

GEOLOGICAL REPORT

ON THE

CAL 3 - 26 CLAIM GROUP

YA68886 - 68909

Latitude 60°19'N

Longitude 132°02'W

NTS 105 C/8

WATSON LAKE MINING DIVISION

by

J.C. STEPHEN

WORK DONE: August 21 - 27, 1982

November 30, 1982

BY: J.C. Stephen Explorations Ltd.

FUNDED BY: D.C. Syndicate

091447

This report has been examined by  
the Geological Survey of Canada  
under Section 55 (4) of the Quartz  
Act and is certified as  
representing the work done on account  
of \$ 2,400 -

*R. Watson*

*J. R.* Regional Manager, Exploration and  
Geological Services for Commissioner  
of Yukon Territory.

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MAP

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I	CAL CLAIM GROUP GEOLOGY 1:5,000	IN POCKET OF REPORT
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GEOLOGICAL REPORT  
ON THE  
CAL 3 - 26 CLAIM GROUP

INTRODUCTION AND HISTORY

During 1976 a brief examination of the JACKALOO and SURETHING mineral claims was made by employees of the D.C. Syndicate. No guide to the property was available and the mineralization observed at the time did not appear to be extensive. The claims were, or had recently been, under option to United Keno Hill Mines Ltd.

Subsequently D.C. Syndicate located tin mineralization in the vicinity of the Seagull batholith and has continued a modest regional program each season. During the 1981 program several rock specimens from the area returned 5 to 375 ppm tungsten and 16 to 950 ppm tin. The 1982 program, reported on here, was carried out primarily to sample several skarn horizons. Geological investigation is of a very preliminary nature.

The following reference is quoted from the DIAND 1975 Mineral Industry report: -

SURETHING, JACKALOO  
United Keno Hill Mines Limited

Copper  
105 C 8  
(60°20'N, 132°01'W)

Reference: Mulligan (1963).

Claims: SURETHING 1-3; JACKALOO 1-8

Location and Access:

The claims are situated on Mount McCleery in the Englishmans Range roughly 26 miles east-northeast of Teslin. The terrain is rugged and precipitous with elevations ranging from 4,500 feet to nearly 6,400 feet. Access in 1975 was by helicopter.

History:

Copper mineralization was discovered and staked early in 1974 and was subsequently optioned by United Keno Hill Mines Limited.

Description:

The property is underlain mainly by Mississippian sediments and minor volcanics of the Englishmans Group (Unit 3, Mulligan, 1963). The sequence on the property includes: limestone, tremolitic marble and dolomite; argillaceous quartzite; rusty-weathering, cherty to quartzitic and phyllitic rocks; greenish to purplish, fine-grained volcanic rocks; and light grey argillite and phyllite. The distribution and attitudes of the limestone suggest the structure is a southeast-plunging syncline complicated by faulting and minor drag folding. To the north, the Englishmans Group is intruded by Cretaceous granitic rocks of the Hake Batholith, consisting mainly of coarse-grained to porphyritic biotite granite or granodiorite (Unit 13, op. cit.).

The principal copper showings consist of bornite and chalcopyrite occurring as fracture-fillings along steeply-dipping northeast-trending fractures and as small bornite-chalcopyrite-epidote-garnet skarn zones developed at the intersection of these northeast-trending fractures and limy horizons in the sediments. Minor copper showings consist of traces of chalcopyrite and minor pyrite in quartz and calcite veins in fractures cutting argillaceous quartzite and traces of bornite and chalcopyrite with malachite in quartz veins cutting limestone and quartz-tremolite skarn.

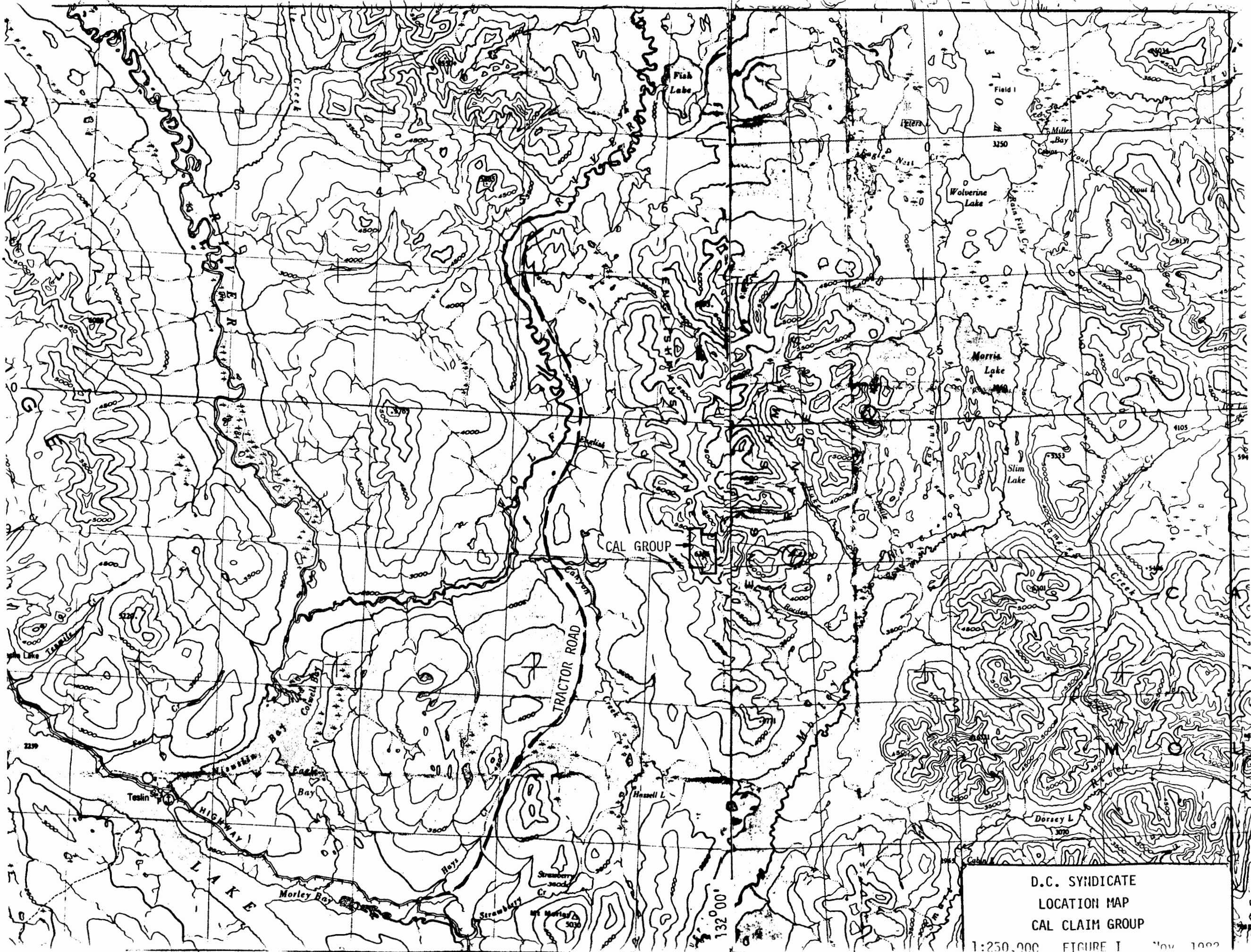
Current Work and Results:

Field work in 1975 consisted of geological mapping and soil geochemical sampling. No significant copper occurrences were located and the three copper soil anomalies outlined were related to minor copper occurrences. Company geologists recommended termination of the option agreement.

LOCATION AND ACCESS

Figure 1 shows location of the CAL claims in relation to the village of Teslin and the Alaska Highway. The claims lie 42 kilometres north east of Teslin but are only about 10 kilometres east of a tractor road which originates at the Alaska highway crossing of Hays Creek at a point approximately 30 kilometres southwest of the property.

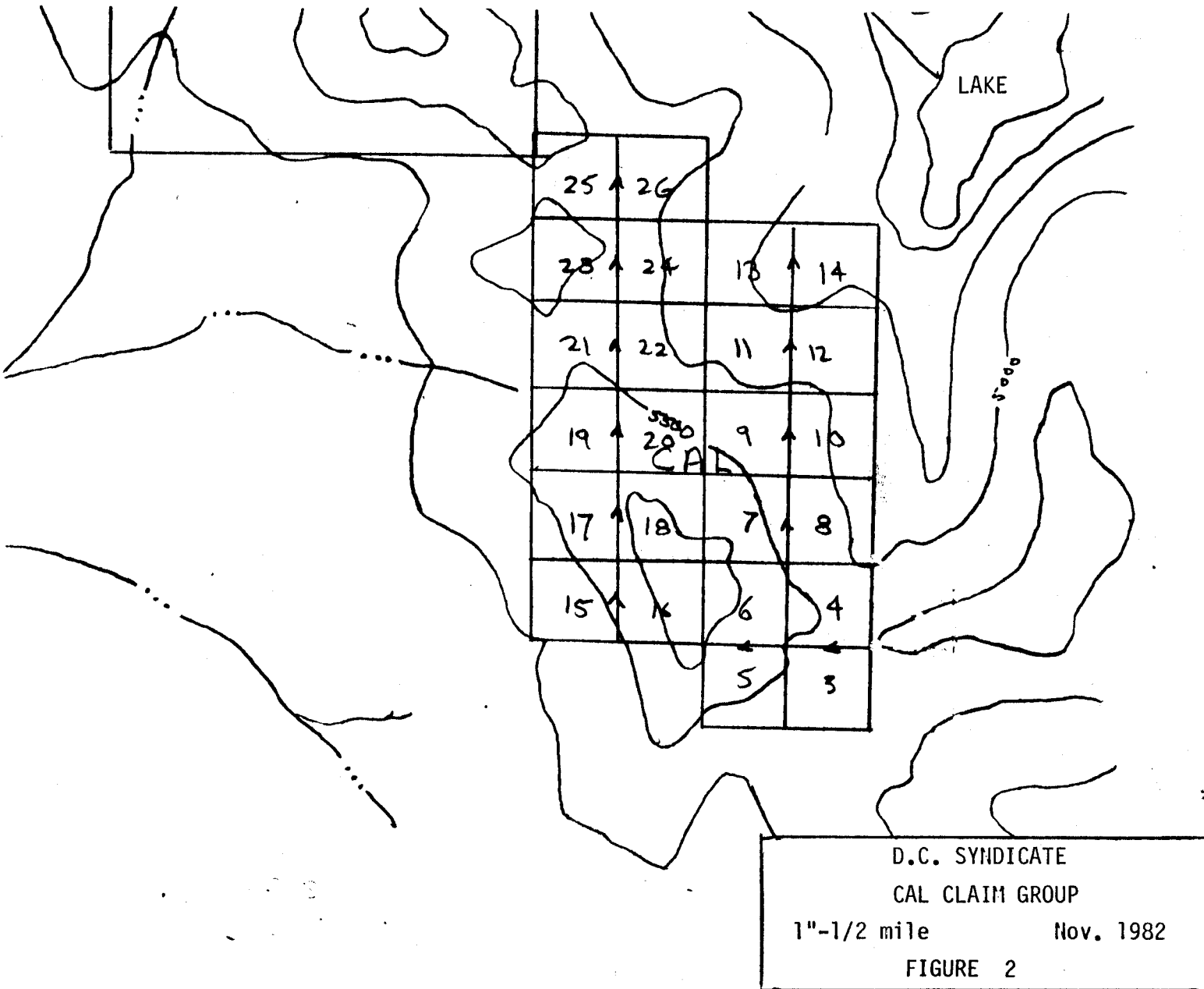
Access to the property has been entirely by helicopter, primarily from Teslin (42 km) but also by way of J.C. claim group (24 km) and Swift River (60 km).



D.C. SYNDICATE  
LOCATION MAP  
CAL CLAIM GROUP  
1:250,000 FIGURE I Nov. 1982

CLAIMS REGISTER

<u>NAME</u>	<u>RECORD NO.</u>	<u>RECORD DATE</u>	<u>REGISTERED OWNER</u>
CAL 1, 2	Disallowed as the stakers name was used within 12 months previously within a 10 mile radius.		
CAL 3 - 10	YA68886-893	August 20, 1982	R. Campbell
11 - 18	YA68894-901	August 20, 1982	B. Lawson
19 - 26	YA68902-909	August 23, 1982	E. Sidey



REGIONAL GEOLOGY

Figure 3 is taken from GSC maps 10-1960 Wolf Lake and 1125A Teslin. Memoir 326 by Robert Mulligan describes the geology of the Teslin area and the following excerpts are taken from that memoir.

**Table of Formations**

Era	Period	Formation or Unit	Lithology
Mesozoic	Cretaceous	13	Granite, granodiorite, diorite; gabbro, hornblendite, pyroxenite; syenite, monzonite
	Mississippian	3 Englishmans Group (in part)	Argillite, quartzite, phyllite, chert; arkose, greywacke, grit, conglomerate; limestone; minor greenstone
		Probably local disconformity, partly (?) contemporaneous	
		2 Englishmans Group (in part)	Limestone
	Mississippian and earlier	Probably local disconformity; in part may be equivalent to 2, 3, and younger rocks	
		1 Big Salmon Complex	Quartz-mica schist and gneiss, quartzite, slate; greenstone, albite-epidote amphibole gneiss and amphibolite; limestone; quartz-plagioclase-amphibole-garnet gneiss

**Unit 1—Big Salmon Complex**

*Distribution*

The Big Salmon Complex, unit 1, is confined to the northeastern half of the map-area, east of the main northwest-trending boundary that separates the map-area into two geologically dissimilar halves. Together with granitic intrusions and a separately mapped metamorphic complex, the rocks make up the main mass of Big Salmon Range and the west flank of Thirtymile and Englishmans Ranges, east of Nisutlin and Wolf Rivers, respectively. Rocks immediately east of Teslin Lake south of Morley Bay are included in the unit although they may well be equivalent to units 2 and 3.



### *General Description*

The Big Salmon Complex comprises various rocks of sedimentary and volcanic origin, whose metamorphosed condition in general distinguishes them from those of other units. In this respect the unit corresponds to the Yukon Group of areas to north and west. However, it locally underlies Mississippian limestone of unit 2 with apparent conformity, and is believed to be mainly equivalent to Mississippian and earlier Palæozoic formations in Wolf Lake and McDame areas to the southeast. The age of the metamorphism, as indicated by the potassium-argon ratio of muscovite from the schists, has been determined as 214 million years.

1d Green, generally schistose chlorite, biotite, and epidote-rich rocks and amphibolite (1d) make up a substantial part of the unit; these, and albite-rich gneiss and albite-epidote amphibolite (1e) are believed to be largely of volcanic origin. The greenstones vary from unshered, relatively unaltered rocks in which porphyritic, amygdaloidal, and fragmental structures definitely indicate a volcanic origin to banded quartzose rocks of evidently sedimentary origin. Augite, almost entirely pseudomorphed by uralitic hornblende, actinolite, and chlorite, is prominent as phenocrysts in meta-lavas and flow breccias in many places, especially north and east of Mount Morley, and on the flanks of Englishmans Range near latitude  $60^{\circ}22'$ , longitude  $132^{\circ}08'$ . Accompanying original feldspar is everywhere replaced by sodic plagioclase and zoisite-epidote saussuritization assemblages. Elsewhere, more highly deformed and altered rocks of presumably similar original nature have been reduced to albite-epidote-amphibole schists and amphibolite. Rocks banded in various shades of green and containing more or less granular quartz, along with epidote, chlorite, biotite, and secondary green amphibole, are widely distributed through the outcrop area. Some of these appear to be tuffaceous quartzites or meta-greywackes derived in all probability from a volcanic terrain. Biotite spangles on the surface are a conspicuous feature of the greenstones in many places.

### **Englishmans Group (Units 2, 3)**

This group comprises fossiliferous limestone (unit 2) and associated sedimentary rocks (unit 3) including apparently unfossiliferous limestone that form a geographically continuous assemblage believed to be wholly of Mississippian age.

#### *Unit 2*

Unit 2 consists essentially of intermittent bands of fossiliferous limestone lying in a northwesterly trending belt between rocks of unit 1 on the west and those of unit 3 on the east. The belt crosses the eastern map-boundary at latitude  $60^{\circ}15'$ , and extends almost to the northern map-boundary east of Nisutlin River.

### Unit 3

This unit consists typically of unmetamorphosed, dark weathering sedimentary rocks that make up the main mass of Englishmans Range and Thirty-mile Range. They are for the most part separated by the fossiliferous limestone of unit 2 from the typically metamorphosed rocks of unit 1.

#### *Lithology*

The typical rocks are dark argillaceous slates and quartzites, with locally abundant chert. Arkose (3a), conglomerate (3b), greywacke, and brownish grits and sandstones are minor but distinctive components. Limestone mapped as 3c is doubtfully correlative with unit 2. Definitely volcanic rocks are in very minor amount, but some fine green-and-purplish mottled rocks of uncertain origin are locally prominent and distinctive. A little very fine rather soft pinkish phyllite has dubious value as a horizon marker in some places. Unit 3A consists of graphitic slate, sericitic phyllite and quartzite, and sheared and silicified equivalents.

The argillaceous rocks are generally fissile but do not cleave into large coherent sheets, and phyllitic structure is only exceptionally developed. They vary from very fine, black carbonaceous shale to light grey argillaceous quartzites. Some massive, white, light varicoloured, and finely banded quartzite is interbedded with the argillaceous varieties.

Chert is commonly interbedded with both argillite and quartzite. Some is finely interbanded in beds less than an inch thick, much in massive beds a foot or more thick, and some sections 100 feet or more thick consist almost entirely of bedded chert. It is creamy to pinkish weathering but varies from black to light grey, buff, pink, or greenish on fresh fractures. Chert is especially prominent along the lower west flank of Englishmans Range above the limestone, and is associated in abundance with the otherwise similar but soft pink phyllite and with the fine-grained mottled rocks.

Greenish to purplish grey, faintly mottled, rather distinctive rocks occur in some abundance for 2 to 8 miles along the steep west flank of the mountain north of Mount McCleery (latitude 60°19', longitude 132°02'). They are very fine, hard massive rocks, without diagnostic structures but commonly streaky and fragmental looking. Fine amphibole and altered feldspar are recognizable in most sections and small feldspar-porphry fragments in some but not much quartz was seen in any. A rather coarser fragmental rock farther north contains various meta-volcanic fragments. These rocks are associated with abundant chert; they may have originated as tuffs, tuffaceous greywackes, or flows.

In the same general area, about 2½ miles northwest of Mount McCleery, and also about 2 miles south, very fine, rather soft, lustrous to translucent pink phyllite is interbanded with green slates and fine gritty rocks near and on the lower steep mountain slopes. Some is interbedded with hard but otherwise similar pink, green, and varicoloured chert at the former locality. Very similar rocks were seen also west of Wolf River at latitude 60°26', longitude 132°18' where they appear to be in the upper unit 1 greenstone.

Limestone (3c) that outcrops in several high passes in the Englishmans Range (Pl. IV B) is unlike that of unit 2 in several respects. It contains abundant chert throughout, it lacks the dark grey sulphurous zone of unit 2, and it is apparently unfossiliferous. It contains abundant interbedded quartzite especially towards the top of the section, which just north of Mount McCleery is several hundred feet thick as exposed west of the fault. It appears in some places to overlie argillaceous quartzite typical of unit 3. However, what is apparently the same limestone appears to overlie greenstone west and southwest of Mount McCleery and thus to represent the otherwise missing band of unit 2.

### *Structure and Relationships*

Unit 3 outcrops mainly east of unit 1, and in most places is separated from that unit by the fossiliferous limestone of unit 2. It is characteristically less metamorphosed than unit 1.

The consensus of field data is that the limestone (unit 2) overlies greenstones of unit 1 with local disconformity and underlies the main mass of unit 3, possibly also with local disconformity. However, in parts of Englishmans Range where the presence and identity of unit 2 is in serious doubt, it has not been possible to elucidate the contact relationships with any certainty.

Farther southeast, near English Creek the rocks may be overturned, and from there south to latitude  $60^{\circ}17'$ , unit 2 is not recognizable, although a limestone member (unit 3c) appears locally to have about the same stratigraphic position.

In Englishmans Range the relationships are even more uncertain; the rocks have been broken into a complex of fault-slices along the fringe of the large granite batholith. At latitude  $60^{\circ}28'$ , longitude  $132^{\circ}11'$  argillite, argillaceous quartzite and chert dip gently to moderately towards the fossiliferous limestone but are bounded on the west by a massive ridge of chert and quartz that may be a fault-breccia. Farther south near English Creek a similar assemblage seems to dip mainly west but no contact with the fossiliferous limestone is exposed. The limestone (unit 3c) outcropping in the passes is generally flat lying but is bounded on one or both sides by steep longitudinal faults (Pl. IV B). It may wrap around the argillite and quartzite of Mount McCleery, outlining a tilted syncline, but is not exposed between those rocks and the greenstones (1?d) at latitude  $60^{\circ}17'$ , longitude  $132^{\circ}02'$ . No limestone is exposed along the contact north of latitude  $60^{\circ}20'$ , which is obscured by talus.

The structure and relationships of the rocks in this area can only be guessed at. There is some suggestion of faulting. One possibility is that the rocks of unit 1 have been overthrust onto those of unit 3.

Another possibility involved is that greenstone that Poole (1958) found east of the limestone in Wolf Lake area and which he believed to overlie the limestone is equivalent to that (1d) south and west and possibly northwest of Mount McCleery. It may pinch out farther north. This possibility is not supported by observed contact relationships at latitude  $60^{\circ}17'$ , longitude  $132^{\circ}02'$ , however, and in any case would not resolve the structural enigma in that part of the area.

PROPERTY GEOLOGY

Rock exposures observed during prospecting and sampling were divided into the following categories. Approximate locations of geology, claims and samples are shown on Map I which is sketched from 1" - ½ mile air photos except to the northwest where topography is traced from the FF group base map.

ROCK TYPES

- 6 GRANITE - HAKE BATHOLITH
- 5 CALCSILICATE - SKARN
- 4 SILICEOUS ARGILLITE, ARGILLACEOUS QUARTZITE
- 3 LIMESTONE (MARBLE)
- 2 VOLCANICS
- 1 PHYLLITE

1 PHYLLITE

This rock is assumed to have been an argillite but has undergone intense alteration to produce a phyllitic rock. The unit is highly veined with quartz much of which occurs parallel to bedding or foliation. The veins are mineralized with hematite and magnetite with some garnet, tourmaline, tremolite and chlorite.

The unit is cut by a number of intrusive dykes and sills.

## 2 VOLCANIC

At the southeast corner of the property a single small outcrop of greenstone occurs at the top of a talus slope immediately below the limestone.

This is a medium grained green igneous rock assumed to be a volcanic but possibly a fine grained intrusive phase.

On CAL 26 very fine grained dark green rock has been termed andesite. It contains considerable fine magnetite.

## 3 LIMESTONE (MARBLE)

The limestone horizon is discontinuous apparently due to disruption by faulting. It varies in thickness from about 30 metres to possibly 100 metres or more. It has been extensively recrystallized and might well be termed marble.

Near the contact of the limestone with the granitic intrusives the limestone appears to have been altered to calc-silicate. This rock type is light in color, fine grained and siliceous. It contains prominent chert bands and perhaps should be considered as a separate formation.

On the assumption this is an alteration product related to development of skarn these rocks are described below with the skarns as unit 5.

This limestone unit corresponds to unit 3c on the GSC geological map. Work on the property has not progressed to the southwest to investigate the limestone horizon indicated low on the southwest slopes of Mt. McCleary.

#### 4 SILICEOUS ARGILLITE, ARGILLACEOUS QUARTZITE

These rocks overlie the limestone unit and were seen to consist of impure argillitic and quartzitic sediments, some of which contain considerable quantities of very fine grained magnetite. Irregular zones, veins and beds of calc-silicate have developed in places.

Widespread hematite, magnetite and minor chalcopyrite occur in parts of this formation.

These rocks constitute part of Mulligan's unit 3.

#### 5 CALC-SILICATE - SKARN

As mentioned above zones of calc-silicate occur where limestone is seen in contact with granitic intrusives and has there been assumed to be an alteration product related to skarn development. However since these rocks contain prominent chert bands it may be a separate rock type.

Skarns of various types occur on the contacts of, and within, the limestone horizon. Most skarns are exposed on the steep north and east facing slopes. There are many small 1 to 2 metre pods and three main zones.

Toward the north end of the property (CAL 13) a relatively large actinolite, tourmaline, garnet skarn extends about 125 metres from its most northerly point to where it is buried by talus. It reaches a maximum thickness of about 80 metres and contains an inner zone with magnetite, pyrrhotite and minor chalcopyrite. Samples 25693 - 695C and 41455 -457 in this area were analysed for tin and tungsten without locating significant values. Copper and possible silver values have not been determined.

On CAL 10 magnetite, chalcopyrite sulphide skarn is made up of two zones, one capping the limestone and one below the limestone. The limestone is indicated to be about 30 metres thick but pinches out to north and south. The upper skarn is about 3 metres thick and 30 metres long. Sample 41468C assayed 1.15% Cu, 0.60 ounces Ag across 10 feet. The lower skarn is indicated to be 1.3 to 2 metres thick, about 30 metres long. Sample 25692C assayed 1.13% Cu, 1.28 ounces Ag over 10 feet. Sample 41469C assayed 1.18% Cu, 0.36 ounces Ag across 6 feet.

Three samples were taken from a mixed zone of phyllite, quartzite and skarn at the top of the ridge on CAL 9. One sample returned 1.96% Cu, 1.26 ounces Ag from mineralized quartzite. A sample of green garnet skarn with copper stain ran 9200 ppm Cu, 8 ppm Sn.

A small lens of skarn east of CAL 10 returned 550 ppm Sn, 175 ppm W.

Off the southeast corner of the property, to the east of CAL 4 a chalcopyrite, bornite bearing skarn indicated to be only 7 metres long by 5 metres wide occurs near the base of the slope. Pink cobalt bloom occurs in this skarn and surrounding small blebs of sulphide in limestone to the east of this skarn. Assays of samples from the skarn assayed up to 11.7% Cu, 11.4 ounces Ag over 8 feet while the cobalt bearing limestone assayed 0.76% cobalt and 0.42 ounces Ag. (grab sample)

In the vicinity of the west boundary of CAL 5 and 6 near small outcrops of calc-silicate and limestone there are veinlets and lenses of hematite, magnetite and copper sulphides most generally parallel to foliation in phyllitic sediments. A chip sample assayed 0.25% copper across 10 feet, a grab sample assayed 0.53% copper.

Silver values were not determined. Gold and tin values are extremely low.

## 6 Granite

The granite outcropping on the property is pegmatitic, composed of 40% grey quartz, 30% orthoclase, 20% plagioclase and 10% biotite. Composition varies slightly from sample to sample but the above is an approximate average. The rock is coarse in texture with grains ranging from 4 to 5 mm down to 1 to 2 mm. The orthoclase grains appear to be the largest grains and the best formed.

## STRUCTURE

Formations outcropping along the main ridge top trend northerly and dip 20 to 30 degrees westerly. The regional map indicates that dips change to the west to about 20° east indicating a synclinal structure. The small limestone outcrops on CAL 6 and 16 may therefore be the west limb of the limestone appearing on the steep northeast facing slopes on CAL 10 and 11.

Prominent easterly trending faults cut the ridge on CAL 13, 24, 26. A displacement of about 30 metres can be seen on one of these faults but total movement is unknown.

A southeast trending airphoto linear north of the two small lakes may be part of a significant fault structure.

## MINERALIZATION

Indications of possibly economic sulphide mineralization have been located in skarn zones as described above. No significant tin or tungsten mineralization has been located. Values in copper, silver and cobalt warrant further investigation. No significant gold values were obtained.

GEOCHEMISTRY

Approximately 100 talus - soil samples were collected. Locations of these samples are shown on Map I. Samples have not been analysed due to shortage of funds.

SUMMARY AND RECOMMENDATIONS

The GSC geological map indicates the top of the limestone horizon on the east side of the main ridge to be at about 5500 feet at the north end of the outcrop area and at about 5000 feet near the southeast corner of the CAL group. Limestone is indicated to the west at about 4500 foot elevation. A synclinal capping of unit 3 rocks overlies the limestone.

Skarn, with significant copper, silver and cobalt values occurs in association with the limestone horizon. Rather diffuse copper mineralization occurs in veinlets and lenses at the south end of the CAL claim group in phyllitic sediments and it is possible this material is the top of a mineralized zone in the limestone, calc-silicate horizon assumed to underlie this area.

The following exploration steps are recommended.

(1)	Analysis of stored talus - soil samples.	\$1,200.
(2)	Filing of 1982 assessment work.	300.
(3)	Preparation of 1:5000 base map from enlarged airphotos	500.
(4)	Re-mapping of geology, location of sampled sites and sampling in more detail where required.	6,500.
(5)	Establishment of a tape and compass grid to control a magnetometer survey to cover all reasonably accessible areas on the south and west facing overburden covered slopes.	6,000.
(6)	Enlargement of claim group as necessary.	<u>2,000.</u>
	Total	16,500

Respectfully submitted,  
J.C. Stephen Explorations Ltd.

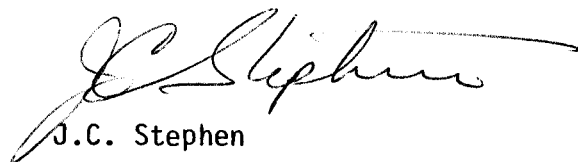
  
J.C. Stephen

TABLE OF EXPENDITURES

SALARIES AND BENEFITS

R. Campbell	Aug. 21-27	\$1800/m +15%	\$467.00
B. Lawson	Aug. 21-27	1750/m +15%	454.00
J.C. Stephen	Aug. 21, Nov. 28,29	@ \$150/day	450.00

FOOD AND CAMP SUPPLIES

15 man days @ \$15.	\$225.00
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HELICOPTER

Pro rata time with other camp moves	
1.5 hours @ \$500.	\$750.00

ROCK ASSAYS AND GEOCHEM

Geochem	7 samples for Sn @ \$3.75	\$ 26.25
	4 samples for Sn, Cu @ \$5.65	22.60
	4 samples for Sn, W @ \$7.50	30.00
	Sample preparation 15 samples @ \$2.50	37.50
Assays	6 samples for Sn @ \$8.00	48.00
	3 samples for Sn, W @ \$16.00	48.00
	1 sample for Ag, Co @ \$13.00	13.00
	2 samples for Cu, Au, Sn @ \$20.00	40.00
	8 samples for Cu, Ag, Au, Sn @ \$23.00	184.00
	Sample preparation 20 samples @ \$3.75	<u>75.00</u>
	Total	\$2,870.00

A P P E N D I X I

SAMPLE DATA SHEETS



SAMPLER R Campbell

PROJECT DC Syndicate C/A

NTS 105C

LINE A11371

DATE Aug/82

AIR PHOTO No. 402

SAMPLE NUMBER	LOCATION	ROCK TYPE	ALTERATION	MINERALIZATION	STRIKE / DIP	ADDITIONAL REMARKS	APPARENT WIDTH	ASSAYS				
								Cu	Ag	Au	Sn	W
41455C	See Map	Skn	CHIP 8ft	Actino. Tour. Green Gnt		Assay	15'				0.03%	0.005
41456C		Skn	CHIP 8ft	Magnetite Pyrrhotite		Assay					0.01	0.001
41457C		Skn		Calcite Gnt Fibrite + Malacite		Fibrite + Malacite minor					0.01	0.001
41458C		Calc Silicate		Magnetite + Hematite		Qtz viewed					0.01	
41459C		Calc Silicate		Magnetite + Fine Green Gnt		Min in Stringer // bedding					0.02	
41460C		Magnetite Dyke		Qtz on the		Runs through Magnetic Sil. Arg						
41461C		Sil Arg Phyllite		Skn Hematite Qtz		Talus					0.01	
41462C		Calc Silicate		Chalco Pyrite malacite		in blebs + lenses	0.53		0.006	0.01		
41463C		Sil Arg		Qtz magnetite		Stringers // bedding					0.01	
41464C		Skilicious Dyke	ASSAY CHIP 10ft	Magnetite		In blebs + Stringers through out Rock						
41465C		Sil Arg Phyllite	ASSAY CHIP 10ft	Magnetite malacite		String and Pockets small	0.25		0.003	0.01		
41466C		Sil Arg		magnetite		String + Calc Silicate					0.03	
41467C		Qtz dyke		Hematite + Magnetite		Pippered and oriented through Rock.					0.01	
41468C		Skn	ASSAY CHIP 10ft	Magnetite malacite Chalco pyrrhotite		upper contact host	1.15	0.60	0.010	0.01		
41469C		Skn	ASSAY CHIP 6ft	Magnetite malacite + Sulfides		lower contact host	1.18	0.36	0.006	0.01		
41470C		Skn	CHIP 8ft	Sulfides Cu Pink Blom			2.97	3.68	0.003	0.01		
41471C		Skn	CHIP 8ft				11.70	11.70	0.003	0.01		
41472C		Skn	CHIP 10ft				4.98	5.60	0.003	0.01		
41473C		Granite Dyke		Qtz Plag Qtz on the Dyke								
41474C		Granite/ Skn		Plag. Tourm.		Used of Qtz. Dyke or contact						

A P P E N D I X II

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

J.C. STEPHEN

Academic

1950 Associate Member British Institute Engineering Technology  
1950-1951 One year Geology University of Alberta

Experience Summary

1947-1955 Development and production experience in engineering and geology at Central Patricia Gold Mines, Eldorado Mining and Refining, Madsen Gold Mines, Hasaga Gold Mines, Pickle Crow Gold Mines as Surveyor, Assistant to the Engineer, Geologist.

1955-1959 Regional exploration experience with Pickle Crow Gold Mines, Combined Developments Ltd., R.G. Crosby and Associates, Jay-Kay Syndicate as Field Geologist.

1959-1961 Municipal construction including monolithic concrete tunnels as Senior Inspector.

1962-1968 Regional exploration with Mastodon Highland Bell Mines as field geologist.


1968-1976 Regional exploration with Bacon and Crowhurst Ltd., as supervisor of exploration syndicates.

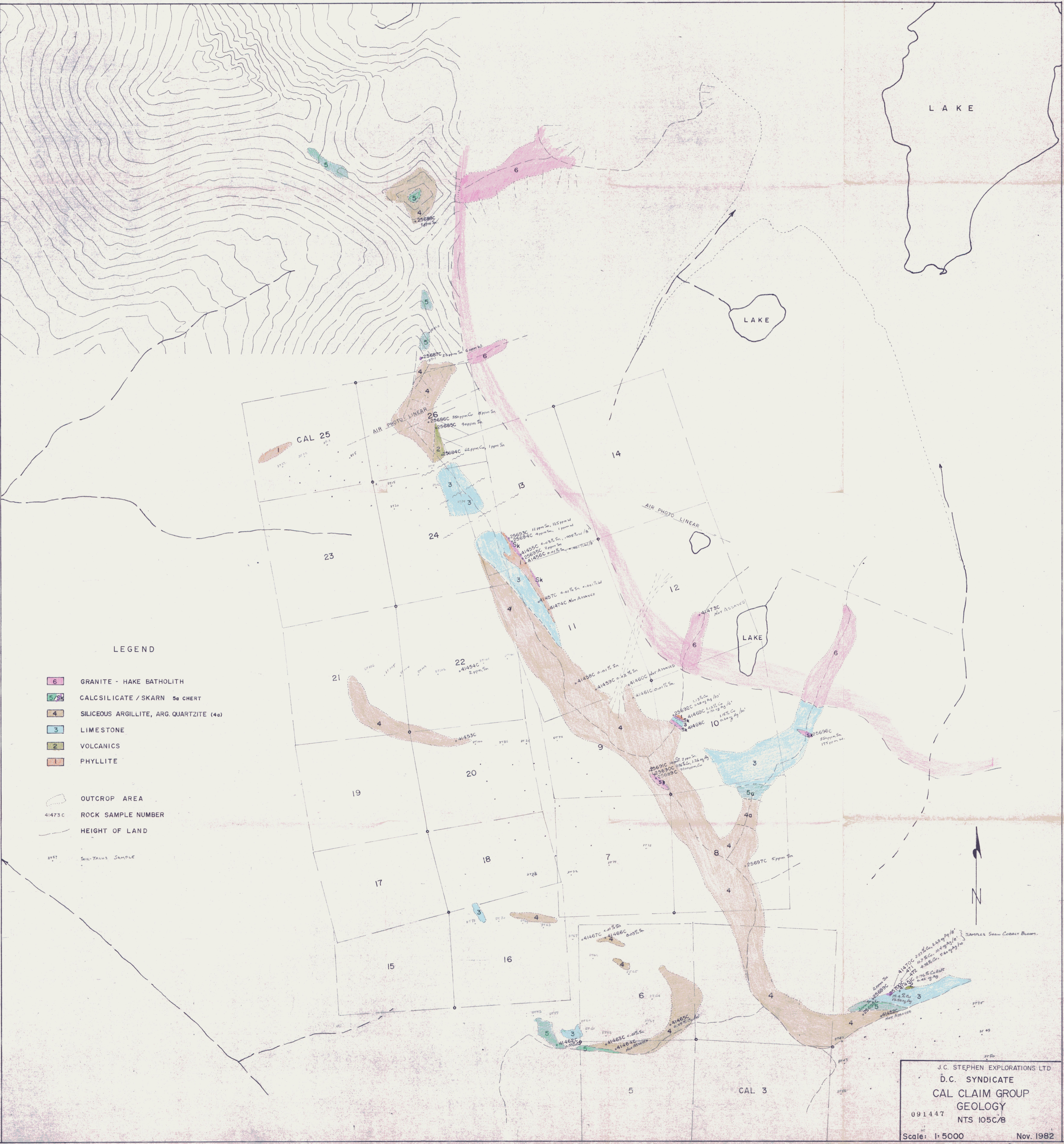
1977-Present President J.C. Stephen Explorations Ltd.

Manager	D.C. Syndicate	(Dome, Cominco)
Manager	Target Project	(Dome Exploration)
Manager	B.C. Gold Syndicate	(Newmont, McIntyre, Canada Tungsten)
Manager	Newex Syndicate	(Newmont, Lornex)

During July 1981 I did supervise work on the CAL claim group and in November prepared the attached report from data collected.

J.C. Stephen Explorations Ltd.

  
J.C. Stephen



LEGEND

- 6 GRANITE - HAKE BATHOLITH
- 5/Sk CALCISILICATE / SKARN <sup>5a</sup> CHERT
- 4 SILICEOUS ARGILLITE, ARG. QUARTZITE (4a)
- 3 LIMESTONE
- 2 VOLCANICS
- 1 PHYLLITE

- OUTCROP AREA
- 41473C ROCK SAMPLE NUMBER
- HEIGHT OF LAND
- STST SIL-TALUS SAMPLE

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