

THE CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA LIMITED  
TRAIL, B.C.

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REPORT ON GEOLOGICAL SURVEY OF BRON NOS. 1 AND 2 GROUPS  
56° 131° N.E. LIARD M.D. - N.T.S. 104 B/11

Located claims on which assessment work is requested:

<u>Claim</u>	<u>No. of Claims</u>	<u>Record No.</u>	<u>Date Recorded</u>
<u>Bron No. 1 Group:</u>			
Bron 1-24 incl.	24	13627-13650	May 13, 1964
<u>Bron No. 2 Group:</u>			
Bron 25-48 incl.	24	13651-13674	" "

Work was done on the claims in two periods, i.e. from July 12 to 22nd inclusive and August 17 to 24th inclusive, 1964.

REPORT BY:

*A.B. Mawer*

A.B. MAWER

SUPERVISED BY:

*J. Richardson*

J. RICHARDSON  
PROFESSIONAL ENGINEER

ABM:gms

630

THE CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA LIMITED  
TRAIL, B.C.

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REPORT ON GEOLOGICAL SURVEY OF BRON GROUPS OF MINERAL  
CLAIMS IN BRONSON CREEK-ISKUT RIVER AREA - LIARD M.D.  
(N.T.S. 104 B/11)

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THE CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA LIMITED  
TRAIL, B.C.

REPORT ON GEOLOGICAL SURVEY OF BRON NOS. 1 AND 2  
GROUPS - LIARD M.D. (N.T.S. 104 B/11)

SUMMARY

This report details the results of geological mapping on the Bron Nos. 1 and 2 groups during the periods of July 12 to 22 and August 17 to 22 inclusive. As a result of the geological work performed it is requested that one year's assessment credit be applied to each of the following 24 (twenty-four) located claims in the Bron No. 1 Group:

<u>Claim</u>	<u>Record No.</u>	<u>Date Recorded</u>	<u>Recorded Owner</u>
Bron 1 to 24 incl.	13627-13650	May 13, 1964	Tuksi Mining & Development Co.

And it is further requested that one year's assessment credit be applied to each of the following twenty-four (24) claims in the Bron No. 2 Group:

<u>Claim</u>	<u>Record No.</u>	<u>Date Recorded</u>	<u>Recorded Owner</u>
Bron 25 to 48 incl.	13651-13674	May, 1964	Tuksi Mining & Development Co.

INTRODUCTION

Geological mapping of the Bron Nos. 1 and 2 Groups and surrounding area was undertaken to evaluate the economic potential of this prospect and to determine its geologic setting.

The survey was conducted by A.B. Mawer (Exploration Assistant) under the supervision of J. Richardson (Geological Engineer, University of Toronto 1940). Field assistance was provided by J. Hamilton, G.D. Bird and G. Headley, third year U.B.C. Geology students.

During July 12-20 the writer was also accompanied by Dr. P.H. Sevensma, P. Eng., who also made a preliminary reconnaissance of the map area on July 10.

The claim groups are located at 56° - 131° N.E. of the Liard Mining Division on the west extension of Johnny Mountain (a ridge between Bronson Creek, a tributary of Iskut River and Craig River). The property is at an elevation from 500' to 3,500'. The area is approximately 80 airmiles due south of the settlement of Telegraph Creek.

Access to the area was by fixed-wing aircraft from Atlin to the mouth of Bronson Creek on the Iskut River and thence by foot travel to the lower areas and by helicopter to the higher ridges and upland plateaus. The terrain is very steep and precipitous with heavy forestation consisting of extremely thick alder and brush. A rolling upland plateau lies at 3,500' elevation on the west end of Johnny Mountain spur. Good rock exposures are found only in the stream canyons and the higher ridges.

Mapping to establish the geologic setting of base metal deposits in the area was plotted on a base map constructed from an enlargement of air photos on a scale of 1" to 1,000'. Rock outcrops were located in the field and positioned on vertical air photographs of a scale of 1" = 3,000' (approx.) and later transferred to the base map.

## GEOLOGY

### General discussion

The Bron property lies from seven to ten miles east of the irregular east front of the Coast Intrusives. The area is underlain by numerous clastic, pyroclastic and volcanic members varying in age from Permian to Triassic. These layered rocks are compressed into open folds with low plunges to the southeast and northwest. The strata have an anomalous north strike in this generally northwest trending belt and the dips are shallow to either the east or west. Metamorphism has been intense locally, resulting in the formation of crystalline schists and gneisses. Faulting of various magnitudes and directions is common in the area but major faults strike northwesterly.

Because of the location close to the Coast crystalline front, numerous satellite granitic plutons intrude the layered rocks in this area. On the property there is a small pluton of orthoclase porphyry located on the south side of Bronson Creek. This intrusive has a very large halo of intense hydrothermal alteration, consisting of a high degree of silicification and sericitization.

Distributed around the porphyry body and its large alteration halo, and in a crude radial pattern, are numerous small alteration zones containing many fractures occupied by small veins containing good grade sphalerite, chalcopyrite, galena, arsenopyrite and pyrrhotite in a gangue of quartz and calcite.

### Layered Rocks

The layered rocks within the claim area, are described below in a stratigraphic sequence beginning with the lowest and apparently oldest, unit observed.

The lowest unit consists of a dark green to almost black, medium-grained basalt, in places containing phenocrysts of feldspar up to 1 x 4 mm. in size. Within this member, and approximately 2,500' from the top, and exposed in a bend of Bronson Creek is a massive, white and gray medium-grained marble. This marble is locally altered to massive garnetite and diopside. It is not known at this time whether the marble is a continuous separate unit, or a large lense within the basalt.

The basalt is overlain by approximately 1,000' of massive bedded greywacke with minor interbeds of carbonaceous slaty shale in the upper 400'. This unit underlies most of the claim area, and is compressed into open folds with low plunges to the southeast. Due to the massive nature of the greywacke it is difficult to find evidences of structure except in the area of interbedded slates.

The uppermost rock unit in the area has a thickness in excess of 2,000' is exposed along the north and east edge of the claims. It consists of a succession of interbedded greywacke, greenstone, arkose, and sharpstone conglomerate or breccia. The most predominant rock in this unit is a medium to dark grey, massive bedded greywacke. The greenstone is light green, fine-grained, massive, and contains abundant stringers and knots of epidote. The conglomerate, or breccia, contains sharp, angular fragments, up to three inches in diameter of granite, siliceous bedded tuffs and greenstone, in a dark green-black groundmass.

### Intrusive Rocks

Exposed in the northwest corner of the claim area, and on the south side of Bronson Creek, is a plug of orthoclase porphyry intrusive which is elongated in a southeasterly direction. The rock is composed of twinned orthoclase phenocrysts up to 10 mm. by 25 mm., some of which display evidences of resorption. The phenocrysts are randomly oriented in a fine-grained dark grey groundmass, consisting of sericite, feldspar, minor quartz and up to 1% crystalline magnetite.

This intrusive has a halo of intense hydrothermal alteration, which in places contains remnant blocks and slabs of unaltered intrusive.

The outcrop pattern of the intrusive and surrounding alteration halo suggest that this is a barely unroofed cupola and down-dip contacts probably diverge rapidly.

Throughout the claim area are numerous northerly-trending vertical basaltic and lamprophyre dikes. The dikes usually display chilled borders and are unaltered or faulted. They maintain this fresh appearance where they intersect the highly altered zones.

On the southern edge of the claims there is a large felsite sill which has intruded the greywacke. It is not known at this time what relationship, if any, exists between these later intrusives.

#### Alteration

The large halo of hydrothermal alteration surrounding the intrusive in the northwestern part of the claim area consists, locally, of a high degree of silicification, with nearly complete conversion of the contact area to quartz. On the north side of this intrusive the siliceous zone contains much disseminated magnetite, with some hematite, pyrite and chalcopyrite. On the south side and to the east of the body, at the contact and in an area extending southeasterly, the intruded greywacke has been converted by shearing to a quartz-sericite schist with considerable disseminated pyrite and a little sphalerite, tetrahedrite, molybdenite, and pyrrhotite.

Throughout the claim area there are numerous small zones of alteration similar in composition to the larger zone. These zones appear to be localized by fracturing which extends outward in a crude, radial pattern, from the Bronson Creek intrusive.

#### Faulting

A strong northwesterly striking and southerly dipping fault is found in a creek bed on Bron Nos. 2, 44, 43, 30 and 29. This fault is marked by a shear zone two to twenty feet wide, containing much gouge and sheared blocks of the wallrock. Displacement on this fault appears to have been in a normal sense.

In the northern part of the claim area the alteration zone seems, in part, to be controlled by a deep seated fault. In all probability this structure has had some influence on the emplacement of the Bronson Creek pluton.

#### MINERALIZATION

South of the Bronson Creek intrusive, and in the smaller discontinuous altered zones, there are found stringers of high grade sphalerite, chalcopyrite, galena, arsenopyrite and pyrrhotite in a quartz-calcite gangue. These stringers which are small and discontinuous, appear to be localized along fractures which cut across the alteration at steep angles. Associated with this fracturing are irregular replacement zones of manganese ferrodolomite which contain disseminated galena and sphalerite.

In the southern part of the feldspar intrusive, chalcopyrite occurs as disseminations and fracture fillings with quartz gangue in a wide manganese stained zone.

Samples taken on the property are shown on the accompanying map and are listed below:

<u>Sample No.</u>	<u>Width</u>	<u>Location</u>	<u>oz. Au</u>	<u>oz. Ag</u>	<u>% Pb</u>	<u>% Zn</u>	<u>% Cu</u>	<u>% Cd</u>
33380	4.0'	Bron No. 9	0.01	0.78	Nil	2.5	Tr	0.04
33381	3.0'	" "	Tr	0.68	0.7	1.2	Nil	0.06
33382	Select	" "	0.80	8.52	10.5	26.0	-	0.09
37966	0.5'	Bron No. 7	0.01	3.5	1.2	0.7	-	-
37967	10.0'	" "	0.01	0.50	0.1	-	-	-
37968	2.5'	Bron No. 30	Tr	0.5	-	-	-	-
37969	0.5'	Bron No. 43	0.1	0.90	-	-	-	-
37970	2.0'	Bron No. 27	0.30	17.2	1.4	4.6	-	-

<u>Sample No.</u>	<u>Width</u>	<u>Location</u>	<u>oz. Au</u>	<u>oz. Ag</u>	<u>% Pb</u>	<u>% Zn</u>	<u>% Cu</u>	<u>% Cd</u>
37971	0.5'	Bron No. 14	0.01	5.70	8.7	18.9	-	-
37973	Select	C.G.	0.01	6.80	5.8	9.1	-	-
37974	0.5'	Bron No. 16	0.16	4.4	-	-	-	-
37975	1.2'	Bron No. 21	Tr	0.7	-	8.0	0.07	-
37976	15.0'	Bron No. "	0.02	3.74	2.8	-	-	-

CONCLUSIONS

The widespread base metal mineralization makes the area worth further attention. However, the features of the mineralization, as are presently exposed, would suggest that the mineral deposits are narrow and discontinuous or of a very low grade.

ATTACHMENTS:

- (1) Surface Plan Tuxsi-Johnny Mountain, Scale 1" = 1,000'.
- (2) Statutory Declaration relating to Expenditures.
- (3) Statement of Expenditures.
- (4) Statement of Qualifications.

Report by: A. B. Mawer  
A.B. Mawer  
Exploration Assistant

ABM:gmc  
Trail Exploration Office, Western District  
April 23, 1965


Distribution: Mining Recorder (2)  
Western Exploration (Trail) (2)

CANADA ) STATUTORY DECLARATION RELATING TO  
PROVINCE OF BRITISH COLUMBIA ) EXPENDITURES ON A GEOLOGICAL SURVEY  
TO WIT: ) OF CERTAIN MINERAL CLAIMS THE PRO-  
 ) PERY OF TUKSI MINING AND DEVELOPMENT  
 ) COMPANY LIMITED

I, JAMES RICHARDSON, a Profession Engineer, of the  
City of Trail, in the Province of British Columbia, DO SOLEMNLY  
DECLARE:

1. That I am the person who endorsed a geological report as  
the result of a survey conducted by personnel of The Consolidated Mining  
and Smelting Company of Canada Limited on behalf of Tuksi Mining and  
Development Company Limited on certain mineral claims situated in Liard  
Mining Division.
2. That copies of the said report are being filed with the  
Mining Recorder in Victoria.
3. That attached hereto and marked with the letter "A", upon  
which I have signed my name at the time of declaring hereof, is a state-  
ment of expenditures incurred by The Consolidated Mining and Smelting  
Company of Canada Limited on behalf of Tuksi Mining and Development Company  
Limited, in connection with the geological survey of the said claims, and  
showing in addition the dates during which those making the said survey per-  
formed their work.

AND I MAKE this solemn declaration conscientiously be-  
lieving it to be true and knowing that it is of the same force and effect  
as if made under oath and by virtue of the Canada Evidence Act.

DECLARED before me at the  
Municipality of Tadanac, in  
the Province of British Columbia  
this 28<sup>th</sup> day of  
April, A.D. 1965  
  
A Commissioner for taking Affidavits for British Columbia



**THE CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA LIMITED**  
**TRAIL, B.C.**

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**STATEMENT OF EXPENDITURES**  
**GEOLOGICAL SURVEY, BRON CLAIMS**  
**BRONSON CREEK AREA - LIARD M.D.**

**SALARIES**

A.B. Mawer, Exploration Assistant, for 19 days' field work (July 12-22 and August 17-24, 1964) and 5 days' map and report preparation (Sept. 2-3, 1964, April 7-9, 1965) at \$40/day	\$ 960	
P.H. Sevensma, P. Eng., Senior Geologist, for 10 days' field work (July 10, 12-20, 1964) at \$70/day	700	
J. Richardson, P. Eng., District Superintendent, for 2 days' supervision during map interpretation and report preparation (April 8-9, 1965) at \$100/day	200	
G. Headley, 3rd year Geology Student for 11 days' field work (July 12-22, 1964) at \$30/day	330	
J. Hamilton, 3rd year Geology Student for 8 days' field work (August 17-24, 1964) at \$30/day	240	
G. Bird, 3rd year Geology Student for 8 days' field work (Aug. 17-24, 1964) at \$30/day	240	\$ 2,670
<b>Total:</b>		<b>\$ 2,670</b>

**TRANSPORTATION\***

**Coast Range Airways Ltd.**

Super Cub (2 hrs. @\$35/hr.)	\$ 70	
Beaver (6 hrs. @\$80/hr.)	480	

**Vancouver Island Helicopters Ltd.**


Bell 47G-2 Helicopter (17:40 hrs. @ \$84/hr.)	1,484	
Aviation Gasoline (6 drums @\$38.25/drum)	229	\$ 2,263

**EQUIPMENT**

Miscellaneous exploration, mountain climbing and safety equipment used up on project		60
<b>TOTAL:</b>		<b>\$ 4,993</b>

\*Owing to the extremely rugged topography and dense undergrowth occurring on these remote claims, extensive use of helicopter and fixed-wing aircraft was absolutely essential to the survey.


Endorsed by:



G. Hamson  
Branch Accountant

  
 J. Richardson  
Professional Engineer

This is Exhibit "A" to the Statutory Declaration of James Richardson, declared before me the 28<sup>th</sup> day of ... April ..., A.D. 1965.

  
 A Commissioner for taking Affidavits  
for the Province of British Columbia.



**THE CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA LIMITED**  
**TRAIL, B.C.**

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**STATEMENT OF QUALIFICATIONS**

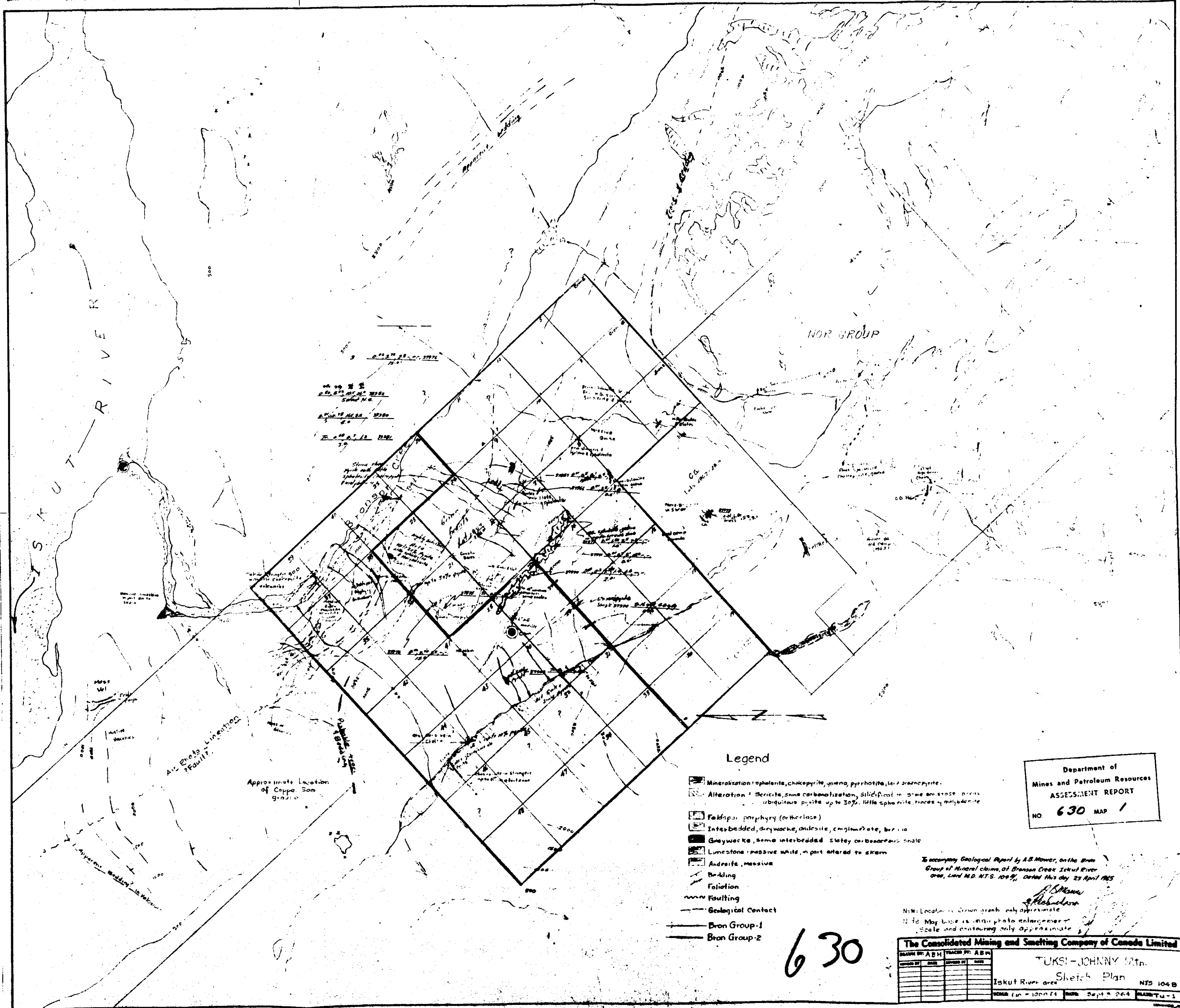
A.B. Mawer was responsible for conducting the geological survey described in the accompanying report. Mawer is a highly experienced and competent exploration technician who has been employed in geological field work since 1951. During this time he has been in charge of numerous field projects for The Consolidated Mining and Smelting Company of Canada Limited and has received extensive training in this field from myself and numerous other accredited members of the geological engineering profession. I consider Mr. Mawer to be sufficiently competent, experienced and qualified to act in the capacity of an accredited geological engineer.

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**J. Richardson**  
Professional Engineer

JR:mc  
Trail Exploration Office, Western District  
April 23, 1965



Legend

- Mineralization: sphalerite, chalcopyrite, galena, pyrrhotite, hematite, arsenopyrite.
- Alteration: Sericite, some carbonization, silicified in some areas, some ubiquitous pyrite up to 50%, little sphalerite, traces of malachite.
- Feldspar: porphyry (orthoclase)
- Interbedded, greywacke, andesite, conglomerate, breccia
- Greywacke, some interbedded slaty or basaltic shale
- Limestone: massive white, in part altered to skarn
- Andesite, massive
- Bedding
- Foliation
- Faulting
- Geological Contact
- Bron Group-1
- Bron Group-2

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 630 MAP 1

To accompany Geological Report by A.S. Mower, on the Bron Group of Mineral claims, of Bronson Creek, Yukut River area, Land M.D. N.T.S. 104-B, dated this day 23 April 1965

A.S. Mower  
Geologist

Note: Location of Bron group only approximate  
Map base is main photo enlargement  
Scale and contouring only approximate

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The Consolidated Mining and Smelting Company of Canada Limited			
DRAWN BY: ASH	TRACED BY: ASH		
CHECKED BY: ASH	APPROVED BY: ASH		
TUKSI-JOHNNY Mtn.		N.T.S. 104-B	
Yakut River area		Sketch Plan	
SCALE: 1 in = 1000 ft	DATE: Sept. 2, 1964	MAP T-1	