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1970/01/09 1970/01/09

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115-1-6

GEOLOGICAL REPORT
ACE & WING CLAIM GROUPS
DAWSON RANGE
YUKON TERRITORY

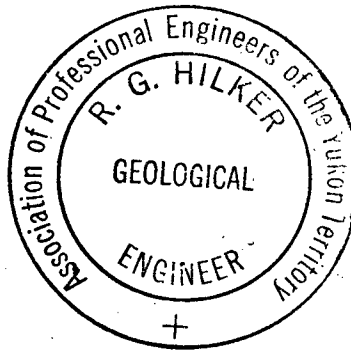
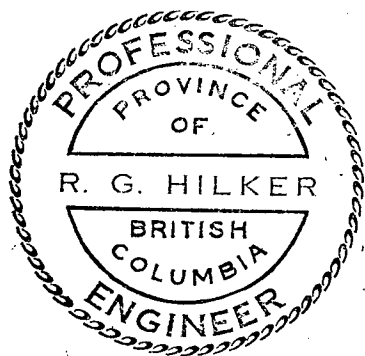
By R.G. Hilker, P.Eng. Jan 9/70

R. G. HILKER
LIMITED
CONSULTING GEOLOGIST . . . PROFESSIONAL ENGINEER
P.O. Box 566
WHITEHORSE, YUKON TERRITORY
"LAND OF THE MIDNIGHT SUN"

Geological Examination &
Evaluation Report
Ace 1 - 32 and Wing 1 - 96
Claim Groups - Dawson Range
Yukon Territory

012947

For
Sabina Mines Ltd. (N.P.L.)
728 West Hastings Street
Vancouver 1, British Columbia



Expiry Date: August 5, 1970

By

R. G. Hilker, P. Eng.
Consulting Geologist
Whitehorse - Yukon Territory
January 9th, 1970

REFERENCE MEMORANDUM

Date 13 Feb 1970

The attached papers are referred

To JGS

By JWPJ

Please reply direct Please handle

Please see me re this Your comments

For your information For approval

Please retain Please return

Doesn't tell us anything about the claims really.

Good ex. of opportunist stating sole merit, if any, lies in the locale of the claims.

Personal check on Davidson rates him as

should be tracked to prove to handle much and

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INTRODUCTION

A property examination and evaluation was conducted on the Ace and Wing claim groups in the Yukon Territory by R. G. Hilker, accompanied by Mr. Marvyn Reed on December 29th, 1969. The examination of the Ace and Wing groups of mineral claims was conducted on behalf of Mr. M. M. McCormick, the president of Sabina Mines Ltd. (N.P. L.). The property described in this report was accessible by use of a Jet Ranger Helicopter chartered from Whitehorse, Y.T.

The Ace and Wing claim groups are located in the Dawson Range of the central part of the Yukon Territory. In recent months, a large low grade copper-molybdenite deposit has been discovered by Casino Mines, in the Casino Creek area of the Dawson Range. In a recent news release on the Casino Mines property, Brameda Resources Ltd., of Vancouver has announced a possible inferred reserve of 1.-164 billion tons of copper-molybdenite ore with a value of \$4.05 a ton Canadian (U.S. - \$3.77 per ton).

The Casino Mines discovery in the Dawson Range is a porphyry copper type of deposit and is comparable to the Highland Valley in size, scope and potential. Access into the Casino Creek area, of the Dawson Range, is possible by road from Mile 1097 on the Alaska Highway. The copper-molybdenite mineralization at Casino Mines is contained in a quartz-monzonite, granodiorite, quartz-porphyry, feldspar-porphyry and diorite rock types.

In parts the rock types are brecciated, intensely altered and contain secondary biotite and plagioclase feldspar. The granites in this area have been determined to be approximately 78 million years in age are Upper Cretaceous in age. The Dawson Range contains a large batholith of Coastal Intrusive granite that varies from Triassic, Jurassic and Cretaceous in age. The extensive occurrences of the Coastal Intrusive granites in the Dawson Range is a favorable region for other copper-molybdenite prospects similar to the Casino Creek discovery. Therefore, a close examination of the granites is desirable, on any claim groups located in the granites and would warrant at least a geochemical survey to explore the possibilities of economic copper and molybdenite mineralization.

The property examination and evaluation was conducted in mid winter and there was snow cover on both the Ace and Wing claim groups and the entire Dawson Range. The temperature on December 29th, 1969 was 35° above and considerable outcrop was observed that has not been glaciated. A portion of the Dawson Range is non-glacial and the outcrops of granite and volcanic flows stand as centenals on the higher ground and along the ridges. However, no rock types could not be observed due to overburden, snow cover and the lack of outcrop on most of the area contained in the two claim groups.

LOCATION AND ACCESS

The Dawson Range is located on the southwest side of the Yukon River at approximately latitude $62^{\circ} - 45'$ and $62^{\circ} 00'$ longitude $137^{\circ} 00'$ and $140^{\circ} 99'$. The Dawson Range strikes approximately north 45° west and is approximately 110 miles long and 20 miles wide. The Dawson Range is contained within the Klondike Plateau to the north and the Lewes Plateau to the south-west. The White-River confines and truncates the Dawson Range to the southwest. The Dawson Range is located in the west central section of the Yukon Territory.

The Ace 1 - 32 claim group is located at latitude $62^{\circ} 40'$ and longitude $138^{\circ} 43'$. The claims are located between Dip Creek and Casino Creek to the northwest. The Ace claim group is approximately 6 miles southeast of the Casino Mines drill site and is located on Snag Sheet 115-A and 115-K (E 1/2). The claims are in the Whitehorse Mining Division and are on claim sheet 115-I-6. The Wing 1 - 96 claim group is located at latitude $62^{\circ} 25'$ and longitude $137^{\circ} 52'$. The Wing claims are located approximately 12 miles southeast of International Mines drill site on Hayes Creek. The Wing claim group is located to the south and southwest of Hayes Creek and approximately 4 miles southwest of Prospector Mountain. The claim group is located on the Carmacks Sheet 115-J, scale 1" = 4 miles, and are in the Whitehorse Mining Division, claim sheet 115-I-5.

Both the Ace and Wing claim groups are located in the Dawson Range of the Yukon Territory.

A good airstrip, belonging to Casino Mines, is located at the head of Casino Creek. The airstrip is approximately 194 miles from Whitehorse where fixed wing aircraft are available. The Wing group is accessible from the International Mines airstrip located on Hayes Creek. The Hayes Creek airstrip is approximately 1500 feet long and suitable for an Otter, Beaver or smaller aircraft. Helicopter transportation is available from Whitehorse to both of the properties. A winter truck road has been constructed from Mile 1097 on the Alaska Highway and is located approximately northeast from the Alaska Highway to Casino Creek a total distance of 130 miles. The east end of the winter road follows Dip Creek, branches off at Casino Creek and ends at the Casino Mines drill site. An old trail continues eastward on Dip Creek and passes through the southern end of the Ace claim group. The Ace claim group is easily accessible on the winter road however, access in the summer, is not possible as the muskeg and low ground along the winter road route makes truck travel impossible. The Wing claim group is only accessible by fixed wing aircraft to the Hayes Creek airstrip and then by helicopter to the property or directly from Whitehorse or Carmacks by helicopter.

CLAIMS

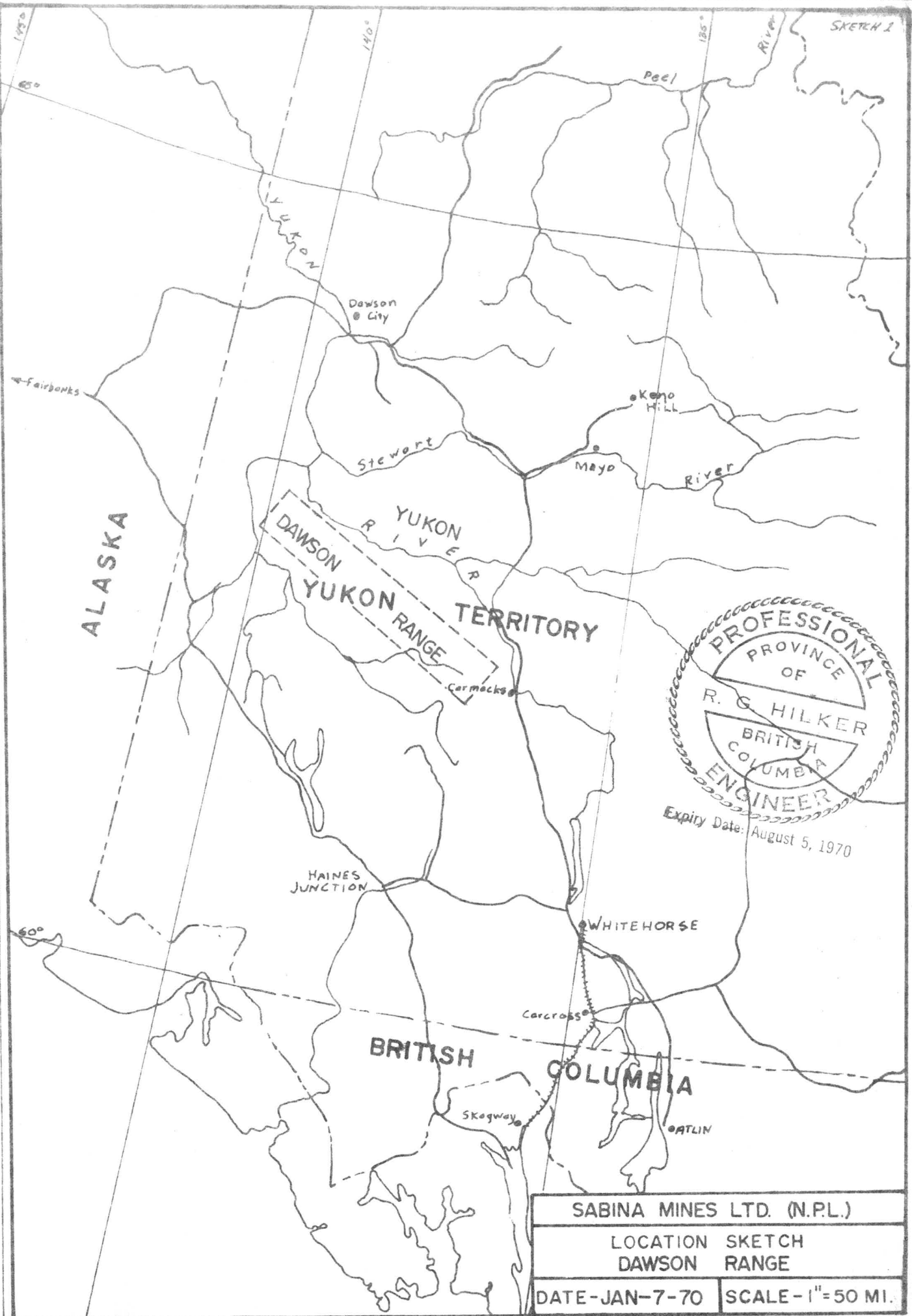
The following described claims have been acquired by Sabina Mines Ltd. (N.P.L.). The Ace 1 - 32 and the wing 1 - 96 claim groups are located in the Whitehorse Mining Division of the Yukon Territory. The claim information was searched at the Whitehorse Mining Recorders Office, Y.T., on January 7th, 1969 by the author of this report.

<u>Claim Name & No.</u>	<u>Grant No.</u>	<u>Anniversary Date</u>
Ace 1 - 28 (inclusive)	Y40703 - Y40730	November 27, 1970
Ace 29 - 32 (inclusive)	Y40771 - Y40774	November 27, 1970
Wing 1 - 24 (inclusive)	Y40777 - Y40800	November 28, 1970
Wing 25 - 48 (inclusive)	Y40801 - Y40824	November 28, 1970
Wing 49 - 72 (inclusive)	Y40825 - Y40848	November 28, 1970
Wing 73 - 96 (inclusive)	Y40849 - Y40872	November 28, 1970

Location - of Claim Groups

Ace 1 - 32 Claim Sheet 115-J-10 between Dip Creek and Casino Creek, latitude 62° 40' longitude 138° 43'.

Wing 1 - 96 Claim Sheet 115-l-5 southwest of Prospector Mountain, latitude 62° 25' longitude 137° 52'.



ALASKA

YUKON RIVER
DAWSON RANGE
YUKON TERRITORY

PROFESSIONAL
 PROVINCE OF
 OF
 R. G. HILKER
 BRITISH COLUMBIA
 ENGINEER
 Expiry Date: August 5, 1970

BRITISH COLUMBIA

SABINA MINES LTD. (N.P.L.)	
LOCATION SKETCH DAWSON RANGE	
DATE - JAN - 7 - 70	SCALE - 1" = 50 MI.



Expiry Date: August 5, 1970



CASINO CREEK

136° 43'

62° 40'



TRAIL

DIP CREEK

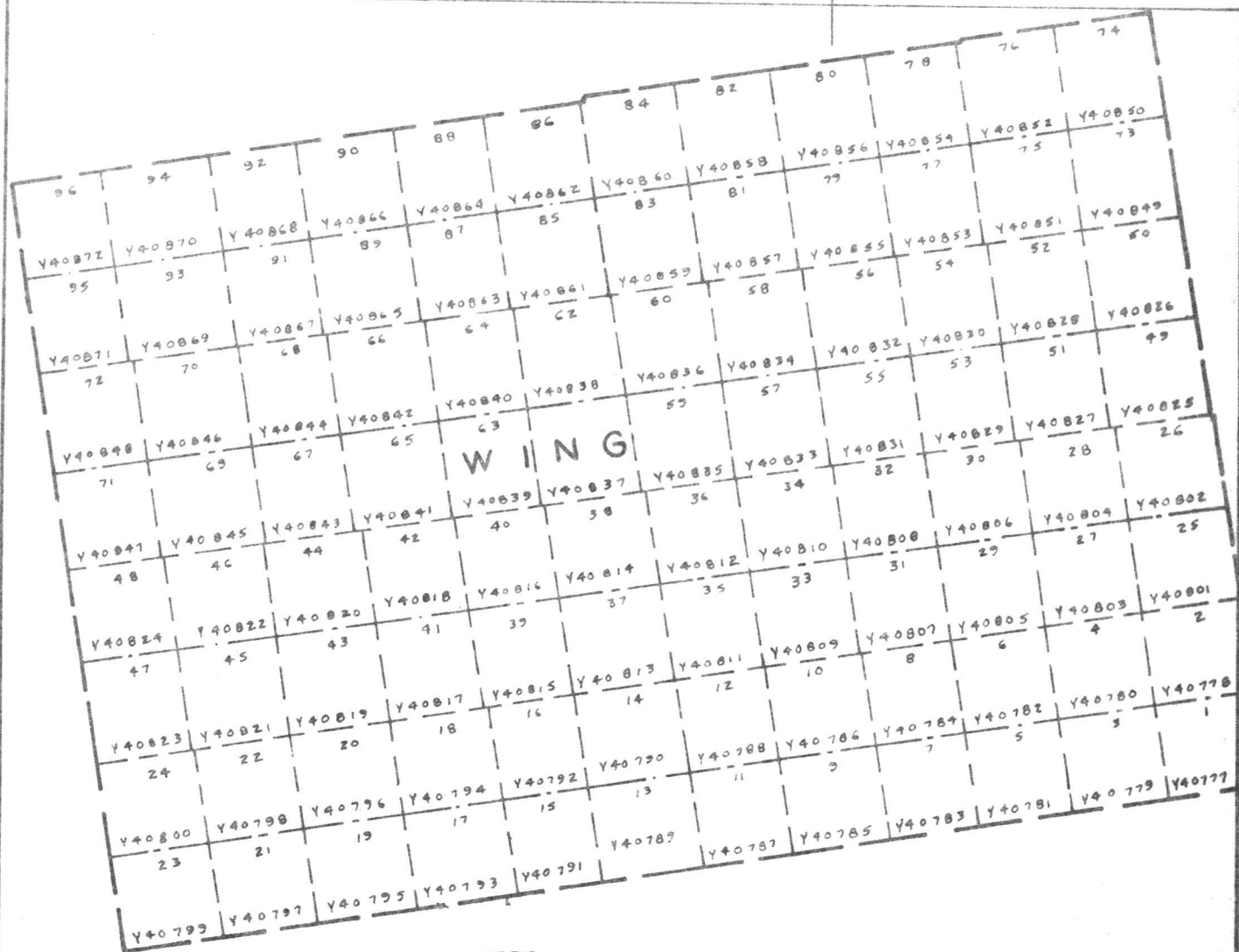
R. G. HILKER LTD
CONSULTING GEOLOGIST
WHITEHORSE Y.T.

SABINA MINES LTD.(N.P.L.)	
CLAIMS LOCATION SKETCH	
ACE - 1-32 CLAIMS SHEET 115-J-10	
DATE - JAN-6-70	SCALE - 1/2" = 1 MI.



137° 52'

62° 25'



Expiry Date: August 5, 1970

R. G. HILKER LTD
 CONSULTING GEOLOGIST
 WHITEHORSE Y.T.

SABINA MINES LTD. (N.P.L.)	
CLAIMS LOCATION SKETCH	
WING-1-96 CLAIMS SHEET 115-1-5	
DATE - JAN-6-70	SCALE - 1/2" = 1 MI.

GENERAL GEOLOGY

Parts of the Dawson Range are non-glaciated and are located in the physiographic Yukon Plateau Province. The mountains are 2,000 feet or higher above the plateau and elevation difference varies between 3,000 feet and 6,600 feet. Irregular shaped outcrops occur on the mountain tops and along ridges, due to the non-glaciation in the area. The outcrops are jointed, fractured and weathered due to frost and wind erosion action.

The predominant rock types in the Dawson Range are the Upper Cretaceous aged Coastal Intrusive granites and Precambrian aged Yukon Group of sedimentary rocks. The previously mentioned rocks contact with the Jurassic Mount Nansen Group of volcanics and sediments. The Tertiary aged Carmacks volcanics intrusives overlay, in places, the older formations and intrusives.

The Coastal Intrusive granites on the Casino Mines property have been age dated at 78 million years (personal communication M. Philips) and would therefore be classed as Upper Cretaceous in the geological timetable.

The following is a brief description of the lithology of the Coastal Intrusive granites:

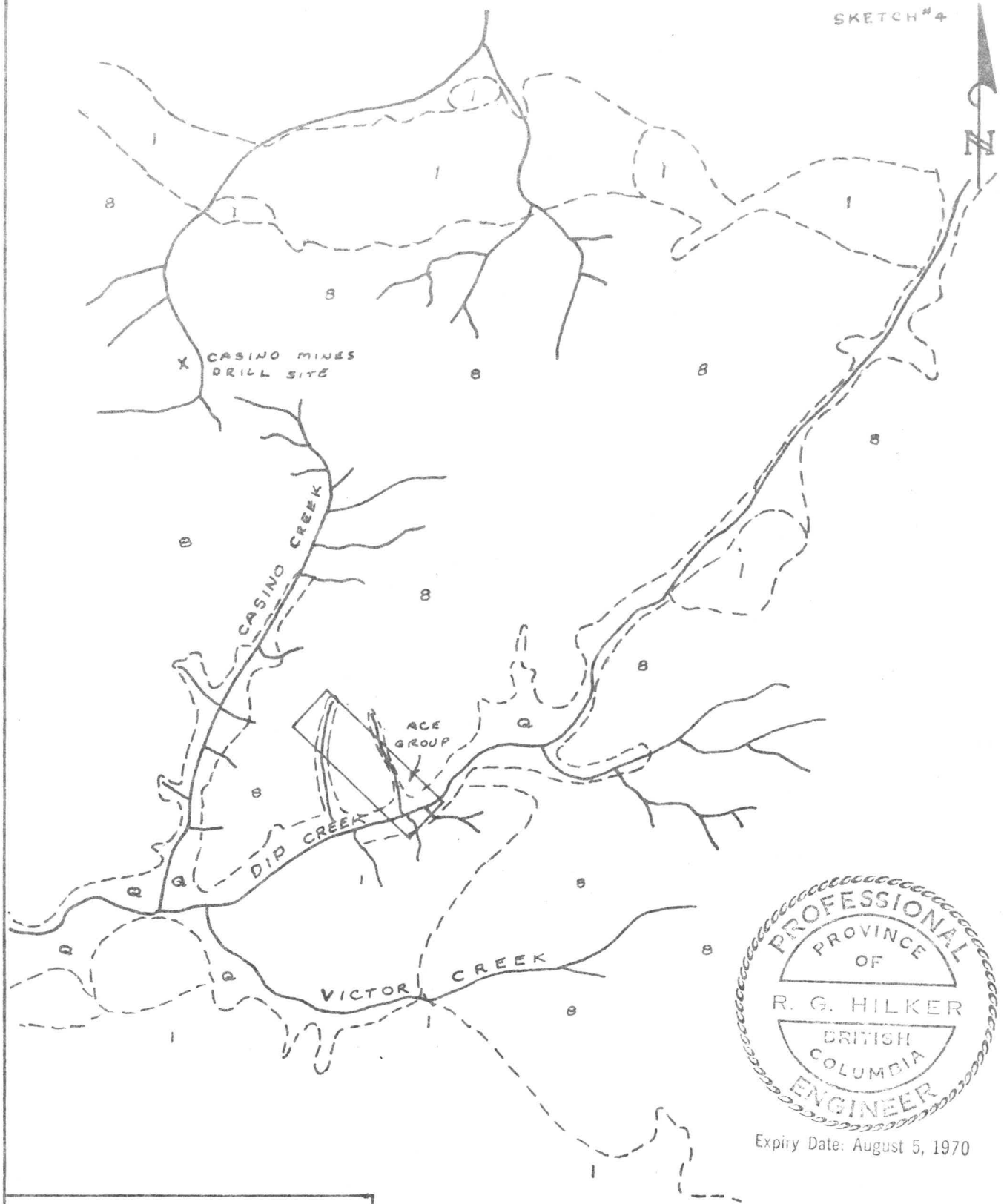
1. Granite Porphyry - 40% orthoclase feldspar, biotite plates 4 - 5 mm., augite 6 - 8 mm. long, weathers rusty brown colour, jointed and fractured, minor magnetite, 30% smoky quartz.

2. Granodiorite Porphyry - Casino Creek area. 50-60% orthoclase feldspar 10 - 15 mm., 10-15% plagioclase feldspar, 10 - 12 mm. long augite crystal, biotite plates, minor magnetite, coarse grained phenocrysts, 15% clear Quartz.

3. Granodiorite - fine-medium grained, 60% orthoclase and 20% plagioclase feldspar, augite and biotite.

4. Diorite - 30% augite and biotite, plagioclase feldspar, orthoclase feldspar.

5. Quartz Monzonite - 50% plagioclase feldspar, 10 - 15 % orthoclase feldspar, 15% clear quartz, augite and biotite fine-course grained.



Expiry Date: August 5, 1970

LEGEND

CENOZOIC

RECENT

④ ALLUVIUM

MESOZOIC

JURASSIC-UPPER CRETACEOUS

⑧ GRANITE (COASTAL INTRUSIVE)

TRIASSIC

② GRANITE

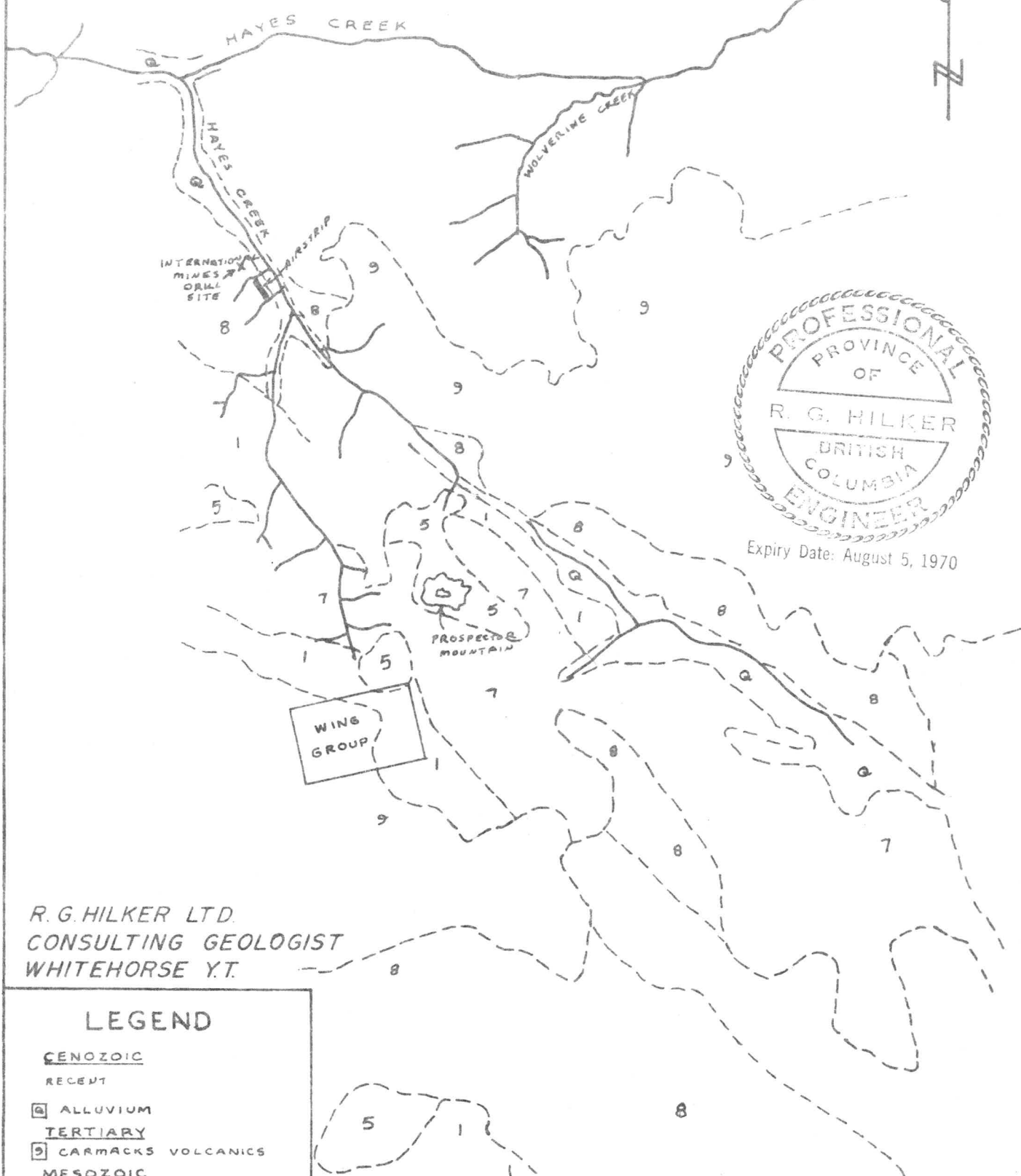
PRECAMBRIAN

① YUKON GROUP

AFTER CAIRNES

R. G. HILKER LTD.
CONSULTING GEOLOGIST
WHITEHORSE Y.T.

SABINA MINES LTD. (N.P.L.)	
ACE GROUP GENERAL GEOLOGY	
DATE - JAN - 7 - 70	SCALE - 1" = 2 MI.



Expiry Date: August 5, 1970

R. G. HILKER LTD.
CONSULTING GEOLOGIST
WHITEHORSE Y.T.

LEGEND

- CENOZOIC
- RECENT
- [A] ALLUVIUM
- TERTIARY
- [9] CARMACKS VOLCANICS
- MESOZOIC
- JURASSIC/LATER
- [8] GRANITE
- [7] SYENITE
- [5] MOUNT NANSEN VOLCANICS
- PRECAMBRIAN
- [1] YUKON GROUP

AFTER BOSTOCK

SABINA MINES LTD. (N.P.L.)	
WING GROUP	
GENERAL GEOLOGY	
DATE - JAN-7-70	SCALE - 1" = 4 MI.

REFERENCES TO PUBLISHED GEOLOGY

The following listed publications and geological maps contain geological information in select areas of the Dawson Range, and reference was made to the information in the preparation of this report for Sabina Mines Ltd. (N.P.L.):

1. D. D. Cairns 1916 - Klotassin Yukon Territory No. 1702 - Geology Map Scale 1 inch = 2 miles. Canada Department of Mines Geological Survey - 1918.
2. H. S. Bostoch 1944 - Paper 44 - 34 Preliminary Map Selwyn River Yukon - Canada Department of Mines and Technical Surveys.
3. H. S. Bostoch 1936 - Memoir 189 - Carmacks District, Yukon - Geological Survey of Canada - Department of Mines and Technical Surveys.
4. J. R. Johnston 1937 - Memoir 214 - Geology and Mineral Deposits of Freagold Mountain Carmacks District, Yukon - Geological Survey of Canada - Department of Mines and Technical Surveys.

TABLE OF FORMATIONS

CENOZOIC

Quaternary

0 - Alluvium, volcanic ash, ground ice.

Tertiary

Carmacks Volcanics

9 - thick flows, basalt, amygdaloidal flows, top of flows breccia, local brecciation and porphyritic flows.

MESOZOIC

Jurassic - Upper Cretaceous

Coastal Intrusives

8 - Granite, granodiorite, quartz monzonite, porphyry and breccia, altered (ore host rock).

7 - Syenite and monzonite.

6 - Diorite and gabbro.

Mount Nansen Group

5 - Basalt, andesites and dacite flows, breccias and tuffs. Green-black colour, contains sedimentary rocks consisting of sandstone, siltstone, pyritic arkose and argillites. Bands and bedding distinct.

Tantalus Formation

4 - Conglomerate, sandstone, shale and coal seams.

Jurassic

3 - Labarge Group

Triassic

2 - Granite, monzonite.

PRECAMBRIAN & LATER

Yukon Group

1 - Limestone, shale, mica-quartz schist, chlorite schist, quartzite.

CLAIM GEOLOGY

The following description of the geology was determined from the outcrops that occur on the Ace and Wing claim groups.

Ace Group

Outcrops of a fine to medium grained granodiorite was observed near the area contained on the Ace number 4, 6, 19 and 21 claims. The exact location of the outcrops was not determined. The Ace claim group is approximately 6 miles to the southeast of the Casino Mines drill site and is located on the same granite intrusive as that of the Casino Mines property. The Ace group is located between Casino Creek and Dip Creek and covers approximately 1600 acres. Copper-molybdenite mineralized granite, granodiorite or monzonite has been discovered in the general area. A part of the claim group is overburden covered and the rock types cannot be determined. The claim group is located at an elevation of approximately 2500 feet on Dip Creek and rises to a maximum elevation of approximately 3500 feet. The previously noted outcrops are located at about the 3000 foot elevation on the claim group. The entire claim group is covered with spruce trees approximately 30 feet high and the claims near Dip Creek contain willows between 5 - 10 feet high. To the south of the Ace claims undifferentiated rocks of the Yukon Group occur between Dip Creek and Victor Creek.

To fully evaluate the Ace 1 - 32 claims geological mapping and a geochemical survey would be required during the summer months.

Wing Group

The Wing 1 - 96 claims are located near or upon the boundary with a granite intrusive.

In the center of the Wing claim group, near the boundaries of claims numbers 62 and 64, Mount Nansen volcanics outcrop. The volcanic rock type observed was a greenish-black coloured andesite. In the vicinity of post #1 of Wing 55 and Wing 56, a reddish coloured siltstone outcrops. The two previously described rock types are Jurassic aged Mount Nansen Group of volcanics and interbedded sedimentary rocks. Approximately 75% of the claim group is overburden covered with sporadic bedrock exposed on the ridges and mountain tops and along the stream drainage system. The east side of the Wing claims are located on or near the Coastal Intrusives granodiorite or monzonite rock types. That portion of the claims that do cover the igneous intrusive would be of interest for exploration purposes. Most of the claim group is covered by widely spaced spruce trees and the ridges and higher ground are clear of tree cover. The lower part of the claim group is located on Big Creek at an elevation of 3500 feet and the highest point on the claims is approximately 5000 feet.

The claims are located approximately 12 miles to the south-east of the International Mines ^{Services} drill site.

Mobilization of an exploration camp to the Wing group is either by helicopter from Carmacks, Whitehorse or by helicopter from Hayes Creek airstrip.

CONCLUSIONS

Considerable interest has been created in the Dawson Range by Casino Mines with the discovery of copper-molybdenite mineralization in excess of 1 billion tons. Encouraging drilling that has intersected mineralization is being conducted by International Mines in the Hayes Creek area. Geochemical and geological type of exploration is warranted on large areas of the granite in the Dawson Range area. The Dawson Range, as previously stated, is 110 miles long and approximately 20 miles wide. The complete area will no doubt be very closely scrutinized by geochemical methods in the summer of 1970. To date, most of the reconnaissance geochemical surveys has been done by silt sampling. If the method of soil sampling by profiles between streams are used more areas or zones within the coastal intrusive granites may be delineated as potential ore bearing. The Dawson Range also contains a number of gossan zones that have not been closely investigated geologically or geochemically and are potential areas for economic mineralization.

The Ace group of claims are located on the favorable granite in the Casino Creek area and would therefore warrant a good geological program conducted at 400 foot spaced line grid with follow-up work consisting of geological mapping, geochemistry and magnetics.

The Wing group of claims are located on or near a part of the granites in the Hayes Creek area and would warrant a 1000 foot spaced line grid exploration reconnaissance program consisting of geological mapping and reconnaissance geochemical sampling. Therefore, the following expenditures in the next section of this report are recommended and are based on the favorable rock types that occur on or near the two claim groups that have been previously described in this report.

RECOMMENDATIONS

The following expenditures on the Ace and Wing claim groups located in the Dawson Range - Yukon Territory are recommended to fully evaluate the potential of the claims.

Ace 1 - 32 Claim Group

Linecutting - 35 linemiles @ \$85.00/mile (400 feet spaced linegrid)	\$2,975
Geological Mapping - 35 linemiles	3,000
Geochemical Soil Sampling - 35 linemiles	3,000
Geochemical Determinations - 1620 samples @ \$2.20/sample - Copper Molybdenite	4,004
Magnetics Survey - 35 linemiles	3,000
Transportation - Fixed Wing & Helicopter Linecutters & Exploration Crew	2,000
Camp Costs	2,000
Geological Consulting	<u>1,500</u>
	\$21,479
10% Contingencies	<u>2,148</u>
<u>Total Ace Group</u>	<u><u>\$23,627</u></u>

Wing 1 - 96 Claim Group

Linecutting - 40 linemiles @ \$85.00/mile (1000 feet spaced linegrid)	\$3,400
Geological Reconnaissance Mapping - 40 linemiles	4,000
Geochemical Soil Sampling - 40 linemiles	4,000
Geochemical Determinations - 2080 samples @ \$2.20/sample - Copper & Molybdenite	4,576
Transportation - Fixed Wing & Helicopter..... Linecutters and Exploration Crew	2,000

Camp Costs	2,000
Geological Consulting	1,500
	<u>\$21,476</u>
10% Contingencies	2,148
<u>Total Wing Group</u>	<u>\$23,624</u>

TOTAL PROGRAM

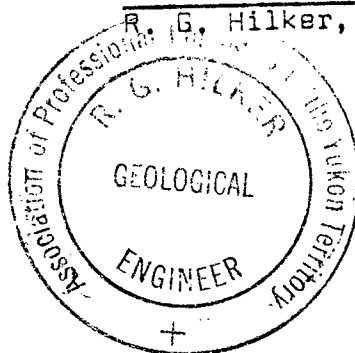
Ace Group	\$23,627
Wing Group	23,624
	<u>\$47,251</u>

CERTIFICATION

I, ROBERT G. HILKER of #6 Chalet Crescent Hillcrest, in the City of Whitehorse, in the Yukon Territory, DO HEREBY CERTIFY:

1. THAT I am a Consulting Geologist, with an office located at #8 Northern Metallic Building and postal address- P.O. Box 566, in the City of Whitehorse, in the Yukon Territory.
2. THAT I am a graduate of the Michigan Technological University located in Houghton, Michigan, U.S.A., where I obtained a Bachelor of Science Degree in Geological Engineering (Exploration Option) in 1962.
3. THAT I am a registered member in good standing of The Association of Professional Engineers of the Yukon Territory, and am registered with a non-residence license in The Association of Professional Engineers of the Province of British Columbia.
4. THAT I have practiced my profession as an engineer and geologist for the past seven years.
5. THAT I personally examined the Ace 1 - 32 and Wing 1 - 96 claim group located in the Whitehorse Mining Division of the Yukon Territory on December 29th, 1969. It is noted that the property and Dawson Range was snow covered at the time of the property examination.
6. THAT I have no direct or indirect interests in any of the mineral claims, or in any of the securities held by Sabina Mines Ltd. (N.P.L.), nor do I expect to receive any.

DATED this 8th day of January, A.D., 1970.



R. G. Hilker

R. G. Hilker, P. Eng.

Bill Davidson. agent for: Tu. ac

29/1/70

Sabina Mines - 688-4566.

728 ~~0000~~

3 claim blocks.

— 1. Ace 32

②. Wing 115' 92

3. Hill - geochron. 100 approx.

Total 224 claims.

Return to Company of st. costs.

Min. prop. on Wing & Ace \$ 40,123

Hill ^{on Kappie Creek.}

- now in name of Mike McCosmack.
geochron. anomaly by Al Rich at U of Alta.

Can get up to 70% - 3 groups.

Ni - show in Slave L. area.