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GEOLOGICAL REPORT

on the

WIND RIVER COPPER PROPERTY

MAYO MINING DISTRICT

YUKON TERRITORY

for

B.R. RESOURCES LTD. (N.P.L.)

MAP 106-D-15

June 8, 1976  
Vancouver, B.C.

Thomas R. Tough, P.Eng.,  
Consulting Geologist

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#### ILLUSTRATIONS

MAP TITLE	Scale
SURFACE PLAN GEOLOGY	1" = 100'
GEOLOGY MAP	1" = 4 miles
CLAIM MAP	1" = 1/2 mile
LOCATION MAP	1" = 350 miles
SECTION 5+00W	1" = 20'
SECTION 6+00W	1" = 20'
SECTION 10+00W	1" = 20'
SECTION 17+00W	1" = 20'
SECTION 18+00W	1" = 20'

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PART "A"

SUMMARY

The Wind River property consists of 24 contiguously located mineral claims situated approximately 100 air miles north of Mayo, Y.T., and is also accessible by winter road from Elsa, Y.T. The claims cover known occurrences of copper-silver mineralization in Precambrian rocks.

The topography is relatively gentle with elevations on the property ranging between 3,000 and 4,000 feet above sea level.

Water is available for all phases of exploration, development and domestic use.

The summer months are relatively warm, whereas winters are severe with moderate snowfall.

Truck transportation during the winter months would be available for transport to railhead in Whitehorse.

Diesel electric power would be required for all phases of development and for any future requirements.

Prospecting of the Wind River area was carried out by placer miners as early as 1898. The only recorded exploration carried out on the property was that done by Wind River Mines Ltd. in 1970. The work consisted of stripping and diamond drilling. A total of 1,460 feet of B.Q. wireline was drilled. An airstrip was also constructed and a permanent camp was set up.

The property is underlain by Precambrian quartzites, argillites and phyllite which has been sheared and mineralized along a considerable length. The mineralization consists of chalcocopyrite in a massive siderite gangue.

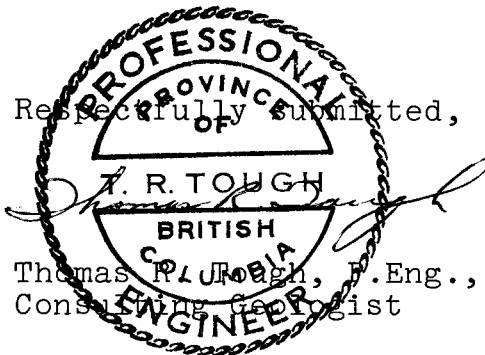
## CONCLUSIONS

1. From data compiled to date, 609 tons/vertical foot of drill indicated ore grading 2.51% copper are estimated.
2. The potential for increasing ore reserves appears to be excellent as the zone is open to the northeast, southwest and to depth. Additional parallel or sub-parallel shears with copper mineralization occur and have been partially tested.
3. Systematic diamond drilling and later underground development will be required to develop mineable tonnages of copper ore.

## RECOMMENDATIONS

1. It is recommended that surface diamond drilling be undertaken to further delineate the mineralized zone.
2. Magnetometer, electromagnetometer and geochemical surveys should be carried out to facilitate the diamond drilling and to assist in locating other possible mineralized zones hitherto unknown.

3. Geological mapping should be done as an aid to interpretation of the above surveys.
  
4. It is also recommended that B.R. Resources Ltd. (NPL)) allocate the sum of \$120,000 to implement and execute Phase I of the recommended exploration programme.

Respectfully submitted,  
A circular seal with a rope-like border. The text inside the seal reads: "PROFESSIONAL ENGINEER OF THE PROVINCE OF BRITISH COLUMBIA". A signature is written across the seal.  
T. R. TOUGH  
Thomas R. Tough, P.Eng.,  
Consulting Geologist

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PART "B"

INTRODUCTION

The following report is based upon information obtained by the writer during a personal examination of the property on June 3 and 4, 1976; from a study of available past records of work carried out in 1970, and from government publications. The purpose of the examination was to examine the workings and diamond drill results and to assess the potential of the property.

PROPERTY

The property is comprised of 24 contiguous mineral claims held by location. They are as follows:



<u>Claim Name</u>	<u>Grant Numbers</u>	<u>Expiry Date</u>
Dot 1-8 inclusive		
Linda 1-16 inclusive		

The claims cover copper mineralization in Precambrian quartzite, argillite and phyllite and are shown on claim map 106-D-15.

#### OWNERSHIP

The claims are in good standing and are owned by Mr. Bert Savage of Vancouver, British Columbia.

#### LOCATION (64° -136° N.E.)

The claim group straddles Wind River in the Mayo Mining District, Y.T. approximately 100 air miles north of the town of Mayo.

#### ACCESS

Access to the claims is via helicopter or fixed wing aircraft from Mayo to a gravel air strip located on the property. A winter road from Elsa also passes through the property.

TOPOGRAPHY

The claim group covers an area of moderate relief with elevations ranging between 3,000 and 4,000 feet above sea level. Peaks in the area attain altitudes of some 6,000 feet. Timber on the property is stunted and of no commercial value. Finished lumber would be available from Mayo or Whitehorse.

WATER

Wind River, its tributaries and small ponds located on the property have sufficient flowage for all phases of exploration, development and domestic use during the summer and early winter months.

CLIMATE

Winters are long and severe with moderate snowfall. Summer months are relatively warm.

POWER

Diesel electric power would be required for all phases of development.

### TRANSPORTATION

Truck transportation would be available to railhead in Whitehorse via winter road to Elsa, thence by the Klondike Highway. Supply service to the property is by either helicopter or fixed-wing aircraft.

### SUPPLIES

Most supplies would be obtainable from Whitehorse. Good air service would enable purchasing locally unobtainable goods from major centers in the Yukon Territory or British Columbia.

### HISTORY

Information pertaining to the discovery of the deposit is sketchy. Placer gold prospecting was carried out on the Wind River as early as 1898. The earliest recorded work on the deposit was that which was carried out in 1970 by Wind River Mines Ltd.

The work consisted of bulldozer, trenching, limited geological mapping and 1,460 feet of diamond drilling in ten drill holes.

A gravel air strip was also constructed on the property and an Atco trailer was brought in to serve as a base camp.

### GENERAL GEOLOGY

The regional geology is well described and shown on the G.S.C. Map 15-1962, Geology, Nash Creek, Y.T. The rocks in the vicinity of the property are Cambrian, Ordovician, and Silurian grey and buff weathering dolomite and limestone which are medium to thick bedded. Minor platy black argillaceous limestone and dolomite also form part of the rock unit. Underlying the above rock unit are Precambrian orange weathering, platy, grey-green dolomite, dark slate, minor phyllite and quartzite which overlie older Precambrian dark grey, grey-green, and black, thin-bedded argillite, slate, and phyllite; minor grey quartzite, orange weathering dolomite and conglomerate.

There are a number of west to northwest trending faults in the area and folding is less severe east of Wind River where some open folds are present. The axial trend of the folds is predominately northwest.

Except for the local development of phyllites, there is no metamorphism.

### LOCAL GEOLOGY

The property is underlain by thin-bedded Precambrian grey quartzite and black argillite with local phyllite. The rocks trend at  $065^{\circ}$  and dip steeply to the northwest. Minor folding is present.

A shear zone striking at  $075^{\circ}$  passes through the property and dips steeply to the north. The shear zone contains massive and disseminated chalcopyrite in massive coarse-grained siderite. Bornite, azurite and malachite were noted associated with chalcopyrite on the surface. Much of the shear zone is chloritic with pronounced slicken-sides. The shear has been explored over a length of some 2,100 feet.

#### MINERALIZATION

The mineralization is confined to a shear zone which strikes at  $075^{\circ}$  and has a near vertical dip. The shear and related iron formation (siderite) reach a width of 20 feet or more and contain massive and disseminated chalcopyrite. Minor bands or stringers of siderite occurs in the footwall of the zone. Subsidiary copper-rich zones also occur in close relationship to the main zone.

Due to the trenching of the zone along strike, and the resultant shattering of the rock, it was impossible to cut samples across the zone. A series of random grab samples were collected along 1,000 feet of the strike length which assayed as follows:

<u>Sample No.</u>	<u>Length of Zone Tested</u>	<u>Au oz/ton</u>	<u>Ag oz/ton</u>	<u>% Cu</u>
908V	L16W to L21W = 500 ft	0.002	0.34	4.40
909V	L16W to L11W = 500 ft	0.001	0.18	1.76

The average grade of these contiguous samples is 0.0015 oz Au/ton; 0.26 oz Ag/ton, and 3.08% Cu.

A composite sample of fines was collected along a length of 100 feet which assayed 0.74% Cu; 0.001 oz Au/ton and 0.08 oz Ag/ton. The fines were of pea gravel in size and consisted mainly of siderite.

Selected grab samples (6) were taken basically to show the ratio of copper to silver. The samples ran 12.50% Cu; 0.002 oz Au/ton and 0.92 oz Ag/ton.

#### GEOPHYSICAL AND GEOCHEMICAL SURVEYS

There has not been any geophysical or geochemical work carried out on the property.

#### DIAMOND DRILLING (1970)

A total of 1460 feet of B.Q. wireline diamond drilling in 10 holes was drilled in the fall of 1970 by Wind River Mines Ltd., a private exploration company. The holes were drilled from five set ups and tested the mineralized shear zone between L5W and L18W. The core was left to the elements at each drill site and could not be re-logged. A number of mineralized sections in several of the holes were not split for assay.

D.D.H. NO. A-1

Location: L5W 0+83N Siderite Zone  
 Dip: -50° 79.0' to 92.5'  
 Azimuth: 160°  
 Depth: 130'  
 Intersection: 79' to 92.5' = 13.5'  
True Width: Assay  
 10.0' Not assayed - chalcopyrite and siderite  
Remarks:  
 Zone apparently well leached.

D.D.H. NO. A-2

Location: L5W 0+83N Siderite Zone  
 Dip: -62° 95.2' to 113'  
 Azimuth: 160°  
 Depth: 131'  
 Intersection: 105 - 111.5' = 6.5'  
True Width: Assay  
 3.05' 2.02% Cu  
Remarks:  
 Chalcopyrite was noted in the last five feet of core in lower shear - not assayed.

D.D.H. NO. A-3

Location: L6W 0+69N Siderite Zone  
 Dip: -45° 52.5' to 73.0'  
 Azimuth: 160°  
 Depth: 207'  
 Intersection: (1) 61' to 69.5' = 8.5'  
True Width: Assay  
 6.0' or 2.18% Cu  
 7.8' 1.76% Cu  
Intersection: (2) 99' - 100' = 1.0'  
Assay  
 1.43% Cu

D.D.H. NO. A-4

Location:	L6W 0+69N	<u>Siderite Zone</u>
Dip:	-60°	67.0' to 80.5'
Azimuth:	160°	
Depth:	125'	
Intersection:	67.0' to 78.0' = 11'	
<u>True Width:</u>	<u>Assay</u>	
6.0' or	2.54% Cu	
5.0' or	3.09% Cu	
2.0'	6.20% Cu	

Remarks:

The last three feet of core from 122' to 125' assayed 3.0% Cu.

D.D.H. NO. A-5

Location:	L6W 0+69N
Dip:	-72°
Azimuth:	160°
Depth:	92'

Remarks:

This hole was stopped short of the main zone. The drillers confused the proposed lengths of D.D.H. # A-3 and D.D.H. # A-5

D.D.H. NO. A-6

Location:	L10W 0+68N	<u>Siderite Zone</u>
Dip:	-45°	58.5' to 72.5'
Azimuth:	160°	
Depth:	127'	
Intersection:	69.0' to 72.0' = 3.0'	
<u>True Width:</u>	<u>Assay</u>	
2.12'	2.45% Cu.	

Remarks:

Copper mineralization was noted from 61.0' to 69.0' but was not assayed. Also from 81' to 85' was not assayed.



D.D.H. NO. A-7

Location:	L10W 0+68N	<u>Siderite Zone</u>
Dip:	-70°	121' - 143'
Azimuth:	160°	
Depth:	170'	
Intersection:	130' to 133' = 3.0'	
<u>True Width:</u>	<u>Assay</u>	
1.02' or	5.06% Cu	
3.06'	1.69% Cu	

Remarks:

Disseminated chalcopyrite was noted from 151' to 154.5' but not assayed.

D.D.H. NO. A-8

Location:	L17W 0+65N	<u>Siderite Zone</u>
Dip:	-45°	86' to 114.3'
Azimuth:	165°	
Depth:	130'	
Intersection:	95.0' to 101.0' = 6.0' or 95.0' to 108' = 13.0'	
<u>True Width:</u>	<u>Assay</u>	
4.24' or	2.65% Cu	
9.19'	1.72% Cu	

D.D.H. NO. A-9

Location:	L17W 0+65N	<u>Siderite Zone</u>
Dip:	-64°	125.2' to 153'
Azimuth:	165°	
Depth:	192'	
Intersection:	126' to 149' = 23'	
<u>True Width:</u>	<u>Assay</u>	
10.1' or	1.78% Cu	
6.36' or	2.48% Cu	
4.82' or	2.97% Cu	
3.95'	3.41% Cu	

D.D.H. NO. A-10

Location:	L18W 0+62N	<u>Siderite Zone</u>
Dip:	-45°	80.0' to 105'
Azimuth:	160°	
Depth:	133'	
Intersection:	97.0' to 103.0'	
<u>True Width:</u>	<u>Assay</u>	
4.24'	2.61% Cu	

Remarks:

Chalcopyrite was noted from 91.0' to 105.0' Only the central portion was assayed.

The weighted average grade and width of the zone as indicated by the diamond drilling is 2.51% copper across a true width of 4.06 feet.

The grade of mineralization appears to increase significantly with depth.

ORE RESERVES

Tonnages were calculated using the true thicknesses of drill hole intersections. The weighted average grades of all assays influencing the area sampled were utilized along with a tonnage factor of ten cubic feet per ton. With the limited amount of drilling carried out to date, the only category that may be applied to the reserves is that of drill indicated ore reserves.

Drill indicated reserves were calculated utilizing only the area of the zone influenced by the diamond drilling.

Tonnage Calculation

Length of Zone Tested	1500 feet
Average True Thickness of Zone	4.06 feet
Weighted Average Grade	2.51% Copper

Drill Indicated Ore Reserves

$$\frac{1500 \times 4.06 \times 1}{10} = 609 \text{ tons/vertical foot}$$

Average depth tested to date: 120 feet

Drill Indicated Tonnage to a depth of 120 feet - 73,080 tons.

POTENTIAL ORE RESERVES

The shear zone and related mineralization is open in three directions; along strike and to depth. Additional potential exists in the further delineation of the lower mineralized shear zone encountered in four of the drill holes.

EXPLORATION AND DEVELOPMENT PROGRAMME

Additional diamond drilling should be carried out to further delineate the zones along strike and at depth. To facilitate the drilling an electromagnetometer, magnetometer and geochemical survey should be undertaken.

Geological mapping and prospecting of the entire property should be carried out to provide additional information which will aid in the interpretation of the other surveys.

A metalurgical study should also be made on a bulk sample of the mineralization.

Arrangements should be made to purchase the camp and equipment and fuel supplies from the previous owners of the property.

The air strip will require maintenance to accomodate fixed winged aircraft.

Contingent upon the results of the initial surveys and diamond drilling, a second phase, consisting of further diamond drilling should be undertaken.

ESTIMATE OF COSTS OF EXPLORATION PROGRAMMEPHASE I

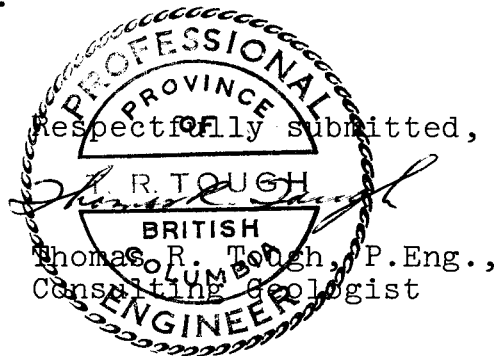
Diamond Drilling 2,000 feet B.Q. Wireline at \$25/foot all inclusive	\$50,000.00
Line Cutting - 20 miles at \$150/mile	3,000.00
Magnetometer and Electromagnetometer survey 20 line miles at \$300/line mile	6,000.00
Geochemical Survey 1000 samples at \$4/sample	4,000.00
Assaying	1,500.00
Geological Mapping	6,000.00
Purchase of Equipment and supplies located on property	5,000.00
Repairs to Airstrip	5,000.00
Metalurgical Study	2,500.00
Camp supplies and food	4,000.00
Communications	2,000.00
Engineering and Supervision	6,000.00
Airfares - fixed wing and helicopter	10,000.00
Contingencies	15,000.00
	<u>\$120,000.00</u>

Contingent upon the results of Phase I, a second phase consisting of additional diamond drilling should be undertaken.

PHASE II

Diamond Drilling, 5,000 feet B.Q. Wireline at \$25/foot all inclusive	\$125,000.00
Engineering and Supervision	10,000.00
Contingencies	20,000.00
	<hr/>
	\$155,000.00
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It is estimated that Phase I should take approximately two months to complete.



June 8, 1976  
Vancouver, B.C.

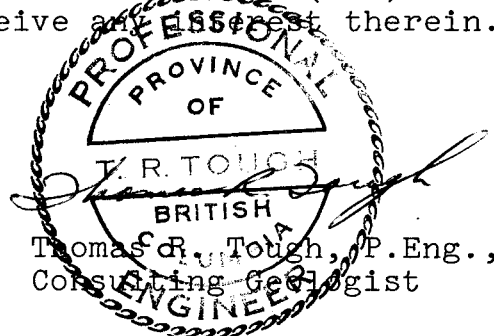
## CERTIFICATE

I, Thomas R. Tough, of the City of Richmond,  
in the Province of British Columbia, do hereby certify:

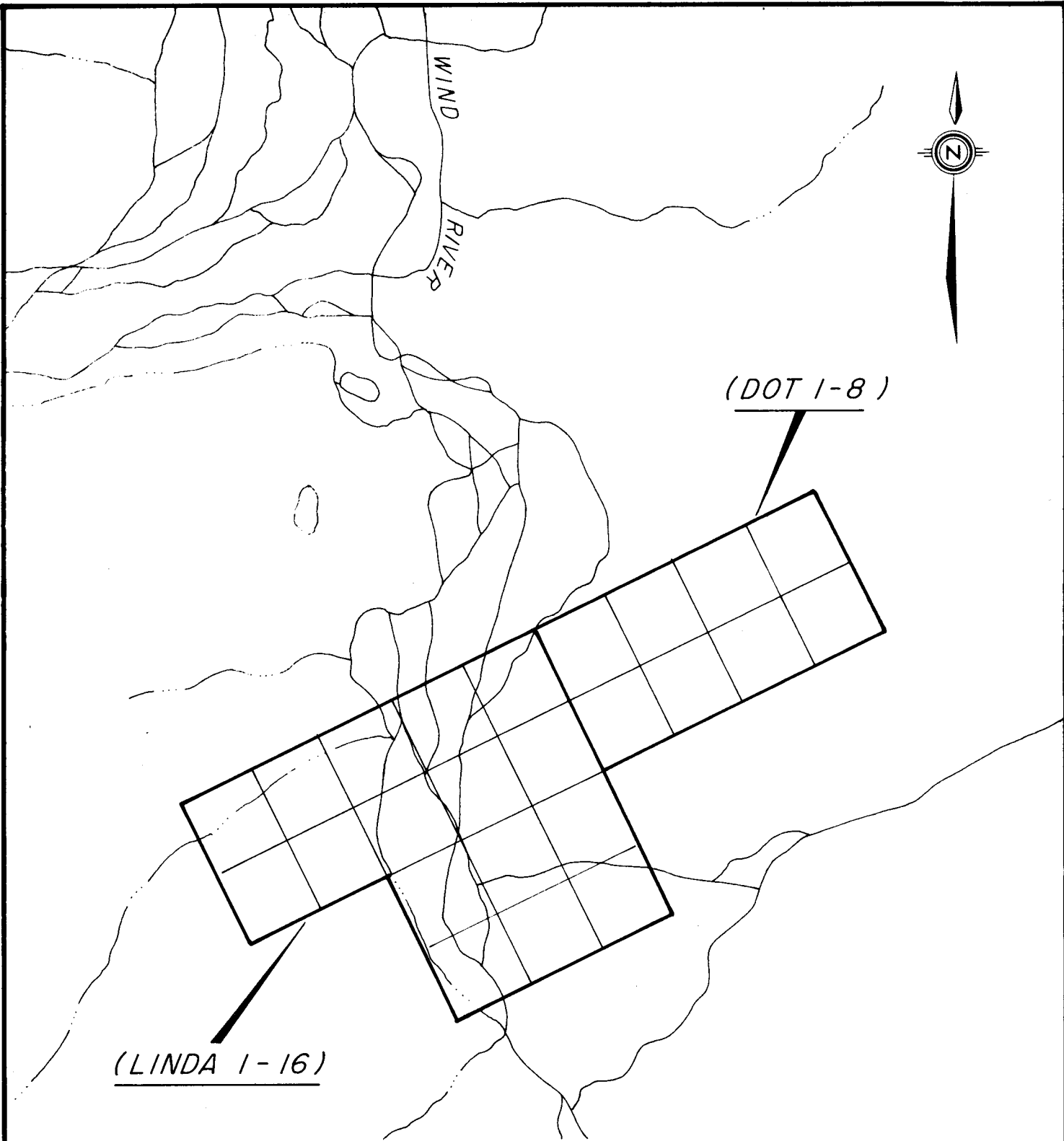
That I am a Consulting Geologist and an Associate  
of T.R. Tough & Associates Ltd., with offices at 500-1075 Melville  
Street, Vancouver, B.C.

I further certify that:

1. I am a graduate of the University of British Columbia (1965) and hold a B.Sc. degree in Geology.
2. I have been practising my profession for the past eleven years.
3. I am registered with the Association of Professional Engineers of British Columbia.
4. The information derived for this report was obtained from a personal examination of the property by the writer on June 3 and 4, 1976; and from private and government reports.
5. I have no direct or indirect interest whatsoever in the property described herein, nor in the securities of B.R. Resources Ltd (NPL) and do not expect to receive any interest therein.

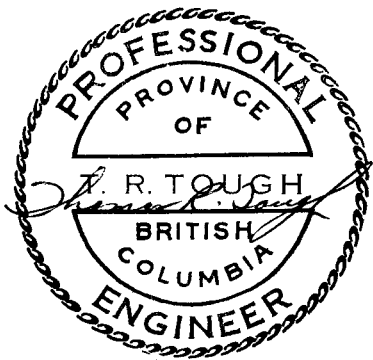


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Vancouver, B.C.



(LINDA 1-16)

(DOT 1-8)



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WIND RIVER PROPERTY

**CLAIM MAP**

YUKON TERRITORY

SCALE



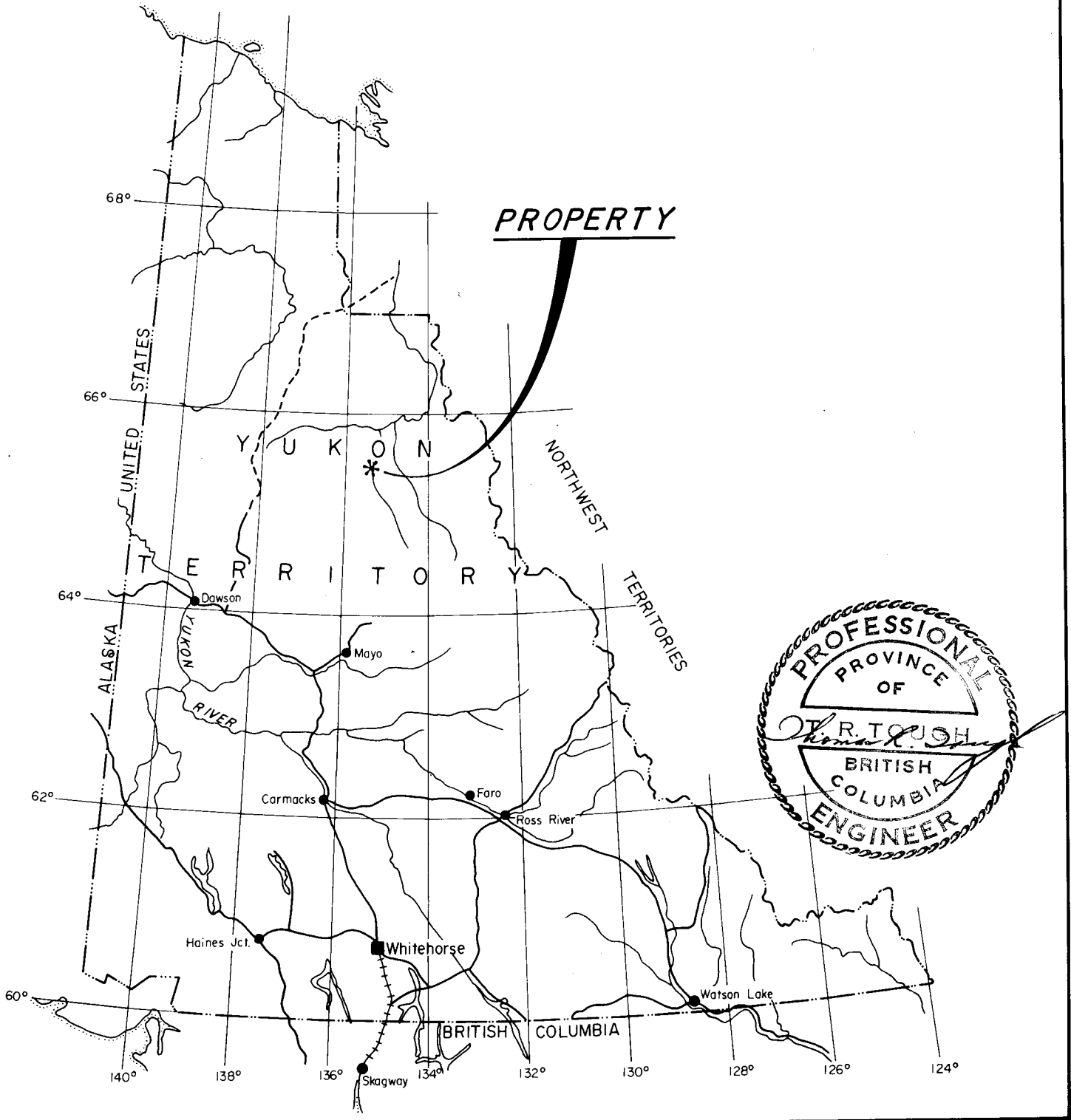
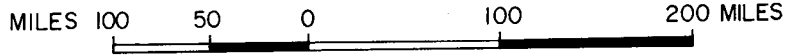


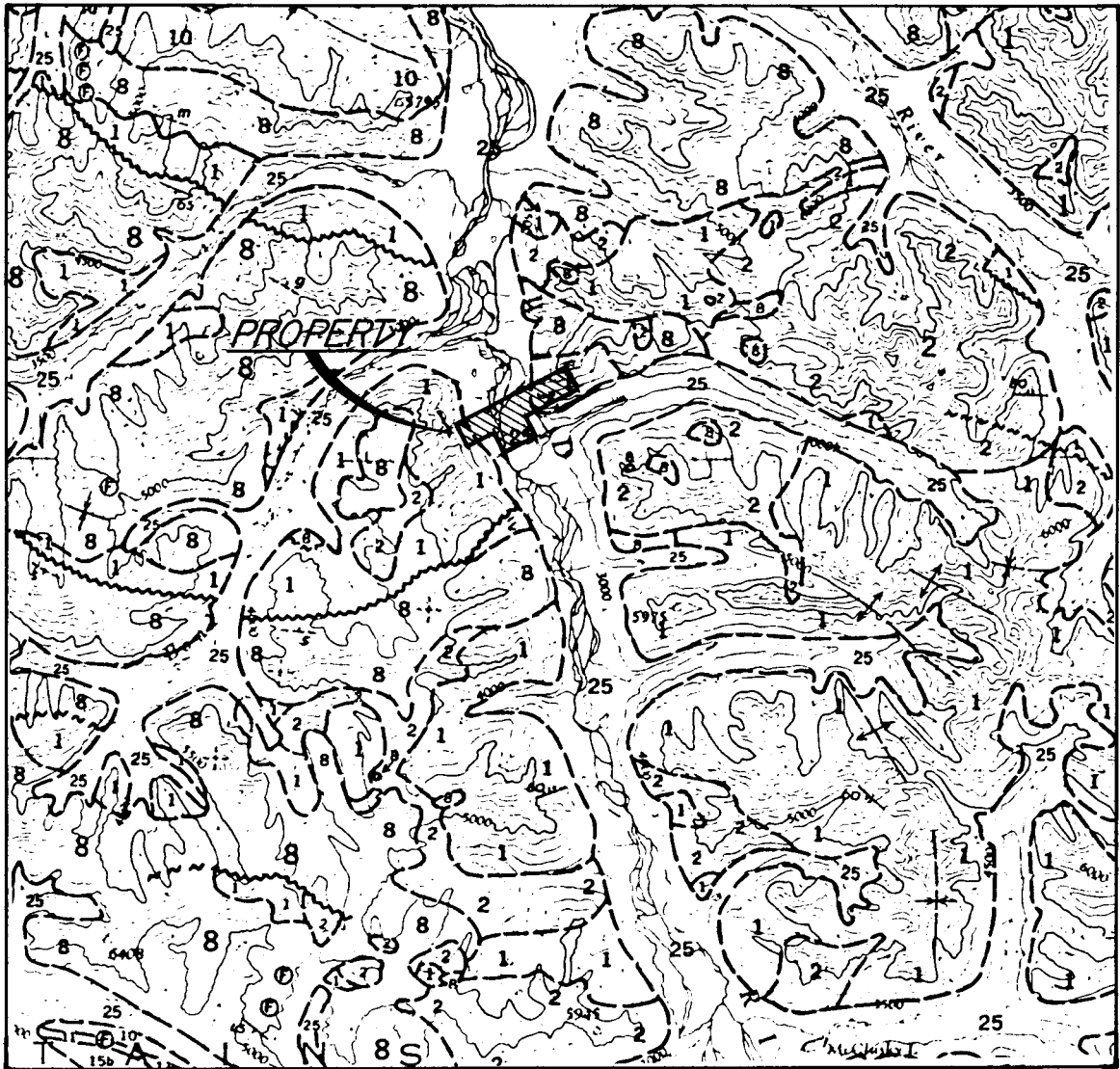
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WIND RIVER PROPERTY  
**LOCATION MAP**

YUKON TERRITORY

SCALE





LEGEND

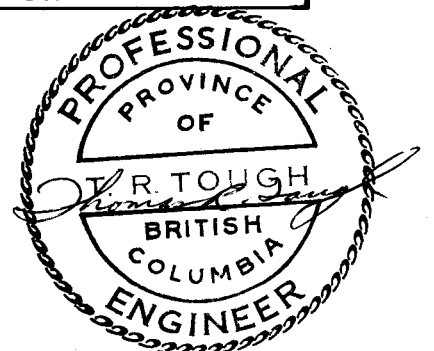
CAMBRIAN, ORDOVICIAN, AND SILURIAN

8 Grey and buff weathering dolomite and limestone

PRECAMBRIAN

2 Orange weathering, platy, grey-green dolomite, dark slate; minor phyllite and quartzite

1 Mainly dark grey, grey-green, and black, thin-bedded argillite, slate, and phyllite; minor grey quartzite



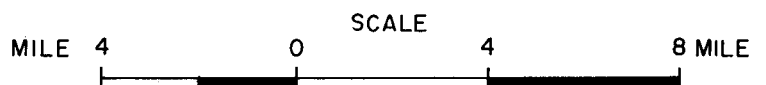
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WIND RIVER PROPERTY

**REGIONAL GEOLOGY**

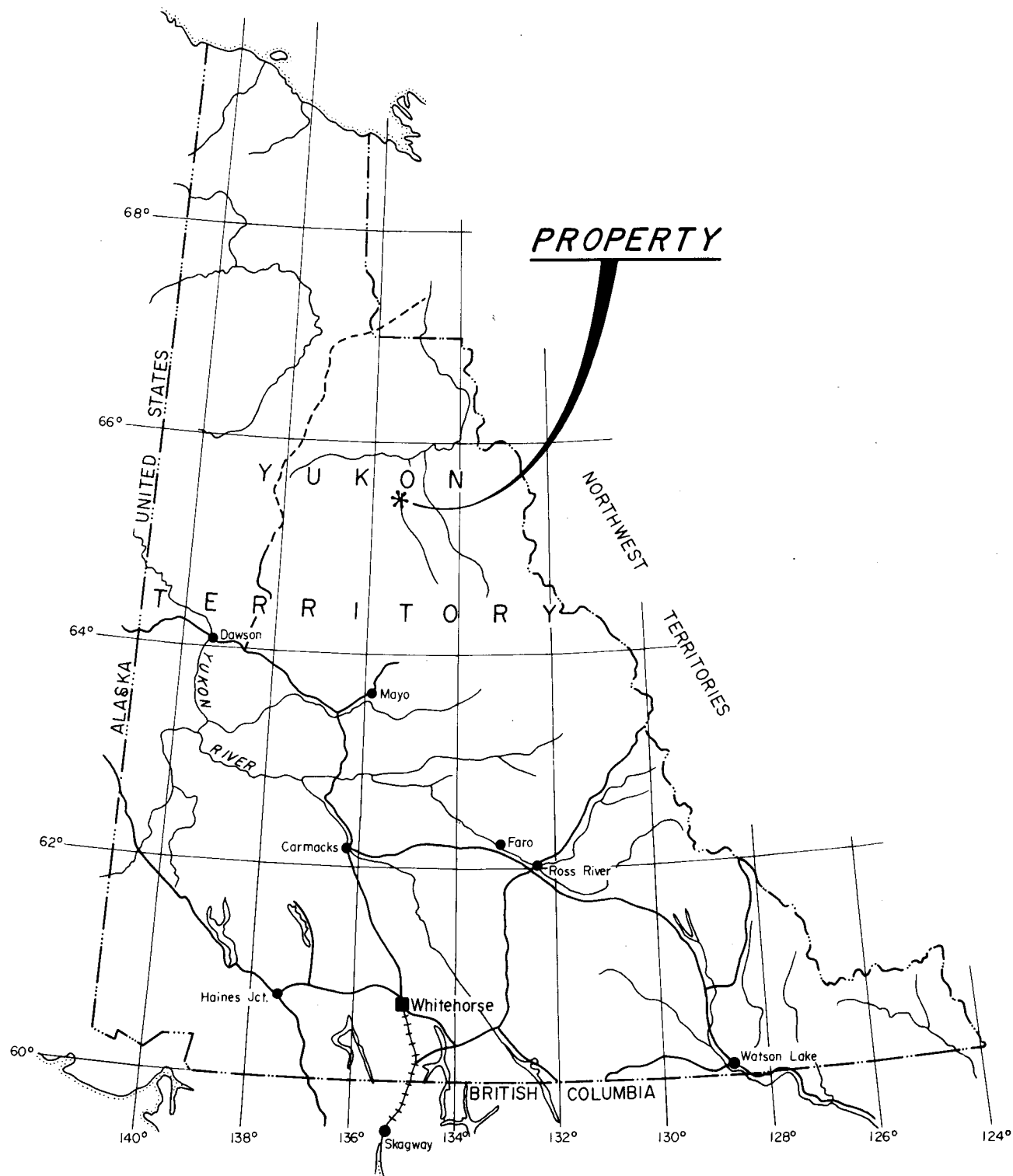
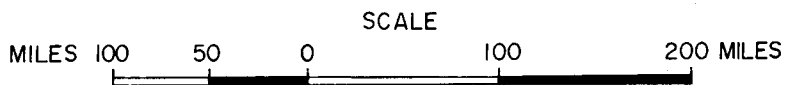
YUKON TERRITORY

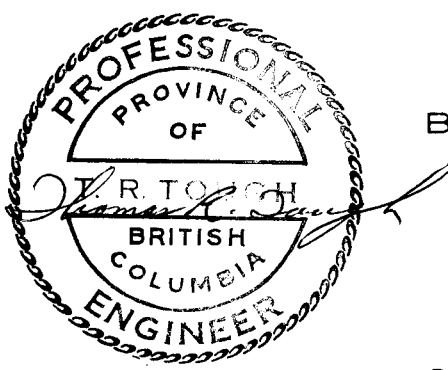
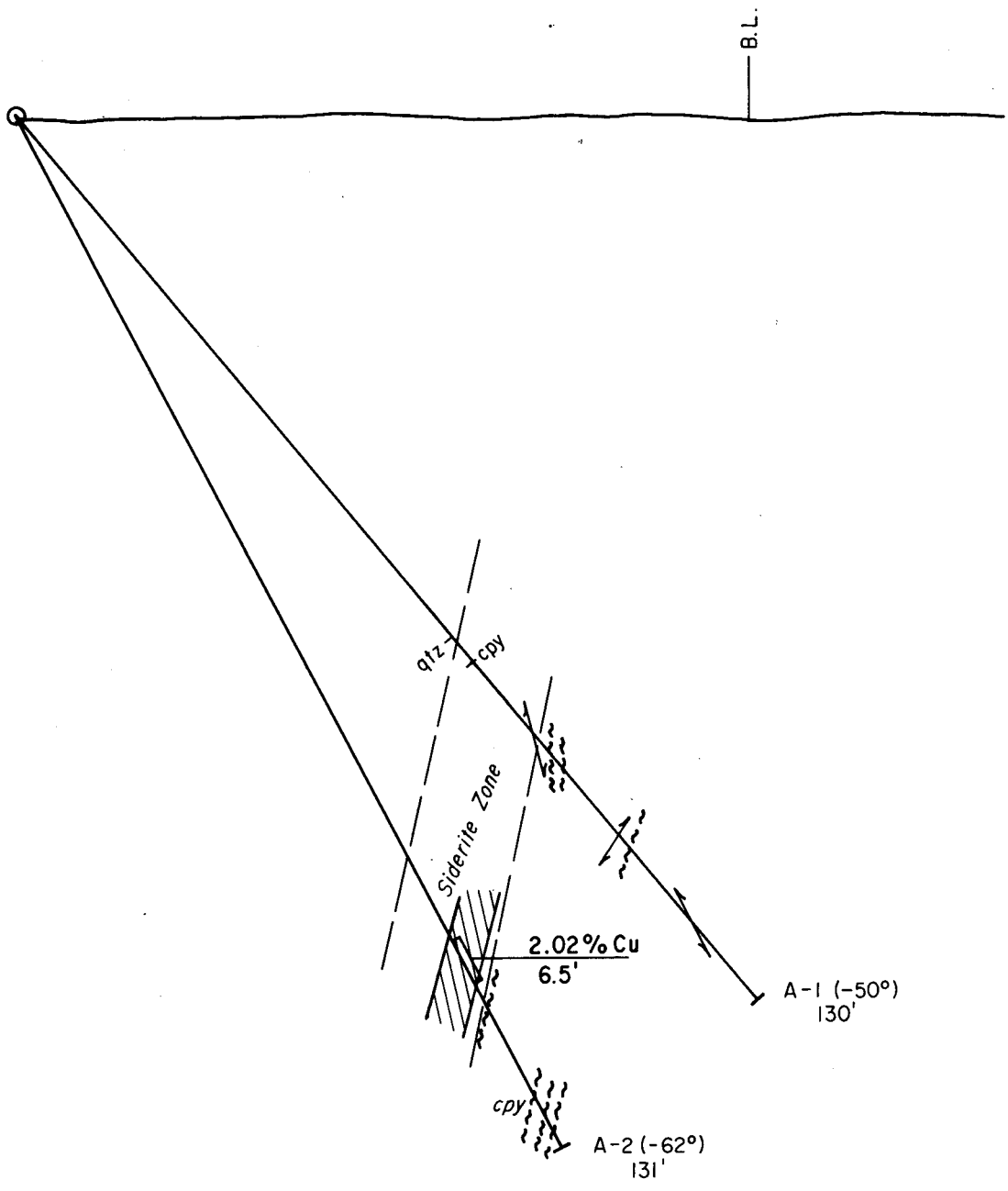


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# WIND RIVER PROPERTY LOCATION MAP

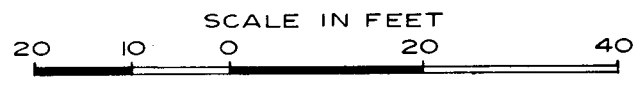
YUKON TERRITORY

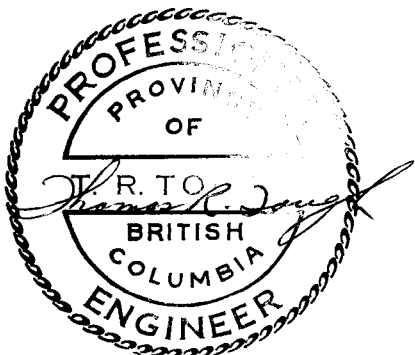
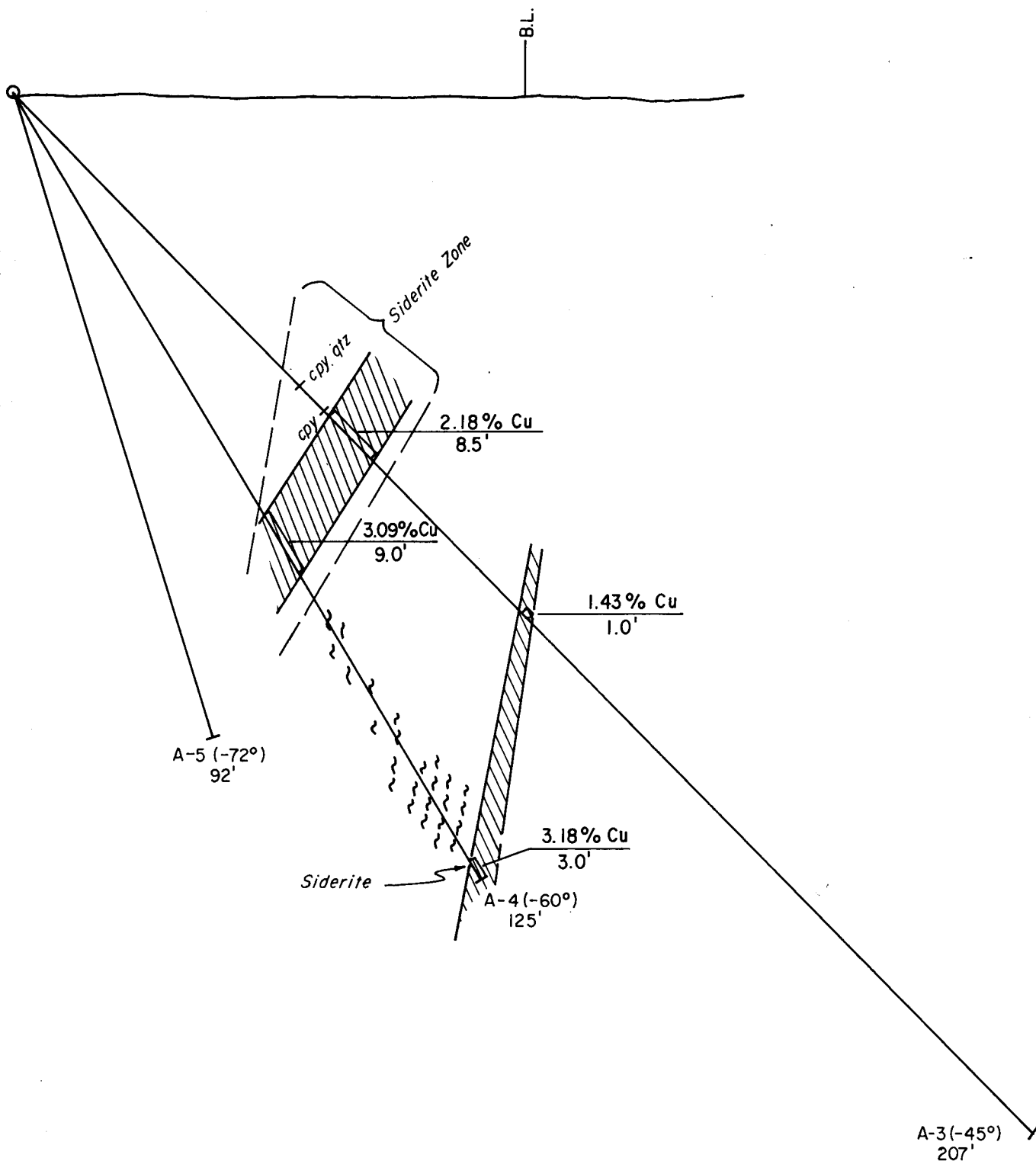




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 B.R. RESOURCES LTD. (N.P.L.)  
 WIND RIVER PROPERTY, Y.T.

**SECTION 5 +00W  
 FACING 070°**

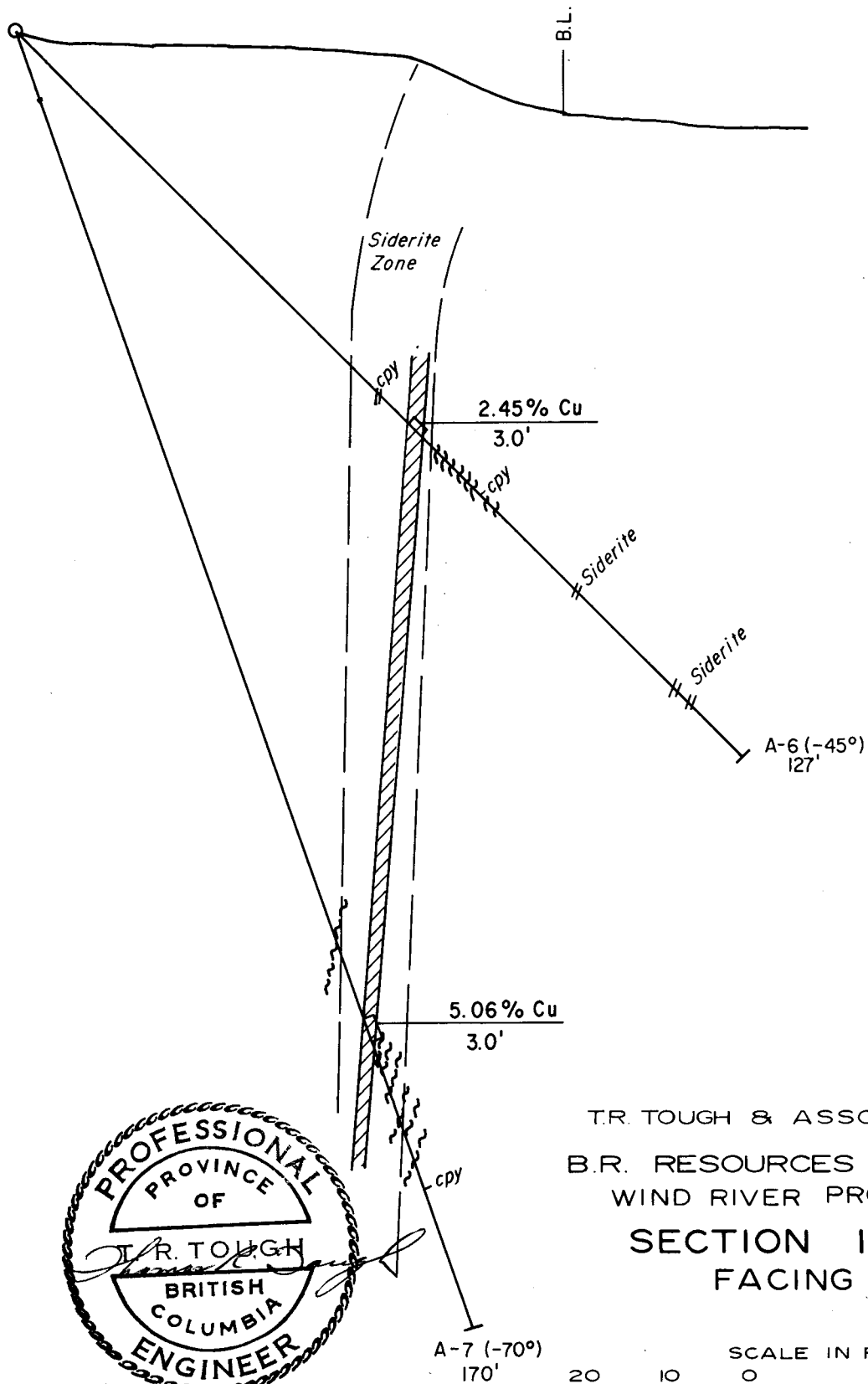




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 WIND RIVER PROPERTY, Y.T.

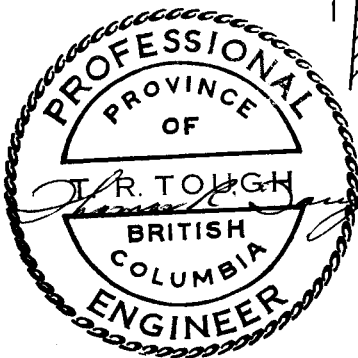
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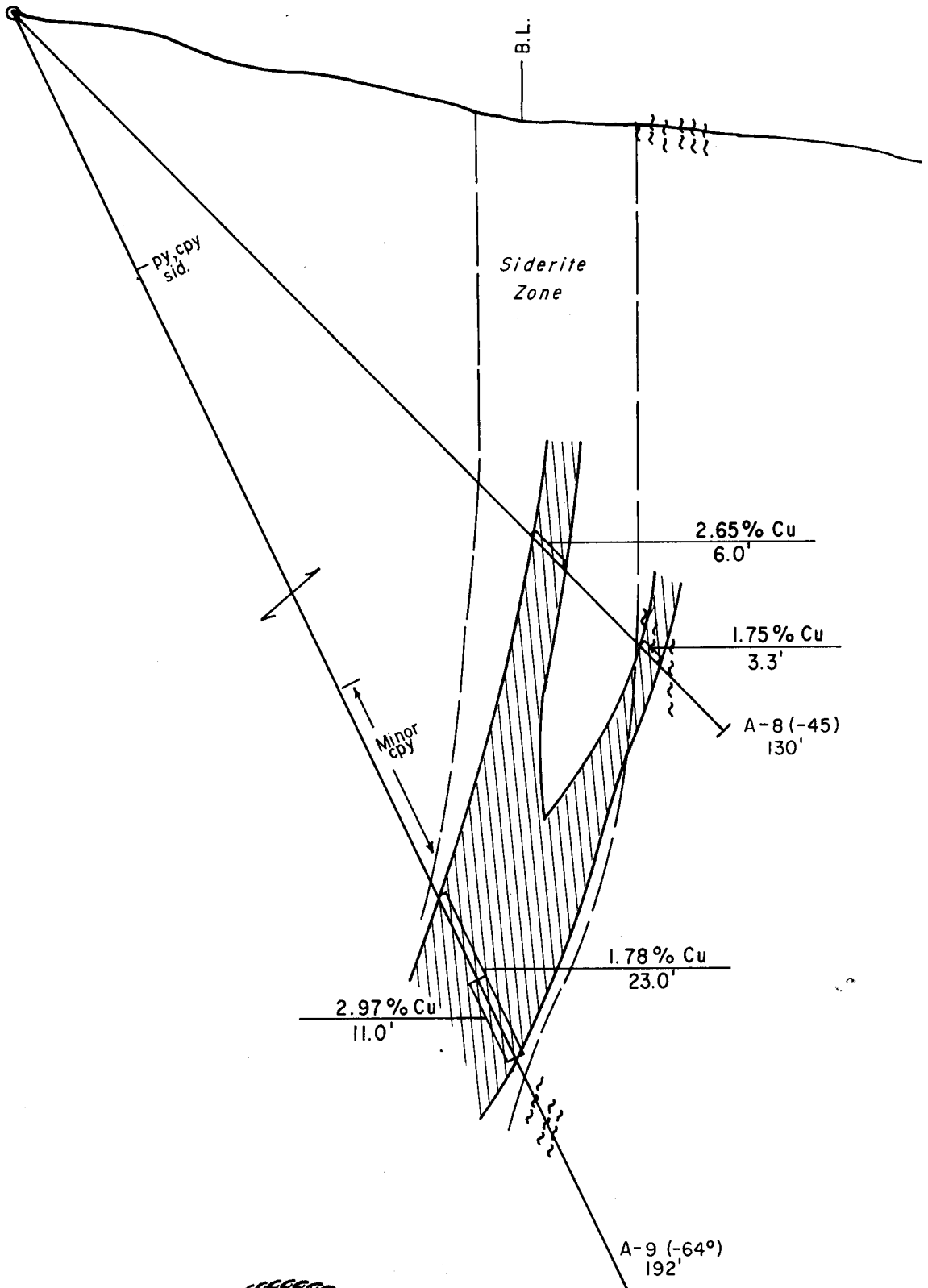




T.R. TOUGH & ASSOCIATES LTD.  
 B.R. RESOURCES LTD. (N.P.L.)  
 WIND RIVER PROPERTY, Y.T.

SECTION 10+00W  
 FACING 070°

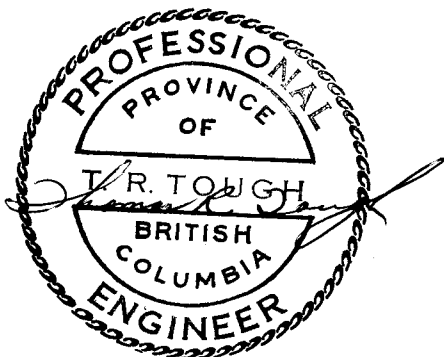
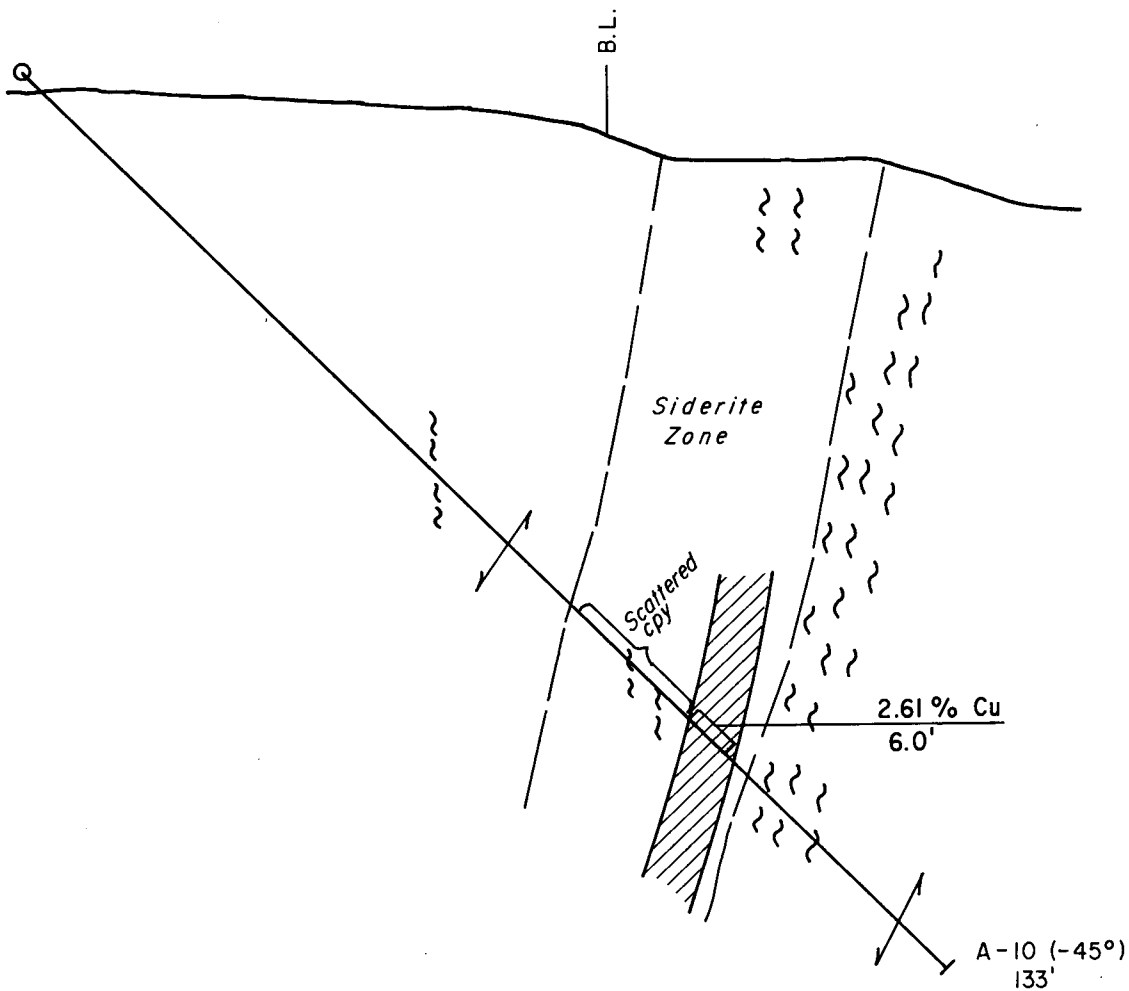




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B.R. RESOURCES LTD. (N.P.L.)  
WIND RIVER PROPERTY, Y.T.

SECTION 17+00W  
FACING 070°





T.R. TOUGH & ASSOCIATES LTD.  
 B.R. RESOURCES LTD. (N.P.L.)  
 WIND RIVER PROPERTY, Y.T.

**SECTION 18+00W  
 FACING 070°**

