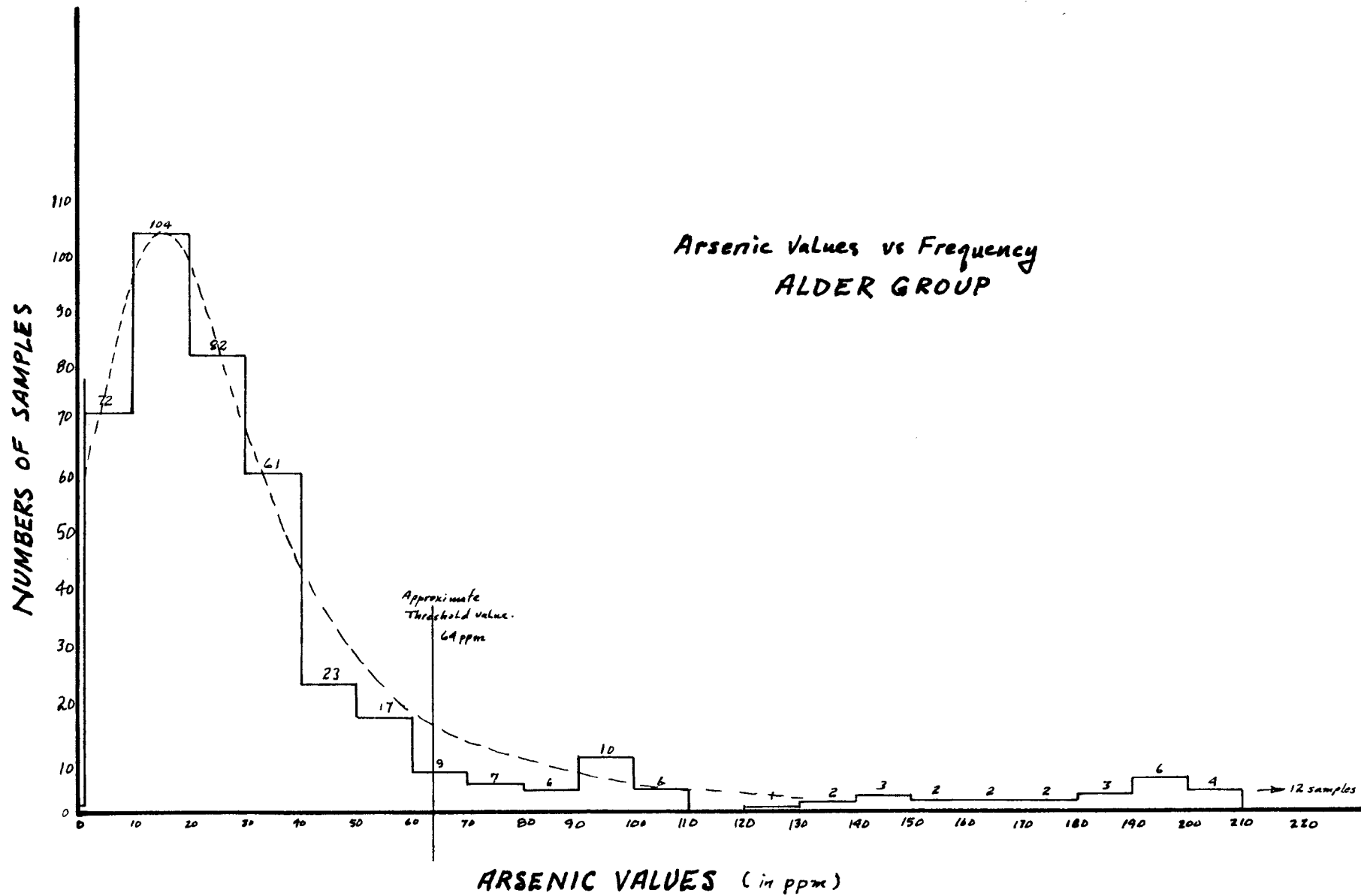
PPM Arsenic: a 1.0 gram sample is digested with a mixture of perchloric and nitric acid to strong fumes of perchloric acid. The digested solution is diluted to volume and mixed. An aliquot of the digest is acidified, reduced with KI and mixed. A portion of the reduced solution is converted to arsine with NaBH₄ and the arsenic content determined using flameless atomic absorption. Detection limit - 1 PPM

PPB Gold: 5 gm samples ashed @800°C for one hour, digested with aqua regia - twice to dryness - taken up in 25% HCl⁻, the gold then extracted as the bromide complex into MIBK and analyzed via A.A. Detection limit - 10 PPB

ASSAY PROCEDURES

Gold: - Fire Assay Method.

0.5 assay ton sub samples are fused in litharge, carbonate and silicious fluxes. The lead button containing the precious metals is cupelled in a muffle furnace. The combined Ag & Au is weighed on a microbalance, parted, annealed and again weighed as Au. The difference in the two weighing is Ag.



APPENDIX V

PETROGRAPHIC NOTES

ALDER GROUP

B.C. GOLD SYNDICATE

PETROGRAPHIC ANALYSIS

Sample Number - JDC-4

Date March 5/80 Sample Location JDC-4, Rambler Phoenix, (Huxley)

Submitted by: J. S.

Petrographer J. Shearer

<u>Probable Original Mode</u>	<u>Present Mode</u>	<u>Notes</u>
% >90 % calcite	98 % quartz 2 % opaques	<u>Several generation (two principle) intersittal to crs. qtz XLS</u>
%	%	_____
%	%	_____
%	%	_____
%	%	_____
%	%	_____

Rock Name "Digested" qtz bx Original Rock Limestone

Alteration: Hand Specimen - extremely vuggy, drusy, quartz breccia, slight
vague ragged, angular dark grey fragments rusty weathering. Radial growth
of drusy XLS.

MICRO - coarse, "void filling" quartz 1-3mm in interlocking, often
radial fashion. Fragments - fine grained 0.1 mm mass, forming centers of
radiating larger XLS. Borders of fragments very sharp. - relict structure?
maybe stylotites with preferential replacement.

Reference - Page 3 Notebook 79-2 (J.S.)

B.C. GOLD SYNDICATE

PETROGRAPHIC ANALYSIS

Sample Number - 80764

Date March 5/80 Sample Location 80764 - Rambler Phoenix (Huxley)

Submitted by: J.S. Petrographer J. Shearer

<u>Probable Original Mode</u>	<u>Present Mode</u>	<u>Notes</u>
95 % calcite	99% Quartz	<u>several generations</u>
5 % insolubles	1% Opaques	<u></u>
%	%	<u></u>
%	%	<u></u>
%	%	<u></u>
%	%	<u></u>
%	%	<u></u>

Rock Name Silicified qtz bx (limestone) Original Rock Limestone

Alteration: Hand specimen - Lt. grey weathering, dark milky gray silicified limestone, cut by 4mm quartz veinlets which offset each other, drusy veinlets, angular bx fragments.

MICRO - very coarse interlocking mosaic of quartz XLS mainly 3 mm in length. (veinlet material), the silicified fragments are composed of 0.1mm qtz. grains, relict stylolites, coarse veinlet material has relatively chilled margin

Reference - Page 1 Notebook 79-2 (J.S.)

B.C. GOLD SYNDICATE

PETROGRAPHIC ANALYSIS

Sample No. - JDC-2

Date March 5/80 Sample Location JDC-2, July 15 Huxley Island

Submitted by: J.S. Petrographer J. Shearer

<u>Probable Original Mode</u>	<u>Present Mode</u>	<u>Notes</u>
85% Quartz	%	<u>as fine needles and matrix</u>
15% Opaques	%	<u>in angular fragments</u>
tr% Chlorite (?)	%	<u></u>
%	%	<u></u>
%	%	<u></u>
%	%	<u></u>
%	%	<u></u>

Rock Name silicified breccia Original Rock black limestone

Alteration: Hand Specimen: dense, black, fragmental, some vuggy cavities,
micro qtz. veinlets.

MICRO- crudely crystalline quartz, stubby needles, abundant opaques -
probably carbon and pyrite. Matrix quartz-cherty quartz pseudomorphic
after some large rectangular mineral? - ghosts most qtz needles 0.4 mm long

Reference - Page 1 Notebook 79-2 (J.S.)

B.C. GOLD SYNDICATE

PETROGRAPHIC ANALYSIS

Sample 80592

Date March 5/80 Sample Location 80592 Alder Island
Continuous to North of 80590

Submitted by: J.S. Petrographer J. Shearer

<u>Probable Original Mode</u>	<u>Present Mode</u>	<u>Notes</u>
90 % Quartz	%	_____
10 % Opaques	%	<u>carbon?</u>
tr % calcite	%	<u>tiny grains, "inclusions" in larger Qtz.</u>
%	%	_____
%	%	_____
%	%	_____
%	%	_____

Rock Name Silicified limestone Original Rock thin bedded, black limestone

Alteration: Hand Specimen - black silicified limestone thin micro veinlets.

MICRO - Quartz - veinlets up to 0.8 mm wide interlocking
mosaic, some grains with wavy extinction. Quartz-matrix 0.03 mm grains.
several generations of veinlets, no offsets. Black opaques - probably carbon,
some irregular black lines - maybe relict stylolites

Reference - detail geology Alder Islands 1:500.

B.C. GOLD SYNDICATE

PETROGRAPHIC ANALYSIS

Sample No. - J-44

Date March 5/80 Sample Location J-44 on North East Burnaby Island Pluto Creek

Submitted by: J.S. Petrographer J. Shearer

<u>Probable Original Mode</u>	<u>Present Mode</u>	<u>Notes</u>
35% Orthoclase	%	<u>mostly cloudy</u>
30% Plagioclase	%	<u>sericitized</u>
20% Hornblende-chlorite	%	<u>some sericite Act. chl after Hbl</u>
2% Angite	%	<u>replaced by Hbl</u>
5% Quartz	%	<u></u>
5% Opaques	%	<u></u>
% Apatite	%	<u></u>

Rock Name Monzonite Original Rock

Alteration: Hand Specimen - coarse crystalline, greenish, hornblende quartz monzonite.

MICRO - K-spar replacing plaq, coarse xline - many plaq over 3mm, also Hbl-chlorite.

Reference - Page 141 in Fieldbook 79-1.

B.C. GOLD SYNDICATE

PETROGRAPHIC ANALYSIS

Sample No. - Alder

Date March 5/80 Sample Location Alder - "quartz" from showing

Submitted by: J.S.

Petrographer J. Shearer

<u>Probable Original Mode</u>	<u>Present Mode</u>	<u>Notes</u>
85 %calcite	95% quartz	<u>several generations</u>
15 %opaques	45% opaques	<u>in darker layers</u>
%	tr% sericite	<u></u>
%	%	<u></u>
%	%	<u></u>
%	%	<u></u>
%	%	<u></u>

Rock Name Quartz breccia Original Rock limestone

Alteration: Hand Specimen - quartzose breccia, fractured, banded fragmental, minor pyrite, well fractured, smooth weathered surface

MICRO - some quartz >3mm long, majority around 0.4 mm, some cherty patches and veins. Minor overgrowths.

J.C.STEPHEN EXPLORATIONS LTD.

B.C. GOLD SYNDICATE

PETROGRAPHIC ANALYSIS

Date March 5/80 Sample Location 80588 (a) Alder Island, east side

Submitted by: J.S. Petrographer J. Shearer

<u>Probable Original Mode</u>	<u>Present Mode</u>	<u>Notes</u>
99 %	85 % Actinolite	_____
%	15 % Opaques	_____
%	%	_____
%	%	_____
%	%	_____
%	%	_____
%	%	_____

Rock Name black marble Original Rock Limestone

Alteration: Hand Specimen - black, sulfide rich, silicified limestone.

sulfides filling micro fractures; sulfides not magnetic.

MICRO - Long prismatic xLs of actinolite, up to 1 mm long

opaques in regular, rectangular blocks, >3 mm long.

Reference - Page 132 in Fieldbook 79-1

B.C. GOLD SYNDICATE

PETROGRAPHIC ANALYSIS

Sample Number - 80588 (b)

Date March 5/80 Sample Location 80588 (b) Alder Island, on east side

Submitted by: J.S.

Petrographer J. Shearer

<u>Probable Original Mode</u>	<u>Present Mode</u>	<u>Notes</u>
95% calcite	20 % Quartz,	<u>veinlets</u>
5% quartz	70 % Quartz,	<u>fine grained Matrix</u>
%	7 % Calcite	<u>relict Matrix</u>
%	3 % Calcite	<u>sparry in fillings in qtz veinlets</u>
%	%	<u>_____</u>
%	%	<u>_____</u>
%	%	<u>_____</u>

Rock Name black silicified marble Original Rock Limestone?

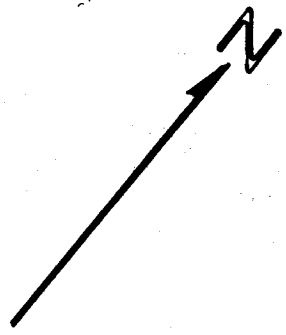
Alteration: Hand Specimen - hard, brittle, light brown finegrained garnet?
and dark grey silica, pitted weathered surface

MICRO - stubby, cloudy qtz Xls in veinlets up to 0.3 mm.

Matrix quartz <0.1 mm, interlocking mosaic, relict calcite between

matrix qtz. Some 0.5 - 1 mm patches of sparry calcite as pore fillings
in quartz veinlets.

Reference - Page 132 in Fieldbook 79-1



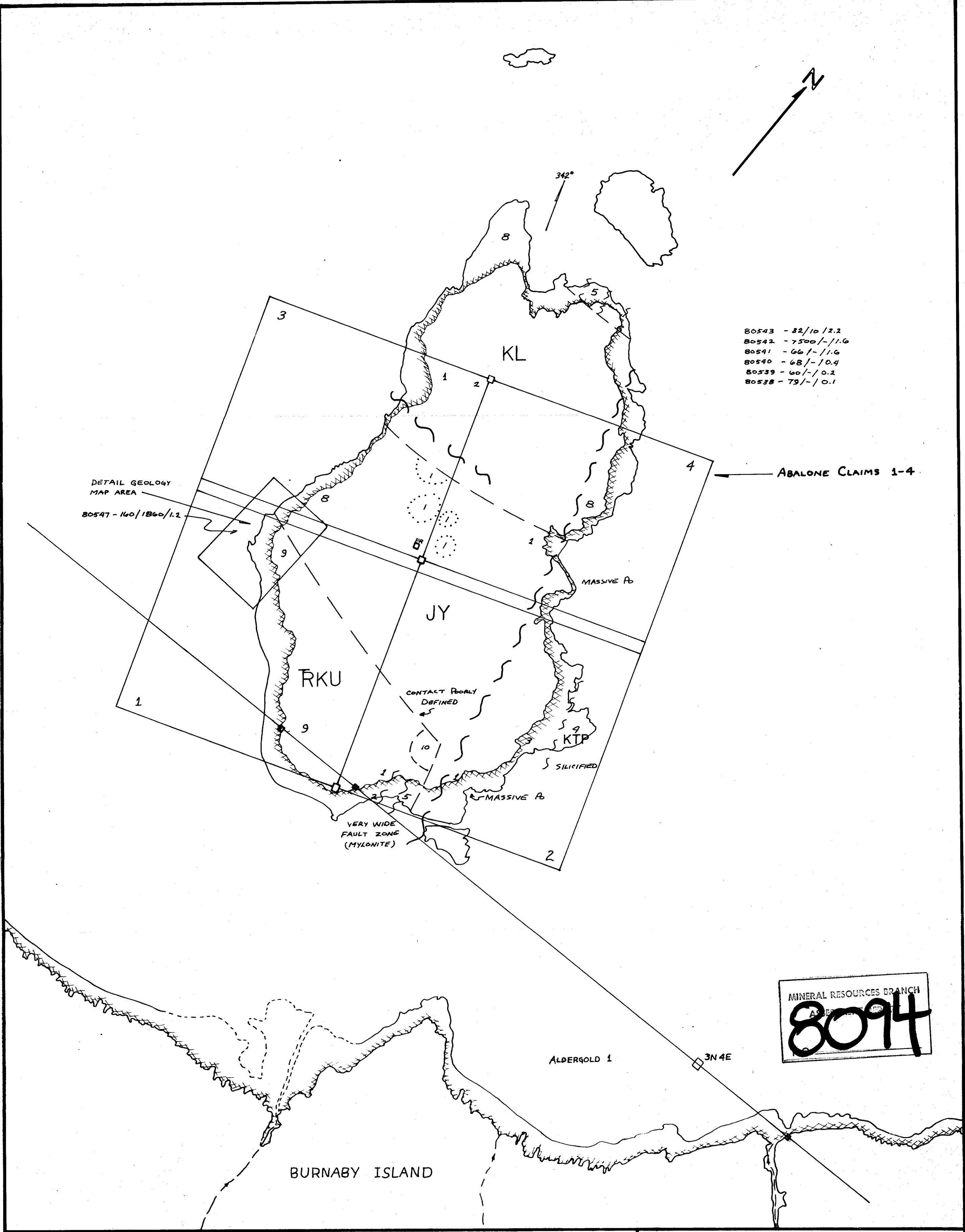
342°

80543 - 32/10/2.2
 80542 - 7500/-/1.6
 80541 - 66/-/1.6
 80540 - 68/-/0.4
 80539 - 60/-/0.2
 80538 - 79/-/0.1

ABALONE CLAIMS 1-4

DETAIL GEOLOGY
 MAP AREA

80547 - 160/1800/1.2



MINERAL RESOURCES BRANCH
8094

ALDERGOLD 1

3N 4E

BURNABY ISLAND

LEGEND

- | | | |
|------------|-----------|---|
| JY | YAKOUN | 1 FAULT ZONE SKARN, SHEARED VOLCANIC GREENSTONE |
| KTP | INTRUSIVE | 2 AMYGDALOIDAL BASALTIC DYKES |
| KL | LONGARM | 3 SILICIFIED CHILL MARGIN |
| Rku | KUNGA | 4 GRANITE PLUTON (HBL DIORITE) |
| | | 5 SKARN, MYLONITE |
| | | 6 SKARNED SANDSTONE WELL BEDDED |
| | | 7 THINLY BEDDED CHERTY SILTSTONE |
| | | 8 MASSIVE TO POORLY BEDDED SKARN |
| | | 9 THINLY BEDDED ARGILLITE |
| | | 10 MASSIVE GREY MARBLE |

SCALE 1:5,000 APPROX

Mts 0 50 100 200 300 Mts

- CLAIM POSTS AND LINES
- INFORMATION TAGS
- ⊠ FRACTIONAL CLAIM POST
- Po PYRRHOTITE
- 80547-160/1800/1.2 ROCK GEOCHEM As (ppm), Au (ppb), Sb (ppm)
- ~ FAULT ZONE

J. C. STEPHEN EXPLORATIONS LTD.

B. C. GOLD SYNDICATE

ALDER ISLAND

GEOLOGY

*April 1/80
 J. Stephen*

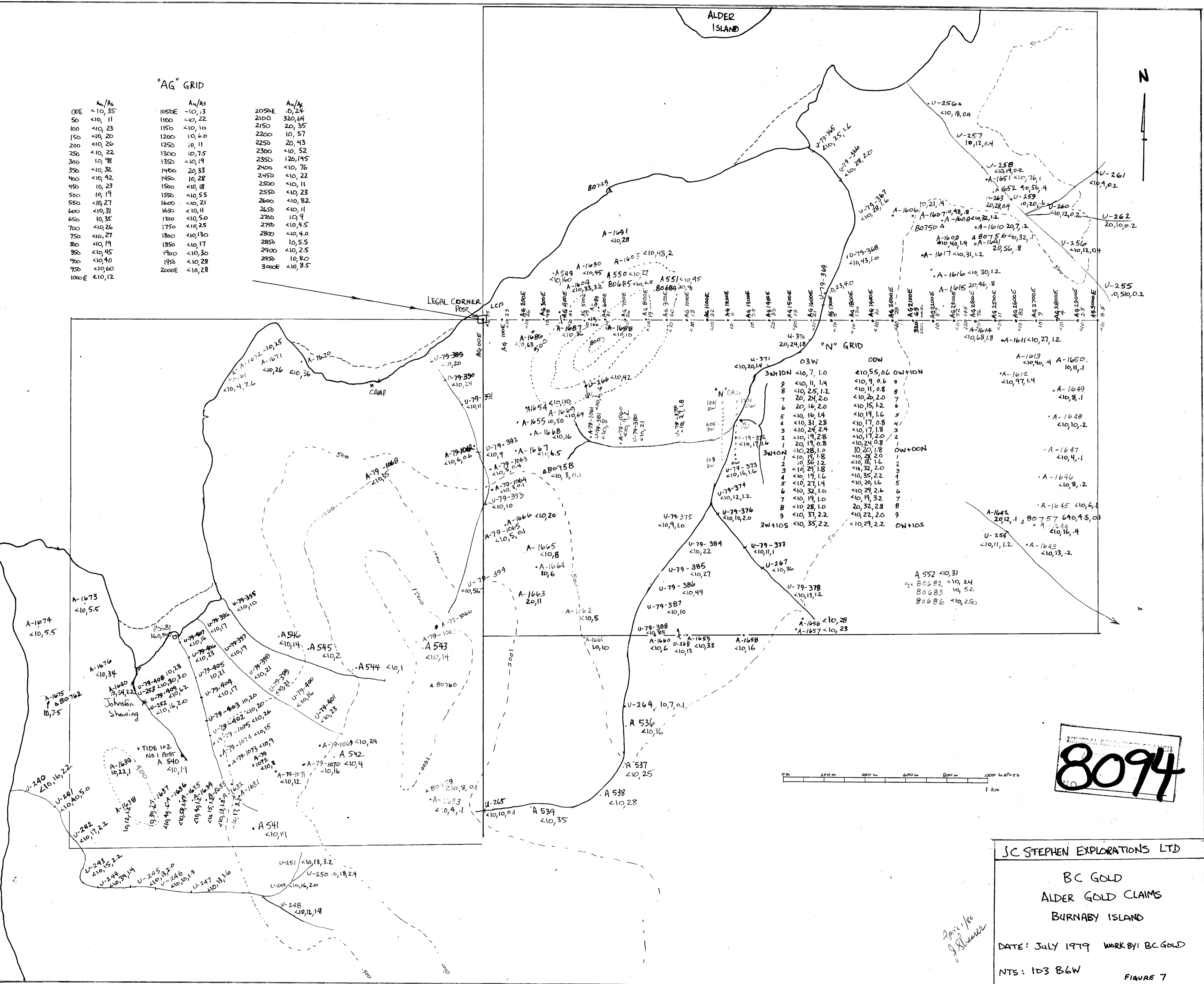
NTS 103 B/6 W

DATE: JUNE 1979

FIGURE 4

"AG" GRID

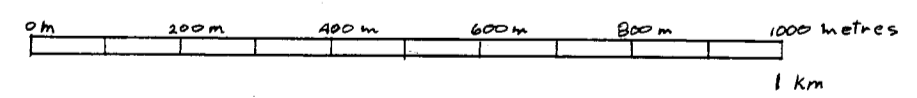
00E	A _u /A _s	1050E	A _u /A _s	2050E	A _u /A _s
50	<10, 11	1100	<10, 22	2100	320, 64
100	<10, 23	1150	<10, 10	2150	20, 35
150	<10, 20	1200	<10, 6.0	2200	10, 57
200	<10, 26	1250	10, 11	2250	20, 43
250	<10, 22	1300	<10, 7.5	2300	<10, 52
300	<10, 18	1350	<10, 19	2350	120, 145
350	<10, 32	1400	20, 33	2400	<10, 76
400	<10, 42	1450	10, 28	2450	<10, 22
450	10, 23	1500	<10, 18	2500	<10, 11
500	10, 19	1550	<10, 5.5	2550	<10, 23
550	<10, 27	1600	<10, 21	2600	<10, 82
600	<10, 31	1650	<10, 11	2650	<10, 11
650	10, 35	1700	<10, 5.0	2700	10, 9
700	<10, 26	1750	<10, 4.5	2750	<10, 4.5
750	<10, 27	1800	<10, 13.0	2800	<10, 4.0
800	<10, 19	1850	<10, 17	2850	10, 5.5
850	<10, 45	1900	<10, 3.0	2900	<10, 2.5
900	<10, 4.0	1950	<10, 2.8	2950	10, 8.0
950	<10, 6.0	2000E	<10, 2.8	3000E	<10, 8.5



"N" GRID

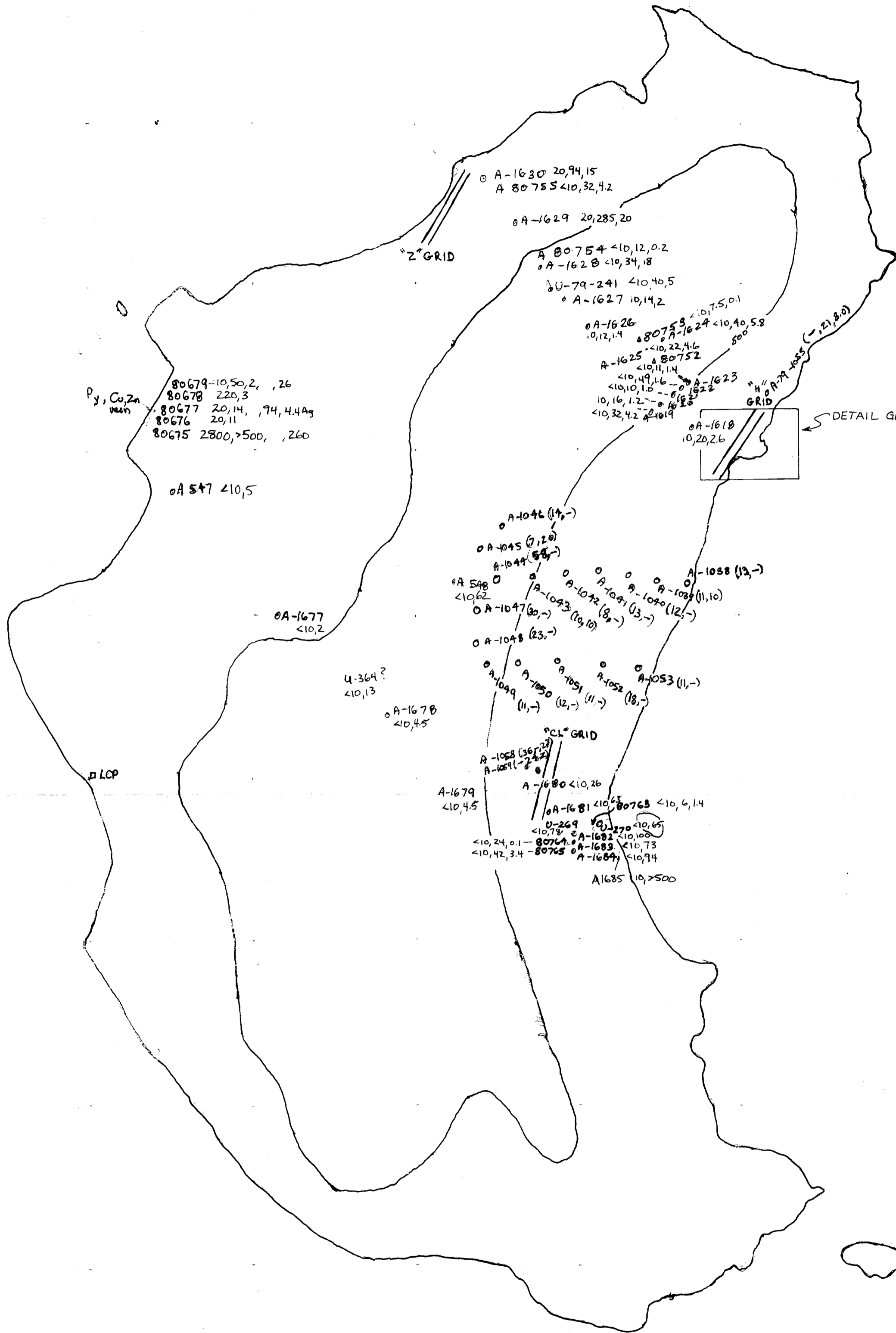
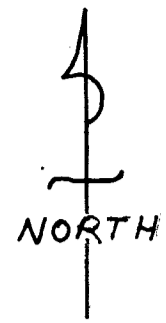
4-371	<10, 20, 14	03W	<10, 55, 0.6	OW+10N	9	<10, 9, 0.6	9	A-1613	<10, 40, .4	A-1650	10, 11, 1	
3W+10N	<10, 7, 1.0	8	<10, 25, 1.2	8	<10, 11, 0.8	8	<10, 20, 2.0	8	A-1612	<10, 97, 1.4	A-1649	<10, 8, 1
7	20, 24, 2.0	7	<10, 15, 1.2	7	<10, 19, 1.6	7	<10, 17, 0.8	7	A-1648	<10, 10, 2	A-1647	<10, 4, 1
6	20, 16, 2.0	6	<10, 19, 1.6	6	<10, 17, 2.0	6	<10, 24, 2.4	6	A-1646	<10, 8, 2	A-1645	<10, 4, 1
5	<10, 16, 1.4	5	<10, 19, 2.8	5	<10, 17, 2.0	5	<10, 19, 0.8	5	A-1642	20, 12, 1	80757	640, 9.5, 0.1
4	<10, 31, 2.8	4	<10, 17, 1.8	4	<10, 24, 0.8	4	<10, 25, 1.0	4	U-254	<10, 11, 1.2	A-1643	<10, 13, 2
3	<10, 24, 2.4	3	<10, 25, 1.0	3	<10, 28, 2.0	3	<10, 29, 1.8	3	A-1644	<10, 11, 1.2	A-1643	<10, 13, 2
2	<10, 19, 2.8	2	<10, 28, 2.0	2	<10, 29, 1.6	2	<10, 29, 1.6	2	A-1642	<10, 11, 1.2	A-1643	<10, 13, 2
1	20, 19, 0.8	1	<10, 28, 1.0	1	<10, 29, 1.6	1	<10, 29, 1.6	1	A-1642	<10, 11, 1.2	A-1643	<10, 13, 2
3W+10S	<10, 35, 2.2	3W+10S	<10, 29, 2.2	3W+10S	<10, 29, 2.2	3W+10S	<10, 29, 2.2	3W+10S	<10, 29, 2.2	3W+10S	<10, 29, 2.2	

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8094



JC STEPHEN EXPLORATIONS LTD
BC GOLD
ALDER GOLD CLAIMS
BURNABY ISLAND
DATE: JULY 1979 WORK BY: BC GOLD
NTS: 1D3 B6W
FIGURE 7

*April 1980
J. Stewart*



H Grid			
STATION	As	As	Sb
003	+006	21	4.2
013	+006	17	1.7
023	+006	18	1.8
033	+006	18	1.8
043	+006	18	1.8
053	+006	18	1.8
063	+006	18	1.8
073	+006	18	1.8
083	+006	18	1.8
093	+006	18	1.8
103	+006	18	1.8
113	+006	18	1.8
123	+006	18	1.8
133	+006	18	1.8
143	+006	18	1.8
153	+006	18	1.8
163	+006	18	1.8
173	+006	18	1.8
183	+006	18	1.8
193	+006	18	1.8
203	+006	18	1.8
213	+006	18	1.8
223	+006	18	1.8
233	+006	18	1.8
243	+006	18	1.8
253	+006	18	1.8
263	+006	18	1.8
273	+006	18	1.8
283	+006	18	1.8
293	+006	18	1.8
303	+006	18	1.8
313	+006	18	1.8
323	+006	18	1.8
333	+006	18	1.8
343	+006	18	1.8
353	+006	18	1.8
363	+006	18	1.8
373	+006	18	1.8
383	+006	18	1.8
393	+006	18	1.8
403	+006	18	1.8
413	+006	18	1.8
423	+006	18	1.8
433	+006	18	1.8
443	+006	18	1.8
453	+006	18	1.8
463	+006	18	1.8
473	+006	18	1.8
483	+006	18	1.8
493	+006	18	1.8
503	+006	18	1.8

CL Grid			
STATION	As	As	Sb
00N	+006	22	2.8
01N	+006	22	2.8
02N	+006	22	2.8
03N	+006	22	2.8
04N	+006	22	2.8
05N	+006	22	2.8
06N	+006	22	2.8
07N	+006	22	2.8
08N	+006	22	2.8
09N	+006	22	2.8
10N	+006	22	2.8
11N	+006	22	2.8
12N	+006	22	2.8
13N	+006	22	2.8
14N	+006	22	2.8
15N	+006	22	2.8
16N	+006	22	2.8
17N	+006	22	2.8
18N	+006	22	2.8
19N	+006	22	2.8
20N	+006	22	2.8
21N	+006	22	2.8
22N	+006	22	2.8
23N	+006	22	2.8
24N	+006	22	2.8
25N	+006	22	2.8
26N	+006	22	2.8
27N	+006	22	2.8
28N	+006	22	2.8
29N	+006	22	2.8
30N	+006	22	2.8
31N	+006	22	2.8
32N	+006	22	2.8
33N	+006	22	2.8
34N	+006	22	2.8
35N	+006	22	2.8
36N	+006	22	2.8
37N	+006	22	2.8
38N	+006	22	2.8
39N	+006	22	2.8
40N	+006	22	2.8
41N	+006	22	2.8
42N	+006	22	2.8
43N	+006	22	2.8
44N	+006	22	2.8
45N	+006	22	2.8
46N	+006	22	2.8
47N	+006	22	2.8
48N	+006	22	2.8
49N	+006	22	2.8
50N	+006	22	2.8

Z Grid			
STATION	As	As	Sb
00S	+006	24	2.4
01S	+006	24	2.4
02S	+006	24	2.4
03S	+006	24	2.4
04S	+006	24	2.4
05S	+006	24	2.4
06S	+006	24	2.4
07S	+006	24	2.4
08S	+006	24	2.4
09S	+006	24	2.4
10S	+006	24	2.4
11S	+006	24	2.4
12S	+006	24	2.4
13S	+006	24	2.4
14S	+006	24	2.4
15S	+006	24	2.4
16S	+006	24	2.4
17S	+006	24	2.4
18S	+006	24	2.4
19S	+006	24	2.4
20S	+006	24	2.4
21S	+006	24	2.4
22S	+006	24	2.4
23S	+006	24	2.4
24S	+006	24	2.4
25S	+006	24	2.4
26S	+006	24	2.4
27S	+006	24	2.4
28S	+006	24	2.4
29S	+006	24	2.4
30S	+006	24	2.4
31S	+006	24	2.4
32S	+006	24	2.4
33S	+006	24	2.4
34S	+006	24	2.4
35S	+006	24	2.4
36S	+006	24	2.4
37S	+006	24	2.4
38S	+006	24	2.4
39S	+006	24	2.4
40S	+006	24	2.4
41S	+006	24	2.4
42S	+006	24	2.4
43S	+006	24	2.4
44S	+006	24	2.4
45S	+006	24	2.4
46S	+006	24	2.4
47S	+006	24	2.4
48S	+006	24	2.4
49S	+006	24	2.4
50S	+006	24	2.4

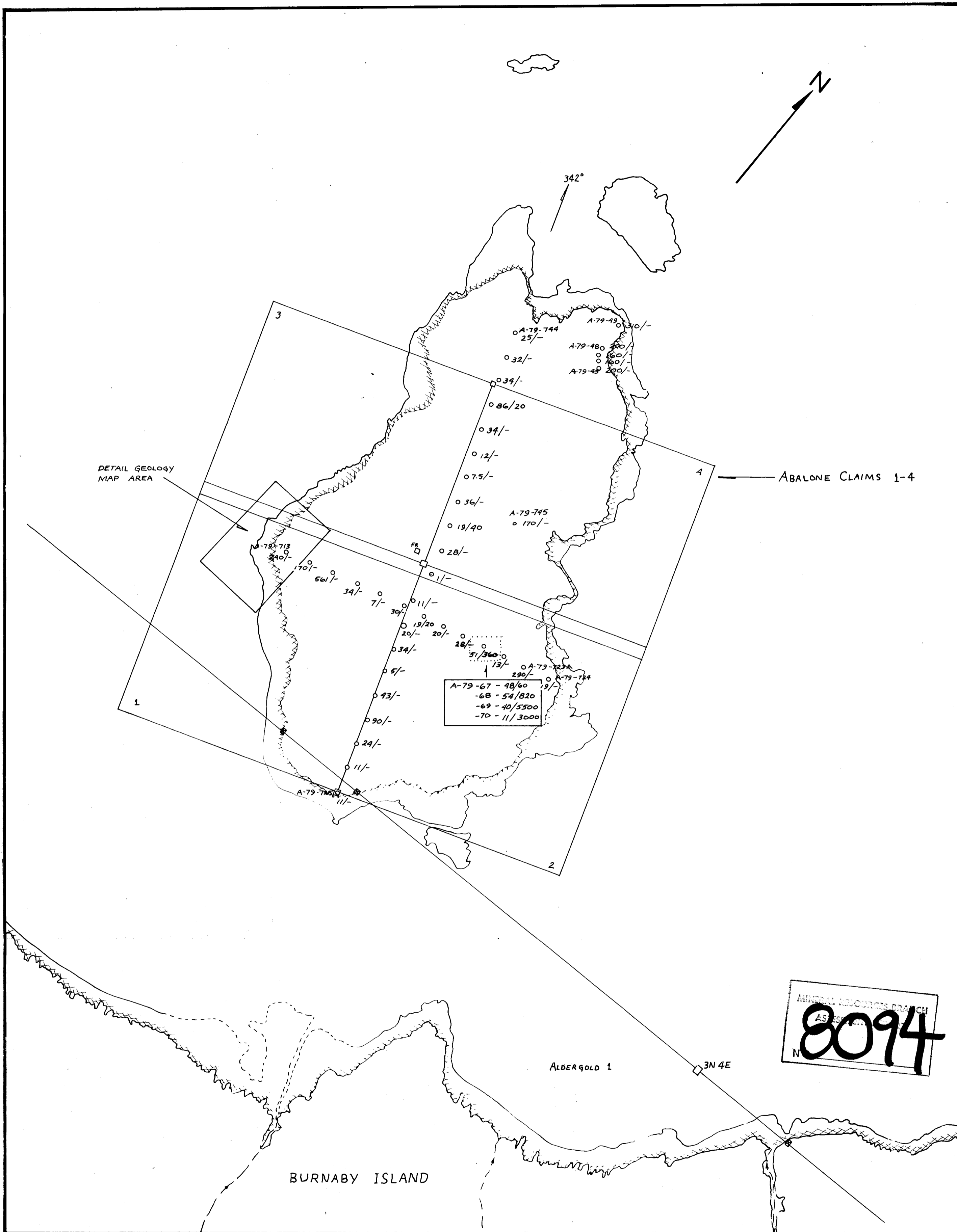
MINERAL RESOURCES BOARD
8094

0 100 200 300 400 500 metres
 SCALE: 1/10,000

LEGEND
 O SOIL SAMPLE
 (-, 20, 2) Au p.p.b., As p.p.m., Sb p.p.m.
 (<10, 20) Au p.p.b., As p.p.m.
 - denotes <10 p.p.b. Au.

April 1980
 Johnson

J. C. STEPHEN EXPLORATIONS LTD.
 B.C. GOLD SYNDICATE
HUXLEY ISLAND
 GEOLOGY AND GEOCHEMICAL RESULTS
 NTS - 1038/6W WORK BY - JS, BA, JC, RM
 DATE - JULY 1979 DRAWN BY - JS
 FIGURE 8



LEGEND

- SOIL SAMPLE As (PPM) / Au (PPB)
- CLAIM POSTS AND LINES
- CLAIM INFORMATION TAGS
- FR □ FRACTIONAL CLAIM POST

SCALE 1:5,000 APPROX
Mts 0 50 100 200 300 Mts

J. C. STEPHEN EXPLORATIONS LTD.

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GEOCHEMISTRY

*April 1980
J. Stephen*

NTS 103 B/6 W

DATE: JULY 1979