

GEOLOGICAL AND GEOCHEMICAL REPORT

ON

WHITE BEAR GROUP

GREENWOOD MINING DIVISION

82E/9W, 49° 38'⁵ 118° 20'

OWNED BY

J. C. STEPHEN

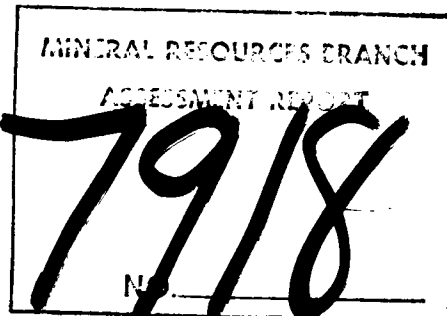
BY

J. T. SHEARER, M.Sc.

FOR

J. C. STEPHEN EXPLORATIONS LIMITED

Field work completed between August 9 and 21, 1979



March 31, 1980

North Vancouver, B. C.



GEOLOGICAL DIVISION, MINERAL RESOURCES BRANCH
SUMMARY OF EXPLORATION AND DEVELOPMENT WORK
PERFORMED IN 1980 ON NONPRODUCING PROPERTIES

PLEASE COMPLETE AND RETURN BY

IF THIS PROPERTY WAS NOT WORKED ON IN 1980, PLEASE INDICATE

Property name(s) IDAHO, UNION

B.C. Mineral Inventory Number(s), if known

Latitude 49° 34' Longitude 118° 22'

Mining Division GREENWOOD NTS 82E/9W

Owner(s): (1) HECLA MINING CO. (2)

Mailing address

If any of the above is not correct, please cross out and enter the correct item.

PLEASE COMPLETE THE FOLLOWING:

Names and numbers of all claims in good standing (when work was done) that form the property: [Example: TAX 1-4, 6-19; FIRE 2 (12 units); PHOENIX (Lot 1706)].

[PLEASE INCLUDE A MAP OF THE PRECEDING TO AID IN CLARIFICATION.]

.... Spring Group - (See attached claim map and list)

Operator(s) (1) ... Pearl Resources Limited (2)
(ie., Company paying for the work)

Mailing address ... c/o R.H. Seraphim Engineering Ltd.
316, 470 Granville St.
..... Vancouver, B.C. V6C 1V5.

Previous work: by whom? when? Union Operated 1927-33, Leased 1940-42

Metals or commodities present: ... Au .. Ag .. Pb .. Zn .. Cu

Capsule paragraph on mineralization and lithology: .. Gold silver mineralization with above
.. association occurs in westerly trending silicified zone that crosses an
.. apparent northerly trending sequence of volcanic, including dacite ..
.. and rhyolite of probable Tertiary age, fragmental and sedimentary rocks.
.. The structure of the deposit is complex and studies are continuing.

WORK DONE IN 1980, INCLUDING:

- Geological Mapping
- Underground
- Geochemical Surveys
- Trenching, Stripping
- Geophysical Surveys
- Road Building
- Drilling
- Linecutting
- Prospecting
- Control, Topographic Surveys

If any of the above types of work were done, please document each in the style of the example below:

*Please use metric units: feet x 0.305 = metres
square feet x 0.093 = square metres
miles x 1.6 = kilometres*

TYPE OF WORK	AMOUNT OF WORK	NAMES OF CLAIMS ACTUALLY WORKED ON	COST
<p><i>EXAMPLES:</i></p> <p>Geological Mapping Diamond Drilling EM-VLF Geochemistry Trenching</p>	<p>Scale = 1:1000 16 BQ holes (5 280 metres) 22 kilometres 822 soil samples analysed for Cu, Mo 5 trenches, 42 metres total length</p>	<p>ACE 1-12 ACE 1, 4, 7, 9, 10, 12 ACE 1-60 ACE 1-60 ACE 7</p>	
<p>TYPE OF WORK</p> <p>Minor Drilling & Bulldozer Trenching Mapping & Geochemical Geochemical</p>	<p>AMOUNT OF WORK</p> <p>675 Meters (5 holes) 79 samples soil Ag, Cu, Pb, Zn. 19 samples Au, Ag soil</p>	<p>NAMES OF CLAIMS ACTUALLY WORKED ON</p> <p>Union Union Jimmy</p>	<p>COST</p> <p>Approx. 75,000.00 Approx. 15,000.00 Total Approx: \$90,000.00</p>

FIELD WORK SUPERVISED BY: T.E. Lisle, P.Eng. R.H. Seraphim, P.Eng.
D. Gaard, Geologist

REFERENCES (published or available reports):
[Examples: Assessment Report 8807, Ace claims; Exploration in B.C., 1975, p. 295; Annual Report, 1965, p. 194]

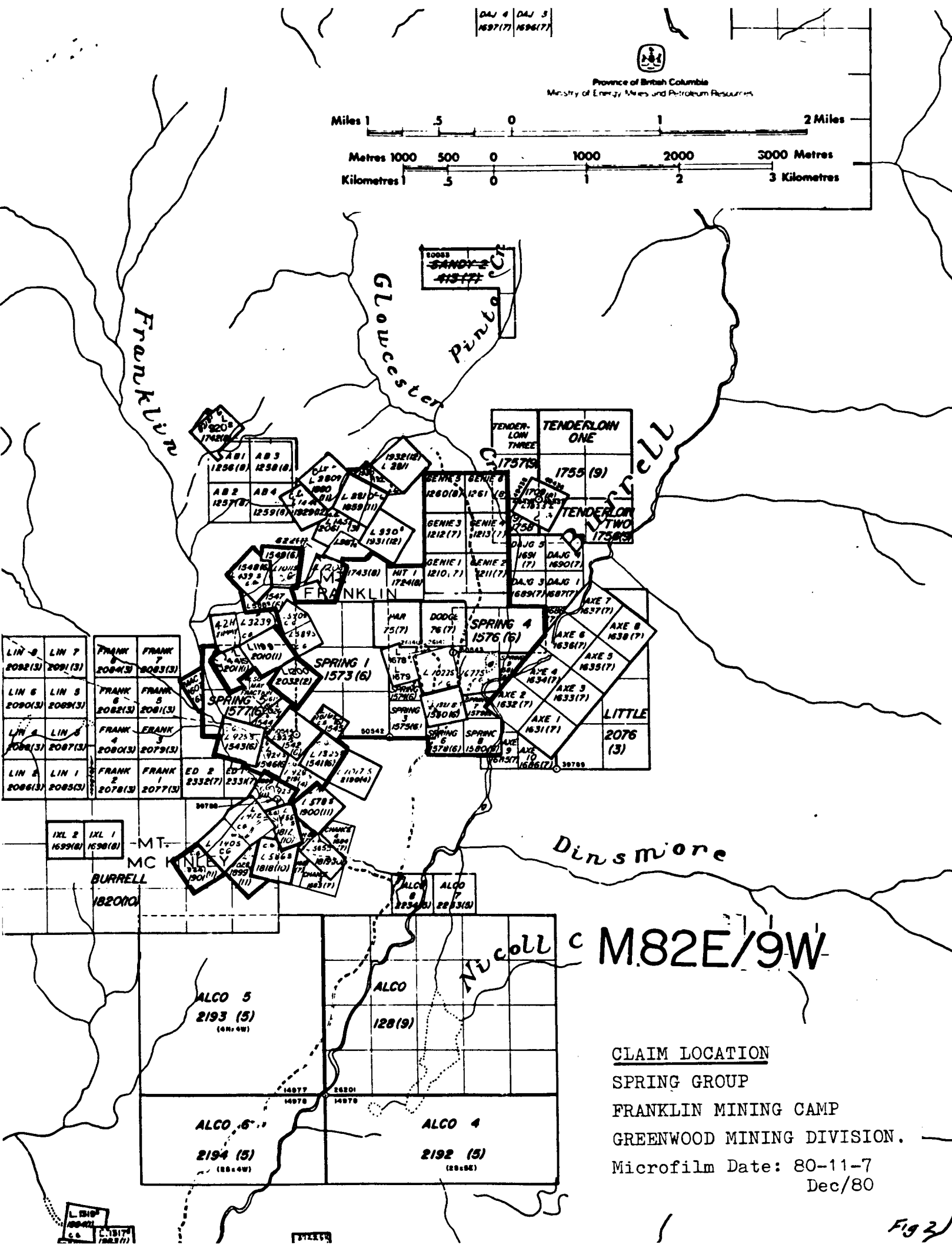
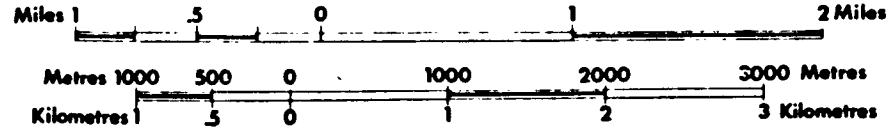
.....
.....
.....
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.....

FORM COMPLETED BY: T.E. Lisle DATE: January 14, 1981

DAJ 4 DAJ 5
1697(7) 1696(7)



Province of British Columbia
Ministry of Energy Mines and Petroleum Resources



Franklin

Gloucester

Pinto Cr

Stell

Dinsmore

coll c M82E/9W

CLAIM LOCATION
SPRING GROUP
FRANKLIN MINING CAMP
GREENWOOD MINING DIVISION.
Microfilm Date: 80-11-7
Dec/80

(II) CLAIMS

The property is comprised of the following claims
in the Greenwood Mining Division.

	<u>UNITS</u>	<u>RECORD</u>	<u>ANNIVERSARY</u>
SPRING 1	6	1573 (6)	June 12, 1982
2	1	1574 (6)	"
3	1	1575 (6)	"
4	2	1576 (6)	"
5	4	1577 (6)	"
6	1	1578 (6)	"
7	1	1579 (6)	"
8	1	1580 (6)	"
9	1	1581 (6)	"
ECLIPSE	R.C.G.	1543 (6)	June 6, 1982
ATHELSTAN	"	1541 (6)	"
AX	"	1542 (6)	"
ALTO FR.	"	1544 (6)	"
EGANVILLE	"	1545 (6)	"
YELLOW JACKET	"	1546 (6)	June 6, 1981
VIOLET FR.	"	1547 (6)	"
HENNEKINN	"	1548 (6)	"
VERDE	"	1549 (6)	"
EVENING STAR	"	1550 (6)	"
MAC NO. 1	"	1607 (6)	, 1981
MAY FR.	"	1611 (6)	, 1981
UNION	"	1022	
UNION FR.	"	1678	
IDAHO	"	1679	
PAPER DOLLAR	"	1677	
HOMESTAKE	"	589S	
DEAD WOOD	"	590S	
PAR	"	75 (7)	June 23, 1981
DODGE	"	76 (7)	"
HIT	"	1724 (8)	Aug. 16, 1981
GENIE 1-4	"	1210-1213 (7)	July 26, 1981
GENIE 5-6	"	1260-1261 (8)	"
ALPHA	"	1743 (8)	Aug. 17, 1982
Jimmy		42 H	

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SUMMARY

- (1) The White Bear Group consists of Tenderloin One to Four, 9 units, and White Bear reverted Crown grant mineral claim located in the Franklin camp approximately 64 km north of Grand Forks.
- (2) A quartz breccia zone hosted by Kettle River Formation arkose immediately above the old White Bear workings was found to contain anomalous gold values.
- (3) A total of 122 soil and five rock samples were collected on the claims. Geological mapping and prospecting in a reconnaissance fashion was completed over most of the property.
- (4) Trenching is recommended to expose the breccia zone for detail sampling. More geological mapping and soil sampling is needed to evaluate the significance of alteration zones noted on the eastern portions of Tenderloin One. Three years assessment is applied to the Tenderloin Claims (\$2,700) and five years to White Bear (\$700) for a total of \$3,400 credit.

INTRODUCTION

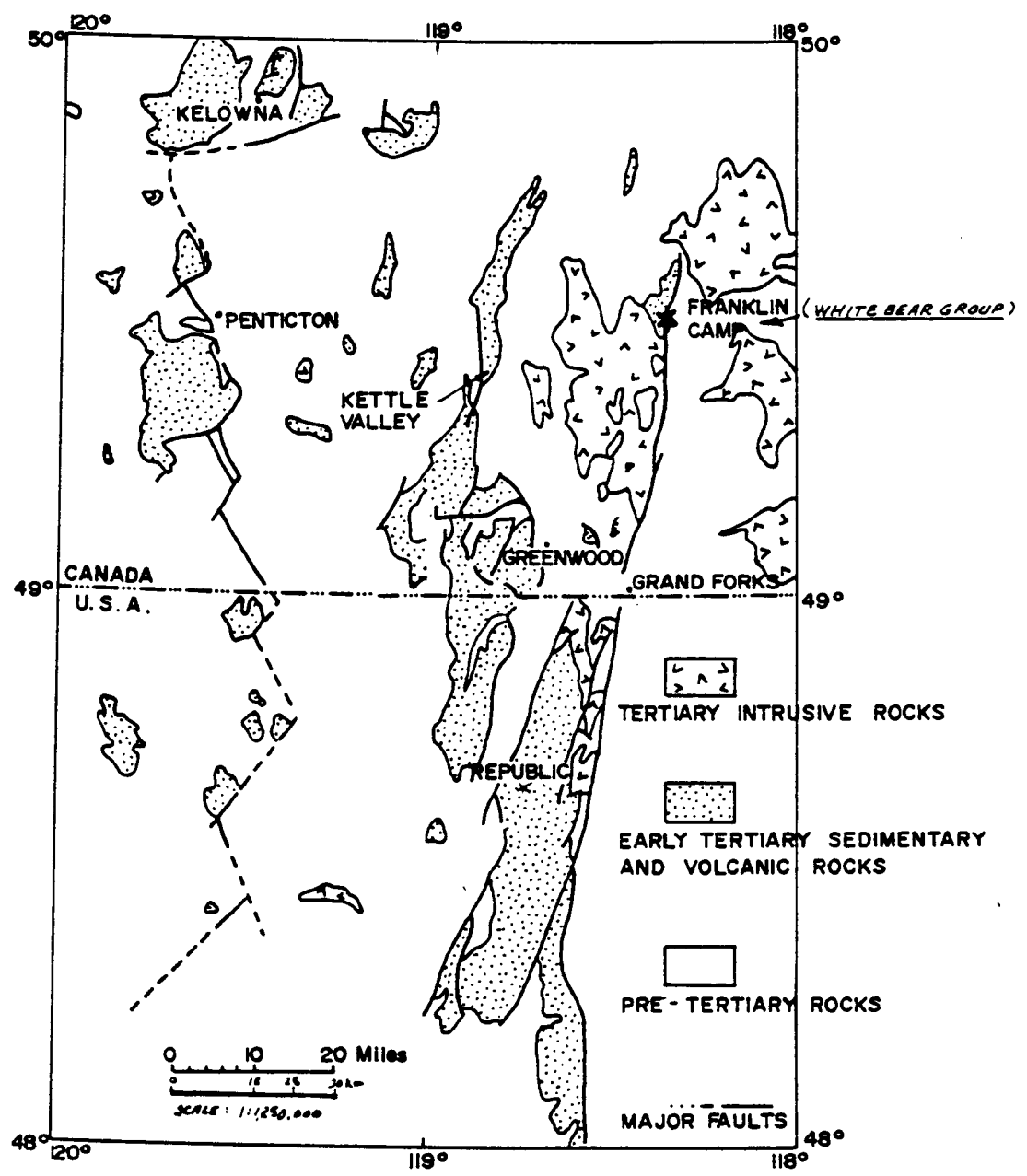
The White Bear claim was staked on September 19, 1899 by W. H. White and H. Watlin. Several large pits, open cuts and shallows shafts expose a rusty pyritic zone in Franklin Group greenstones. Apparently the claim was allowed to lapse many years ago. Former owners include Northwest Ventures Ltd. who optioned many Franklin Camp reverted Crown grants to the Huestis Interests in 1964 when most of the claims were consolidated under one operator for the first time. Unfortunately only work in one year was completed by Huestis. In 1969 the claim was obtained by L. R. McNair and by P. Henry in 1976.

The first claims to be located in the Franklin Camp were the Banner and McKinley in 1896. In 1906 the Union claim was recorded. During the period 1913-20 the Union mine produced 3,535 tons of highgrade silver-gold ore. The period of greatest activity was from 1930 to 1935 when the total production from the Union mine plus 500 tons from the Homestake, amounted to 168,400 tons of ore, from which 55,097 oz. of gold and 1,337,962 oz. of silver were recovered (Hedley and Watson 1945). The Union deposit is an irregular, westerly striking quartz vein following a brecciated zone in highly silicified Paleozoic greenstone. A great deal of attention was drawn to the Franklin Camp in 1930 by newspaper publicity on some spectacular gold-quartz discoveries.

In more recent times, the copper potential of the area has been tested. Newmont Mining Corporation during 1969 uncovered 70 feet of copper mineralization in a bulldozer trench grading 0.55% Cu on the IXL claim. Weak chalcopyrite-molybdenite mineralization contained within a stockwork of quartz fracture fillings hosted by Nelson granodiorite is known south of Franklin Creek. An interesting platinum occurrence has been explored on the Maple Leaf claim where the 1932 Minister of Mines Annual Report states on page A121:

"In former years two car-loads of ore were shipped from an open-cut on the Maple Leaf near the contact of the sedimentaries and the pyroxenite intrusives, containing 0.42 oz. in platinum to the ton."

Work in the Franklin Group is greatly facilitated by an extremely accurate regional geology map produced in 1913 by C. W. Drysdale. The objective of the 1979 program was to delineate gold bearing zones within the Kettle River Formation. Rock and soil sample results have indicated anomalous areas that require follow-up work. A statement of costs is tabulated in Appendix II with three years assessment applied to all claims plus two additional years on the White Bear claim for a total \$3,400 credit.



DISTRIBUTION OF EARLY TERTIARY ROCKS IN PARTS OF SOUTH-CENTRAL BRITISH COLUMBIA AND NORTHERN WASHINGTON FROM MONGER (1968)

J. C. STEPHEN EXPLORATIONS LTD
B. C. GOLD SYNDICATE
LOCATION MAP WHITE BEAR GROUP GREENWOOD M.D.
FIGURE 1

PROPERTY - List of Claims

The following table shows the record data concerning the White Bear Group:

TABLE I

LIST OF CLAIMS

<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>ACREAGE & LOT NO.</u>
White Bear	1	1709(8)	-	August 8/79	August 8/85	L10105,51.65 ac
Tenderloin One	4	1755(9)	August 10	September 7/79	September 7/83	
Tenderloin Two	2	1756(9)	August 10	September 7/79	September 7/83	
Tenderloin Three	2	1757(9)	August 11	September 7/79	September 7/83	
Tenderloin	1	1758(9)	August 16	September 7/79	September 7/83	

Field work was conducted between August 9 and 21, 1979. The claims are illustrated in Figure 2.

LOCATION AND ACCESS

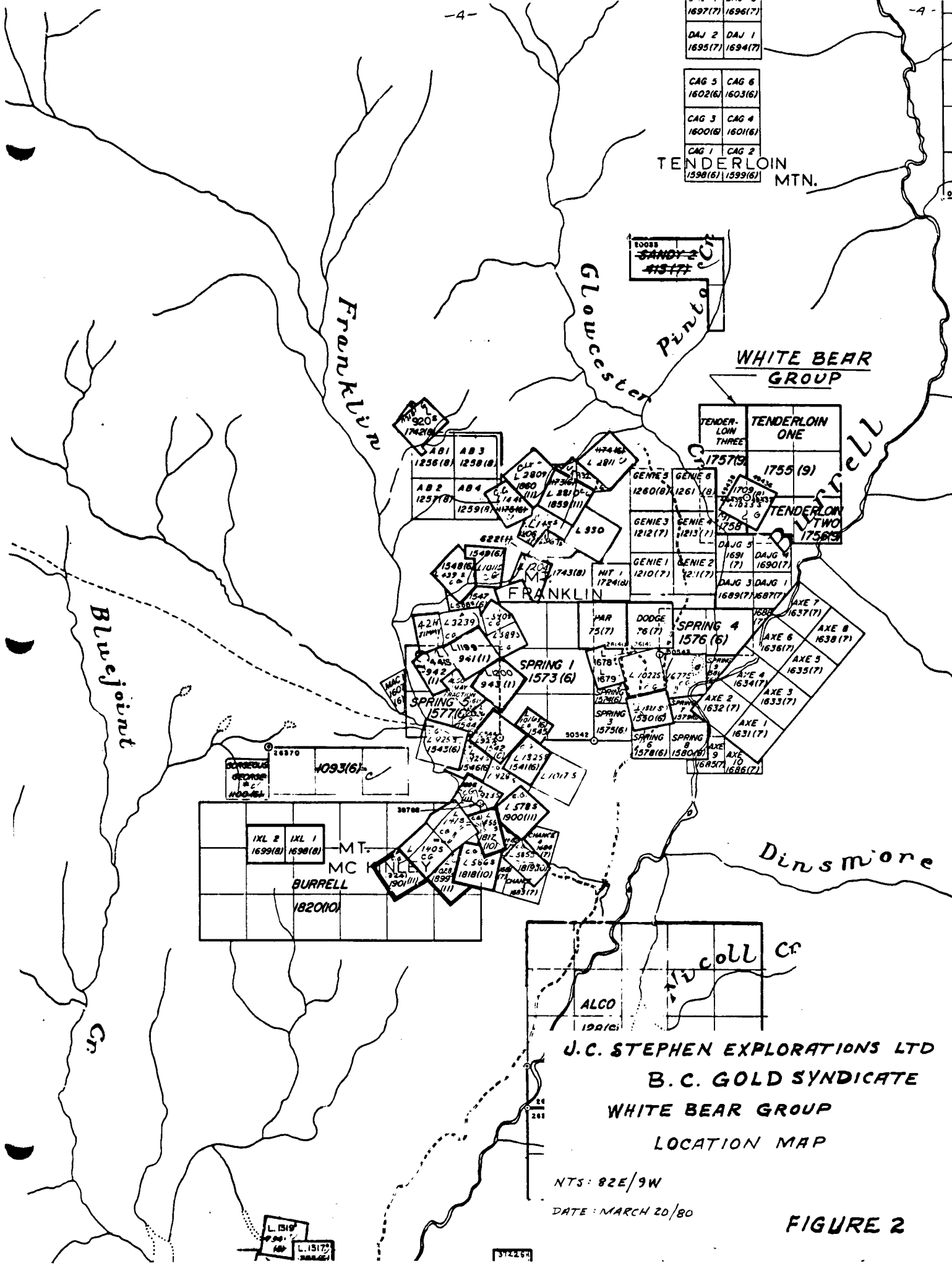
Franklin Camp is located 64 km north of Grand Forks along the "North Fork" road as shown in Figures 1 and 2. A well used logging road extends up Burrell Creek where the old turn off to the Union Mine is just before the 25 km sign. A shallow ford can be made across Burrell Creek. Alternatively a narrow mining road follows the west side of Burrell Creek directly to the Franklin Camp. The area is characterized by open forest of Tamarack and Pine. Topography is largely controlled by geological factors, for example the steep cliffs on the east boundary of Tenderloin One composed of basaltic tuffs and flows.

A road constructed in 1964 extends past the White Bear Claim but is overgrown past Gloucester Creek.

1697(7)	1696(7)
DAJ 2	DAJ 1
1695(7)	1694(7)

CAG 5	CAG 6
1602(6)	1603(6)
CAG 3	CAG 4
1600(6)	1601(6)
CAG 1	CAG 2
1598(6)	1599(6)

TENDERLOIN MTN.



WHITE BEAR GROUP

TENDERLOIN THREE	TENDERLOIN ONE
1757(9)	1755(9)
TENDERLOIN TWO	1756(9)

AB 1	AB 3
1256(8)	1258(8)
AB 2	AB 4
1257(8)	1259(8)

FRANKLIN	1743(8)
FRANKLIN	1724(8)

SPRING 1	1573(6)
SPRING 2	1574(6)
SPRING 3	1575(6)
SPRING 4	1576(6)

AXE 7	1637(7)
AXE 8	1638(7)
AXE 5	1635(7)
AXE 6	1636(7)
AXE 4	1634(7)
AXE 3	1633(7)
AXE 2	1632(7)
AXE 1	1631(7)
AXE 9	1639(7)
AXE 10	1638(7)

IXL 2	IXL 1
1699(8)	1698(8)
MT. MC INLEY	1820(10)

ALCO	1901(6)
coll cr	

J.C. STEPHEN EXPLORATIONS LTD
B.C. GOLD SYNDICATE
WHITE BEAR GROUP
LOCATION MAP

NTS: 82E/9W
 DATE: MARCH 20/80

FIGURE 2

FIELD PROCEDURES

The claim lines were run using a Silva compass and roughly measured for slope corrections by a Topolite Belt Chain calibrated in meters for which the manufacturer quotes a 0.1% accuracy. Claim lines were marked by blazes and blue flagging.

Soil lines were concentrated near the legal post using the old White Bear workings as a reference point. Samples were taken at 10m intervals on Lines 30m apart on the White Bear detail grid and at 50m stations along one line in Tenderloin One. A grubhoe was used to sample the B horizon which averaged about 15cm deep. Standard soil data forms were completed in the field including items such as; sample number, location, depth, horizon, colour, particle size, % organics, Ph, slope, vegetation and additional remarks. Samples were put in a waterproof kraft bag and sent to Chemex Labs Ltd., 212 Brooksbank Avenue, North Vancouver. Analytical Procedures are outlined in Appendix IV.

Considerable time was spent searching for the old claim posts as indicated on the Crown grant survey notes. An old charred post was found although it is not clear whether this is actually a White Bear post or one from a nearby claim. All claim posts of adjoining claims were carefully measured prior to locating Tenderloin One to Four.

GEOLOGY

REGIONAL GEOLOGY

Geology of 82E Map Sheet has been compiled by Little (1957). However, C. W. Drysdale's mapping of 36.74 square Km in 1913 is much more useful. Drysdale (1915) produced a comprehensive treatment of all aspects concerning the Franklin Camp. His map (Map 97A) is extremely accurate at all places checked on the White Bear Group is shown as Figure 3.

The area is underlain mainly by Paleozoic Franklin Group greenstone, quartzite and minor limestone which has been intruded on all sides by granodiorite of the Jurassic Nelson Intrusions. Within the Franklin Group a variety of Middle

to Late Tertiary plutonic rocks are exposed, ranging from monzonite and porphyritic syenite to shonkinite pyroxenite and augite syenite. Eocene Kettle River Formation coarse clastics unconformably overlie the Franklin Group. The highest ridges are capped by Miocene alkalic basalt, basaltic tuff and minor rhyolite to trachytic flows.

The relationship between the Late Tertiary intrusive and extrusive rocks is well illustrated by Drysdale (1915) in a hypothetical restoration of Tenderloin volcanic vent on Page 87. Kettle River Formation deposition was contemporaneous with explosive rhyolitic vulcanism as indicated by considerable evenly bedded, water laid acidic tuff near the base.

Several types of mineralization are present in the Franklin Camp. Production figures for Union and Homestake have been mentioned in the introduction. Early work focused on spectacular skarn zones confined to a narrow band of limestone. The McKinley Mine is the most developed property of this type and in 1948, 40 tons of sorted ore was shipped. A number of prospects have been found along the contacts of a northwesterly trending body of alkalic pyroxenite containing chalcopyrite-bornite as segregations with platinum values.

LOCAL GEOLOGY

Geological mapping and prospecting was conducted over most of the property on flagged lines mainly 100 apart measured with a Hip Chain, as shown on Figure 4 (in pocket). Lithological contacts correspond closely to those shown by Drysdale (1915).

An important aspect of work in 1979 was the definition of internal stratigraphy of the Kettle River Formation. Essentially, a 30 to 35m thick section of extremely recessive arkose and pebbly arkose rest directly on greenstone. Much of the natural outcrop of this unit is actually part of the gold bearing silicified zone. Detail geological mapping around the White Bear workings is shown on Figure 5. Thin sections F 109 and 56602 are specimens of the arkose and its silicified equivalent. The unit is very immature and is characterized by angular framework grains. Float from the silicified zone can be traced over a strike length of 120m.

The arkose unit is overlain by a thick, cliff forming, coarse polymictic conglomerate. No bedding is discernible in the conglomerate, however near the top a silty interbed was measured at 026°/10°E.

In the vicinity of 200N + 800E on Tenderloin One a fluorite bearing pebbly acid tuff was found. This appears to be a local basal facies correlative to the arkose member.

Elsewhere on the property, granodiorite intrudes greenstone on Tenderloin Three. Much of Tenderloin Two and Four are underlain by a medium crystalline monzonite related to the proposed Tenderloin volcanic vent. Pyroxenite occurs just south of the claims. Upper slopes of Tenderloin Mountain are capped by alkalic basalt flows with minor intercalated pyroclastic members in the lower portions.

Fill in geological mapping is needed between existing lines with accurate topographic control. Prospecting should concentrate on the arkose unit to delineate the silicified zone and also evaluate the fluorite bearing units.

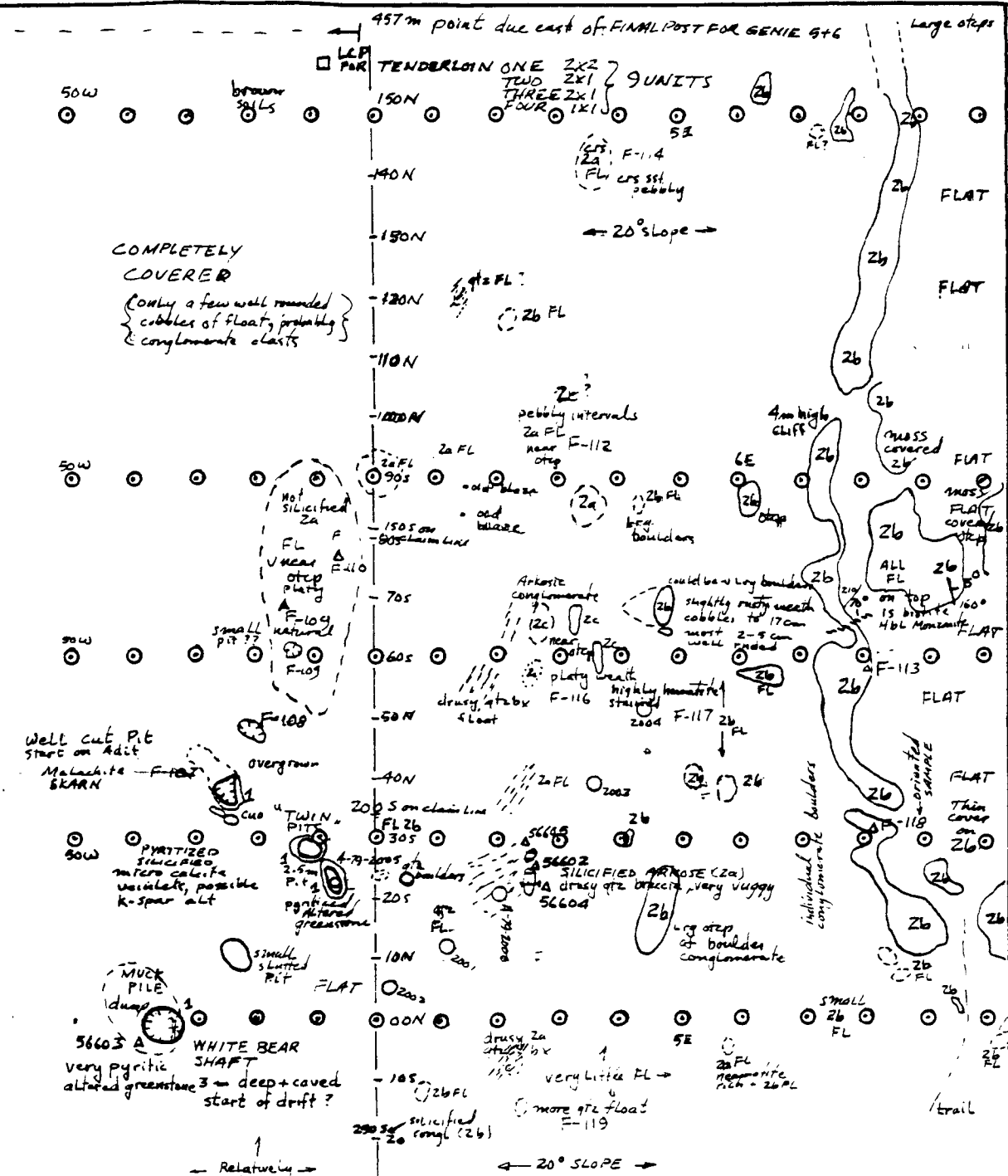
GEOCHEMISTRY

Limited rock and soil sampling was completed on the White Bear Group in 1979. Several rocks, 56602, 56604, 56605, taken at the silicified breccia zone are slightly anomalous giving an average 130 ppb Au. No gold was obtained from pyritic greenstone in the old White Bear shaft, sample number 56603.

Detail soils over the arkosic unit, shown in Figure 6, gave a very low gold response. Most values are 10ppb Au with the exception of 20ppb in four samples. No significance is attached to any of the gold results since they are well below the reproductibility level of Atomic Absorption methods. Arsenic values are also low, ranging from 10ppm to 25ppm with an average of 5.5ppm and a sample standard deviation of 2.7ppm. Antimony results follow arsenic.

One line along 200N is illustrated in Figure 7 where a 60ppb soil occurs near a large outcrop of fluorite bearing tuff. More soil sampling is warranted to evaluate this zone.

NORTH



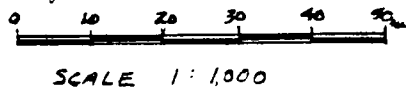
LEGEND

- 2
- 1

KETTLE VALLEY FORMATION

- Za - ARKOSE, dominately sub-angular, Fp, Qtz variable, resistive/wealth, platy float
- Zb - CONGLOMERATE, cobble-boulder congl, well rounded clasts, blocky weath, very RESISTANT WEATH.
- Zc - ARKOSIC CONGLOMERATE - well rounded clasts, resistive weath, floating weathers in large blocks (ACID TUFF)
- Za GREENSTONE, silicified, (ALTERED) abundant development of Actinolite + Fe₂O₃ ap, CaCO₃

- DRUSY QUARTZ BRECCIA OUTCROP; FLOAT - 70s
- FL FLOAT
- F-119 ROCK SAMPLE SPECIMEN FOR PETROGRAPHY
- ○ outcrop, float
- 56603 A - ROCK GEOCHEM SAMPLE
- A-79-2002 ○ - SOIL SAMPLE LOCATION (REFER TO SEPARATE MAP FOR RESULTS)



CHAIN + BRUNTON SKETCH
DETAIL GEOLOGY
WHITE BEAR CLAIM
 NTS 82E/9W
 WORK BY - JS DATE - AUG 11/79
 DRAWN BY - JS FIGURE 5

April 1980
 Shearer

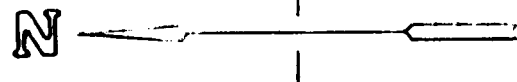
Eocene
 Paleozoic

	150N.		90N.		30N.		00N,S		30S
100E.	○ (-, 10, 0.2)		○ (10, 2.0, 0.1)	○ (10, 4)	○ (-, 6.0, 0.1)		○ (-, 11, 0.1)		○ (-, 2.0)
90E.	○ (-, 10, 0.4)		○ (-, 6.0, 0.6)	○ (-, 2.0)	○ (-, 6.0, 0.6)		○ (-, 6.0, 0.6)		○ (-, 5.5)
80E.	○ (-, 4.0, 0.4)		○ (-, 5.5, 0.2)	○ (10, 4.0)	○ (10, 6.0, 0.6)		○ (-, 4.5, 0.2)		○ (-, 6.0)
70E.	○ (-, 4.0, 0.2)		○ (20, 7.0, 0.2)	○ (-, 3.0)	○ (-, 11, 0.4)		○ (-, 7.0, 0.2)		○ (-, 4.5)
60E.	○ (-, 7.0, 0.4)		○ (-, 11, 0.4)	○ (-, 3.5)	○ (-, 4.0, 0.2)		○ (-, 8.0, 0.2)		○ (-, 4.0)
50E.	○ (-, 11, 0.2)		○ (-, 4.5, 0.4)	○ (20, 1.0)	○ (-, 9.0, 0.1)		○ (-, 5.0, 0.2)		○ (-, 4.0)
40E.	○ (-, 4.0, 0.2)		○ (-, 2.0, 0.2)	○ (-, 2.0)	○ (20, 5.0, 0.1)		○ (-, 5.0, 0.2)		○ (-, 4.0)
30E.	○ (-, 7.0, 0.6)		○ (-, 4.0, 0.4)	○ (-, 7.0)	○ (-, 6.0, 0.2)		○ (10, 5.0, 0.2)		○ (10, 2.5)
20E.	○ (-, 4.0, 0.2)		○ (10, 4.5, 0.1)	○ (-, 4.0)	○ (-, 12, 0.2)		○ (-, 6.5, 0.2)		○ (-, 2.0)
10E.	○ (-, 7.0, 0.4)		○ (-, 5.0, 0.2)	○ (-, 4.0)	○ (-, 5.0, 0.1)		○ (-, 9.0, 0.2)		○ (20, 3.0)
00E,W	○ (-, 4.0, 0.2)		○ (-, 5.0, 0.2)	○ (-, 2.0)	○ (-, 6.5, 0.1)		○ (-, 7.0, 0.1)		○ (-, 4.0)
LCP									
10W.	○ (-, 2.0)		○ (-, 3.0)	○ (-, 4.0)	○ (-, 1.5)		○ (-, 9.0, 0.2)		○ (-, 6.0)
20W.	○ (-, 4.0)		○ (-, 3.5)	○ (-, 3.5)	○ (10, 10)		○ (-, 11, 0.1)		○ (-, 3.5)
30W.	○ (-, 5.5)		○ (-, 3.5)	○ (-, 4.0)	○ (-, 2.5)		○ (-, 6.5, 0.1)		○ (-, 4.0)
40W.	○ (-, 3.0)		○ (-, 4.0)	○ (-, 4.5)	○ (-, 6.5)		○ NO SAMPLE		○ (20, 4.0)
50W.	○ (-, 3.5)		○ (-, 4.5)	○ (-, 4.0)	○ (-, 4.0)		○ NO SAMPLE		○ (-, 3.0)

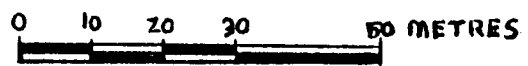
Qtz
Float
train

Qtz
Breccia
zone

TENDER LOIN ONE TO FOUR



SCALE 18/000



LEGEND
 ○ SOIL SAMPLE
 (-, 20, 2.0) Au ppb; As ppm; Sb ppm. where
 (-, 10) Au ppb; As ppm.

April 1980
 Shearer

J.C. STEPHEN EXPL. LTD.
 BC. GOLD SYNDICATE
 WHITE BEAR CLAIMS - 'W' GRID
 SOIL GEOCHEM.
 DATE: JULY 1979 WORK BY: G. MARCHAK
 NTS: 82E/9W DRAWN BY: G. MARCHAK

FIGURE 6

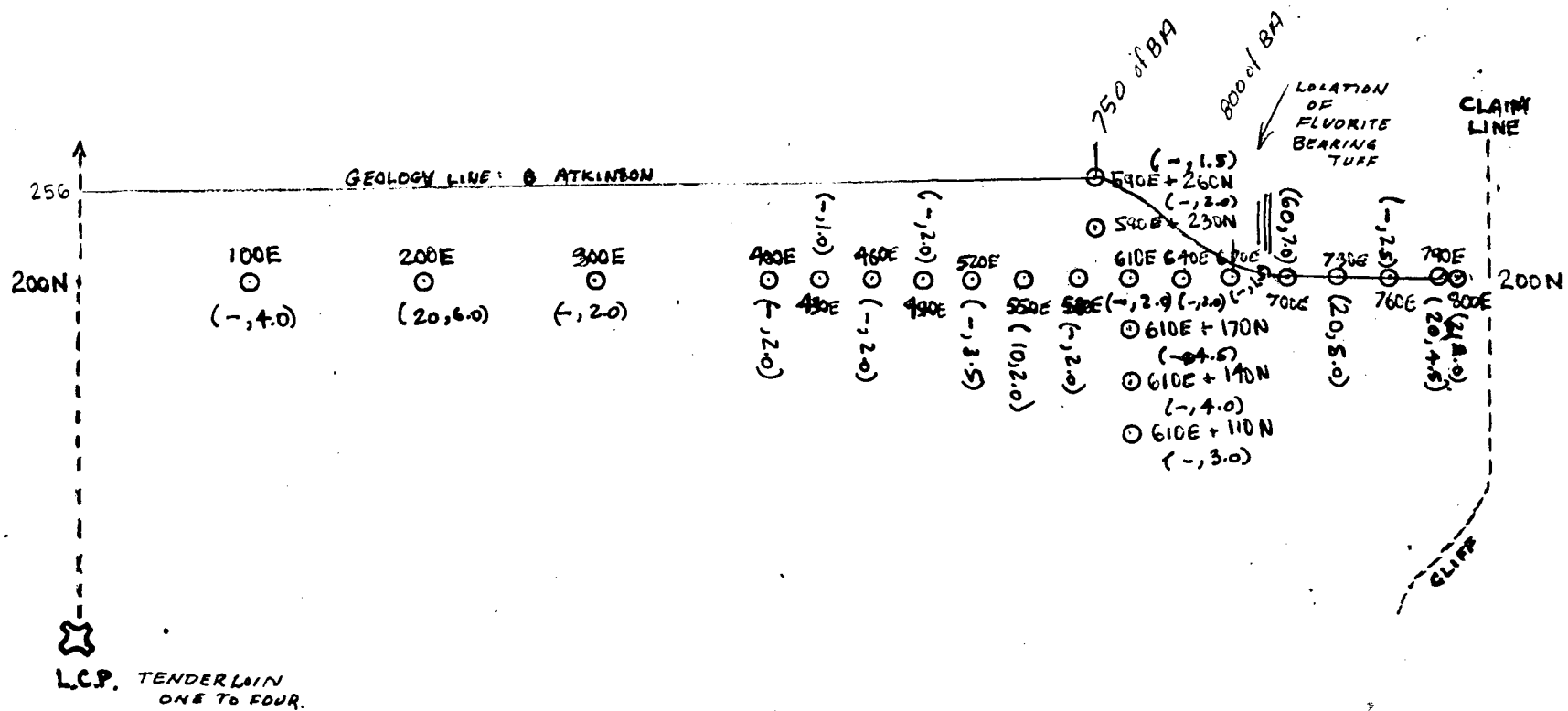
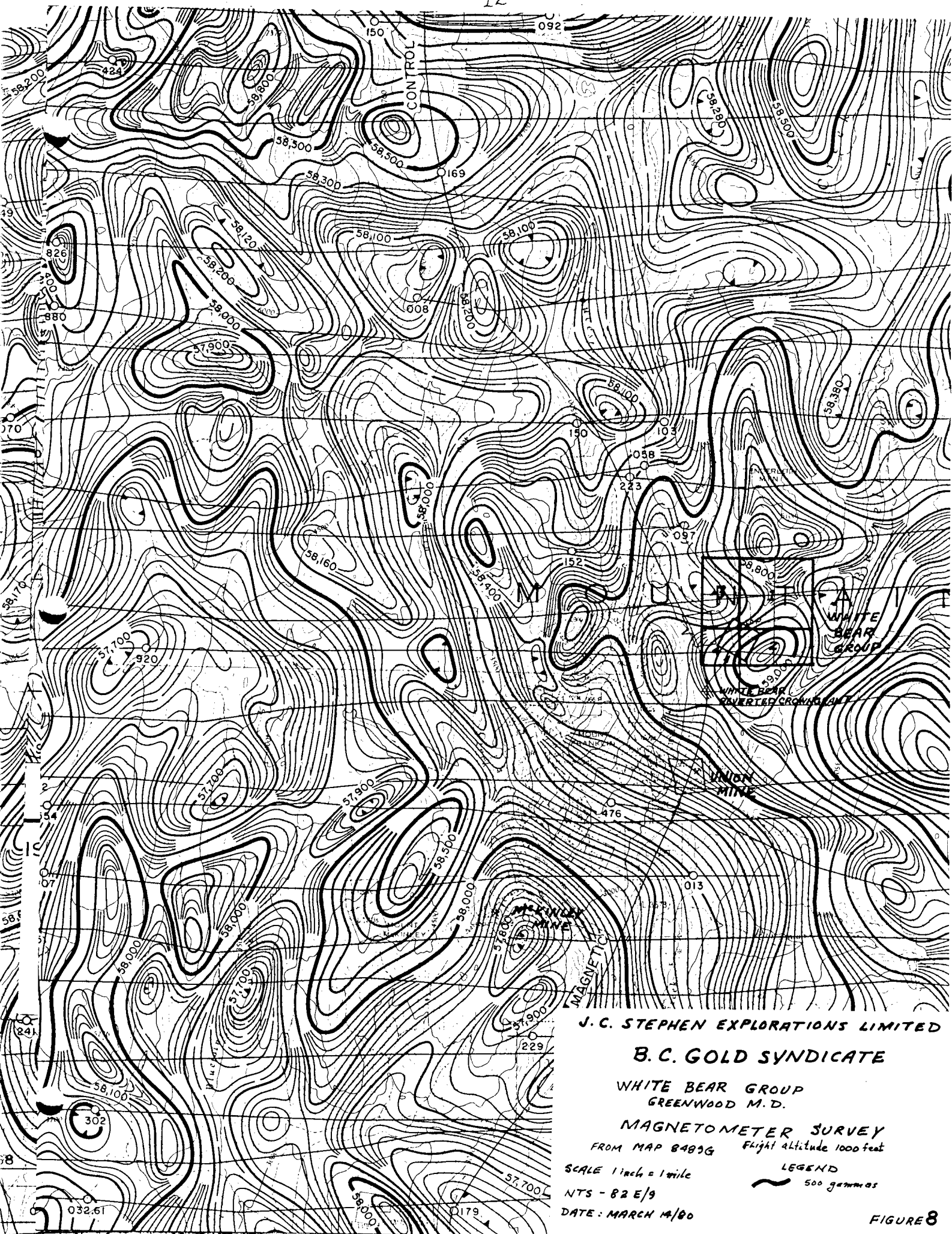


FIGURE 7

J. C. STEPHEN EXPLORATIONS LTD.	
B. C. GOLD SYNDICATE	
TENDERLOIN CLAIMS	
SOIL GEOCHEM	
FRANKLIN "B" GRID	
DATE: JULY 19, 1979	WORK, DRAWING
NTS: 82E/19W	G. MARCHAK
FIGURE 7	



J. C. STEPHEN EXPLORATIONS LIMITED
 B. C. GOLD SYNDICATE
 WHITE BEAR GROUP
 GREENWOOD M. D.
 MAGNETOMETER SURVEY
 FROM MAP 8489G Flight altitude 1000 feet
 SCALE 1 inch = 1 mile
 NTS - 82 E/9
 DATE: MARCH 14/80

LEGEND
 ~~~~~ 500 gammas

FIGURE 8

Typical soil profiles on the slopes of Tenderloin Mountain often have a thin white to light grey horizon a few cm beneath the organic layer. The mobility of arsenic may be inhibited by this horizon and soil profiles should be collected.

#### AIRBORNE MAGNETOMETER

The Franklin Camp area was surveyed by a helicopter borne magnetometer in 1972 with a flight altitude 1000 feet above ground level. The results were released on Map 8489G, Burrel Creek, on a scale of 1:63,360 and a portion of this map is shown as Figure 8. A distinct anomaly is present on the south edge of the White Bear Group attaining a peak of 59,160 gammas. This corresponds closely with the position of Drysdale's (1915) proposed Tenderloin vent which is now represented by argite syenite surrounded by monzonite and pyroxenite. A somewhat similar situation occurs northwest of Franklin Mountain. The Paleozoic Franklin Group exhibits a relatively smooth magnetic response as demonstrated between the Union mine and McKinley claims. Kettle River Formation cover also has a flat magnetic expression and appears to dampen out any anomalous effects from unerlying rocks.

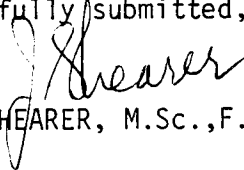
#### CONCLUSIONS AND RECOMMENDATIONS

A new, weakly anomalous type of gold occurrence in a previously untested and largely ignored host lithology has been found in the old Franklin Camp. Soil response is characteristically weak with few high values.

The White Bear drusy, quartz breccia zone should be evaluated by additional geological mapping, hand trenching and soil sampling. More work is required on the fluorite bearing tuff and associated anomalous soil sampling.

Three years assessment is applied to each claim and a further two years on the White Bear Crown grant for a total of \$3,400 credit as outlined 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

WHITE BEAR GROUP

LIST OF PERSONNEL AND DATES WORKED

| <u>NAME</u>   | <u>OCCUPATION</u>                                                     | <u>ADDRESS</u>                                  | <u>DATE WORKED<br/>ON CLAIMS</u> |
|---------------|-----------------------------------------------------------------------|-------------------------------------------------|----------------------------------|
| J. T. Shearer | Geologist                                                             | R. R. #1 Mason Avenue,<br>Port Coquitlam, B. C. | August 9 to 21, 1979<br>8 days   |
| B. Atkinson   | Geologist<br>B.Sc., Geology McMaster Univ. 1977, 3 summers experience | R. R. #1 Bright<br>Ontario                      | August 9 to 21, 1979<br>8 days   |
| J. D. Clarke  | Prospector<br>4 seasons<br>experience                                 | Garibaldi Highlands<br>Squamish, B. C.          | August 9 to 21, 1979<br>5 days   |
| G. Marchak    | Soil Sampler<br>1 summer<br>experience                                | 4455 West First Avenue<br>Vancouver, B. C.      | August 9 to 21, 1979<br>6 days   |

APPENDIX II

STATEMENT OF COSTS

WHITE BEAR GROUP

FIELD TIME AUGUST 9, 10, 11, 12, 13,  
14, 15, 16, 17, 18, 19, 20,  
21, 1979



WHITE BEAR GROUP

STATEMENT OF COSTS

FIELD TIME AUGUST 8, 1979 TO AUGUST 16, 1979

WAGES & FRINGE BENEFITS:

|               |                          |               |
|---------------|--------------------------|---------------|
| J. T. Shearer | 8 days @ \$81.72 per day | \$ 653.76     |
| B. Atkinson   | 8 days @ \$65.29 per day | 522.32        |
| J. D. Clarke  | 5 days @ \$60.26 per day | 301.30        |
| G. Marchak    | 6 days @ \$50.22 per day | <u>301.32</u> |
| Total Wages   |                          | \$1,778.70    |

CAMP SUPPLIES & FOOD:

|                               |        |
|-------------------------------|--------|
| 27 man-days @ \$10.50 per day | 283.50 |
|-------------------------------|--------|

GEOCHEMISTRY:

|                                                                   |               |
|-------------------------------------------------------------------|---------------|
| Soil Samples: 122 @ \$6.25 + \$.45 = \$6.70 for Au, As            | 817.40        |
| Silt Samples: 2 @ \$9.25 + \$.45 = \$9.70                         | 19.40         |
| Rock Samples: 5 samples for Au, As, Sb @ \$9.25 + \$.45 = \$11.00 | 55.00         |
| Sample shipping by ubs                                            | 25.00         |
| Petrology - 6 rocks thin sections, Vancouver Petrographics        | 34.50         |
| Reproduction and Drafting                                         | 175.00        |
| Report Preparation, typing                                        | <u>400.00</u> |
|                                                                   | \$3,588.50    |

Assessment Credit:

|                                            |  |
|--------------------------------------------|--|
| 3 years for Tender Loin 1-4 (\$2,700)      |  |
| 5 years for White Bear Crown Grant (\$700) |  |
| = \$3,400 total                            |  |

188.50 to PAC Account B. C. Gold Syndicate  
(J. C. Stephen Exploration Ltd.)

APPENDIX III

STATEMENT OF QUALIFICATIONS

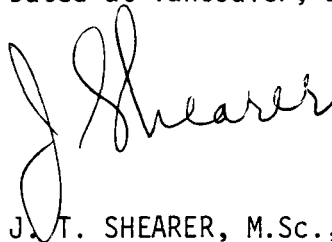
J. T. SHEARER, M.Sc., F.G.A.C.

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 the White Bear Group between August 9, and August 21, 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 PROCEDURES

CHEMEX LAB LTD.

212 Brooksbank Avenue  
North Vancouver, B. C.  
V7J 2C1

Hart Bickle - Chief Geochemist

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<sup>+2</sup> state and the Sb complexed with I<sup>-</sup>. 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 NaBH<sub>4</sub> 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<sup>-</sup>, 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  
WHITE BEAR GROUP  
BY  
J. SHEARER

J.C.STEPHEN EXPLORATIONS LTD.

B.C. GOLD SYNDICATE

**PETROGRAPHIC ANALYSIS**

Sample No. - F-118 (a) + (b) - Oriented Sample

Date March 1/80 Sample Location F-118, White Bear, detail grid

Submitted by: J. S. Petrographer J. Shearer

| <u>Probable<br/>Original<br/>Mode</u> | <u>Present<br/>Mode</u> | <u>Notes</u>                                  |
|---------------------------------------|-------------------------|-----------------------------------------------|
| 50 % Quartz                           | %                       | <u>very angular</u>                           |
| 5 % plag                              | %                       | <u></u>                                       |
| 25 % Lithic Grains                    | %                       | <u></u>                                       |
| 20 % Matrix                           | %                       | <u>mainly quartz, some fine lithic grains</u> |
| %                                     | %                       | <u></u>                                       |
| %                                     | %                       | <u></u>                                       |
| %                                     | %                       | <u></u>                                       |

Rock Name Siltstone Original Rock Lithic siltstone

Alteration: Siltstone interbed in conglomerate. oriented 165/5°NE

Hand Specimen - siltstone 3cm thick resting on pebble conglomerate, silty,  
porous.

MICRO - angular quartz grains, most grains are rock frags.  
lithic, some Fp XLS (feldspathic). Pebble layer - all lithic grams well  
rounded.

Reference: 1:1000 detail geology map, White Bear

**PETROGRAPHIC ANALYSIS**

Sample No. F109

Date March 1/80 Sample Location F-109 White Bear - detail grid

Submitted by: J.S. Petrographer J. Shearer

| <u>Probable<br/>Original<br/>Mode</u> | <u>Present<br/>Mode</u> | <u>Notes</u>                      |
|---------------------------------------|-------------------------|-----------------------------------|
| 15 % Quartz                           | %                       | <u>very angular</u>               |
| 35 % K-spar                           | %                       | <u></u>                           |
| 20 % Plag                             | %                       | <u>some sericit e alt.</u>        |
| 10 % Rock frags.                      | %                       | <u>composite grains + "chert"</u> |
| 20-30 % matrix                        | %                       | <u></u>                           |
| tr % biotite                          | %                       | <u></u>                           |
| 2 % opaques                           | %                       | <u>rugged (secondary?)</u>        |

Rock Name Arkose Original Rock

Alteration: Hand specimen- buff weathering, brown silty poor sorted .

MICRO - very close packed, very angular grains all qtz are

angular, some overgrowths, unstrained average 0.35mm, largest 1.5mm.

minor fracturing of plag grains (displaced twins)

Reference: 1:1,000 geology map, White Bear



PETROGRAPHIC ANALYSIS

Sample No. - F-101

Date March 1/80 Sample Location F-101 Tenderloin Claims

Submitted by: J.S. Petrographer J. Shearer

| <u>Probable<br/>Original<br/>Mode</u> | <u>Present<br/>Mode</u> | <u>Notes</u>        |
|---------------------------------------|-------------------------|---------------------|
| 40 % Quartz                           | %                       |                     |
| 40 % Plag - commonly                  | % sericite              | alteration in cores |
| 10? % K-spar                          | %                       |                     |
| 20 % HbL, chloritized                 | %                       |                     |
| %                                     | %                       |                     |
| %                                     | %                       |                     |
| %                                     | %                       |                     |

Rock Name Granodiorite? Original Rock Monzonite

Alteration: Hand specimen - light green, buff speckled intrusive, hypidiomorphic, stubby HbL.

MICRO - all plag have interiors changed to sericite Hornblende

replaced by chlorite.

Reference: Page 23, 79 Notebook 2

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B.C. GOLD SYNDICATE

**PETROGRAPHIC ANALYSIS**

Sample No. F-106

Date March 1/80 Sample Location F-106, Tenderloin Group

Submitted by: J.S. Petrographer J. Shearer

| <u>Probable<br/>Original<br/>Mode</u>        | <u>Present<br/>Mode</u> | <u>Notes</u> |
|----------------------------------------------|-------------------------|--------------|
| 35% Quartz                                   | %                       | _____        |
| 25% K-spar                                   | %                       | _____        |
| 10% Plag                                     | %                       | _____        |
| 15% HbL (almost completely gone to sericite) | %                       | _____        |
| 15-20% Calcite                               | %                       | _____        |
| %                                            | %                       | _____        |
| %                                            | %                       | _____        |

Rock Name Monzonite Original Rock \_\_\_\_\_

Alteration: Hand specimen - Lt. greenish speckled, hypidiomorphic calcite patches noted on sawn surface - not readily seen on fresh stubby HbL.

MICRO - very coarse calcite veining, HbL very altered to chl and sericite. K-spar and plag alt to sericite.

Reference: Page 27, 79 Notebook 2

J.C.STEPHEN EXPLORATIONS LTD.

B.C. GOLD SYNDICATE

PETROGRAPHIC ANALYSIS

Sample No. -BA276

Date March 1/80 Sample Location 200N \_ 800E

Submitted by: J.S. Petrographer J. Shearer

| <u>Probable Original Mode</u>                         | <u>Present Mode</u> | <u>Notes</u>                |
|-------------------------------------------------------|---------------------|-----------------------------|
| 15% plagioclase XLS                                   | % many broken,      | <u>some sericite alt</u>    |
| 20% lithic frags                                      | %                   | <u>mostly Ep + sericite</u> |
| 20% Quartz frags + grain                              | %                   | <u></u>                     |
| 5% Chlorite                                           | %                   | <u></u>                     |
| 5% Calcite                                            | %                   | <u></u>                     |
| 35% Matrix - sericite, quartz, broken small fragments | %                   | <u></u>                     |
| % Epidote, fluorite %                                 | %                   | <u></u>                     |

Rock Name Lithic tuff (fluorite bearing) Original Rock Lithic Tuff

Alteration: Hand specimen - Lt brn. weathering, fragmental, angular to subrounded frags, polymictic, greenish mtx, frags up to 1cm in diameter.

MICRO - Large plag XLS 2.5mm long, broken, sericite alt, rounded  
qtz grains, some angular, rosettes of chlorite .4mm in diameter, chl abundant  
in some plag + hbl XLS (complete replacement); minor calcite epidote,  
(fluorite in hand specimen), minor opaques chl + calcite replacing quartz,  
Pumpellyite? Analcime brown high relief - sphene (?) (green bire + brn pleo).

PETROGRAPHIC ANALYSIS

Sample No. 56602

Date March 1/80 Sample Location 56602 White Bear Crown Grant

Submitted by: J.S. Petrographer J.Shearer

| <u>Probable Original Mode</u> | <u>Present Mode</u> | <u>Notes</u>                                  |
|-------------------------------|---------------------|-----------------------------------------------|
| 30% vein qtz.                 | %                   | <u>unstrained, just lightly wavy extinct.</u> |
| 50% "Matrix" mostly sericite  | %                   | <u>+ quartz ground mass</u>                   |
| 10% "chert" probably          | %                   | <u>outlining former lithic frags?</u>         |
| 20% qtz grains -              | %                   | <u>framework grains</u>                       |
| %                             | %                   | <u>_____</u>                                  |
| %                             | %                   | <u>_____</u>                                  |
| %                             | %                   | <u>_____</u>                                  |

Rock Name Silicified Arkose Original Rock Arkose

Alteration: Hand specimen - intense silicification, drusy quartz breccia relict arkosic texture, hematite filled fractures.

MICOR - .3 to .7 mm wide quartz veinlets of relatively unstrained qtz mosaic averaging .1 to .2mm in diameter. Most of matrix is fine grained sericite + qtz. occasional subrounded qtz grain up to 1.5mm in dia., muscovite flakes (plag relicts.

NOTE: 130 ppb Au.

Reference: Page 24, 79 notebook 2

**PETROGRAPHIC ANALYSIS**

Sample No. F-113

Date March 1/80 Sample Location F-113 White Bear detail grid

Submitted by: J.S. Petrographer J. Shearer

| <u>Probable<br/>Original<br/>Mode</u> | <u>Present<br/>Mode</u> | <u>Notes</u>                  |
|---------------------------------------|-------------------------|-------------------------------|
| 40 % K-spar                           | %                       | <u>two generations</u>        |
| 20 % Plag                             | %                       | <u>zoned</u>                  |
| 15 % Quartz                           | %                       | <u>intersitial</u>            |
| 5 % Biotite                           | %                       | <u>Late, replacing K-spar</u> |
| 2-5 % Hornblende                      | %                       | <u>very altered</u>           |
| tr % Calcite                          | %                       | <u>Late</u>                   |
| tr % Sphere                           | %                       |                               |

Rock Name Syenite Original Rock \_\_\_\_\_

Alteration: Boulder in conglomerate east of White Bear shaft.

Hand specimen - rounded cobble of brownish, coarsely crystalline, almost  
K-spar phenos, finer x-line mafics.

MICRO - crs x Line, many K-spar xLs 3mm k-spar phenos growth  
on broken smaller xLs, abundant sericite alt. Zoned plag, green pleo,  
HbL, brn pleo biotite tr opaques.

Reference - 1:1000 geology map, White Bear

QUATERNA

Q  
Fluvio glacial deposits

7  
Minette dykes

6  
Pulaskite porphyry and syenite porphyry dykes

T4  
Trachytic flows, alkalic basalt, basaltic tuff

T3  
Earlier trachyte

5  
Augite syenite  
(intrusive equivalent of trachytic flows, T4)

Shankinite pyroxenite  
(intrusive equivalent of alkalic basalt, T4)

Porphyritic syenite  
(intrusive equivalent of earlier trachyte, T3)

2  
Monzonite  
(co magmatically related to augite syenite)

T2  
Rhyolite and rhyolite porphyry

T1  
Kettle River formation  
(conglomerate, arkosic grit, acidic tuff)

1  
Granodiorite, gneiss

C2  
Gloucester formation  
(crystalline limestone)

C1  
Franklin group  
(greenstone, cherty quartzite, altered tuff)

Symbols

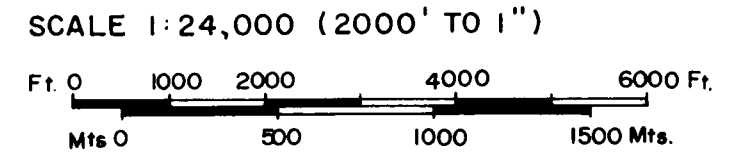
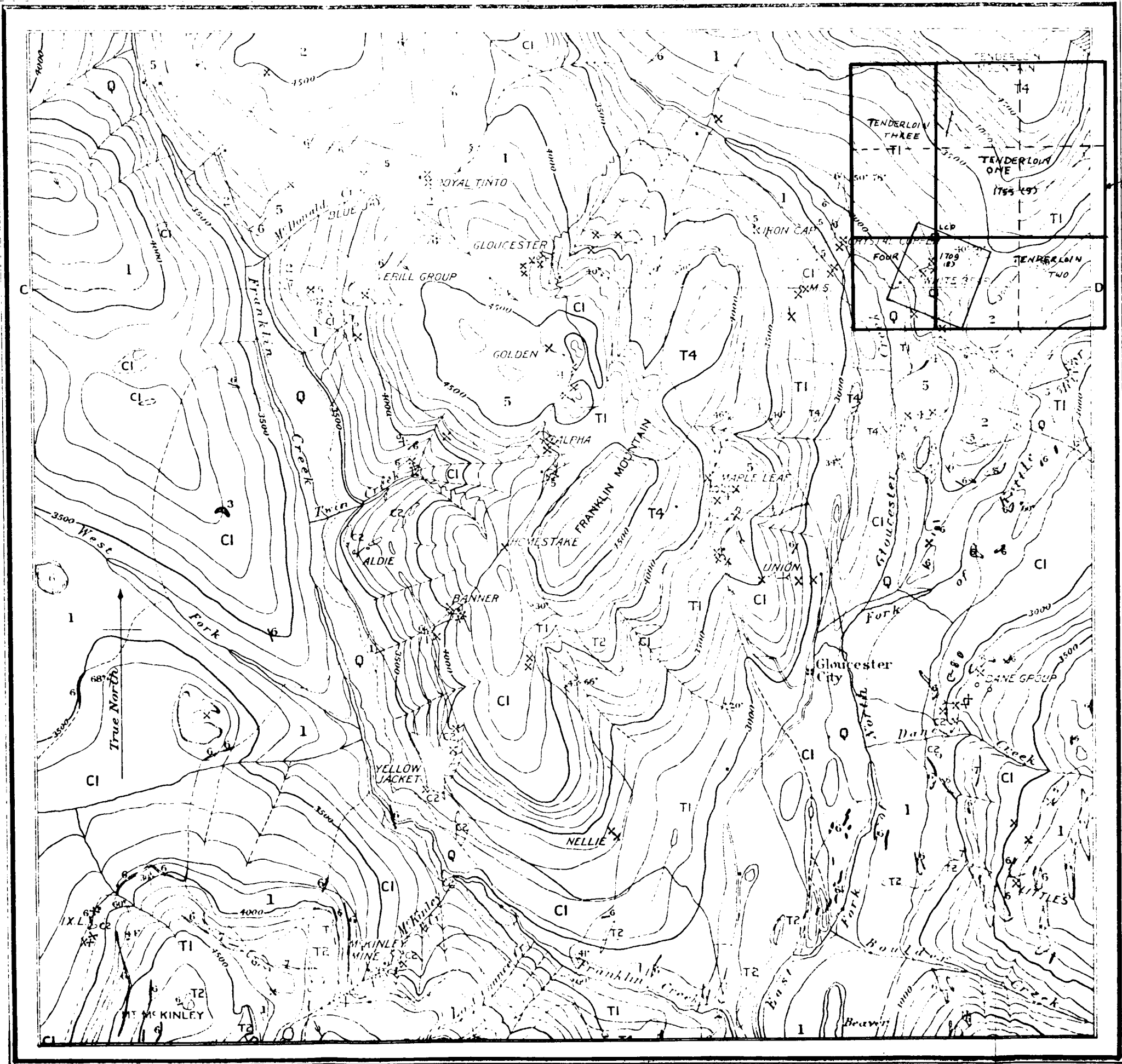
Fissure vein

Geological boundary  
(position exactly determined)

Geological boundary  
(position determined within 20 feet)

GEOLOGY

TOPOGRAPHY



LEGEND

Culture

Roads and buildings

Pack trails

Shafts

Bridges

Tunnels

Prospects

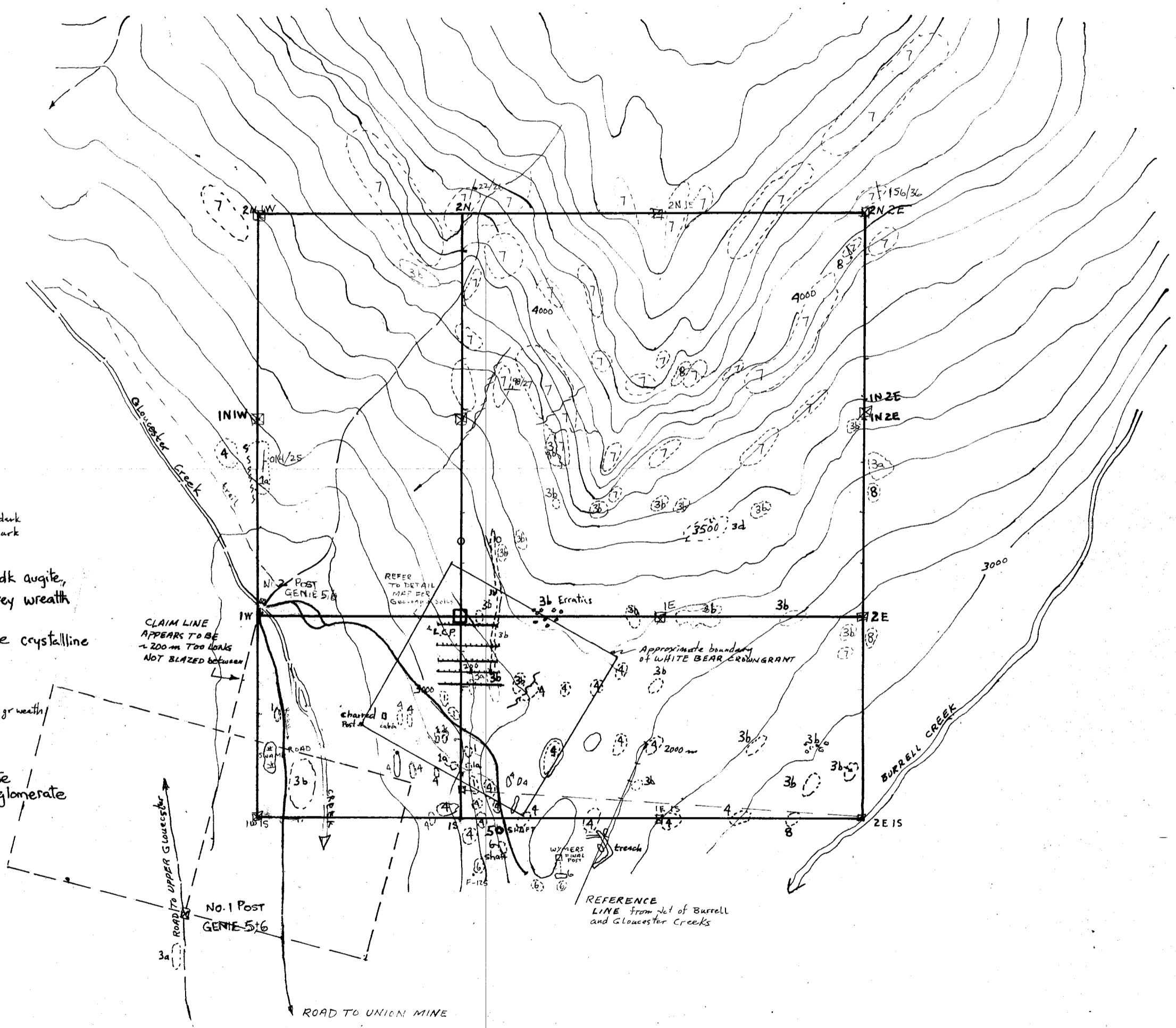
MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT  
**7918**  
NO.

J. C. STEPHEN EXPLORATIONS LTD.

B. C. GOLD SYNDICATE  
REGIONAL GEOLOGY  
FRANKLIN CAMP

FROM: GSC MEMOIR 56  
1913  
C.W. DRYSDALE  
MAP 97 A  
NTS 82 E / 9 W

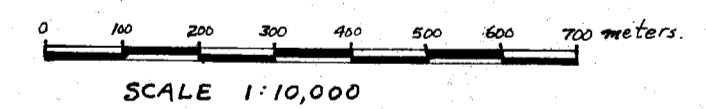
April 1980  
Shearer  
FIGURE 3



LEGEND

- 8 SYENITE : crs xline, trg k-spar phenos,
  - 7a Trachyte dk, fine xline, med dark  
b Basaltic Tuff Aphemitic, vesicular, dark
  - 6 AUGITE SYENITE coarse grained, dk augite, magnetite, light grey wreath
  - 5 PYROXENITE : dark, fine to coarse crystalline "BLACK LEAD"
  - 4 MONZONITE : equigranular, med xline, lt. gr wreath, lt grey, augite phenos.
  - 3 KETTLE RIVER 3a. arkose  
b. conglomerate  
c. arkose conglomerate  
d. Acid tuff
  - 2 GRANODIORITE dk wreath, Hbl rich, commonly gabbroic
  - 1 GREENSTONE  
1a. altered greenstone, skarn
- Outcrop  
 ⊠ Claim Post  
 --- elevation contour in feet:  
 strike and dip.

MINERAL RESOURCES BRANCH  
 ASSESSMENT REPORT  
**7918**  
 NO



J. C. STEPHEN EXPLORATIONS  
 B. C. GOLD SYNDICATE  
**WHITE BEAR CROWNGRANT  
 AND  
 TENDERLOIN GROUP  
 GEOLOGY AND INDEX MAP.**

DATE : AUGUST 12 1979 WORK BY: JS, BA, JCGM  
 N.T.S. : 82 E/9W DRAWN BY: BA, JS

*April 1980  
 JS*