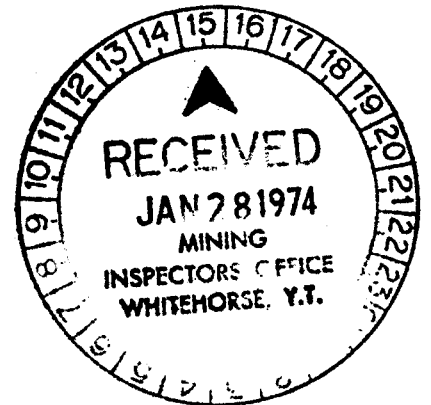


CANEX PLACER LIMITED  
EXPLORATION DIVISION

700 BURRARD BUILDING

VANCOUVER 5, B.C. CANADA



GEOLOGICAL AND GEOCHEMICAL REPORT

FOX CLAIMS

LATITUDE 62°45'N      LONGITUDE 130°15W

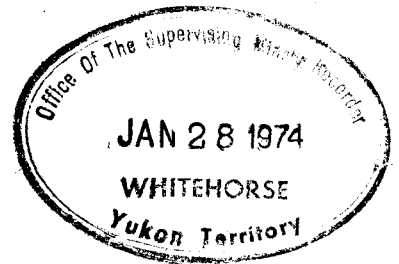
CLAIM SHEET NO. 105-J-16

OWNED BY SPARTAN EXPLORATIONS LIMITED

WORK DATES: JULY 3, 1973 - JULY 12, 1973

by

J.M. KOWALCHUK



(SUPERVISOR B. AINSWORTH, M.A., MAEG, P. ENG. (B.C.))

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of

\$5012.75

~~Regional Geologist or  
Regional Mining Engineer~~

Considered as representation work under Section 53 (4) Yukon Quartz Mining Act.

Commissioner of Yukon Territory

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<u>In Pocket</u>	
Geology 1" = $\frac{1}{4}$ mile.	
Soil Grid and claim post location 1" = $\frac{1}{4}$ mile.	
Geochemical maps 1" = 400 feet	
Lead in soils	
Cadmium in soils	
Zinc in soils	

STATEMENT OF EXPENDITURES

The following is a breakdown of expenditures incurred for the geochemical and geological survey on the Fox claims between July 3, 1973 and July 12, 1973.

TRANSPORTATION OF PERSONNEL

Hughes 500 helicopter - 9 hours, @ \$ 200 per hour           \$ 1,800.00

SALARIES

A.D. Clendennan - 10 days @ \$ 40 per day                           400.00  
800 - 1030 West Georgia St.,  
Vancouver, B.C.

M. Chapin - 10 days @ \$ 30 per day                                   300.00  
800 - 1030 West Georgia St.,  
Vancouver, B.C.

C. Coleman - 10 days @ \$ 30 per day                                   300.00  
800 - 1030 West Georgia St.,  
Vancouver, B.C.

J.M. Kowalchuk - 10 days @ \$ 50 per day                           500.00  
800 - 1030 West Georgia St.,  
Vancouver, B.C.

CAMP COSTS

40 man days @ \$ 12 per man day                                   480.00

ASSAYING COSTS

459 samples analysed for Pb, Zn, and Cd @ \$ 2.25  
per sample   1,032.75

DRAUGHTING & OFFICE

5 man days @ \$ 40 per man day   200.00

TOTAL COST OF WORK                                   \$ 5,012.75

FOX CLAIMS

CLAIM NAME	GRANT NO.	TRANSFER DATE	RECORD YEAR	ANNIVERSARY MONTH & DAY
FOX 1	Y72124	6-4-73	1973	Jan. 23
2	Y72125	"	"	"
3	Y72126	"	"	"
4	Y72127	"	"	"
5	Y72128	"	"	"
6	Y72129	"	"	"
7	Y72130	"	"	"
8	Y72131	"	"	"
9	Y72140	"	"	"
10	Y72141	"	"	"
11	Y72142	"	"	"
12	Y72143	"	"	"
13	Y72144	"	"	"
14	Y72145	"	"	"
15	Y72146	"	"	"
16	Y72147	"	"	"
17	Y72156	"	"	"
18	Y72157	"	"	"
19	Y72158	"	"	"
20	Y72159	"	"	"
21	Y72160	"	"	"
22	Y72161	"	"	"
23	Y72162	"	"	"
24	Y72163	"	"	"
25	Y72148	"	"	"
26	Y72149	"	"	"
27	Y72150	"	"	"
28	Y72151	"	"	"
29	Y72152	"	"	"
30	Y72153	"	"	"
31	Y72154	"	"	"
32	Y72155	"	"	"
33	Y72164	"	"	"
34	Y72165	"	"	"
35	Y72166	"	"	"
36	Y72167	"	"	"
37	Y72168	"	"	"
38	Y72169	"	"	"
39	Y72170	"	"	"
40	Y72171	"	"	"
41	Y72132	"	"	"
42	Y72133	"	"	"
43	Y72134	"	"	"
44	Y72135	"	"	"
45	Y72136	"	"	"
46	Y72137	"	"	"
47	Y72138	"	"	"
48	Y72139	"	"	"

## SUMMARY & CONCLUSIONS

The Selwyn Basin within the Mackenzie Mountains of the Yukon and Northwest Territories contains thick sequences of metalliferous grey and black shales. These rocks can be a favourable location for lead-zinc mineralization as witnessed by the 1972 discovery of mineralization by Canex Placer Limited.

In 1968, Spartan Explorations did a reconnaissance stream geochemical program within these favourable units on the Sheldon Lake Sheet (105-J), south of the Itsi Lakes. On the basis of the results of that survey, Canex Placer arranged for Spartan to stake the Fox group of claims, where a geological and a soil geochemical survey was done in July of 1973.

The Fox claims carry a varied sequence of shales, sandstones and limestones cut through by barren quartz monzonite dykes. This assemblage of rocks does not appear to contain any significant sulphide mineralization. The only metallic mineralization observed was authigenic pyrite in the light grey shales and quartzites. The more anomalous zinc values in the soils were lower than normally observed in the more metalliferous black shales of the Selwyn Basin.

## INTRODUCTION

The Fox group of claims (Fox 1-48) located in the Watson Lake mining district in the Yukon Territory is owned by Spartan Explorations Limited. The property is located on the NTS map sheet 105-J (Sheldon Lake Sheet) just south of the Itsi Lakes.

In agreement with the owners, Canex Placer Limited did a reconnaissance geological mapping survey and a geochemical soil survey on and around the property. This work was done during the period July 3 to July 12 inclusive in the year 1973. Four men camped on the property while doing the work.

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They used a Hughes 500 helicopter to move the camps to new locations on the property as well as to move the camps to and from the property. The Canex Placer laboratories in Vancouver analysed the soil samples for contained zinc, lead and cadmium.

### HISTORY

In 1968, Spartan Explorations did a reconnaissance stream geochemical survey on both sides of the North Canol Road within the Sheldon Lake Sheet.

In January 1973, Spartan approached Canex Placer with the results of this survey and after examining these results, Canex had Spartan stake the Fox group of claims. Canex agreed to pay for the staking and evaluate the property for a carried interest. The evaluation was made this summer with the geological mapping and soil geochemical surveys.

### LOCATION & ACCESS

The Fox claims are located on the NTS map sheet 105-J-16, part of the Sheldon Lake Sheet, approximately 80 air miles northeast of Ross River. Access is either by float plane to Itsi Lakes and then by helicopter 5 miles to the property or by driving up to mile 180 on the Canol Road and then taking a helicopter 15 miles southeast to the property.

### TOPOGRAPHY, CLIMATE & COVER

The claims cover an E-W trending ridge with an elevation range of 4500 - 6500 feet. The area has an alpine meadow type of Flora with scrub spruce and balsam growing in the valleys. Precipitation is relatively high and the climate is that typical of the central Yukon.

The property has about 25% bedrock exposure. There is a negligible amount of glacial overburden so the soils are either residual or soils from talus slopes. On the north side of the ridge, the soils are very

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immature as intermittent permafrost occurs under thick humus layers.

#### REGIONAL GEOLOGY

Roddick and Green in their 1961 map of the Sheldon Lake sheet describe an undivided suite of clastic sediments ranging from lower Ordovician to middle Silurian in age, over the northern half of the map sheet. These rocks consist primarily of interbedded cherts and shales. Also occurring but far less common are thin bedded platey limestones, grey quartzites and conglomerates. Intruding these sediments are medium to coarse-grained quartz monzonites and granodiorites of Cretaceous age. These rocks are commonly porphyritic. Silicified rocks, minor hornfels and pyrite are found near the contacts but rarely beyond a few tens of feet.

#### LOCAL GEOLOGY

A map of the local geology at a scale of 1" = ¼ mile is located in the back pocket.

A northeast plunging set of folds within a sequence of light and dark grey shales dominates the map area. Faults on the west side of the map area expose the upper limestones and quartzites. Only on the southern edge of the map area are the older sandstones exposed.

The geological section in order of increasing age is as follows:

Quartz-Porphyry: This is a dyke with an aphanitic quartz-feldspar groundmass. It contains phlogopite and quartz phenocrysts up to 1/8" in diameter. This may be a late stage offshoot of the quartz monzonite sills as the composition is similar.

Quartz-Monzonite: This unit forms large sills and dykes up to 100 feet across. It is primarily a coarse grained equigranular quartz-feldspar rock containing up to 2% quartz phenocrysts 1/4 inch in size. In some places

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a foliation parallel to the walls of the dyke is present.

Limestone: This unit includes variations from a massive thickly bedded dolomitic limestone to very fine grained thinly banded limestones and dolomites. In upper parts of this unit, some 1 foot bands of sandstone and siltstone appear. These sandstones have a lime cement. The massive units in the bottom of the section have beds from 1 foot to 2 feet in thickness.

Quartzite: This unit is primarily a very siliceous flaggy mudstone. It contains up to 5% disseminated pyrite which tends to give the unit quite a brown weathered surface. The unit is very fine grained, and is sometimes slightly limey.

This unit was observed in only a few places and always just below the limestone. Its stratigraphic relationship with the rest of the shale units is not known.

Dark Grey Shales: This unit contains black aphanitic well cleaved shales. The shales are usually quite cherty but sometimes are quite carbonaceous. A very strong parting makes it difficult to determine the difference between cleavage and bedding. This unit weathers to form quite a rusty unit.

Light Grey Shales: They lie as a unit within the black shales in this lighter coloured siltier unit. It is often quite pyritic containing up to 2% pyrite as disseminated phenocrysts. This rock is often slightly limey in the more pyritic sections. It has much poorer parting than the black shales and often breaks quite blocky. No clear contact occurs between light grey and dark grey units. Usually a transition zone occurs with dark grey shale and light grey shale interbedded.

Sandstone: The oldest unit in the area is a thickly bedded 1 to 2 feet thick, sandstone unit. These sandstones are poorly sorted and very angular in shape. They would appear to be very immature sediments.

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Structure

A cross-section A-B running approximately N-S across the map area shows two general syncline-anticline sets with fold axes about  $110-120^{\circ}$  and plunging very slightly to the southeast. In the center of the map sheet, a small outcrop of quartzite lies unconformably upon the dark grey shales. Two faults bring quartzite and limestone into contact with shales and sandstones. The quartz monzonite forms thick dykes cutting across the sediments in a direction of about  $130^{\circ}$  and dipping at about  $60^{\circ}$  to the northeast.

Mineralization

No lead-zinc was observed in the map area. Some authigenic pyrite was seen in the light grey shales and quartzites but no other sulphide mineralization was seen.

SURVEYING

A baseline, running at  $140^{\circ}$  was set up from just below camp. The soil grid lines, running at  $50^{\circ}$  were set up 500 feet apart with soil sample stations 50 feet apart. The soil grid lines were stepped off from the base line in order to keep the sampling within the claim block. The surveying was all done with a chain and compass.

GEOCHEMICAL SURVEYSampling Method

Pits for soil samples were dug with a mattock and, where possible, samples were taken in the "B" horizon, a light brown to rusty brown horizon ranging from 6" to 18" in depth. If necessary, a sample was taken in the rocky "C" horizon. Samples with a high organic content were avoided.

Assay Method

Samples were dried in a hot air drier to about  $120^{\circ}\text{F}$  and then

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the -80 mesh fractions were digested in a hydrochloric/perchloric acid mixture. Aliquots of the digested sample were then analysed with a Perkin Elmer 403 Atomic Absorbtion Spectrophotometer.

Wavelengths used were:

Zinc .....	2139 $\text{\AA}$
Lead .....	2170 $\text{\AA}$
Cadmium .....	2288 $\text{\AA}$

A background correction was made for cadmium using an adjacent non-absorbing wavelength.

### Observations

A location map of the soil geochemistry lines and the soil analysis maps for zinc, lead and cadmium are included in the back pocket. Due to the erratic nature of analytical values in the soils, no attempt was made to contour the soil maps.

For zinc in the soils, the general background values were between 100 and 200 ppm. Anomalous values of over 500 ppm were quite spotty. There does appear to be a weak spatial relationship between the light grey pyritic shales with higher zinc values, so it is assumed that this unit has a higher background of zinc in the rocks. From analysing rocks taken during reconnaissance stream sampling, and prospecting near Summit Lake, company geologists observed that, quite commonly, shale units have a high background (greater than 1000 ppm) in zinc without having apparent sphalerite or other zinc mineralization. A factor like this probably accounted for the soil anomalies on the Fox group of claims.

Background values for cadmium in the soils are primarily less than 2 ppm. Anomalous values range from 6 to 29 ppm; however, these values are quite few and scattered. There appears to be a slight spatial relationship between the cadmium and zinc in soil analysis.

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7.

Lead in the soils has a background of less than 30 parts per million (ppm). Only one sample was over 100 ppm (123 ppm) so it seems very unlikely that lead mineralization will be found in the area sampled.

#### CONCLUSIONS


Although the Fox group of claims lies within a favourable sequence of sedimentary rocks, soil geochemistry and mapping turned up no apparent lead-zinc mineralization.

STATEMENT OF QUALIFICATIONS

I, J.M. Kowalchuk, with business address in Vancouver, British Columbia and residential address in North Vancouver, British Columbia, hereby certify that:

1. I am a geologist.
2. I am a graduate of McMaster University, Hamilton, Ontario (B.Sc. Geology 1970).
3. From 1970 to 1973 I have been engaged in mineral exploration in British Columbia, Yukon Territory and the North West Territories.
4. I personally supervised field work and have assessed and interpreted all the data resulting from this work.

Respectfully Submitted,

  
\_\_\_\_\_  
J.M. Kowalchuk

CERTIFICATION

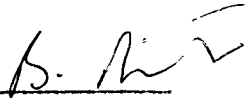
I, B. Ainsworth, with business address at 700 Burrard Building, Vancouver 5, British Columbia, do hereby certify that I have supervised the geological and geochemical work carried out on the FOX mineral claims Latitude  $62^{\circ}45'N.$ , Longitude  $130^{\circ}15'W.$ , Yukon Territory.

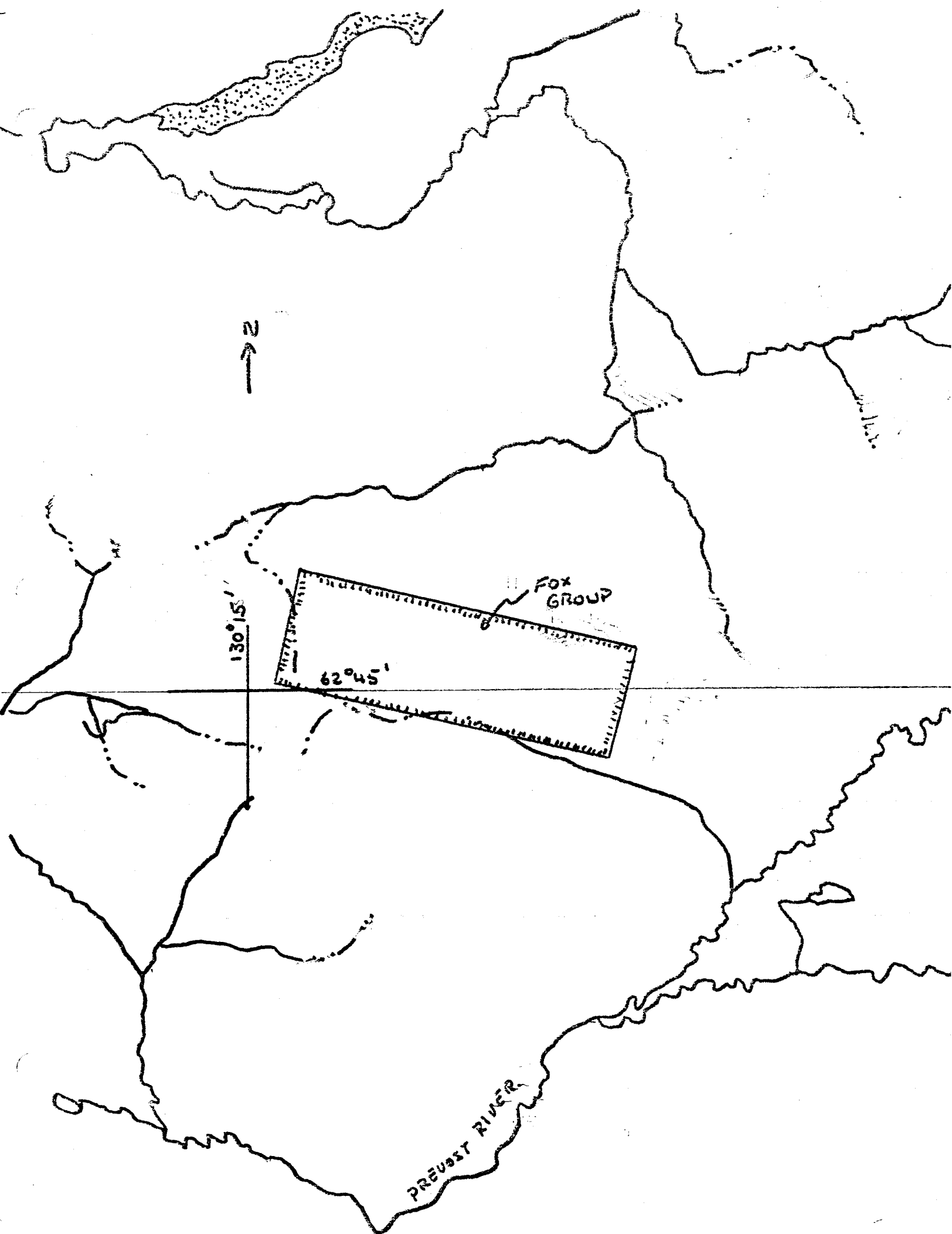
The field program has been carried out by Mr. J.M. Kowalchuk whose statement of qualifications is shown in this report.

I also certify that I am a professional engineer registered in the province of British Columbia.

To the best of my knowledge, the interpretation of data and expenditure claimed for the performance of the work is correct.

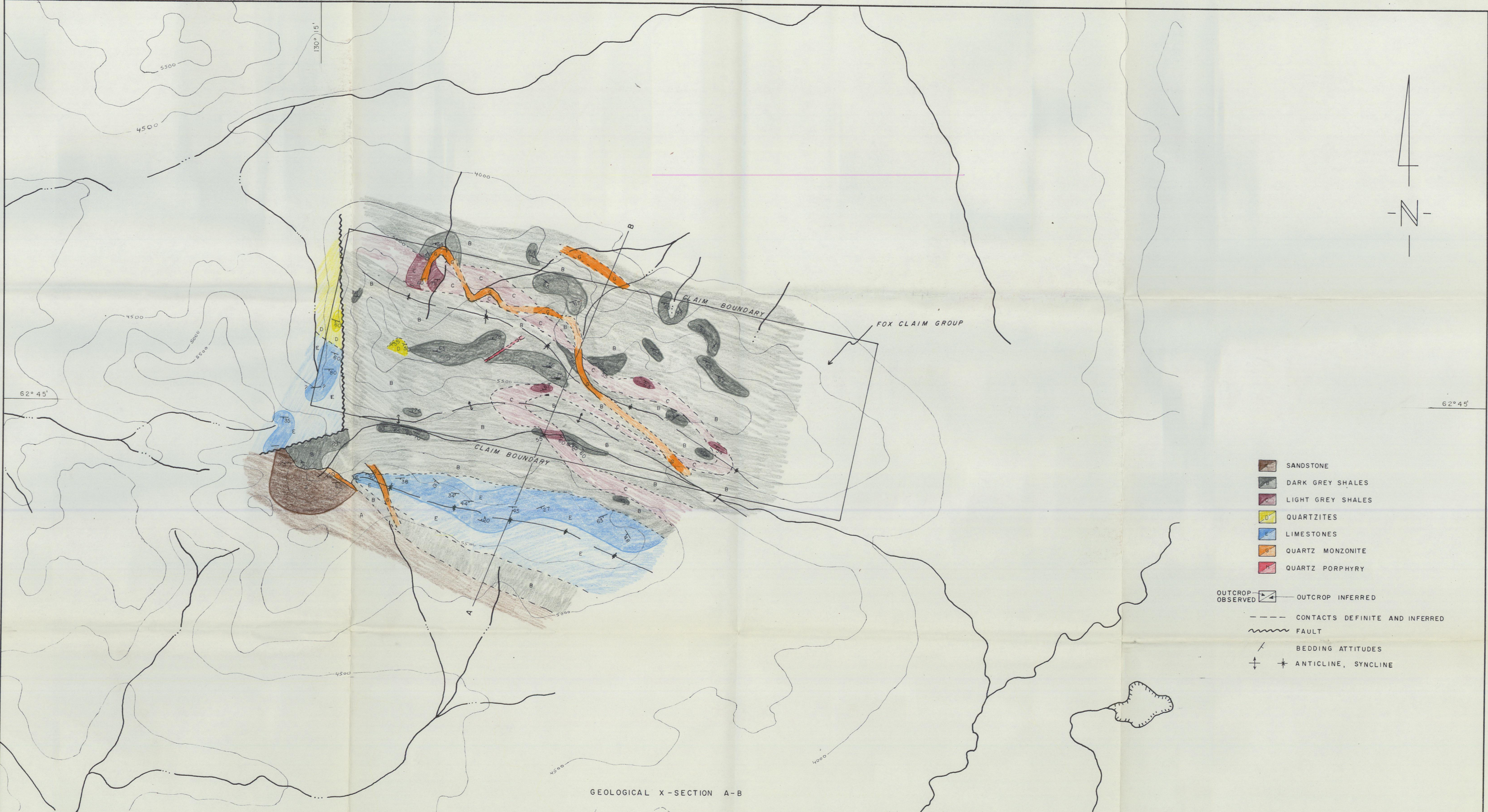
Respectfully submitted,

  
\_\_\_\_\_  
B. Ainsworth



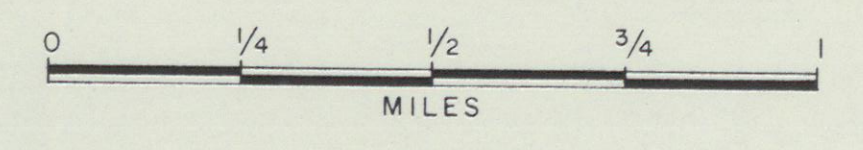
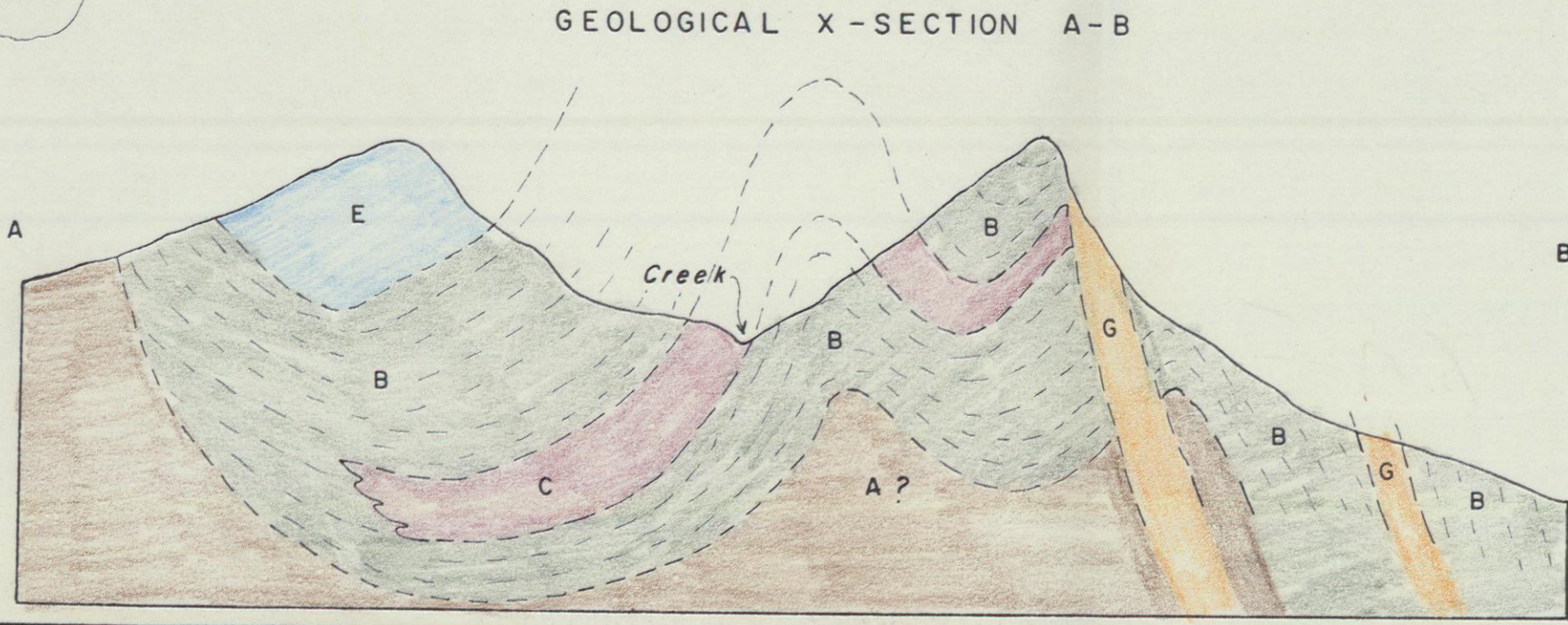
LOCATION MAP OF  
FOX GROUP OF CLAIMS

1" = 1 mile.

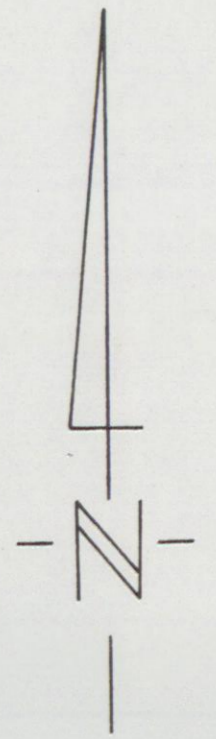


- SANDSTONE
- DARK GREY SHALES
- LIGHT GREY SHALES
- QUARTZITES
- LIMESTONES
- QUARTZ MONZONITE
- QUARTZ PORPHYRY

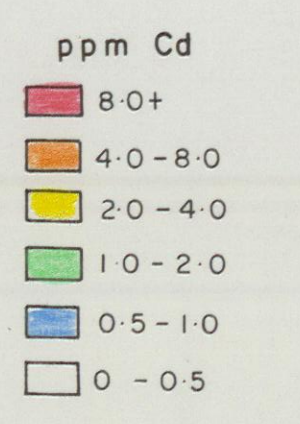
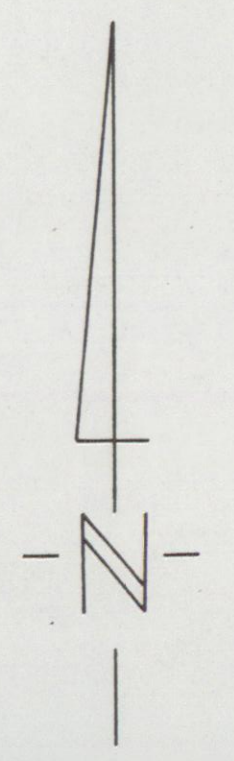
- OUTCROP OBSERVED
- OUTCROP INFERRED
- CONTACTS DEFINITE AND INFERRED
- FAULT
- BEDDING ATTITUDES
- ANTICLINE, SYNCLINE \*



DRAWN	SCALE 1" = 1/4 MI.	CANEX PLACER LIMITED	GEOLOGY
TRACED	DATE AUG. 1973.	FOX GROUP 105-J-16	FILE No.
APPROVED			

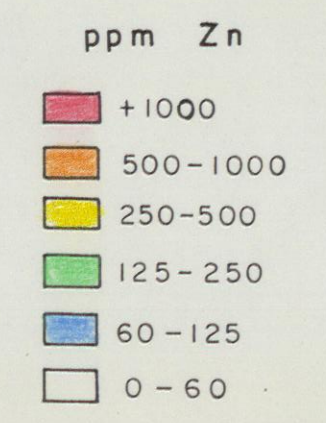
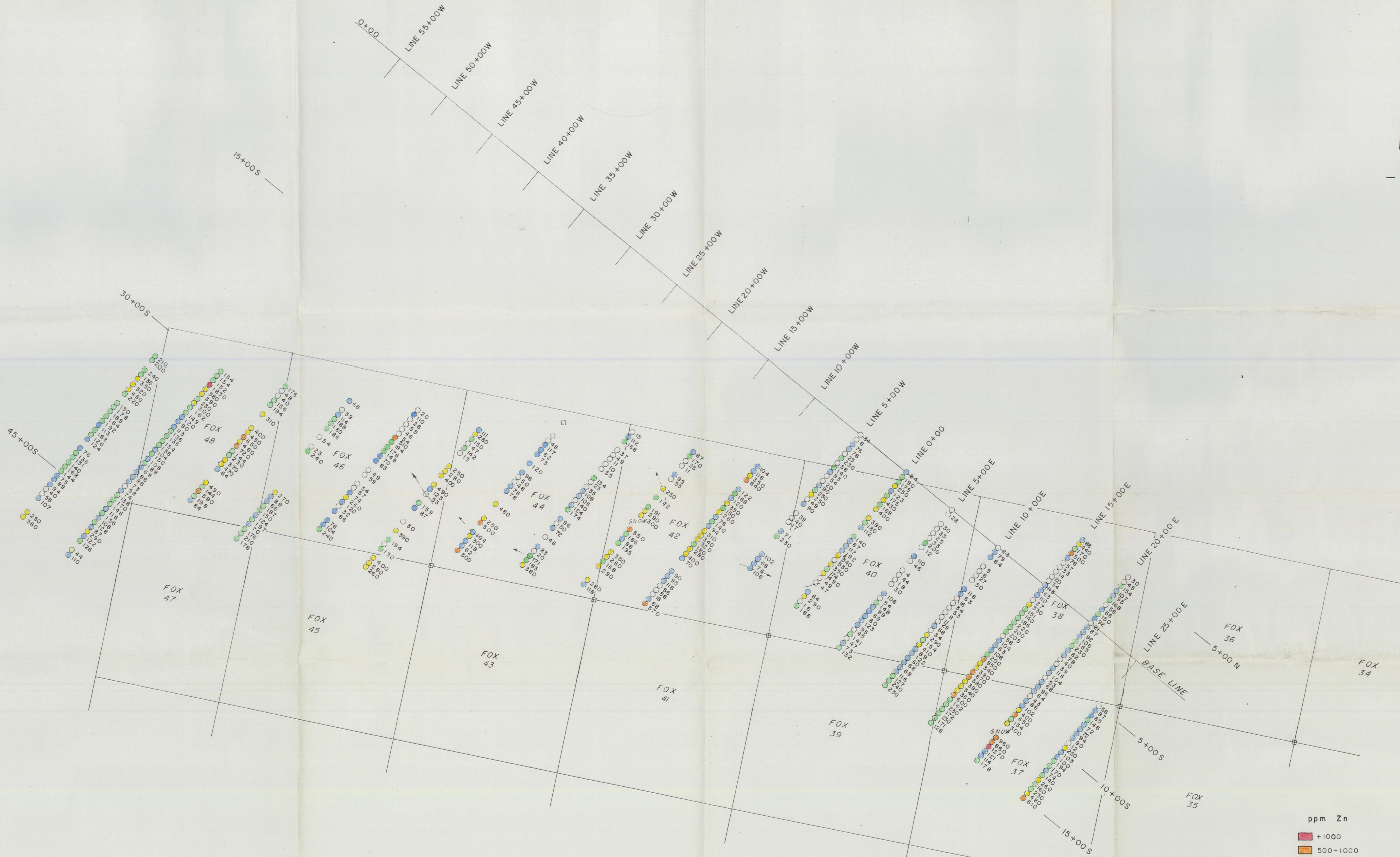
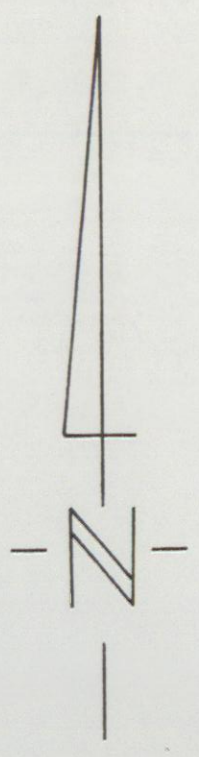


DRAWN	SCALE 1" = 400'	CANEX PLACER LIMITED	SOIL SAMPLE GRID
TRACED	DATE AUG, 1973	FOX GROUP 105-J-15	FILE No.
APPROVED			

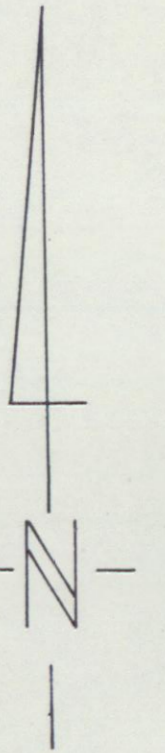


B.M.

DRAWN	SCALE 1" = 400'	CANEX PLACER LIMITED	SOIL SAMPLE GRID
TRACED	DATE AUG., 1973	FOX GROUP 105-J-15	FILE No.
APPROVED			



DRAWN	SCALE 1" = 400'	CANEX PLACER LIMITED	SOIL SAMPLE GRID
TRACED	DATE AUG., 1973	FOX GROUP 105-J-15	FILE No.
APPROVED			

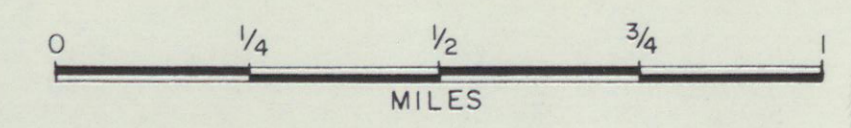
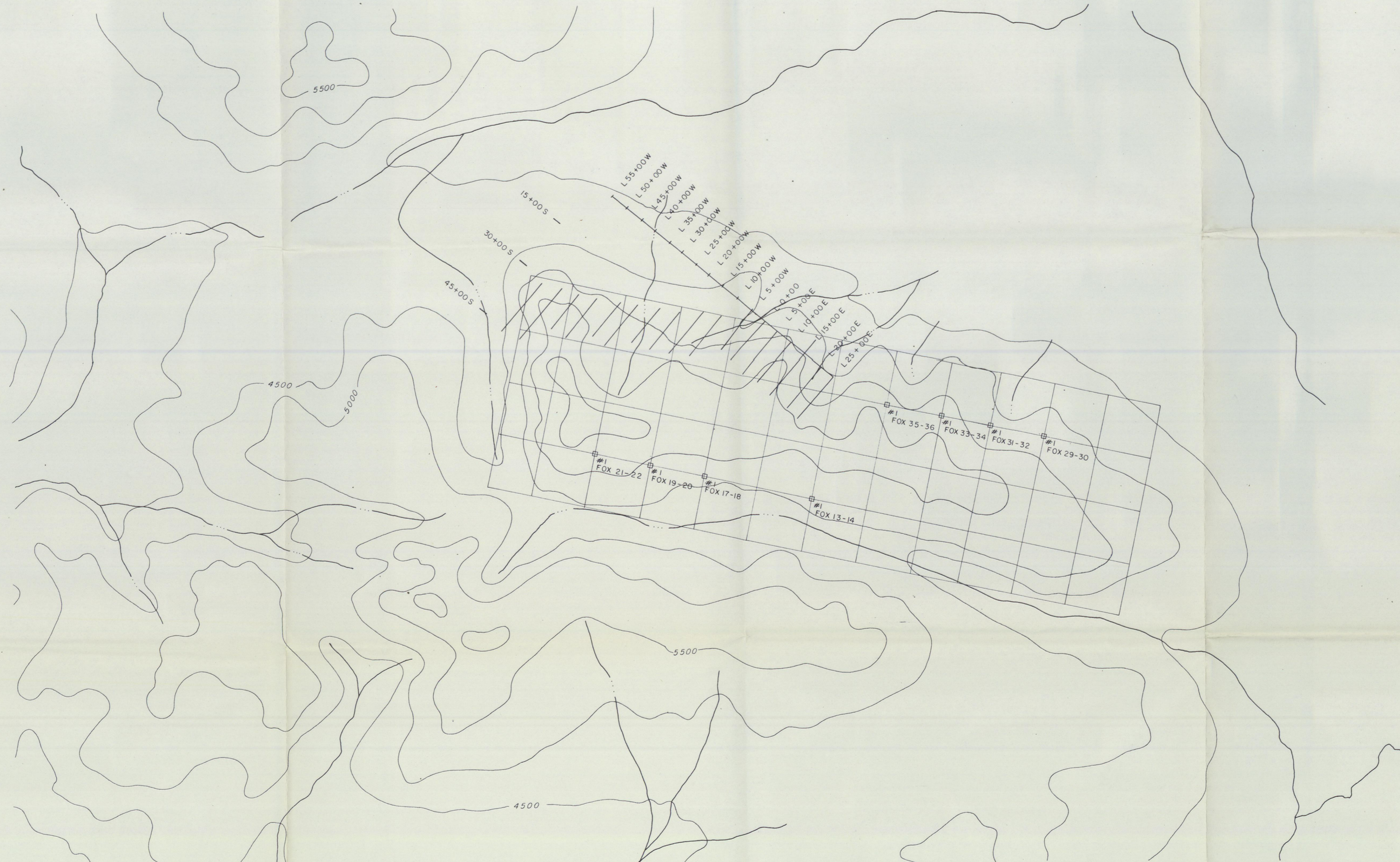


62° 45'

62° 45'

130° 15'

130° 15'



*B. M. E.*

DRAWN	SCALE 1" = 1/4 MI.	CANEX PLACER LIMITED	SOIL GRID 8
TRACED	DATE AUG., 1973.	FOX GROUP 105 J 15	CLAIM POST LOCATION
APPROVED			FILE No.