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DEPT. OF MINES AND PETROLEUM RESOURCES		
Rec'd MAR 01 1979		
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Geological Report

on the

SWAKUM MOUNTAIN PROPERTY

of

LAKEWOOD MINING CO. LTD.

Nicola M.D.

N.T.S. 92I7E

October 19, 1978
Vancouver, B.C.

L. Sookochoff, P.Eng.
Consulting Geologist

TABLE OF CONTENTS

INTRODUCTION -----	1.
PROPERTY -----	2.
LOCATION AND ACCESS -----	2.
CLIMATE AND TOPOGRAPHY -----	3.
WATER AND POWER -----	3.
HISTORY -----	4.
GEOLOGY AND MINERALIZATION -----	6.
RESULT OF WORK COMPLETED -----	8.
CONCLUSIONS -----	10.
RECOMMENDATIONS -----	12.
CERTIFICATE -----	13.

ILLUSTRATIONS

LOCATION MAP	1 : 50,000
GEOLOGY (in pocket)	1 : 3,000

INTRODUCTION

In February, 1978 Lakewood Mining Co. Ltd. acquired the Sophia claim located north of Merritt, B.C. and within an area where mineralization has been known since the early 1900's. Prior to the acquisition preliminary exploration work was carried out on the property with encouraging results. Subsequent to the acquisitions, a localized I.P. survey, preliminary diamond drilling a reconnaissance geological survey has been completed. On June 8, 1978 the writer examined the various showings and work locations to that time. Additional work including I.P. survey was performed since the property examination.

PROPERTY

The property consists of one located claim comprised of 20 units. Particulars are as follows:

<u>Claim Name</u>	<u>Record No.</u>	<u>Expiry Date</u>
Sophia	176 (9)	September 9, 1979

LOCATION AND ACCESS

The property is located 20 km. north of Merritt at the headwaters of Steffans Creek and enclosing Sophia Lake. The crest of Swakum Mt. is within two miles to the southeast.

Access is via a paved and gravel highway to 20 km. north of Merritt where a branch road to the west is taken for nine km. to the property.

CLIMATE AND TOPOGRAPHY

The climate in this area is of relatively warm summers and mild winters. The property would generally be snow free during a seven month period.

The property is near the summit of Swakum Mt. where the topography is generally subdued with 100 to 200 meters of local relief.

WATER AND POWER

Water would be available within the property boundaries for all phases of the exploration program.

Initially, a diesel-electric power supply would be required.

HISTORY

The first of the Swakum Mountain deposits, within two miles east of the Sophia property, was originally discovered in 1916. The discovery and subsequent exploration on adjacent deposits followed with a shipment of 22 tons made in 1917 of ore averaging 4.6% copper from the Last Chance (Lucky Mike). Reported total production from these properties is 26 tons from the Lucky Mike which yielded two ounces of gold, 137 ounces of silver, 1,932 pounds of copper and 1,753 pounds of lead and 89 tons from the Thelma yielding one ounce of gold, 7,419 ounces of silver, 9,683 pounds of lead and 10,237 pounds of zinc. The Alameda reportedly produced three tons of ore yielding one ounce of gold, 52 ounces of silver and 576 pounds of lead.

The Last Chance was restaked as a scheelite prospect in 1942. Reported values are of .25% WO_3 across an average width of 34 feet.

Portions of the Sophia property were previously known as the Sunshine, Lee and Lo claim groups which were worked by Vastlode Mining Co. Ltd. Mineralized shear zones within Nicola volcanic rocks were the focal point of interest

In 1977, prior to the acquisition of the property by Lakewood Mining, an E.M. and magnetometer survey in addition to a preliminary geochemical survey was carried out on the property.

Within three kilometers north of the property and at Rey Lake, a large low grade copper zone has been delineated within a localized intrusive.

At Tolman Lake, 1500 meters to the east, lead-zinc mineralization occurs along a breccia structure.

GEOLOGY AND MINERALIZATION

The Nicola map-sheet 886 A shows the claim area to be underlain by the Nicola Group of rocks comprised of greenstone, volcanics and tuffs intercalated with minor limestone, argillite and conglomerates. The northerly trending Nicola rocks are bounded to the east and west by intrusives of granitic composition. An intrusive plug, not indicated on the map-sheet, outcrops at Rey Lake.

Regionally an asymmetrical anticline with the axis plunging to the south is indicated at the Swakum Mountain deposits. An aplite dyke and one outcrop of granitic rock was found near the Last Chance property.

Large scale northwesterly structures are indicated by the Hector Creek valley to the south and the Rey Creek valley to the north. Northerly and east-west structures are suggested topographically or by smaller scale structures in the area.

On the property and east of Sophia Lake a 175 meter wide limestone bed trends northerly and forms a ridge over 600 meter strike length. The gray coarse granular limestone generally contains numerous random and fracture oriented calcite stringers which average less than

two m.m. Locally brecciated zones occur which contain angular fragments healed with calcite. Patchy red hematite, locally weathered increases in areas of heavier brecciation. From the northern ridge exposure, brecciation increases to an area adjacent to the south trench zone.

The south trench zone, approximately 30 meters west of the limestone exposes a 10 meter wide band of highly fractured argillites with less obvious greywackes and conglomerates. The argillite strikes at 168° and dips at 70° north.

An intrusive with euhedral feldspar crystals set in a matrix of seriate textured feldspathic ground mass outcrops in the center trench. Occasional sericite up to 10 m.m. long and secondary quartz eyes occur throughout the matrix. A light dusting of sericite on the feldspar is obvious.

Three trenches 500 meters to the northwest of the south zone expose an eight meter wide heavily pyritized shear zone. The shear zone strikes @ 220° , dips @ 30 to 60 degrees south. Andesite porphyry in addition to a breccia predominate. Calcite and quartz occur as random stringers and cement the breccia fragments. Pyrite in addition to sphalerite, galena and chalcopyrite occurs in association with the calcite and quartz. A gray aphanitic micropegmatite occurs discordantly with the andesite porphyry and is weakly mineralized.

RESULT OF WORK COMPLETEDE.M. Survey

A survey covering an area of 1400 meters by 1000 meters and centered approximately on the trenched zones revealed the following:

- A north-south anomalous zone adjacent and to the east of the south trench zone.
- A weaker anomalous area of over the north trench zone.
- Northwesterly trending anomalous zones to the west of the trenched areas.

I.P. Survey

The I.P. survey indicated three significant continuous anomalous areas (metal factor) in addition to localized anomalies. The three significant zones are:

1. A 600 meter northerly trending zone up to 200 meters east of the south trench zone. (Anomaly C)
2. An anomaly extending from 150 meters west of the south trench zone for 500 meters north to the north trench zone. The anomaly breaks at the trenches, continues beyond the trenches and is open to the north. (Anomaly B)
3. A 300 meter northerly trending anomalous zone 250 meters west of the north trench zone which is also open to the north. (Anomaly A)

The I.P. anomalies generally appear on the flanks of the E.M. anomalies.

Diamond Drilling

Three diamond drill holes were drilled to test anomalous zones on the southern portion of the property. The drilling was completed prior to the I.P. survey and location of anomalous areas in the northern area.

A summary of drilling completed is as follows:

D.D.H. # 1

Location - South Trench zone
Purpose - Test the shear zone exposed in trenches at depth
Depth - 200 feet
Results - No significant mineral zones, however graphitic zones and moderate alteration

D.D.H. # 2

Location - South end of South Trench zone
Purpose - Test for subsurface mineralization along indicated fault zone
Depth - 203.5 feet
Results - Fine disseminated pyrite from 132 to end of hole

D.D.H. # 3

Location - Along southern boundary of grid areas 250 m. southwest of South Trench zone
Purpose - Test for subsurface mineralization
Depth - 180.5'
Results - Galena and sphalerite on fracture planes at 160'. Occasional blebs pyrite, calcite stringers and veinlets.

CONCLUSIONS

The Sophia property of Lakewood Mining is located on Swakum Mountain where scattered lead-zinc-copper-tungsten mineralization occurs. Trenching within localized areas on the property reveal shear zones with associated pyrite and/or lead-zinc and chalcopyrite mineralization which could indicate a possible subsurface source of economic mineralization.

Three drill holes on the southern portion of the property revealed encouraging subsurface alteration and pyrite zones. Geophysical surveys in the north portion of the grid area indicated the most significant anomalous zones of the overall surveyed area. Two anomalous areas - one of which correlates with known pyritization and associated base metal sulphides - could be reflecting peripheral pyrite zones to base metal mineralization (Mark).

The north trench zone, where galena, sphalerite, chalcopyrite and pyrite mineralization occur within a peripheral anomalous (b) I.P. zone could be indicative of such a halo effect to a centralized area of increased mineralization.

I.P. anomaly C within an intrusive - limestone area and in part enveloped by lead-silver geochem anomaly could reflect a contact metasomatic zone of economic mineralization.

Anomalous tungsten geochemical areas within an area of altered and brecciated limestone and in an environment of known intrusives should be investigated for potential economic zones of tungsten mineralization such as at the nearby Last Chance property.

With the known surface and subsurface mineralization correlating in part to indicated zones of mineralization in addition to the favorable geology and known mineral deposits in the immediate surrounding area, the Swakum Mountain property warrants a follow-up exploration program to test the delineated anomalous areas and to extend the surveys to explore the peripheral area.

RECOMMENDATIONS

It is recommended that Lakewood Mining Co. Ltd. initiate a two stage exploration program to test the indicated anomalous zones at depth and along strike (Mark's report - anomalies A, B and C).

Stage I would consist primarily of a 650 meter percussion drill program as an initial test of the zones.

Stage II would be comprised of a diamond drill program to obtain information as to geology structure and depth extension of mineralization within significant areas as determined through the percussion drill program.

The estimated cost of the two stage exploration program is as follows:

Stage I

Percussion drilling 650 meters @ \$18	\$11,700.00
Road work and drill site preparation - allow	3,000.00
Assaying and field expenses	3,800.00
Engineering and supervision	<u>4,000.00</u>
Stage I Total	\$22,500.00

Stage II

Diamond drilling - 800 meters @ \$60	24,000.00
Associated support costs	5,000.00
Engineering, reports and supervision	<u>5,000.00</u>
Stage II Total	\$34,000.00

It is estimated Stage I of the recommended exploration program would take one month to complete.

Respectfully submitted



October 19, 1978
Vancouver, B.C.

Laurence Sookchoff, P. Eng.
Consulting Geologist

CERTIFICATE

I, Laurence Sookochoff, of the City of Vancouver, in the Province of British Columbia, do hereby certify:

That I am a Consulting Geologist with the firm of Pan-American Consultants Ltd. of 2602 - 1055 West Georgia Street, Vancouver, B.C.

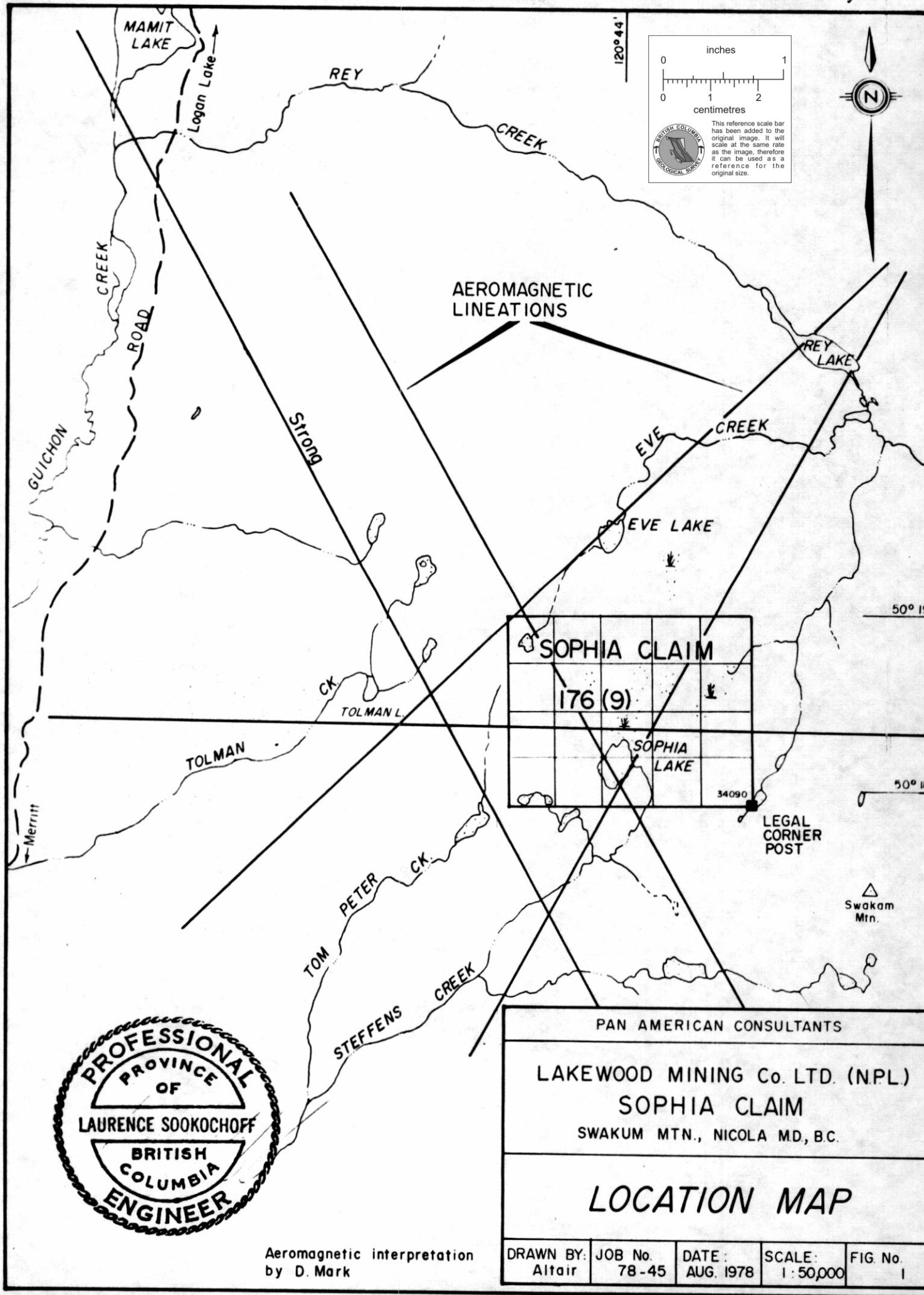
I further certify that:

1. I am a graduate of the University of British Columbia (1966) and hold a B.Sc. degree in Geology.
2. I have been practising my profession for the past twelve years.
3. I am registered with the Association of Professional Engineers of British Columbia.
4. The information for the accompanying report is based on a personal examination of the property June 8, 1978 and from pertinent government publications.
5. Neither I or Pan-American has direct or indirect interest in the property described herein, or in the securities of Lakewood Mining Co. Ltd. (N.P.L.)

October 19, 1978
Vancouver, B.C.

Laurence Sookochoff
Consulting Geologist






120°44'

inches
0 1

centimetres
0 1 2

 This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.



AEROMAGNETIC LINEATIONS

SOPHIA CLAIM		
176 (9)		
	SOPHIA LAKE	

34090

LEGAL CORNER POST

Swakam Mtn.



Aeromagnetic interpretation by D. Mark

PAN AMERICAN CONSULTANTS			
LAKEWOOD MINING Co. LTD. (NPL)			
SOPHIA CLAIM			
SWAKUM MTN., NICOLA MD, B.C.			
LOCATION MAP			
DRAWN BY: Altair	JOB No. 78-45	DATE: AUG. 1978	SCALE: 1:50,000
			FIG No. 1

CLAIM NO. Sophia

DIAMOND DRILL RECORD

PROPERTY Lakewood Mining Co. Ltd. HOLE NO. 1LATITUDE ELEVATION BEARING DEPTH 200' STARTED COMPLETEDDEPARTURE SECTION DIP -45° DRILLED BY C. Boitard LOGGED BY L. Sookochoff

DEPTH FEET	FORMATION	SAMPLE NO.	FROM	Fe A. U	W.	ASSAYS (p.p.m.)			
						Mo	Cu	Zn	Ag/Au ppb
0 - 18	Overburden								
18 - 200	Intercalated f.g - m.g siltstone and argillite. Bedding @ 45° @ 40' 10° @ 45' 30° @ 30' Predominantly laminated and thin bedded gray to black with moderate to heavy random calcite stringers in the argillite 45-50 Occ. pyrite crystals, H. weathered. 53-60 mod. chl. alt'n and cal. on irregular fr. planes 79 fr. @ 90° 86 bedding @ 05°; 80' graphite on fr. pl. 92 - Calcareous silty conglomerate, lt. gray w/ rare rounded frags up to 1.5 cm. 118 - bedding @ 03° m.g., lt. gray calc. ss. and dark f.g. calc. arg. 126.5 Meta - sed. variable texture alt'd arg. w/occ arg. frags. intercalated								
			131	.4	3	4	---	---	.6
			155	.2	4	12	---	---	.6
			174.5	(select)		12	22	122	1.8 50

1/2

CLAIM NO. Sophia**DIAMOND DRILL RECORD**PROPERTY Lakewood Mining Co. Ltd. HOLE NO. 2LATITUDE ELEVATION BEARING DEPTH 203.5' STARTED COMPLETEDDEPARTURE SECTION DIP -45° DRILLED BY C. Boitard LOGGED BY L. Sookochoff

DEPTH FEET	FORMATION	SAMPLE NO.	FROM	TO	WIDTH	ASSAYS				
						ppm Mo	Cu	Zn	Ag	Au ppb
0-35	Overburden									
35-203.5	Argillite - black aphanitic w/thin random cal. str. and @ 30° - 45°; locally brecc'd. 71 laminations @ 55° 94 bed @ 15°									
	105-111 broken		94.5			4	---	152	.9	60
	117+ greater alt'n. lt. graph on fr. planes; Rare bed. plane (massive)		183.5			4	11	54	1.6	30
	160 bed. @ 80° w/rare f. g. grayish siltstone		193			17	18	104	1.7	60
	151 mod. cal. v.l.									
	180-196 mainly grayish calc. arg. congl. & siltstone		203			8	48	132	1.8	50
	196 Contact @ 62° < str.									
	132-200 lt. diss. py.									
	203.5 E.O.H.									

1/1

CLAIM NO. Sophia**DIAMOND DRILL RECORD**PROPERTY Lakewood Mining Co. Ltd. HOLE NO. 3LATITUDE ELEVATION BEARING DEPTH 180.5' STARTED COMPLETEDDEPARTURE SECTION DIP -45° DRILLED BY C. Boitard LOGGED BY L. Sookochoff

DEPTH FEET	FORMATION	SAMPLE NO.	FROM	TO	WIDTH	ASSAYS			
0-38	Overburden								
38-40	Conglomerate								
40-83	Siltstone - black to lt. gray frg. locally m.g.; bedding @ 45°; occ. cal. str. < 5 mm @ 45° & rand. fr. @ 45°, 62°; locally tuffaceous 72-73 friable; muddy zone 82-83 Slickensides on fr. @ 75°								
83-117	Grey wacke - Cont. @ 40° to c/a grey alt'd; whitish to 93; 93 & blackish grey w/m.g. round to s. rounded frags. up to 1 cm. w. 5 mm. Loc. rare conglomeritic up to 1.5 cm. frags. w/minor ground mass 102 slickensides @ 75° 104 lt. hematite 104-111 mod. "seriate" textured w/ mod. angular frags.; grey 111.5-117 black aph. g.m. w/lt. rounded frags.								

1/2

CLAIM NO.

DIAMOND DRILL RECORD

PROPERTY

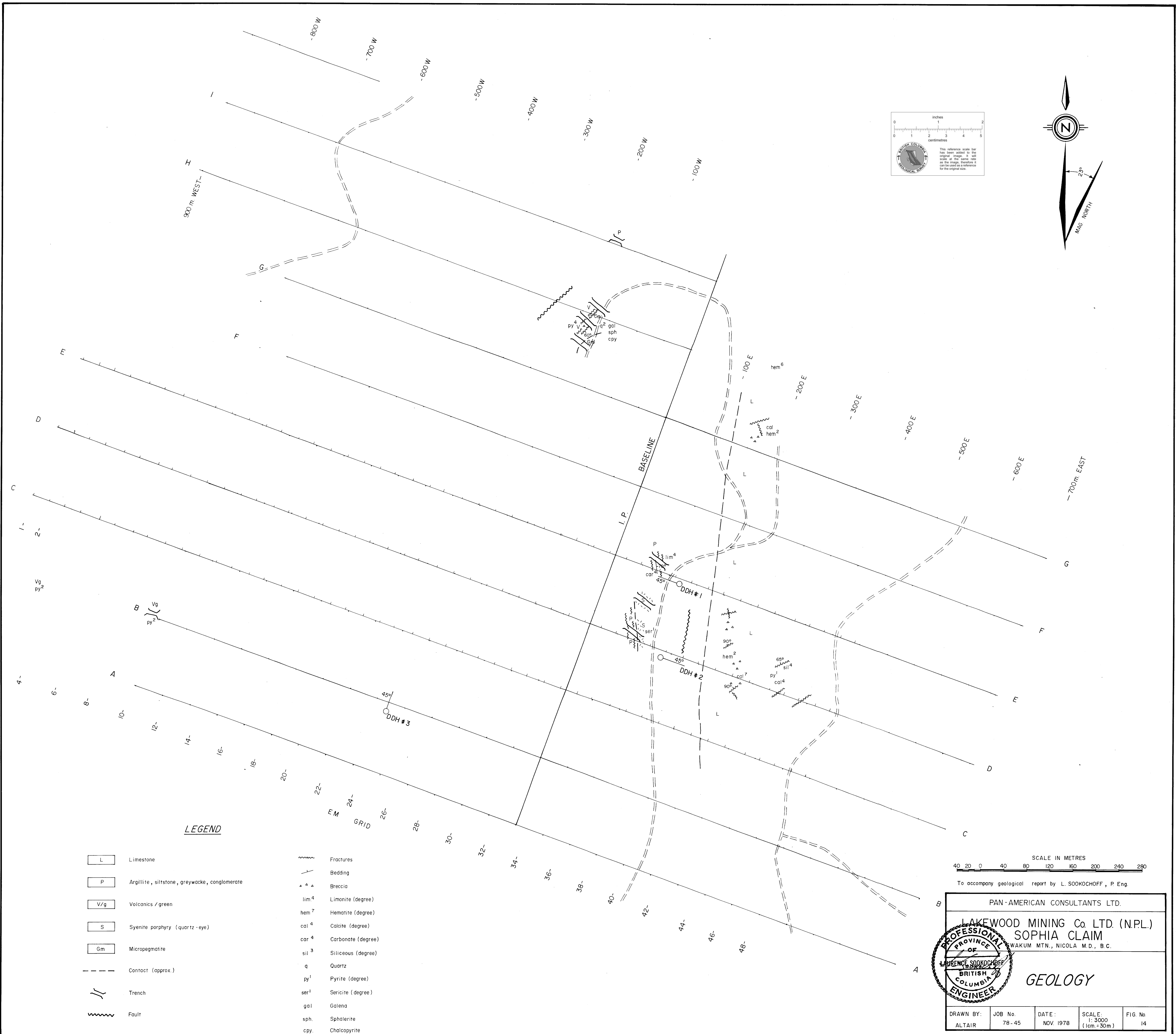
HOLE NO. 3

LATITUDE ELEVATION BEARING DEPTH STARTED COMPLETED

DEPARTURE SECTION DIP DRILLED BY LOGGED BY

2/2

DEPTH FEET	FORMATION	SAMPLE NO.	FROM	Pb	Cu	ASSAYS ppm				ppb Au
						Mo	Zn	Ag		
117-180.5	Altered zone - Greenish grey aphanitic talcose w/occ. obscure frags. and profuse random brownish cal. str.;									
	occ. disc. pinkish calcite v.l. @ 45°;		53	---	---	5	480	2.5	30	
	mod. friable; gougy planes @ 70° fr. @ 45°		79	131	---	9	176	1.5	30	
	147-152 rounded frag. up to 3.5 cm.									
	152-153 cherty-aphanitic		91	60	50	8	48	1.1	10	
	160 galena, sphalerite - on fr. planes over one foot assoc. w/hem. and carbonate		128	---	---	3	---	2.0	20	
	167-174 cherty - aphanitic									
	168 blebs py.		160	3200	---	3	5300	6.5	60	
	174 Intercalated arg. and siltstone thin bands @ 40° occ. random		168	60	4	3	60	2.4	10	
	cal. stringers; fr. & cal. v.l. @ 70° 40°		203	---	48	8	132	1.8	50	
	180.5 E.O.H.									



LEGEND

- | | |
|---|---|
| [L] Limestone | [Fractures] Fractures |
| [P] Argillite, siltstone, greywacke, conglomerate | [Bedding] Bedding |
| [V/g] Volcanics / green | [Breccia] Breccia |
| [S] Syenite porphyry (quartz-eye) | [lim ⁴] Limonite (degree) |
| [Gm] Micropegmatite | [hem ⁷] Hematite (degree) |
| [- - -] Contact (approx.) | [cal ⁴] Calcite (degree) |
| [/ /] Trench | [car ⁴] Carbonate (degree) |
| [~~~~~] Fault | [sil ³] Siliceous (degree) |
| | [q] Quartz |
| | [py ¹] Pyrite (degree) |
| | [ser ¹] Sericite (degree) |
| | [gal] Galena |
| | [sph] Sphalerite |
| | [cpy] Chalcopyrite |

SCALE IN METRES
 40 20 0 40 80 120 160 200 240 280
 To accompany geological report by L. SOOKOCHOFF, P. Eng.

PAN-AMERICAN CONSULTANTS LTD.
LAKWOOD MINING Co. LTD. (N.P.L.)
SOPHIA CLAIM
 WAKUM MTN., NICOLA M.D., B.C.

PROFESSIONAL ENGINEER
 LAWRENCE SOOKOCHOFF
 BRITISH COLUMBIA

GEOLOGY

DRAWN BY: ALTAIR	JOB No. 78-45	DATE: NOV. 1978	SCALE: 1:3000 (1cm=30m)	FIG. No. 14
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