

COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

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GEOLOGICAL REPORT

KING 1, KK 1-4, and KK 9 MINERAL CLAIMS

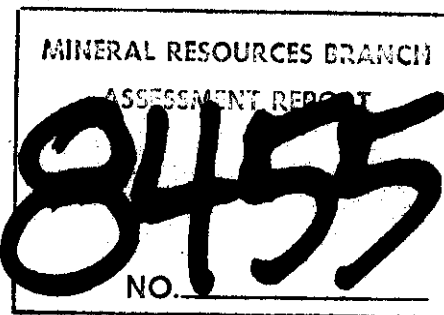
Fort Steele Mining Division

N.T.S. 82G/12

Latitude: 49° 44'

Longitude: 115° 35'

Kootenay Exploration  
2450 Cranbrook St.  
Cranbrook, B.C.



Reported by:

I.D. McCartney, P.Eng. Geologist

Under the Supervision of:

Douglas Anderson, P.Eng. Geologist

October, 1980

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EXPLORATION

WESTERN DISTRICT

GEOLOGICAL REPORT

KING 1, KK 1-4, and KK 9

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1.00 GENERAL STATEMENT

This report details the results of geological mapping on the King 1, KK 1 to 4, and KK 9 mineral claim group, (20 units) performed during the period June 1, 1980 to October 1, 1980. A Notice to Group the above mentioned claims into one 20 unit Group called King 1 was filed with the Gold Commissioner in Cranbrook, B.C. on ?

Expenditures incurred in carrying out the geological work amounted to \$12,698.00. A PAC withdrawal of \$1,802.00 is requested bringing the total amount to \$14,500.00. It is requested that this amount be applied as follows:

KING 1	15 units	3 years @ \$100/yr./unit	\$4,500.00
KK 1	1 unit	10 years @ \$200/yr.	2,000.00
KK 2	1 unit	10 years @ \$200/yr.	2,000.00
KK 3	1 unit	10 years @ \$200/yr.	2,000.00
KK 4	1 unit	10 years @ \$200/yr.	2,000.00
KK 9	1 unit	10 years @ \$200/yr.	<u>2,000.00</u>
			\$14,500.00

A Statement of Exploration and Development was submitted to the Gold Commissioner in Cranbrook, B.C. on ?

2.00 INTRODUCTION

2.10 General

Geological mapping was undertaken to evaluate the economic mineral potential of the King 1, and KK 1-4, 9 claims, and to gain an understanding of the stratigraphy and structural geology in the vicinity of the Kootenay King Mine. The mine is on the M-52 lease, located within the above mentioned claims.

Field work was conducted by I.D. McCartney (Geologist) with the help of Chris Tadey (Assistant) and under the Supervision of Douglas Anderson (Geologist) and John Hamilton (Geologist). Geological data was gathered on orthophoto blueprints and plotted on a 1:10,000 scale topographic basemap with 20m. contour interval. These maps were prepared for Cominco by McElhanney Surveying and Engineering, Vancouver, B.C.

## 2.20 Location and Access

The claims are situated on Lakit mountain, about 15 km. NNE of Fort Steele, B.C. (see location map, Plate 1.)

Latitude: 49° 44'  
Longitude: 115° 35'

N.T.S.: 82G/12  
M.D.: Fort Steele

Access to the southern part of the claims is via a 4 wheel drive road which crosses KK 3 and KK 4 claims and joins the Wildhorse logging road approximately 4 km. from Fort Steele. Access to the northern part of the property is by helicopter and mapping here was done from helicopter established base camps.

## 2.30 Physiography

The claims are located in rugged terrain of the Rocky Mountain Range. There are many peaks and ridges above treeline, flanked by steep scree and brush covered slopes. The property also includes several relatively flat bottomed cirque basins with sparse to heavy tree cover. Elevations on the property range from 1760m. A.S.L. to 2530m. A.S.L. Rock outcrops are abundant on the property.

## 2.40 Ownership and Status

The KING 1 and KK claims are 100% Cominco owned. The KK claims were staked under the old 2-post system. Lease No. M-52 (Lessee - Cominco Ltd.) occurs within the KK claims and is not the subject of this report. The status of the claims is as follows:

	<u>No. of Units</u>	<u>Date of Record</u>	<u>Due Date</u>	<u>New Due Date</u>
KING 1	15	Aug. 5, 1980	Aug. 5, 1981	Aug. 5, 1984
KK 1	1	Nov. 12, 1969	Nov. 12, 1980	Nov. 12, 1990
KK 2	1	Nov. 12, 1969	Nov. 12, 1980	Nov. 12, 1990
KK 3	1	Nov. 12, 1969	Nov. 12, 1980	Nov. 12, 1990
KK 4	1	Nov. 12, 1969	Nov. 12, 1980	Nov. 12, 1990
KK 9	1	Nov. 12, 1969	Nov. 12, 1980	Nov. 12, 1990

## 3.00 GEOLOGY

The King and KK claims are entirely underlain by fine grained siliciclastic rocks of the Helikian age Aldridge Formation. In the Rocky Mountains the Aldridge Fmn. is underlain by the Fort Steele Fmn., consisting of medium grained quartz sandstones. These formations are the lowermost subdivisions of the Purcell Supergroup and underlying rocks are unexposed.

The Aldridge formation in the Rockies is divisible into a number of distinctive lithologies, unlike correlative Aldridge rocks in the Purcell Mts. which consist of monotonous sequences

of wacke and quartzitic wacke turbidites. Four distinctive lithological subdivisions have been recognized by Cominco geologists on the claim group. These subdivisions correspond with divisions Alc to Alf of the Aldridge Fmn. as recognized by Höy, 1978. Al indicates the lowermost major subdivision of the Aldridge Fmn.

### 3.10 Stratigraphy

The lowermost lithological unit recognized on the claims corresponds to the upper part of Höys' Alc division. It's most distinctive feature is its' rusty weathering nature, attributed to trace amounts of Fe-sulfide. Alc is a medium to dark grey mudstone to siltstone. It is commonly faintly laminated, but also contains massive to thin bedded sections. Occasional zones of Ald lithology occurs within Alc, but are rarely thicker than 15 meters. Overall the unit probably represents fairly quiescent depositional conditions with a large pelagic component of sedimentation and a small "foreign" (turbidite and distal turbidite) component.

Ald is dominated by buff, grey and occasionally purplish, medium to thick bedded siltstones and marly siltstones. Basal flames and scours are occasionally noted, parallel laminated and "wavy" cross laminated intervals are common. A subordinate lithology within Ald is thin bedded buff mudstone with wispy, extremely regular and continuous black laminations. This lithology often forms sequences several 10's of meters thick. Carbonate component is up to 30% in the basal marly sections of Ald and decreases upwards in the unit. Carbonate also occurs as lensoidal beds and pods. Tongues of Alc lithology extend into the basal sections of Ald. Ald probably consists largely of coalescing turbidite fan deposits prograding seaward into the basin.

Ale consists of medium to very thick bedded and occasionally massive, medium to coarse grained quartz sandstone. Sand grains are rounded and usually carbonate cemented. Mudstone and siltstone clast conglomerates occasionally occur with a sandstone matrix. Partings between individual sandstone beds consist of thin bedded to laminated mudstone and siltstone. Ale lithologies were deposited at 3 main horizons within the Ald and Alf units, and as numerous smaller laterally discontinuous beds. Where Ale is developed within the Alf unit, it usually has associated Ald lithologies in its immediate hangingwall and/or footwall, suggesting a close genetic link between Ald and Ale depositing environments. The most acceptable sedimentary facies model for Ale is that of submarine channel deposits associated with prograding turbidite fans, but reservations exist with regard to their depositional mechanism.

The uppermost lithology recognized on the claims corresponds to Höys' Alf division. It is dominantly dark grey to black, dark grey weathering thin bedded to laminated mudstone and siltstone. Numerous laterally discontinuous intervals of A1d lithology occur within Alf, and such A1d subintervals have rare associated Ale beds. Alf seems similar, in terms of its style of deposition, to the upper part of A1c. A 10 to 15m thick siltstone clast, siltstone matrix conglomerate occurs in Alf lithology in the N.E. part of the King 1 claim.

### 3.20 Intrusives

Felsite and syenite porphyry intrusives occur in all stratigraphic units, throughout the property. They are generally dikes or sills and were probably intruded during the Laramide orogeny.

Greenstone dikes and sills are less common than felsite-syenite. They also occur in all stratigraphic units. They are altered to a carbonate-chlorite rock. They are older than the felsite-syenite but their exact age relative to the host sediments or the underlying gabbro is not clear. A 200 meter thick gabbro intrusive occurs near the boundary of A1c and A1d just west of the claims. It is roughly sill-like in character but is observed to gently crosscut up or down in stratigraphy. Locally, smaller sill-like gabbro intrusions occur in its immediate hanging-wall.

### 3.30 Structural Geology

The claims are situated on the eastern, overturned flank of a major anticlinal structure. Asymmetrical drag folds (s-type) are developed in the claim area, and a prominent fracture cleavage (strike north-south, dip 50° W) is developed roughly parallel to the axial planes of minor folds. The major fold results in overturned beds on the eastern part of the claims.

Two fault directions have been defined. One North-south, steeply west dipping fault extends from KK 9 through the centre of King 1. It appears to have normal west side down displacement but may be a listric thrust, ie/ returned to normal displacement during relaxation.

Several steeply dipping transverse faults occur. They have apparent strike slip displacements of up to 400m. and unknown dip slip movement. They also displace the north-south fault.

### 3.40 Mineralization

No significant mineralization has been discovered as a result of geological mapping on these claims. However, mapping has demonstrated that equivalent stratigraphy to that hosting the Kootenay King orebody occurs on KK 4, KK 9, and the King 1 claims.

Further evaluation of these claims will require exploration methods such as rock and soil geochemistry, and/or horizontal-loop E.M. geophysics.

Traces of galena and sphalerite are fairly common within quartz veins in all sedimentary rock units. Malachite and chalcopyrite are common within quartz veins in the gabbro sill.

#### 4.00 CONCLUSIONS

1. Sediments of the Aldridge Fmn. on the KK and King claims can be divided into 4 distinctive lithologies. These lithologies correlate well with units Alc to Alf recognized by Hoy, 1978.
2. Geological mapping has led to a good understanding of the structure and stratigraphy of the Aldridge Fmn. on the claims, but has not located significant quantities of base metal sulfides.
3. Other exploration methods such as rock and soil geochemistry and ground geophysical surveys will aid in evaluation of these claims.

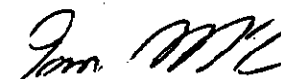
#### 5.00 REFERENCE

Høy, Trygve. Geology of the Estella - Kootenay King Area, B.C.D.M. Preliminary Map 36. 1978.

#### 6.00 ATTACHMENTS

Plate 1 Location Map, King 1, KK 1-4, KK 9.  
Plate 2 Geology Map, King 1, KK 1-4, KK 9.

SUBMITTED BY:


  
I.D. McCARTNEY, P. Eng.  
Geologist I



ENDORSED BY:

  
DOUGLAS ANDERSON, P. Eng.

APPROVED FOR  
RELEASE BY:

  
J.M. HAMILTON, P. Eng.  
Chief Geologist  
Kimberley

October 17, 1980

## 8

AND

in the Fort Steele Mining Division of the  
Province of British Columbia

A F F I D A V I T

1. That I am employed as a Geologist by Cominco Ltd. and as such, have a personal knowledge of the facts to which I hereinafter depose:
2. That annexed hereto and marked as Exhibit "A" to this my Affidavit is a true copy of expenditures incurred on a geological mapping program, on the King 1, KK 1-4 and KK 9.
3. That the said expenditures were incurred between the 1st day of June, 1980 and 1st day of October, 1980, for the purpose of mineral exploration on the above noted claims.

Sworn before me at Granbrook )  
in the Province of British Columbia, this )  
10 day of December, 1980 )

) Jim McCartney  
) I.D. McCartney

Marilynne A. Ferguson  
A Commissioner for taking Affidavits in  
the Province of British Columbia.



EXHIBIT "A"

STATEMENT OF EXPENDITURES

KING 1, KK 1 to 4, and KK 9

Salaries:

I.D. McCartney (Geologist) 17 days @ \$120/day	\$2,040
Chris Tadey (Assistant) 17 days @ \$60/day	1,020
D. Anderson (Geologist) 2 days @ \$170/day	340
J. Hamilton (Geologist) 1 day @ \$220/day	220
I.D. McCartney (Geologist) Report Preparation 3 days @ \$120/day	360

Transportation:

4x4, $\frac{1}{2}$ ton truck Total 19 days @ \$25/day	475
Okanagan Helicopters	1,008

Domicile:

36 days @ \$25/day	900
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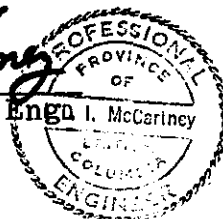
Orthophoto Base Map:

McElhanney Surveying & Engineering, Vancouver	6,335
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TOTAL COST OF GEOLOGICAL PROGRAM	<u>\$12,698</u>
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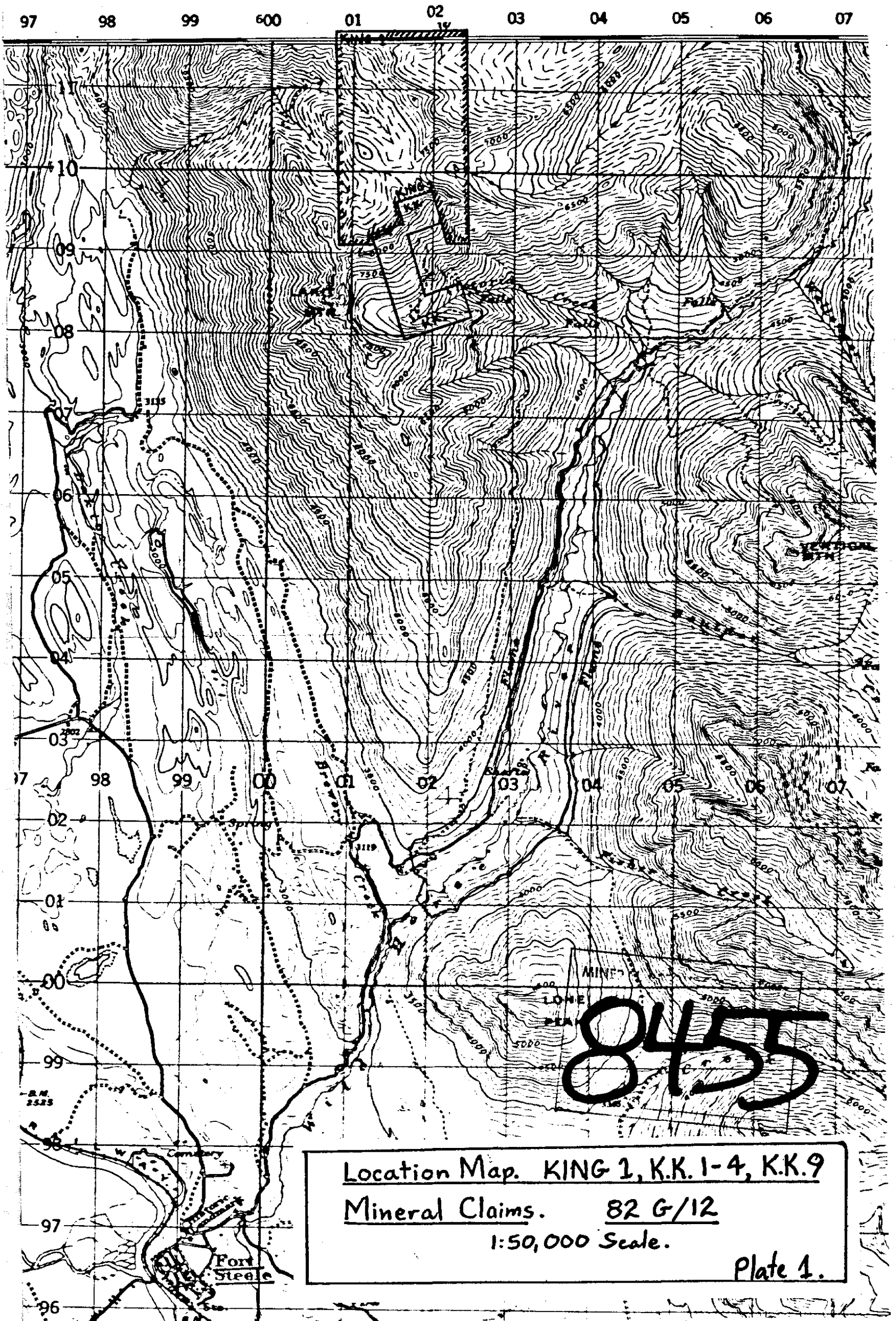
SIGNED:

*I.D. McCartney*  
I.D. McCartney, P. Eng. I. McCartney  
Geologist



This is Exhibit "A" to the  
Statutory Declaration of  
I.D. McCartney declared before  
me this 10 day of December 1980.

*Marilynne A. Ferguson*  
A Commissioner for taking Affidavits  
in the Province of British Columbia.



Location Map. KING 1, K.K. 1-4, K.K. 9  
Mineral Claims. 82 G/12  
1:50,000 Scale.

Plate 1.



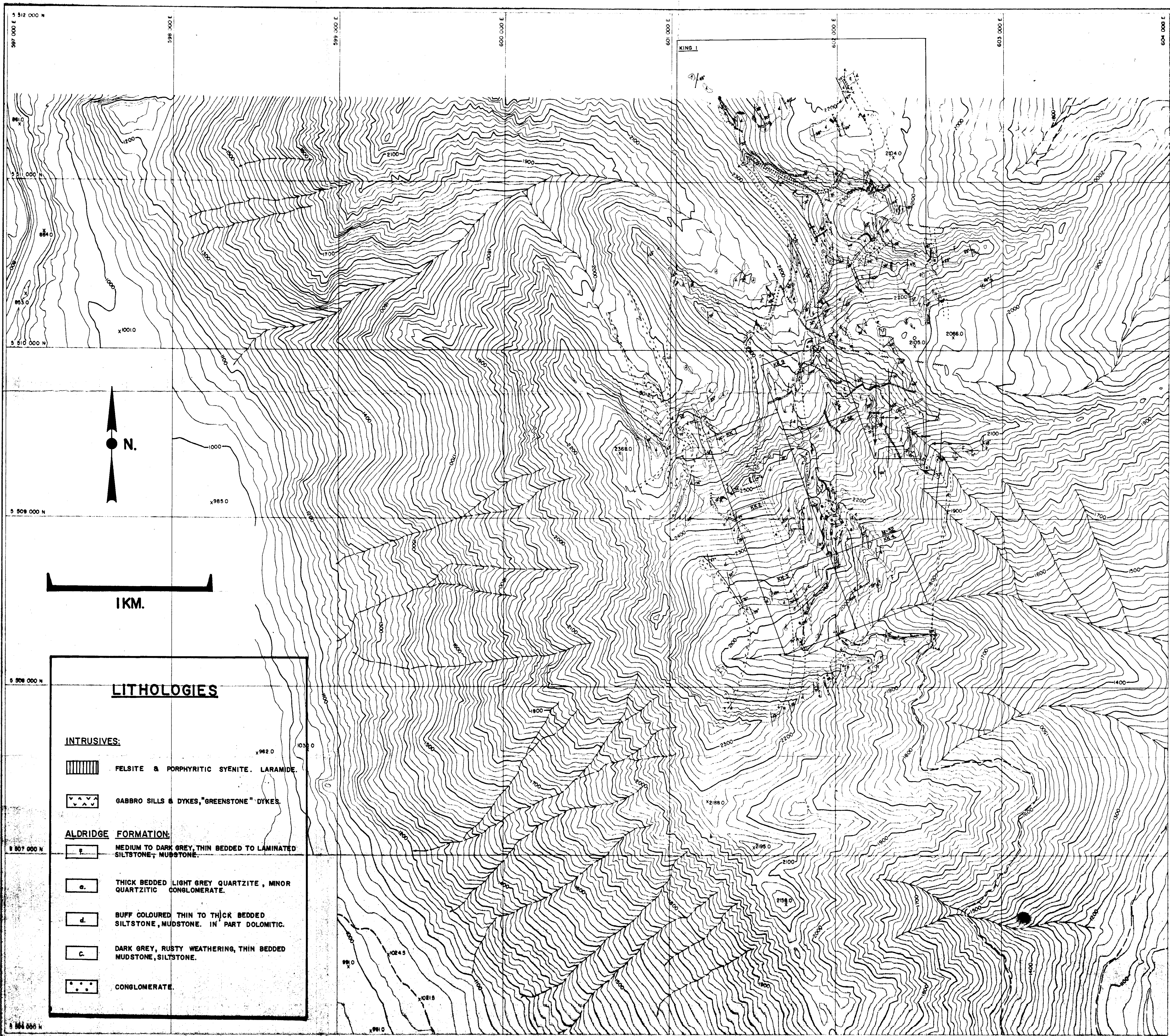


Plate 2. GEOLOGY: KING 1, KK 1-4, KK 9.

NTS: 82 G/12.



Scale and elevation datum based on limited ground control resulting in good relative, but uncertain absolute map accuracy.



McElhannay Surveying & Engineering Ltd.  
1200 West Pender Street, Vancouver B.C., Canada

Scale: 1:10000  
Contour: 20 m.  
Interval:  
Date: May 1980  
Job No: 08715-0  
Sheet No: 1 of 1

COMINCO LTD.  
KOOTENAY KING  
PRELIMINARY RECONNAISSANCE TYPE MAPPING

8455