

# 5467

A GEOLOGICAL REPORT

on the

ZZ # 3-8, 15-20 claims

and the WILL # 1 & 2 fractions of

HORSESHOE MINES LTD (NPL)

Situated 7 miles West of Kamloops

in the Kamloops Mining Division

of British Columbia

N.T.S. 92 I/10(E), 9(W)

Lat: 50°41'N Long: 120°30'W

on behalf of

HORSESHOE MINES LTD (NPL)

CLAIM - ZZ

by

D.R. Morgan, P. Eng

Dates of Survey: 5 Oct 1974 - 22 Nov 1974

Date of Report: 18 April 1975

Department of Mines and Petroleum Resources ASSESSMENT REPORT NO. <u>5467</u> MAP _____
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92I/10E, 9W

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### Maps Accompanying this report:

Property Location Map -	1" - 125 miles	3a
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ZZ Claims - Geology -	1" - 300 feet	(pocket)

1 - 0 SUMMARY:

Geological mapping of that part of the ZZ claims considered to have the best exploration potential was carried out by the writer in the fall of 1974.

This mapping revealed the following:

1. The rocks lying to the north and south of the valley followed by the dirt road on the property are unrelated and are probably separated by an east - west fault roughly following the valley floor.
2. The rocks on the south side of this assumed fault have some of the characteristics of the Nicola Group.
3. No extensions or repetitions of the minor copper mineralization occurring at outcrop 29 were detected.

2 - 0 CONCLUSIONS:

Future exploration should be confined to the area south of the dirt road across the property.

3 - 0 INTRODUCTION:

3 - 1 Scope & Dates of Report: On the 16th of September 1974 the writer was asked by Mr. A. Joe, President of Horseshoe Mines Ltd., NFL, to carry out detailed geological mapping in the south part of the Company's ZZ claims in the Kamloops area.

Geological field work began on 5 October 1974 and was continued intermittently until 22 November 1974.

3 - 2 Title: The property consists of 26 claims in which China Commercial Corporation Ltd holds a 75% interest and Horseshoe Mines Ltd a 25% interest. An application for a Certificate of Work was filed on 12 March 1975. Claim data is summarized below:

<u>Number</u>	<u>Name of Claims</u>	<u>Record Number</u>	<u>Years Applied</u>	<u>New C of W Due</u>
7	ZZ # 2 - 8	78062 - 78068	1 each	21 March 1976
6	ZZ # 15 - 20	78073 - 78078	1 each	21 March 1976
6	ZZ # 27 - 32	78083 - 78088	1 each	21 March 1976
1	ZZ # 50	78103	3 in 1973	21 March 1976
5	WILL # 1-5 Frs	119464-119468	1 each	7 June 1976
1	WILL # 7 Fr	119470	1	7 June 1976
<u>26 total</u>				

3 - 3 History: The exploration history of this property has been as follows:

1969: Geochemical Survey carried out with soils sampled at 200 foot intervals along lines spaced at 400 feet. A zone with weakly anomalous copper values was detected in the S.E. part of the claim group.

1970: A Magnetometer survey was carried out.

1971: Prospecting and Bulldozer trenching was carried out.

1972: A Geological Survey of the property was carried out. This indicated that the main area of interest lay in the southern part of the property.

1974: A detailed Geological Survey of the southern part of the property was carried out. Eight claims in the northern part of the property have been allowed to lapse.

4 - 0 GEOGRAPHY:

4 - 1 Location: The property is located 7 miles due west of Kamloops, B.C. and adjoins and lies to the north of the Afton Mines property and the Trans Canada Highway. The property is in the Kamloops Mining District, straddles National Topographic System areas 92I/10(E) and 92I/9(W) and has a latitude of  $50^{\circ}41'N$  and a longitude of  $120^{\circ}30\frac{1}{2}'W$ .

4 - 2 Access: The property is accessible from the Trans Canada Highway which skirts its southern margin. Dirt roads provide access to much of the property and the open rangeland is mostly accessible to four wheel drive vehicles without roadbuilding.

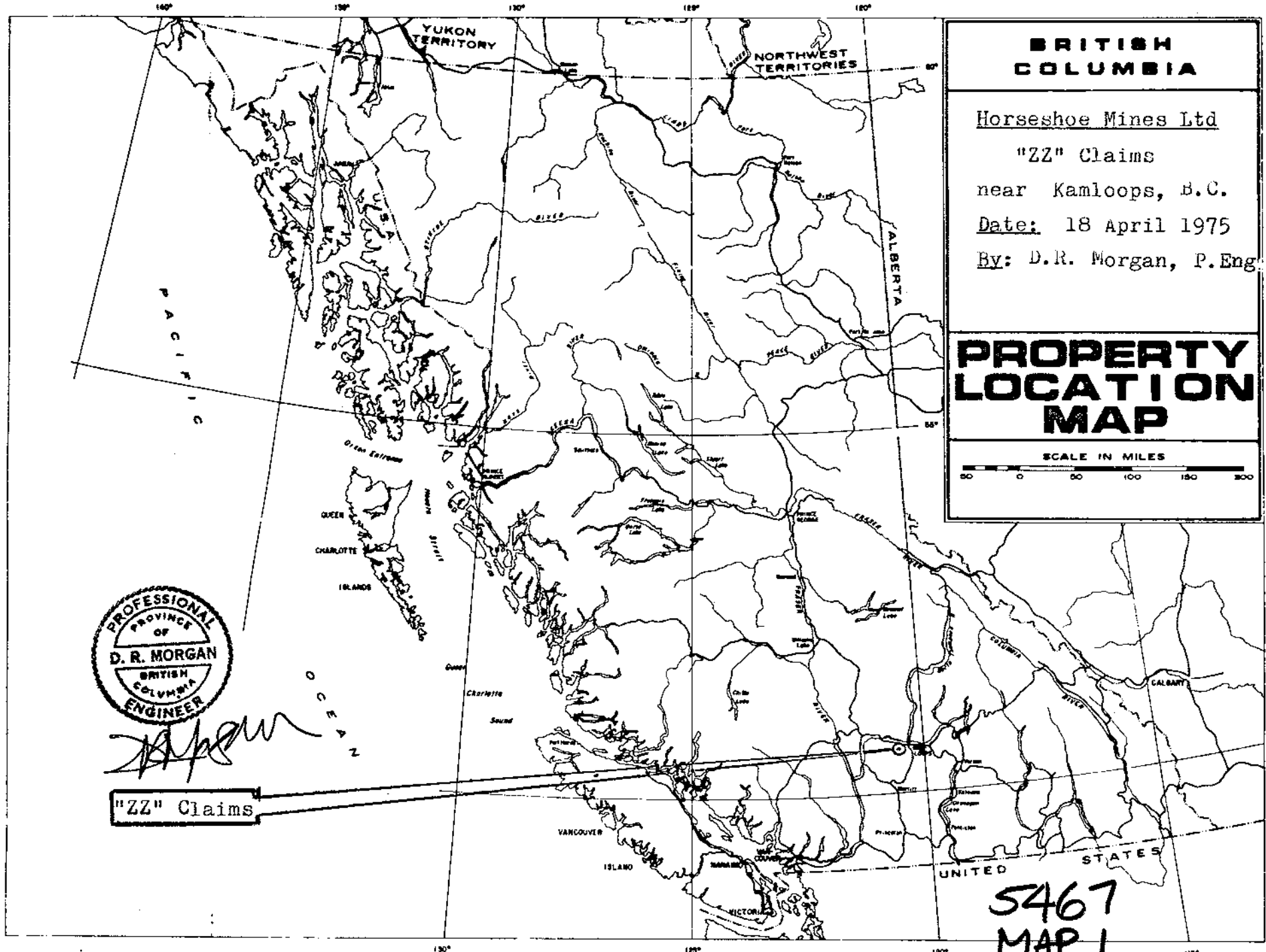
4 - 3 Topography: The property covers an east-west trending ridge with gentle south facing slopes and steeper north facing slopes above Kamloops Lake.

5 - 0 REGIONAL GEOLOGY:

The oldest rocks in the area are the volcanics of the Upper Triassic Nicola Group. This group has been intruded by the north-westerly trending Iron Mask Batholith of Jurassic (and later) age, composed of a gabbro-diorite phase and a microdiorite-micromonzonite phase.

Two late stage intrusives occur within the batholith, generally concordant with its northwest trend. These are the Sugarloaf porphyritic microdiorite and the Cherry Creek porphyritic microdiorite, latitic porphyry, trachyte porphyry and igneous breccia. These late stage intrusions appear to have been localized by three major north-westerly trending fracture systems within the batholith.

"Known occurrences of copper mineralization also follow these active zones (fracture systems), and in virtually every instance they are accompanied by the presence of Sugarloaf and/or Cherry Creek intrusions which can be seen either at the surface or in diamond drill core." (Preto - Min. of Mines An. Rep. 1967, p. 140)



**BRITISH  
COLUMBIA**

Horseshoe Mines Ltd

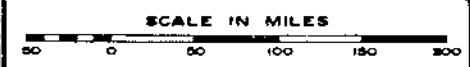
"ZZ" Claims

near Kamloops, B.C.

Date: 18 April 1975

By: D.R. Morgan, P.Eng.

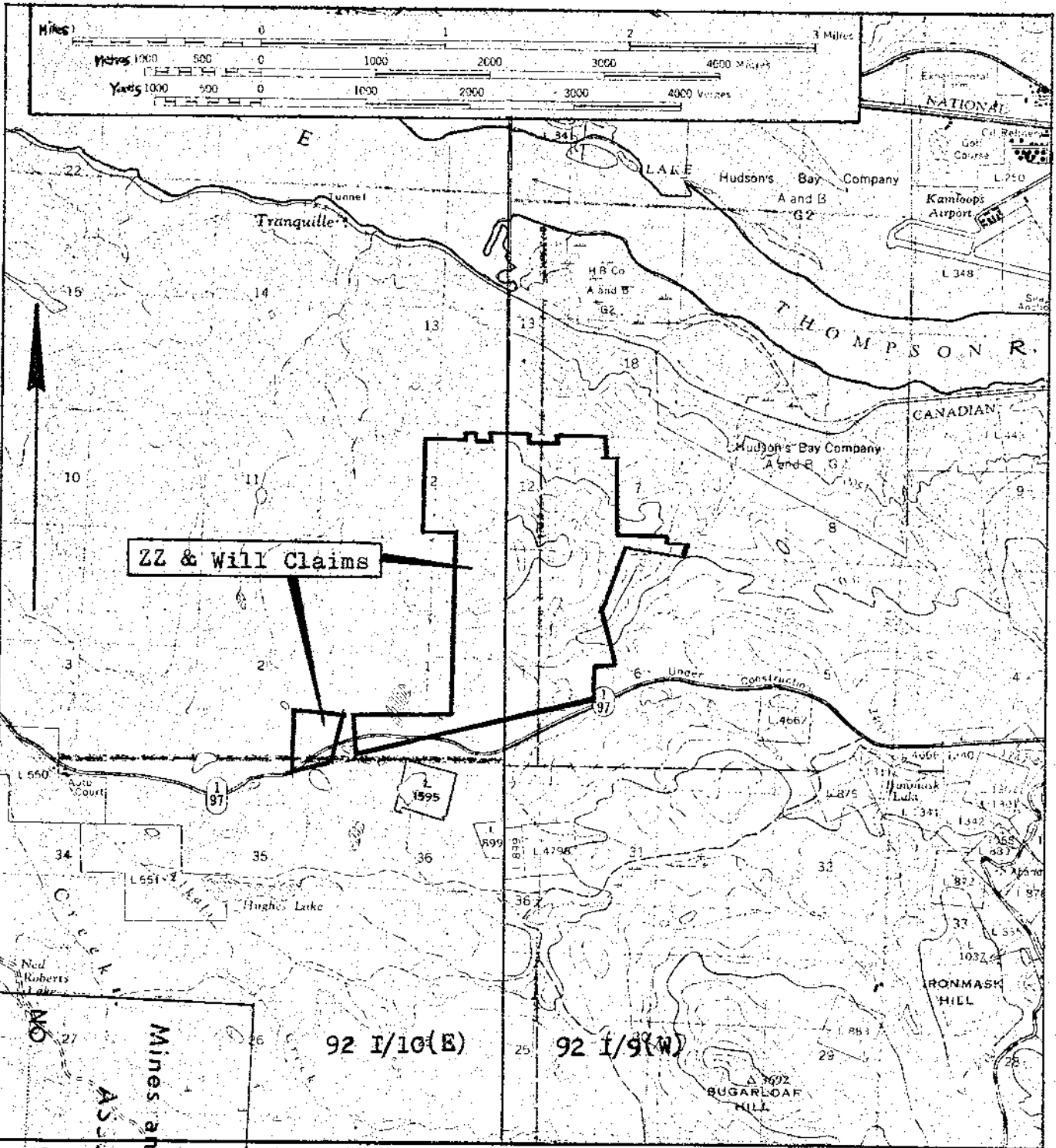
**PROPERTY  
LOCATION  
MAP**



*[Handwritten signature]*

"ZZ" Claims

5467  
MAP 1



HORSESHOE MINES LTD (RPL)

Property Location Map

for

ZZ & Will Claims

Scale: 1 : 50,000

Date: 18 April 1975

5467  
MAP 1A

*[Handwritten Signature]*



Department of  
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ASSESSMENT REPORT  
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"Afton's Lake Zone is located in an area of structural intersections that have undergone intensive brecciation and fracturing. The rocks range from quartz diorite through diorite and monzonite to syenite. The alteration is generally so intense that the original character of the rocks is not readily discernible.

Mineralization occurs primarily along fractures and within brecciated areas in the form of native copper, chalcocite, bornite, and chalcopyrite. Magnetite and hematite are pervasive.

Strong suggestions have been made regarding the presence of Nicola volcanics which are mineralized." (Bell, C.W. & Saleken, L.W. quoted by Chester Millar, Western Miner, Feb. '83)

Immediately north of the Afton orebody is an E \* W trending regional fault which, in this area, has approximately the same location as the Trans Canada Highway. On the north side of this fault lie down-faulted Tertiary volcanics and sediments of the Kamloops group.

It is these Kamloops Group rocks which underlie most if not all of the ZZ claims.

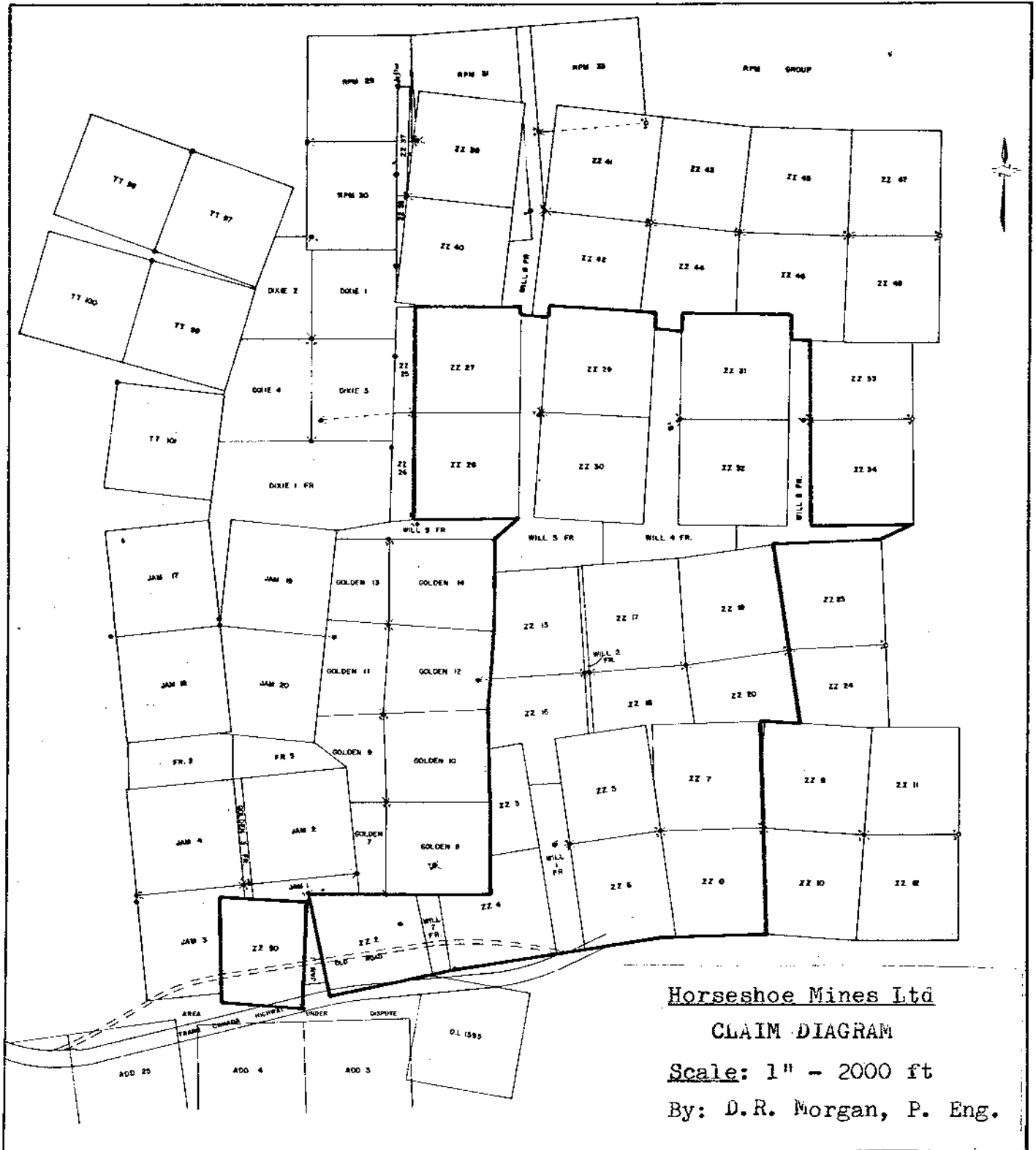
#### 6 - 0 GEOLOGY OF THE PROPERTY:

6 - 1 General Statement: The mapping done by the writer in 1972 showed the property to be underlain by basalts, andesites and sediments of the Kamloops Group with a northerly dip of about 30°. Minor copper mineralization was observed in one outcrop of the purple volcanic fragmentals immediately underlying the Tranquille sediments.

The more detailed mapping carried out in 1974 showed that the rocks lying to the south of the E - W dirt road across the property are not the up-dip equivalents of those rocks to the north of the road. They may be Kamloops Group rocks or possibly Nicola Group rocks displaced by faulting. Mapping also showed that the Kamloops Group volcanics and sediments are offset by a northerly striking fault. No extensions or repetitions of the copper mineralization either in the purple volcanic fragmental or in other rock types was observed.

6 - 2 Mapping Procedure: Mapping was carried out at a scale of 1" - 100 feet. Outcrops were tied in to stations on base lines by Topofil chain and compass traverses. Outcrops were numbered consecutively and a suite of specimens with corresponding numbers is retained by the company.





Horseshoe Mines Ltd

CLAIM DIAGRAM

Scale: 1" - 2000 ft

By: D.R. Morgan, P. Eng.



5467  
*[Handwritten Signature]*  
 MAP 2

6 - 3 Rock Types:

Basalt: A grey to greenish grey aphanitic flow with disseminated 1 mm 'eyes' of waxy black serpentine (after olivine). Crude columnar structure is exhibited at outcrop 4 on the brow of the hill.

Siltstones & Shales: Thin bedded (5 - 15 mm) greyish white to creamy white crumbly and poorly consolidated siltstone with lesser (5%) interbedded black shales, also thin bedded but more massive. Within the siltstones are some basalt flows (ocps 9, 10) which have a characteristic weathering to a pea sized gravel. The basalts which overlie the siltstones (Tranquille Beds) themselves contain beds of siltstone (ocp 41). This interleaved type of contact probably accounts for the rapid change in the thickness of the Tranquille Beds between outcrops 2 and 39.

Andesite, Purple Fragmental: This well defined unit is in sharp contact with the Tranquille Sediments above. The generally angular fragments range in size between 5 mm and 80 cms (ocp 19) but are typically 1 cm in size. These fragments are generally purplish and aphanitic but are occasionally green. The matrix of this fragmental is generally purplish and aphanitic, but contains scattered feldspar and hornblende laths. The angularity of the fragments suggests origin as a volcanic flow breccia, though contradictory evidence appears at outcrop 24. Here, the fragments have compositions which are variously dark red jasperoid, pink granitic and dark green aphanitic types. Two included northerly dipping beds of pink fine grained material suggest a sedimentary origin - possibly as red beds in semi desert conditions. On balance however, the writer prefers to consider this unit as a volcanic fragmental.

Dacite: A buff weathering buff coloured, equigranular, hard, splintery volcanic forming well defined pillows from 30 to 150 cms across. Under the lens a generally equigranular intergrowth of reddish brown and buff feldspars (50%) with biotite (35%) and quartz (15%) is visible.

Andesite, Green Massive: A dark green, hard, splintery, aphanitic volcanic with some very fine grained accessory pyrite and grey anhedral ghostly feldspars visible under the lens.

Andesite, Green Fragmental: A greenish grey aphanitic volcanic with indistinct fragments from 5 - 10 mm visible on an uneven,, hackly broken surface. Sometimes pyritic (ocp 37) and epidotized and chloritized (ocp 35)

#### 7 - 0 STRUCTURES:

To the north of the dirt road across the property, the sediments and volcanics have a generally uniform dip to the north of 30°. To the south of the road however there is a marked change in rock type. At outcrop 47 for instance, on a 50 foot bluff above the road where one would expect to find the purple fragmental andesite there is a buff coloured dacite.

The simplest explanation for this apparent unconformity is an E - W fault roughly following the dirt road. Such a fault would be parallel and probably related to the regional fault in the vicinity of the Trans Canada Highway 1,500 feet to the south. Just which part of the volcanic 'stack' the rocks to the south of the dirt road represent is unclear, but there is a possibility that they belong to the Nicola Group (ie: a block fault slice intermediate in level between the rocks to the north and south.)

A northerly striking vertically dipping fault offsets the Tranquille beds and is expressed in a gully at the western margin of ZZ #s 19 and 20. This fault is well exposed in the purple fragmental andesite of outcrop 24.

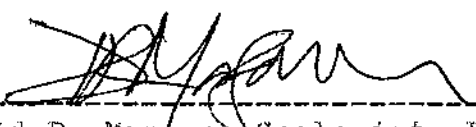
#### 8 - 0 MINERALIZATION:

The minor copper mineralization at outcrop 29 remains the sole 'showing' on the property. It was described as follows on page 7 of the writer's 1973 report:

" A prominent bluff of reddish volcanic fragmentals lies on the north side of the valley about 200 feet from the dirt road. Calcite or ankerite filled fractures up to  $\frac{1}{4}$  inch and striking 355° with a

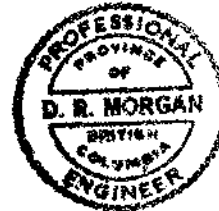
"vertical dip,, cut a very much decayed purplish volcanic fragmental. Adjacent to one of these fractures the volcanics are stained with mal-achite across approximately two inches."

Respectfully submitted,



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David R. Morgan, Geologist, P. Eng.

Vancouver, B.C.      18 April 1975



DOMINION OF CANADA:  
 PROVINCE OF BRITISH COLUMBIA.

In the Matter of the GEOLOGICAL SURVEY on the  
 ZZ #s 2-8, 15-20, 27-32 &  
 Will #s 1-5 & 7 mineral claims held by Horseshoe  
 Mines Ltd, 7 miles west of Kamloops, B.C.,

To Wit:

I, David R. Morgan, Geologist, P. Eng

of 3424 West 6th Avenue, Vancouver, B.C. V6R 1T3

in the Province of British Columbia, do solemnly declare that the following costs were  
 incurred in carrying out the geological survey work:

Geologist: (D.R. Morgan)

October: 5-9, 13-15, 19-23; November: 19-22 (17days)  
 Report Writing: 8 days, Total: 25 days at \$175/day: 4,375.

Room & Board:

17 days at \$25/day 425.

Transportation:

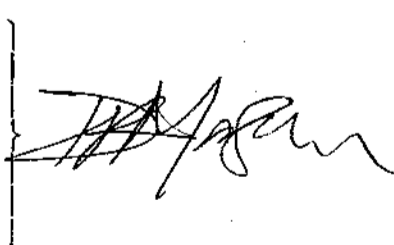
17 days at \$15/day 255.

Phone calls: 25.

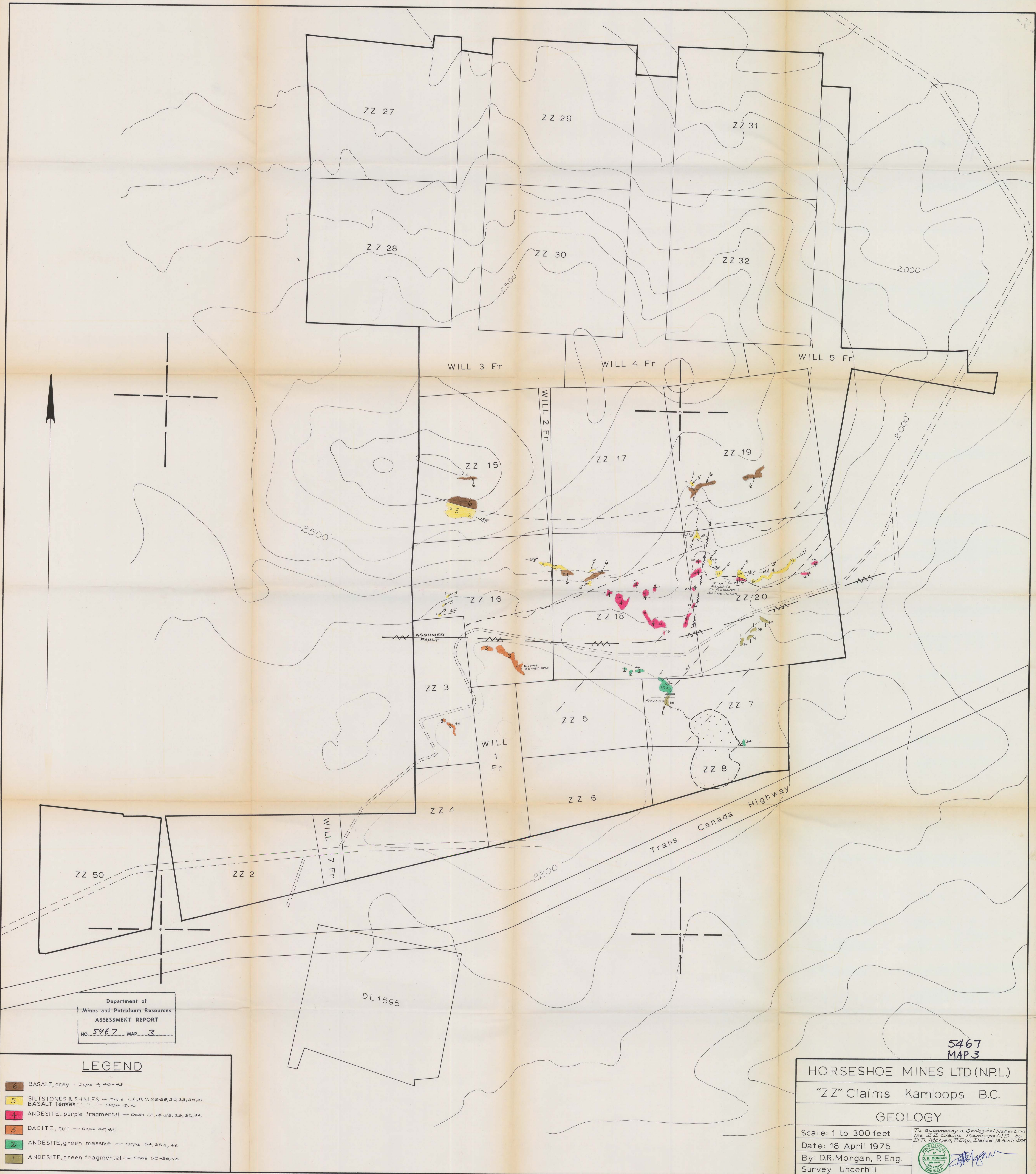
Hardware, field supplies, drafting 100.  
 \$5,180.

And I make this solemn declaration conscientiously believing 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 *City*  
 of *Vancouver*, in the  
 Province of British Columbia, this *14th*  
 day of *April, 1975*, A.D.



*Jean Paul* **Sub-mining Recorder**  
 Commissioner for taking Affidavits for British Columbia or  
 A Notary Public in and for the Province of British Columbia.



Department of  
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NO. 5467 MAP 3

**LEGEND**

- 6 BASALT, grey - Ocpa 4, 40-43
- 5 SILTSTONES & SHALES - Ocpa 1, 2, 8, 11, 26-28, 30, 33, 35, 41; BASALT lenses - Ocpa 29, 10
- 4 ANDESITE, purple fragmental - Ocpa 12, 14-25, 29, 32, 44
- 3 DACITE, buff - Ocpa 47, 48
- 2 ANDESITE, green massive - Ocpa 34, 35 A, 46
- 1 ANDESITE, green fragmental - Ocpa 35-38, 45

5467  
MAP 3

HORSESHOE MINES LTD (NPL.)	
"ZZ" Claims Kamloops B.C.	
GEOLOGY	
Scale: 1 to 300 feet	To accompany a Geological Report on the "ZZ" Claims Kamloops B.C. by D.R. Morgan, P.Eng., Dated 18 April 1975
Date: 18 April 1975	
By: D.R. Morgan, P.Eng.	
Survey Underhill	

