THIS IS EXHIBIT 'A' TO THE DECLARATION OF M. BARRY NEEDHAM DECLARED BEFORE ME THIS 6TH day of JANUARY 1969.

J. Roberts

SPARTAN EXPLORATIONS LTD. (N.P.L.)
303-1035 West Pender Street,
Vancouver 1, B. C.

1968 PROGRESS REPORT

AND

PROPOSED PROGRAM 1969

LOGAN PROJECT

YUKON TERRITORY

BY

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AND

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INTRODUCTION

During September, 1967, Spartan Explorations Ltd. conducted a program of primary prospecting in the northern Logan Mountains, southeastern Yukon, resulting in the staking of four large claim groups covering the observed mineral showings. During the months of June and July, 1968, the claim groups received detailed work and the entire region was assessed by geochemical and geologic surveys.

The Logan Project area lies between 61° 40' N to 61° 58' N latitude and 128° 45' W to 129° 30' W longitude; an area of approximately 500 square miles. This region is bounded by McPherson Lake on the northwest, Anderson Lake on the southeast, and includes a belt of approximately 20 miles in width across the center of the Logan Mountains. Figure 17 shows the major part of the Logan Project area with the four main claim groups included. Operations in the 1968 field season were conducted out of a base camp on Tillei Lake, roughly 100 miles east of Ross River.

Access to this region is by float or ski aircraft landing on either Tillei or McPherson Lake. A helicopter was used for transportation to the claim groups and surrounding region.

PROPERTIES

The Logan Project includes five claim groups: Lee, Thor(East), Thor(West), Zeus, and Cree in which detailed surveys were undertaken. The following is a list of properties with claim numbers, grant numbers, and total number of claims in each group:

Claim Names and Numbers	Total	Grant Numbers
LEE GROUP - Watson Lake Mining District		
LEE 1-192 incl.	192	Y19118-Y19309
LEE 193-232 incl.	40	Y22187-Y22226
	232	
THOR(EAST)GROUP - Watson Lake Mining District		
THOR 457-496 incl.	40	Y19627-Y19666
THOR 589-628 incl.	40	Y19695-Y19734
THOR 721-760 incl.	40	Y19735-Y19774
THOR 853-892 incl.	40	Y19775-Y19814
THOR 985-1024 incl.	40	Y19815-Y19854
THOR 1117-1156 incl.	40	Y19855-Y19844
THOR 1249-1288 incl.	40	Y19895-Y19934
THOR 1357-1396 incl.	40	Y19935-Y19974
	320	
THOR(WEST)GROUP - Watson Lake Mining District		
THOR 1-28 incl.	28	Y19515-Y19542
THOR 133-160 incl.	28	Y19543-Y19570
THOR 265-292 incl.	28	Y19571-Y19598
THOR 397-424 incl.	28	Y19599-Y19626
THOR 529-556 incl.	28	Y19667-Y19694
	140	
ZEUS GROUP - Watson Lake Mining District		
ZEUS 1-6 incl.	6	Y19395-Y19400
ZEUS 7	1	Y22227
ZEUS 8-88 incl.	81	Y19402-Y19482
ZEUS 89-94 incl.	6	Y27804-Y27809
	94	

Claim Names and Numbers	Total	Grant Numbers
CREE GROUP - Watson Lake Mining District		
CREE 1-28	28	Y22961-Y22988

STATUS OF CLAIM GROUPS

LEE GROUP

The LEE group was staked by Spartan personnel and transferred to the company in two blocks; the first of which is LEE 1-192, and the second of which is LEE 193-232. Both groups were recorded on September 6, 1967. Assessment reports, grouping of claims, and certificates of work were filed with the Mining Recorder on September 6, 1968, to maintain LEE 49-112 in good standing until September 6, 1969 - a total of 64 claims. The remaining claims in the original 1-232 group have been allowed to lapse.

THOR(EAST) GROUP

The THOR(EAST) group was staked in eight separate sections and comprises a total of 320 claims. These claims were recorded on September 18, 1967, by Spartan personnel and transferred to the company. Assessment reports, grouping certificates and certificates of work were filed with the Mining Recorder on September 6, 1968, in order to maintain the THOR(EAST) 735-750,

867-882, 999-1014 and 1131-1146 claims in good standing until September 18, 1969 - a total of 64 claims. The remaining claims in the THOR(EAST) group were allowed to lapse.

THOR(WEST) GROUP

The THOR(WEST) group was staked in five separate sections comprising in total 140 claims. The claims were recorded on September 18, 1967, by Spartan personnel and later transferred to the company. No assessment reports were written for this group and the entire group of claims has been allowed to lapse.

ZEUS GROUP

The ZEUS group was staked in two separate periods. During the first staking three groups were acquired. Claims 1-88 were recorded by Spartan personnel on September 18, 1967, and later transferred to the company. These claims have been allowed to lapse.

The ZEUS 89-44 claims were staked during the 1968 field season by Spartan personnel and transferred to the company and recorded on August 12, 1968. No assessment work is required on the ZEUS 89-94 claims until the 1969 season.

CREE GROUP

The CREE group was staked by Spartan personnel in the early 1968 field season and transferred to the company with a recording date of May 15, 1968. The block of 28 claims was allowed to lapse.

The claim groups do not appear to have any production or significant evaluation before being acquired by Spartan.

GENERAL EXPLORATION PROGRAM

Spartan Explorations conducted a primary exploration program in September, 1967. Based at McPherson Lake both prospecting and airborne geological reconnaissance were undertaken in the project area resulting in the staking of four large claim groups to cover the more favourable mineral showings with favourable geology - a relationship between molybdenum and tungsten mineralization with distinctive granitic stocks within the granodiorite of the Logan batholith. Skarn bodies with lead-zinc-copper-silver mineralization were also staked. Due to a short field season in this area no further detailed work was conducted on this project.

During the 1968 field season the CREE group was staked early in the season on the presence of molybdenum

mineralization and the remaining four claim groups received very detailed work while the entire Logan Project area was assessed by geochemical silt sampling and regional geological surveys.

The THOR(EAST), THOR(WEST) and ZEUS groups were mainly assessed by geochemical and geological surveys including sampling while only the LEE group received detailed geophysical methods based on a cut grid. The CREE group was evaluated mainly by prospecting. The larger creeks in the project area were silted and analysed for zinc, molybdenum and tungsten content.

REGIONAL GEOLOGY

The northern and eastern portion of the project area is underlain by Proterozoic massive gritty quartzites to granule-pebble conglomerates with general east-west trending features. Minor interbeds of well-bedded and contorted phyllite and limestone also occur in this unit. These metasedimentary rocks appear to be intruded by a later Cretaceous fine to medium grained biotite granodiorite defining the Logan batholith. The batholith appears to underlie much of the central region in the project area with a ring dyke like feature bordering the batholiths northern extension. The contact zone is commonly made up of massive quartz-feldspar mica schist and gneiss with minor

skarn. It is prominent on a northeast and eastern border of the granodioritic batholith. Younger potassium-rich quartz monzonitic to granitic intrusives occur as stocks within the Logan batholith, each generally less than two miles in diameter. Two distinct types of mineralization appear to be associated with the younger intrusives - 1) fracture controlled molybdenum-tungsten deposits and, 2) shear zone and skarn tungsten deposits within and near these plugs. The third type of mineralization observed in this area is lead-zinc-copper-silver skarn bodies occurring as replacements in the minor limestone interbeds within the Proterozoic quartzite near granitic contacts.

REGIONAL GEOCHEMICAL PROGRAM

The larger creeks within the Logan Project area were traversed and silt samples were taken out of the active bed load at one-quarter mile spacings. Also, all smaller talus streams were sampled upstream from where they enter the larger creeks. Individual samples were placed in Kraft bags and periodically shipped to the Barringer Research Geochemical Laboratory in Ross River for analysis. Determinations for the concentrations of elements zinc and molybdenum were undertaken at the Ross River laboratory. Samples were then sent to the Barringer

Research Center in Toronto for the tungsten determination. The results of the molybdenum concentrations received from the laboratory were plotted on a regional map (Figure 18L) with values plotted in parts per million. Values of seven and over parts per million were determined as being anomalous. All tungsten values to date have not been received thus a final compilation map was not completed. As observed on the regional map there appear to be two anomalous creeks, one draining westward flowing through the central portion of the THOR(WEST) claim group and, the other draining the westward portion of the THOR(EAST) claim group. Detailed prospecting and geology has explained these values and consequently more follow-up in this region, other than the claim groups, is not warranted.

DESCRIPTIONS OF CLAIM GROUPS

LEE GROUP

Introduction

The LEE 1-192 claim group was staked in early September, 1967, to cover an area of showings discovered by prospecting east of McPherson Lake. The most important showing was discovered on a creek bank located in the area of the LEE 77-79 claims and consisted of a small

exposure of copper, lead, and zinc bearing skarn in a limestone bed folded into a small, northerly-plunging anticline. This showing occurs in an area of quartzite near a major east-west trending fault south of an area of granitic intrusives. Also, seven other small skarn bodies were discovered east of the main showing and staking was done to cover these showings.

Claims LEE 193-232 were staked in early October, 1967 on the western margin of the initial block to cover an area of anomalous zinc geochemical results discovered after the original staking. During the 1968 field season the LEE group was geologically mapped and detailed geophysical and geochemical surveys were conducted over the area of the main showing.

Location and Access

The LEE group is centered roughly at longitude 129° 25' W and latitude 61° 56' N. The main showing is located about four miles east of the north-eastern end of the McPherson Lake in the northwestern corner of the claim sheet 105-H. Access to this property is by helicopter or by traversing up the westerly flowing creek that flows from the center of the claim group to the northern end of McPherson Lake.

TABLE OF GEOLOGIC FORMATIONS

Cretaceous (?)	(6	fine grained greenstone dykes
	(5	medium grained hypidiomorphic granodiorite
Proterozoic	(4	sandy massive limestone
	(3	massive quartzite with interbeds of grit and minor phyllite and limestone
	(2	highly contorted grey phyllite
	(1	light to medium grey graphitic well-bedded phyllite with minor limestone

Geology

The LEE group occurs along the northwestern margin of a northeasterly trending anticline of Proterozoic rocks. The claims appear to be underlain by the broad northern limb of the fold. Locally the anticline is cut by granodiorite of probable Cretaceous age. Mapped by the Geological Survey of Canada the claim group area is shown to be underlain by units 1 and 2 which are named Proterozoic phyllites, schists and gneiss. As shown on Figure 1L a four-fold division of the Proterozoic was mapped. Descriptions of the units from oldest to youngest is as follows:

Unit 1 - outcrops in the southern portion of the claim group and consists mainly of well-bedded light grey

to black to green coloured graphitic phyllite with minor interbeds of more limy rich material.

Unit 2 - appears to conformably overlie Unit 1 in the southern portion of the group and consists mainly of highly folded and contorted, medium grey coloured phyllite with pods and lenses of vein quartz. The presences of fine disseminated pyrite in this unit results in a rusty appearance over this interval.

Unit 3 - underlies a broad east-west trending fracture in the center of the claim group and consists of a massive bedded light grey to light brownish coloured quartzite with minor interbeds of sandy crystalline limestone and light grey coloured contorted phyllite. Interbeds of grit with grain sizes up to 5 mm in diameter occur in the massive quartzite sequence.

Unit 4 - occurs as larger interbeds within the massive quartzite - this unit was not given any definite stratigraphic position. It was mapped as a medium grey to dark grey coloured crystalline bedded to massive sandy limestone. This unit appears to be the host rock for the mineralization in the form of skarn bodies.

Unit 5 - likely of Cretaceous age occurs as small, generally less than a few hundred feet in diameter, intrusive bodies that occur in the northern portion of

the claim group. It was mapped as a fine to medium grained hypidiomorphic granular granodiorite.

Unit 6 - was mapped as fine grained greenstone dykes which appear to cut the Proterozoic rocks located in the center of the claim group area.

Structurally, the broad northern limb of the northeasterly trending anticline consisting mainly of Unit 3, contains minor folds that appear to result from a second period of deformation. Also a northeasterly trending fault cuts this northern limb; with associated showing it appears to have some control for the localization of the small skarn bodies found within the limestone interbeds in the massive quartzite.

Economic Geology

Eight showings were discovered in this area with the locations plotted on Figure 1L. Showings numbers 1 and 8 were only considered as being of economic importance. Figure 1L is the geologic map of the LEE claim group. Figure 2L is a detailed geological map of the LEE group grid area with locations of mineralized float plotted. Figure 3L is a geological sketch map of the main showing giving also the sample intervals and the assay returns. The best mineralization was obtained from

a small high grade pocket approximately 4 feet by 2 feet in cross sectional area. The following assays were obtained: 7.7% Pb, 12.6% Zn, 3.08% Cu, and 10.64 oz. Ag. The bulk of the skarn zone contained only minor amounts of the previous base metals. Figure 4L is also a geological sketch map of showing number 8 located near the center of the claim group. A pod of approximately 10 feet by 15 feet contained diposide-pyrrhotite skarn with minor amounts of copper and lead mineralization. All other showings on the claim group were very small and appeared to have no economical potential.

Geochemistry

For further evaluation of the main showing a grid was established centering on showing number 1 and consisting of a total of 25,300 feet of cut line. The grid was made up of a base line of 2,400 feet trending northeasterly with cross lines of variable lengths at right angles, spaced at 200 foot intervals.

Soil samples were taken at 100 foot stations over the entire grid. The typical B-horizon soils were uncommon due to thick organic layers above and the presence of a grey clay likely of glacial origin. Individual samples were placed in kraft bags and sent to the Barringer Research Geochemical Laboratory in Ross River for analysis

of the copper, lead, and zinc concentrations. The results were plotted on a grid map (Figure 5L) with a scale of 200 feet to the inch in parts per million in the sequence copper, lead and zinc. Contour maps were also plotted. Figure 7L is the zinc contour map showing contour intervals of 50 ppm above 250 ppm. A sizable anomaly is noted on this plot; it parallels the main creek in the grid area and trends east-west. A length of about 800 feet and width of about 200 feet as outlined by the 250 ppm contour line; peak zinc value in the amonaly is 450 ppm. All other anomalies appear to be uninteresting.

On Figure 6L, the lead contour map, values of above 60 ppm were plotted and the contour interval was 10 ppm. A peak value of 90 ppm was obtained in the north central portion of the grid.

There appears to be a relationship between the main showings and the zinc and lead geochemical anomalies. Both anomalies approximately coincide and are elongate, trending east-west generally following the course of the westerly flowing creek. As the main showing occurs near the western downhill extension of the anomalous zones it may be plausible to assume that the anomalies indicate mineralization not exposed. The general trend

of the anomalies is believed to be a function of physical dispersion of clastic particles transported down the creek from a possible buried mineralization zone. The geochemical peaks may be a possible target for further development of the area but since the geochemistry is similar over the main showing it is reasonable to assume that similar types and grades of mineralization exist which are causing these anomalies.

The high zinc values obtained from a regional soil and silt sampling in the southern portion of the grid area are possibly explained by east-west trending faults with rusty springs although this area is underlain by a favourable host rock for the localization of mineralization.

Geophysical Surveys

Both a magnetometer and electromagnetic survey were carried out on the grid area. The magnetometer survey, conducted with a Sharpe F-1 instrument, measured the vertical magnetic component and is used by one operator while the electromagnetic survey was carried out with a Sharpe SE300 dual frequency unit that measured the resultant dip angle of the field and the width of null or out of phase component.

The magnetic results obtained were corrected for diurnal drift and final gamma values were plotted on the grid map of 200 foot to 1 inch scale map (Figure 8L). Figure 9L, the magnetic contour map, was made using an interval of 200 gammas. It is noted that a small anomaly of 1,600 gammas is present on the base line at line 0. It is believed to outline the diopside pyrrhotite skarn exposed as showing Number 1. A larger east-west trending anomaly centered at 300 east and 900 south, with peak values over 2,400 gammas, on the grid likely reflects a similar skarn body.

The electromagnetic results were also plotted on the grid map including only the higher more reliable frequency values. Figure 10L is the electromagnetic values map. A profile map (Figure 11L) was also plotted. Prominent cross-over of negative high frequency dip angles occur at points 200 south, 500 east, and 400 south, 400 east.

These cross-over points appear to coincide with the previously described magnetic anomalous zones and it is likely that they reflect a pyrrhotite bearing skarn zone. Attempts to cut a trench on the geophysical peaks were undertaken but only overburden up to 14 feet was penetrated and due to collapsing of the walls the trench was abandoned.

Although the geophysical evidence is not adequately explained the anomaly is believed to be a pyrrhotite rich skarn due to evidence of other mineralized areas within the claim group. Since pyrrhotite rich sections seldom appear to occur with abundant lead-zinc-silver it is recommended in the assessment reports that no further work be done on this anomalous zone.

THOR(EAST) GROUP

Introduction

The THOR(EAST) group was staked in September, 1967, covering a number of widely scattered molybdenite and scheelite occurences discovered by prospecting in a broad area around Tustles Lake. With the discovery of mineralization a geological survey indicated that the showings were related to a younger more potassium rich intrusive cutting the granodiorite of the Logan batholith. The area surrounding the granitic stock was then staked.

Location and Access

The THOR(EAST) group is roughly centered at longitude 129° 5' W and latitude 62° 45' N.

These claims are in the heart of the rugged Logan Mountains, approximately 5 miles northeast of the northern tip of Tustles Lake. Location of the claim group

may be found on Figure 17L. Relief is generally more than 3,000 feet and maximum elevations are in the excess of 7,000 feet. Access is either by helicopter or by foot from Tustles Lake or Broten Lake, both of which can accommodate float or ski aircraft.

TABLE OF GEOLOGIC FORMATIONS

Cretaceous (?)	(4	Biotite Granite
	(	
	(3	Quartz Monzonite
	(	
	(2	Granodiorite
Proterozoic	1	Metasediments including Biotite hornfels, skarn, quartzite, and schist

Geology

The THOR(EAST) claim group lies in the central portion of a northwesterly trending batholith that borders metasediments on the northeast and southwest. The younger intrusives in the batholith are centrally located in the claim group. A description of the rock units follows:

Unit 1 - this unit consists of a complex sequence of biotite hornfels, skarn, schists, quartzite and limestone and outcrops along the northern edge of the claim group. The contact dips approximately 40^{o} to 60^{o} north.

Unit 2 - this unit forms most of the Logan batholith composed of a grey to white weathering, white coloured, medium grained biotite granodiorite. The approximate composition being 25% quartz, 50% plagioclase, 10% white orthoclase and 10% to 15% biotite. This rock is generally fresh, except near shears and younger intrusives where chloritic, argillitic and sericitic alteration locally occurs.

Unit 3 - this unit is a course grained, buff weathering, pink biotite quartz monzonite with an approximate composition of 30% quartz, 33% plagioclase and 5% biotite. It intrudes the granodiorite and produces chloritic alteration near contacts.

Unit 4 - unit 4 is the youngest intrusive present with a distinctive white weathering, pink coloured, fine to medium grained glomeroporphyritic textured granite with approximate composition of 40% porphyritic quartz, 50% pink orthoclase, 10% white orthoclase, 1% to 2% biotite and less than 1% magnetite. Most contacts are sharp with chill zones present.

It appears as though both Unit 3 and Unit 4 were a result of a later magmatic stage within the Logan batholith. Most faulting in the area is believed to have been caused by radial or concentric faulting during the

later magmatic episode. Figure 13L is a geological map of the central portion of the claim group also showing alteration zones and locations of mineral occurrences.

Economic Geology

Three distinct zones of alteration were mapped in or near the granite. One of these zones was termed the Art Showing located on Figure 13L as showing number 15. It is an area of 200 feet by 1,500 feet in which pervasive argillic alteration of feldspars occurs associated with a northerly trending shear zone presently occupied by a 2 to 4 foot barren quartz vein which cuts all three rock types in the area. This alteration zone is surrounded by an extensive halo of chloritization. Figure 14L is a detailed sketch map of the Art Showing with sample locations plotted. Assay results were not received but a visual estimation is less than 0.1% disseminated scheelite within the argillic zone.

The other two alteration zones occur east of the Art Showing with sparse scheelite and molybdenum mineralization. Most quartz veins with molybdenite mineralization vary in width from 1 inch to 3 feet and appear to be less than 100 feet in length. Scheelite was noted as disseminated grains in the altered zones and minor amounts in the fracture and shear fillings with quartz.

Only areas on the claim group that appear to have any economic possibilities are the above mentioned alteration zones, however, close examination has shown tungsten mineralization to be of low grade or small size. Most molybdenite occurs in the narrow scattered quartz veins and does not appear to have any economical potential.

THOR(WEST) GROUP

Introduction

The THOR(WEST) group was staked in September, 1967, covering molybdenite and tungsten mineralization associated with an intrusive stock in the Logan batholith similar to that of the THOR(EAST) group. The younger quartz monzonite body is about 1-1/2 miles in length by 1 mile in width. The claim group was geologically mapped in the 1968 field season.

Location and Access

The THOR(WEST) claim group is located southeast of the LEE group and approximately 5 miles northeast of the northern end to Tillei Lake. The central stock outcrops in the rugged mountains bordering the southeastern bank of the Tillei River. Access to this area is mainly by helicopter or landing a float or ski aircraft on Tillei Lake and traversing up the Tillei River.

TABLE OF GEOLOGIC FORMATIONS

Cretaceous (?)	(4	Biotite quartz monzonite
	(	
	(3	medium grained biotite
	(	granodiorite
	(	
	(2	fine grained biotite granodiorite
	(	with weak foliation
Proterozoic	(1	amphibolite gneiss
	(	
	(0	quartzite and phyllite

Geology

The THOR(WEST) group lies along the western border of the Logan batholith such that the eastern portion is underlain by Cretaceous intrusives while the western section is underlain by Proterozoic metasediments. With detailed mapping 5 distinct units were observed as shown on Figure 12L. They are as follows:

Unit 0 - the oldest unit appears to be of Proterozoic age consisting mainly of massive grey to buff quartzite and well-bedded but contorted phyllite similar to the Proterozoic of the LEE group.

Unit 1 - unit 1 is a dark weathering, medium grained, amphibolite gneiss and is probably a metasediment.

Unit 2 - this unit is a fine grained, weakly foliated biotite granodiorite to a biotite gneiss due to alignment of biotite flakes.

Unit 3 - this unit is the major rock type present in the map area, typically a white, greyish weathering, medium grained biotite granodiorite. It consists of approximately 60% white feldspar, 20% quartz, and 10% to 15% biotite.

Unit 4 - the youngest rock type observed is a white to grey weathering, pink, medium to course grained hypidiomorphic granular biotite quartz monzonite. The geologic setting of the THOR(WEST) group is very similar to that on the THOR(EAST) claims such that the Logan batholith is intruded by two small stocks of granodiorite and quartz monzonite.

Economic Geology

Weak zones of pyrite-chlorite alteration are present bordering the smaller stocks but do not contain disseminated tungsten. Most showings occur in the fractured granodiorite peripheral to the younger intrusive. These fracture and shear zones are typically narrow and unfilled with mainly vein quartz with minor sporadic molybdenite and rarely associated tungsten. Thus, all showings observed of molybdenum-tungsten mineralization on the THOR(WEST) group were of very small size and limited economic importance.

ZEUS GROUP

Introduction

The ZEUS group was staked on a contact between the granodiorite intrusive and older Proterozoic metasediments. Showings found included copper, lead, zinc and tungsten mineralization in skarn bodies.

Location Access

The ZEUS group is centered on about 61° 52' N latitude and 128° W longitude and located on claim sheet 105-H. The relief commonly is from 5,000 feet to 6,500 feet and drainage is mainly to the east as tributaries to the Hyland River. Access to the group is mainly by helicopter from nearby lakes suitable for float or ski aircraft.

TABLE OF GEOLOGIC FORMATIONS

Cretaceous (?)	3	granodiorite
Proterozoic	(2	crystalline limestones and massive quartzites
	(1	very silcified phyllite

Geology

The ZEUS claims lie along the southern contact of an elongate east-west trending granodioritic body, peripheral to the northern border of the Logan batholith,

in contact with Proterozoic metasediments in the south. Within the Proterozoic sequence the limestone interbeds near the granodiorite body have been converted into skarn with minor lead, zinc, copper and tungsten mineralization. Figure 15L is the geological map with mineral occurences also included.

Economic Geology

Mineralization occurs in three distinct settings on the ZEUS group. The first of these is the Horn Showing which is a pyramid of metasediments perched on the granodiorite. Two skarn horizons occur within this body, a thickness of 5 to 10 feet and a length of a few hundred feet. The diopside-amphibolite skarn is mineralized with approximately 5% pyrrhotite and an estimated 0.5% tungsten content. Pods and pockets of skarn contain erratic amounts of pyrrhotite and scheelite with minor chalcopyrite, galena and sphalerite. Later shearing has consequently altered the positions of the flat lying skarn interbeds.

A second area for mineralization occurs in the vicinity of Gas Barrel Lake. Here shearing has controlled the extent of skarn mineralization which appears as narrow lenses and pods traced up to 300 feet in length. Mineralization is mainly minor chalcopyrite, galena, sphalerite

with very sparse scheelite. They are of uneconomic importance.

A third type of setting occurs in the eastern portion of the claim block. The control of mineralization appears to be east-west shears in the granodiorite with an estimated grade of less than 0.075% tungsten in the quartz sericite infilling. This setting does not appear to have any economical potential.

Due to the inaccessibility of the Horn Showing and since it may contain potentially economical tungsten grades, further work is warranted.

CREE GROUP

Introduction

The CREE group was staked in May, 1968, with further prospecting later in the field season. Two mineral showings were observed and the group was roughly mapped.

Location and Access

The CREE group shown on Figure 16L is approximately 2 miles northeast of the northern tip of Anderson Lake. The showings can be reached by traversing up the creek or by helicopter. Anderson Lake is suitable for float or ski aircraft.

Economic Geology

Two small quartz veins both less than 2 inches in width were observed and found to contain only minor molybdenite. The fractures occur in a medium grained biotite granodiorite. At the head of the creek valley a pyritic zone is present and is likely associated with a fine grained granodiorite similar to Unit 2 on the THOR(WEST) claim group. It was noted that these showings were previously staked in 1960. The mineralization does not appear to have much economical potential.

Respectfully submitted

Wayne Roberts, Geologist

Proposed Work

It is proposed that a two-man party consisting of geologist and mountaineer assistant geologically map and sample for assay exposed zones of tungsten mineralization on the Horn showing of the ZEUS group. This program should require about two weeks work:

1.	Transportation	$ 400.00
2.	Personnel	1,200.00
3.	Services-Purchases	300.00
4.	Contingencies	100.00
		$2,000.00

Respectfully submitted,

Clyde L. Smith,
Exploration Manager

LIST OF ILLUSTRATIONS
(Enclosed in Pocket)

FIG. 1

KEY TO MINERAL OCCURRENCES

1. MAIN SHOWING OF MAINLY PYRRHOTITE - CHALCOPYRITE SKARN WITH A HIGH GRADE SEGREGATION, APPROXIMATELY 3 FEET IN DIAMETER, OF GALENA, SPHALERITE, CHALCOPYRITE AND SILVER.
2. SKARN WITH A POD ABOUT 2 FEET SQUARE OF MAINLY PYRROTITE WITH MINOR CHALCOPYRITE. REMAINDER OF SKARN IS ALMOST BARREN. LIMESTONE INTERBED IN QUARTZITE IS 4 FEET THICK.
3. HIGHLY SHEARED AREA WITH MINOR GALENA, ARSENOPYRITE, CHALCOPYRITE AND PYRITE IN BRECCIATED MIXTURE OF QUARTZITE AND LIMESTONE. ALSO LOCAL PODS OF SKARN WITH MASSIVE FINE GRAINED PYRRHOTITE, SHEAR ZONE ~ 30' WIDE.
4. INTERBED OF LIMESTONE APPROXIMATELY 10' THICK WITH A SEGREGATION OF PYRRHOTITE - CHALCOPYRITE SKARN. ALSO MINOR ARSENOPYRITE IN QUARTZ VEINLETS IN NEARBY QUARTZITE.
5. HIGHLY SHEARED PORTION OF 2 FOOT THICK LIMESTONE, RESULTING IN PYRRHOTITE SKARN WITH MINOR CHALCOPYRITE. CONTACT WITH QUARTZITE CONTAINS VEIN QUARTZ PLUS CHALCOPYRITE.
6. FINE DISSEMINATED GRAINS OF GALENA IN DISCORDANT QUARTZ VEINS UP TO 2 INCHES THICK IN MASSIVE QUARTZITE.
7. MASSIVE FINE GRAINED PYRRHOTITE SKARN WITH MINOR CHALCOPYRITE IN 5 FOOT THICK LIMESTONE INTERBED IN MASSIVE QUARTZITE.
8. MASSIVE PYRRHOTITE SKARN IN 10 FOOT THICK LIMESTONE INTERBED IN QUARTZITE. TWO HIGH GRADE SEGREGATIONS CONTAIN NEARLY 75% PYRRHOTITE WITH MINOR GALENA, SPHALERITE, AND CHALCOPYRITE.

LEGEND

- HORNFELS, AND OR MINERALIZED SKARN.
- 6 — FINE GRAINED GREENSTONE DYKES.
- 5 — MEDIUM - FINE GRAINED HYPIDMORPHIC GRANULAR GRANODIORITE.
- 4 — DARK GREY CRYSTALLINE TO SANDY MASSIVE LIMESTONE.
- 3 — MASSIVE LIGHT GREY QUARTZITE WITH INTERBEDS OF GRIT. ALSO MINOR INTERBEDS OF FOLDED LIGHT GREY PHYLLITE AND SANDY LIMESTONE.
- 2 — HIGHLY FOLDED AND CONTORTED MEDIUM GREY PHYLLITE WITH PODS AND LENSES OF QUARTZ.
- 1 — LIGHT GREY, MEDIUM GREY, LIGHT GREEN, GRAPHITIC WELL BEDDED PHYLLITE. WITH MINOR LIMY INTERBEDS.

- LIMIT OF OUTCROP.
- GEOLOGICAL CONTACTS
- ASSUMED FAULTING.
- BOUNDARY OF CLAIM GROUP
- ① OBSERVED MINERAL OCCURRENCE.

SPARTAN EXPLORATIONS LTD.

ROSS RIVER YUKON

LOGAN PROJECT

LEE MINERAL CLAIMS

GEOLOGY & MINERAL OCCURRENCES

GEOLOGY & SAMPLING : W. ROBERTS.

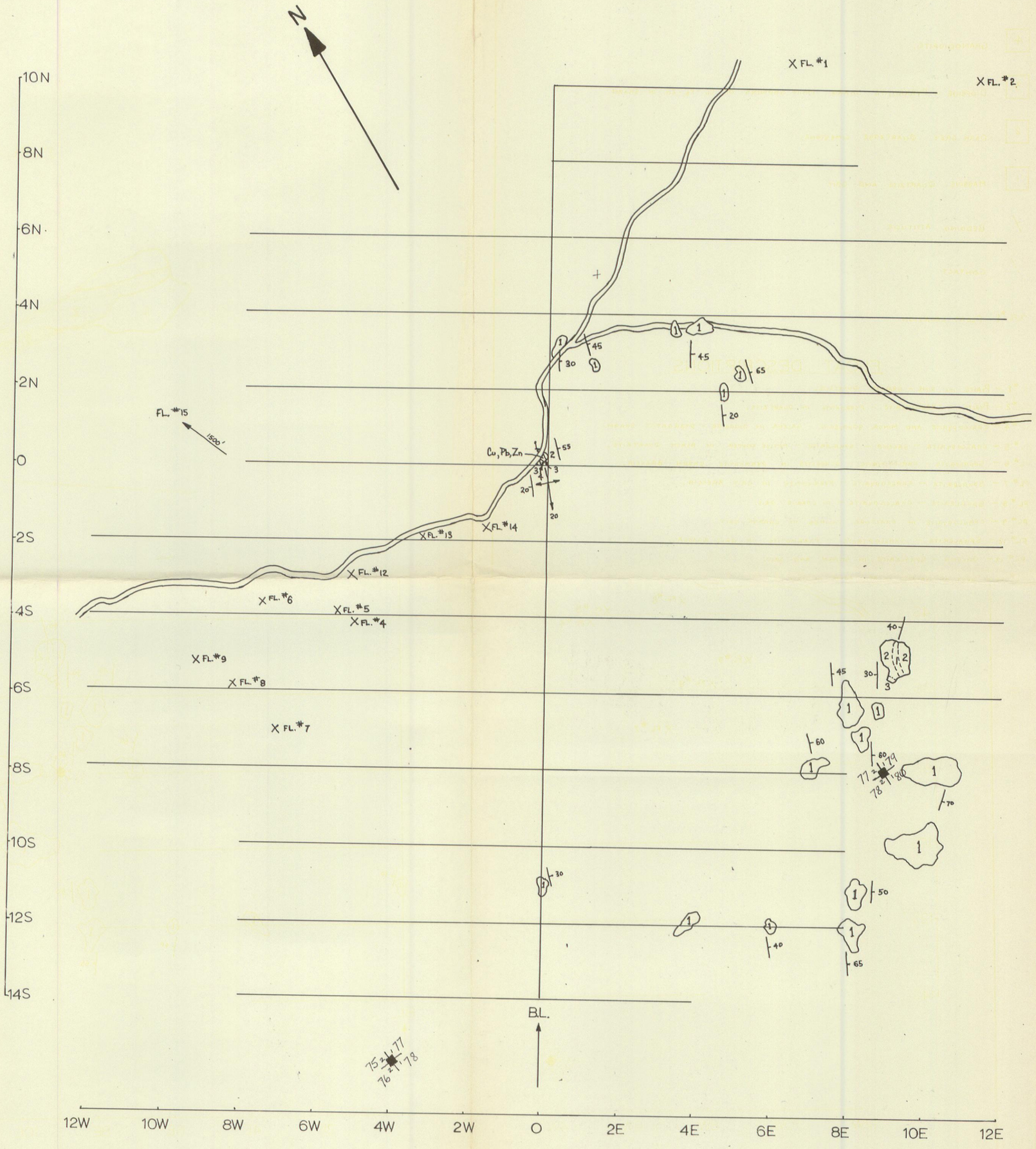
DRAWN BY : N.H. SIMMONS.

DATE : JULY 9, 1968.

1500 0 1500 3000 4500 6000 7500

Scale in feet.

FIG. 2



LEGEND

- 4 — GRANODIORITE.
- 3 — DIOPSIDE – PYRRHOTITE SKARN MAIN SHOWING OF Cu.-Pb.-Zn. IN SKARN.
- 2 — DARK GREY QUARTZOSE LIMESTONE.
- 1 — MASSIVE QUARTZITE AND GRIT.
- Y — BEDDING ATTITUDE.
- ! — CONTACT.
- XFL.*1 — FLOAT LOCATION.

FLOAT DESCRIPTIONS

FL*1 – PYRITE IN FINE - GRAINED QUARTZITE.
FL*2 – PYRITE – CHALCOPYRITE - PYRRHOTITE IN QUARTZITE.
FL*4 – CHALCOPYRITE AND MINOR SPHALERITE - GALENA IN DIOPSIDE - PYRRHOTITE SKARN.
FL*5 – CHALCOPYRITE – GALENA – SPHALERITE – NATIVE COPPER IN BLACK QUARTZITE.
FL*6 – SPHALERITE - CHALCOPYRITE – SCHEELITE IN PYRRHOTITE SKARN BRECCIA.
FL*7 – SPHALERITE – CHALCOPYRITE – PYRRHOTITE IN GRIT BRECCIA.
FL*8 – SPHALERITE – CHALCOPYRITE – IN COARSE GRIT.
FL*9 – CHALCOPYRITE IN FRACTURE FILLINGS IN COARSE GRIT.
FL*12 – SPHALERITE – CHALCOPYRITE – PYRRHOTITE IN GRIT BRECCA.
FL*13 – GALENA – SPHALERITE IN SKARN AND GRIT.
FL*14 – SPOT OF GALENA – SPHALERITE IN GRIT.
FL*15 – MINOR CHALCOPYRITE – SPHALERITE IN 30 FOOT BAND (?) OF BANDED CHERT.

ASSAYS

	Cu	Ag
FL*9 – G601		
FL*15 – G602		

SPARTAN EXPLORATIONS LTD.

ROSS RIVER YUKON
LOGAN PROJECT
LEE MINERAL CLAIMS
GEOLOGIC MAP OF LEE GROUP GRID

GEOLOGY : W. ROBERTS.

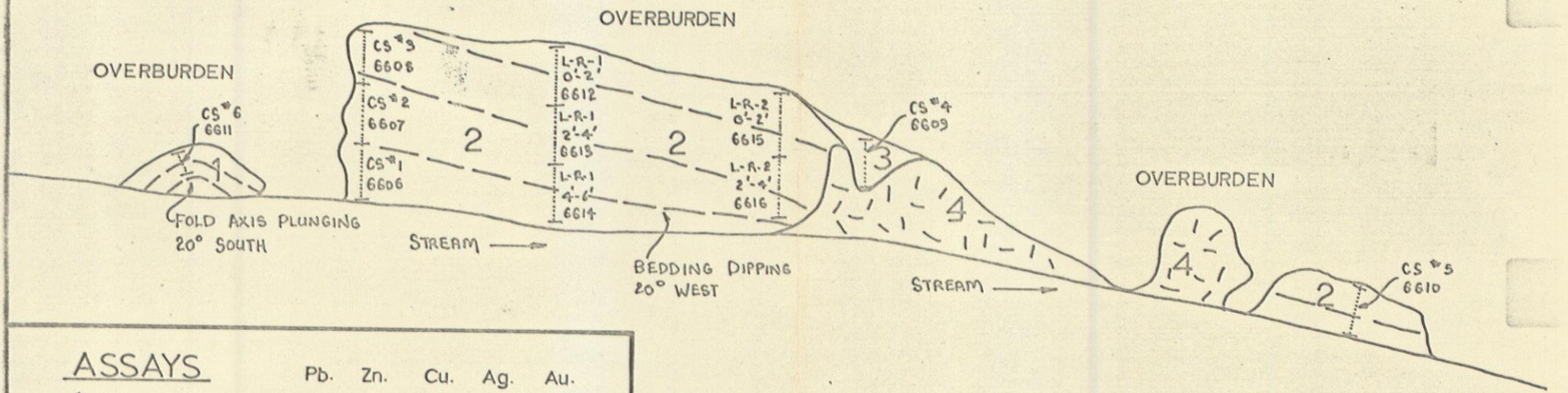
DRAWN BY : N. H. SIMMONS.
DATE : JUNE 24, 1968.

200 100 0 200 400
Scale in feet

LEGEND

- 4 — GRANITIC INTRUSIVE
- 3 — HIGH GRADE SKARN - Pb, Zn, Cu, Ag.
- 2 — DIOPSIDE - PYRRHOTITE SKARN - Cu.
- 1 — LIMESTONE WITH SKARN BANDS.
- BEDDING.
- SAMPLE INTERVAL — ALL SAMPLES TAKEN AS CHIPS AT 2" SPACINGS OVER 1' OR 2' INTERVALS.

VIEW LOOKING S20W AT SHOWING N°1



ASSAYS

			Pb.	Zn.	Cu.	Ag.	Au.
CS #1		6606	·05	·015	·15	·10	—
CS #2		6607	Tr.	Tr.	·21	·55	—
CS #3		6608	·01	·015	·01	·06	—
CS #4		6609	7·7	12·6	3·08	10·64	Tr.
CS #5		6610	·01	·03	·15	·02	—
CS #6		6611	·27	·23	·04	·74	—
L-R-1	0'-2'	6612	·02	·03	·23	·08	—
L-R-1	2'-4'	6613	Tr	·01	·11	·02	—
L-R-1	4'-6'	6614	Tr	·01	·20	·06	—
L-R-2	0'-2'	6615	·01	·01	·10	·02	—
L-R-2	2'-4'	6616	·01	·01	·25	·10	—

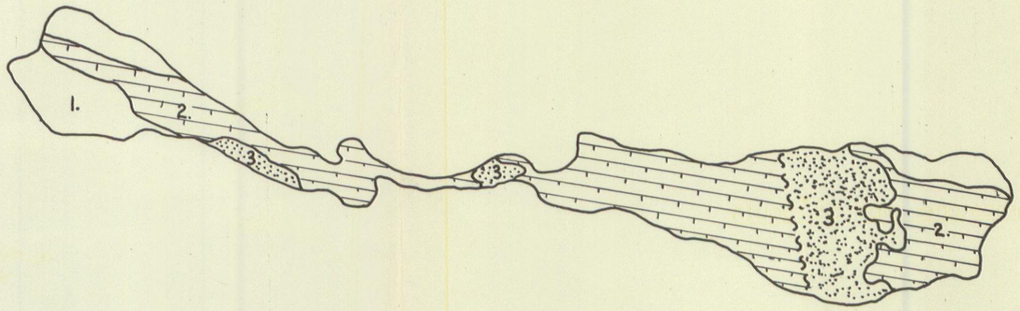
SPARTAN EXPLORATIONS LTD.

ROSS RIVER YUKON
LOGAN PROJECT
LEE MINERAL CLAIMS
GEOLOGIC SKETCH MAP.

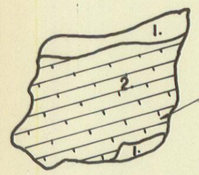
GEOLOGY: C. SMITH. DRAWN BY: N.H. SIMMONS.
SAMPLING: W. ROBERTS, DATE, JUNE 22, 1968.
C. SMITH.

0 1 2 3 4 5 10 15
Scale in feet.

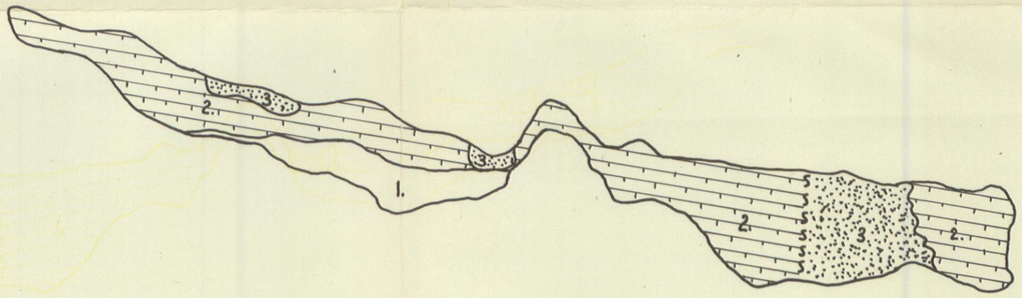
PLAN VIEW OF SHOWING No.8.



END ELEVATION LOOKING
120° AT SHOWING.



Limestone dips 55° South



SIDE ELEVATION OF SHOWING LOOKING 210°

LEGEND

3. DIOPSIDE – PYRRHOTITE – SKARN, MINOR Cu AND Pb.

2. DARK GREY CRYSTALLINE LIMESTONE, WITH SANDY INTERBEDS OUTLINEING BEDDING.

1. MEDIUM GRAINED LIGHT GREY MASSIVE QUARTZITE WITH MINOR INTERBEDS OF PHYLLITE

SPARTAN EXPLORATIONS LTD.

ROSS RIVER YUKON
LOGAN PROJECT
LEE MINERAL CLAIMS
Sketch map of showing No.8.

GEOLOGY & SAMPLING : W. ROBERTS.

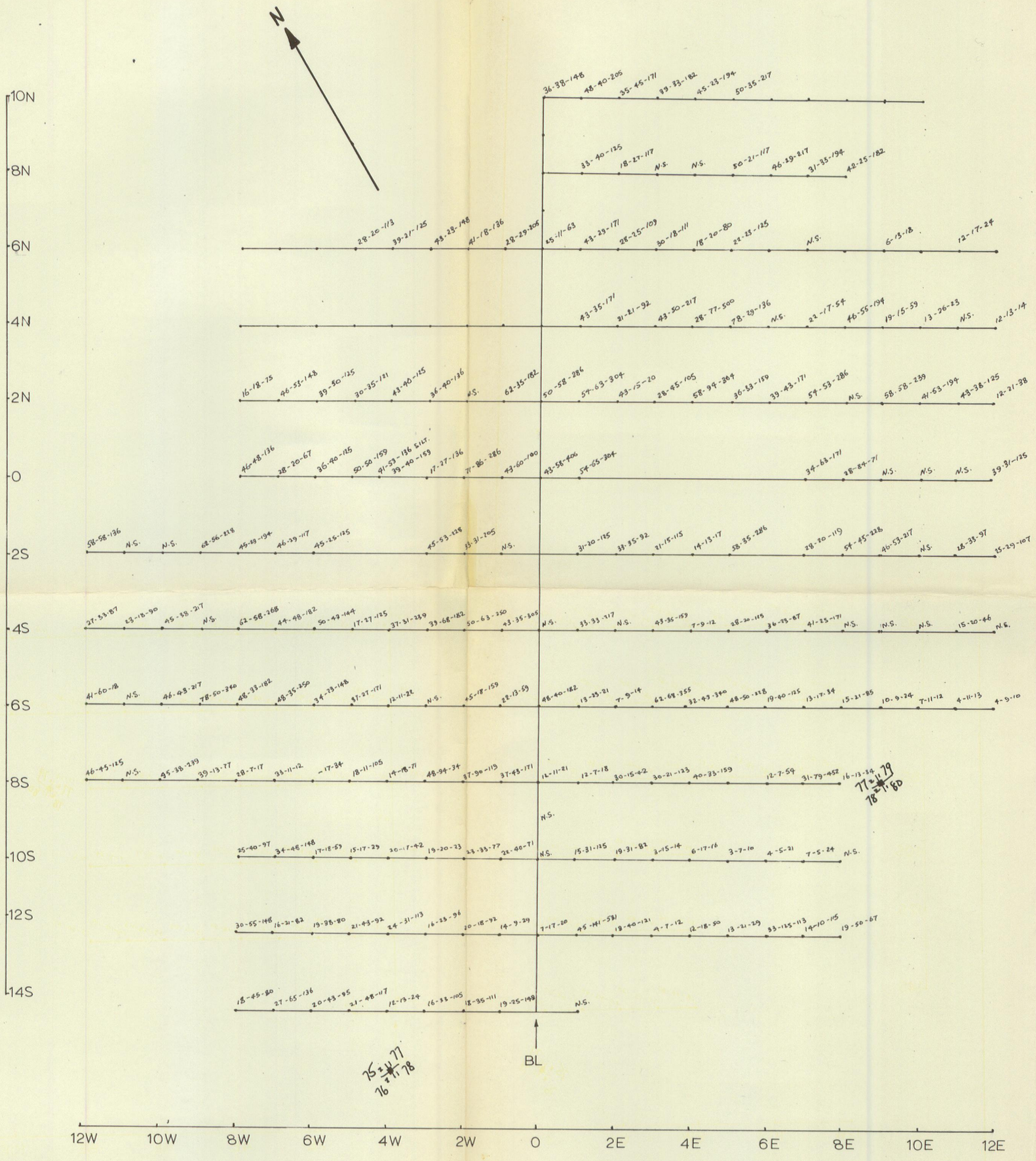
DRAWN BY : N. H. SIMMONS.

DATE : JULY 9, 1968.

10 5 0 10 20

Scale 1" = 10'

FIG. # 5. L



SPARTAN EXPLORATIONS LTD.

ROSS RIVER YUKON

LOGAN PROJECT

LEE MINERAL CLAIMS

GEOCHEMICAL SOIL SURVEY MAP

Values of (Cu-Pb-Zn) in ppm.

SOIL SAMPLERS : I. HILL , J. SCOTT.

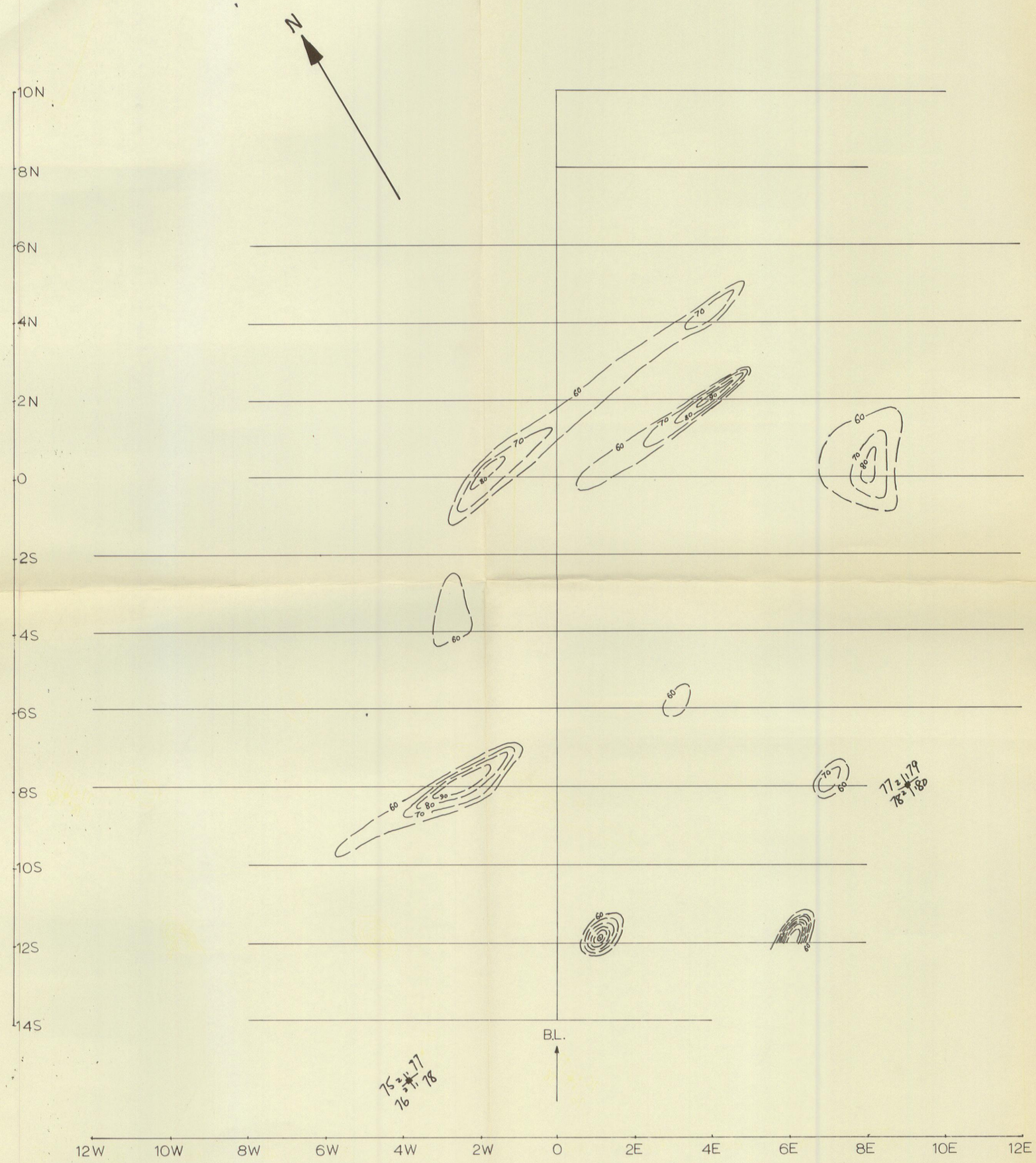
DRAWN BY : N H SIMMONS

DATE : JUNE 22, 1968.

200 100 0 200 400

Scale in feet

FIG. 6



SPARTAN EXPLORATIONS LTD.

ROSS RIVER YUKON

LOGAN PROJECT

LEE MINERAL CLAIMS

GEOCHEMICAL LEAD CONTOUR MAP

SOIL SAMPLERS : I.HILL, J.SCOTT

CONTOUR INTERVAL : 10ppm Pb.

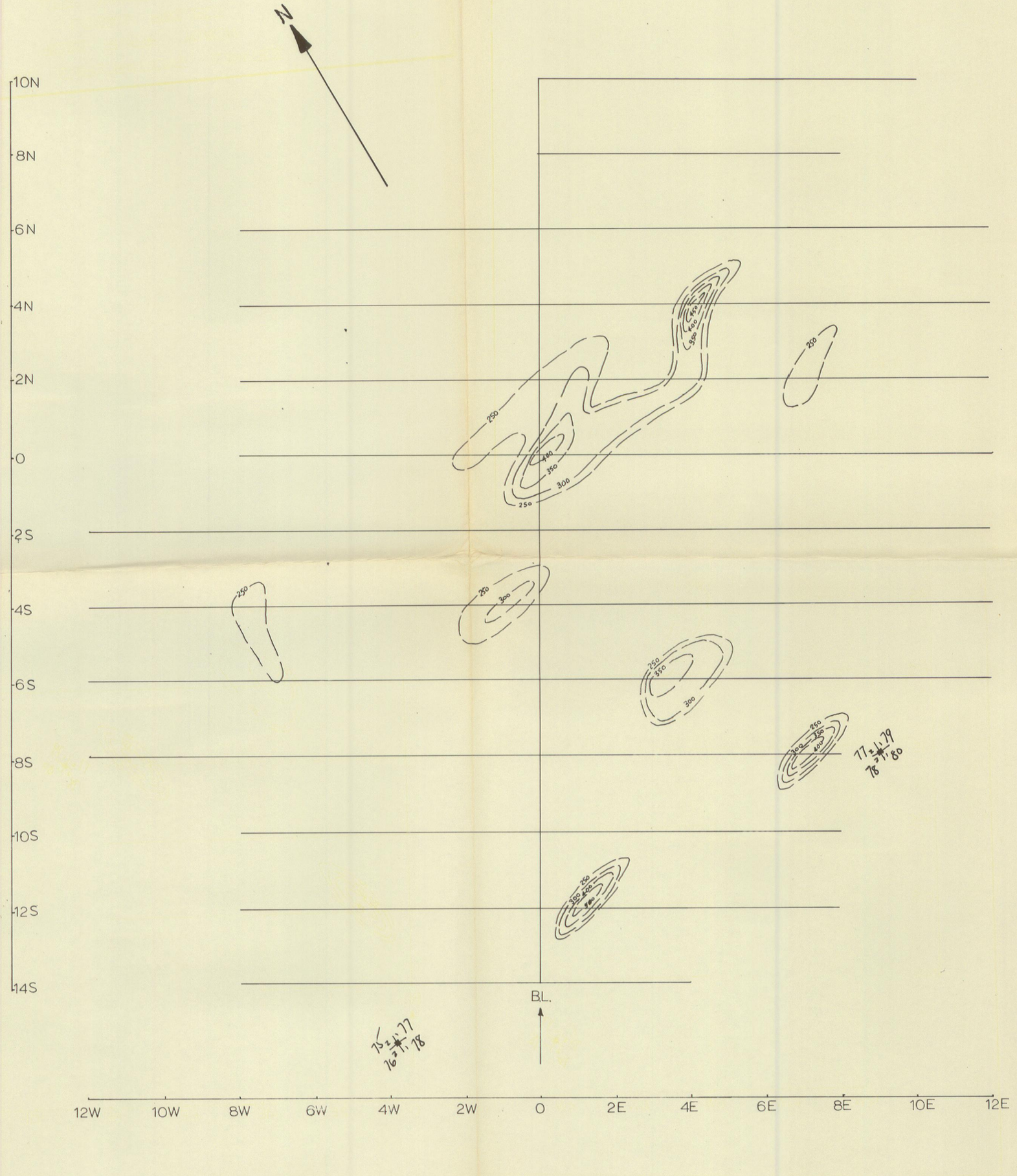
DRAWN BY : N.H.SIMMONS.

DATE : JUNE 24, 1968.

200 100 0 200 400

Scale in feet.

FIG. 7 L



SPARTAN EXPLORATIONS LTD.

ROSS RIVER YUKON

LOGAN PROJECT

LEE MINERAL CLAIMS

GEOCHEMICAL ZINC CONTOUR MAP

SOIL SAMPLERS : I HILL , J SCOTT.

CONTOUR INTERVAL : 50ppm , Zn.

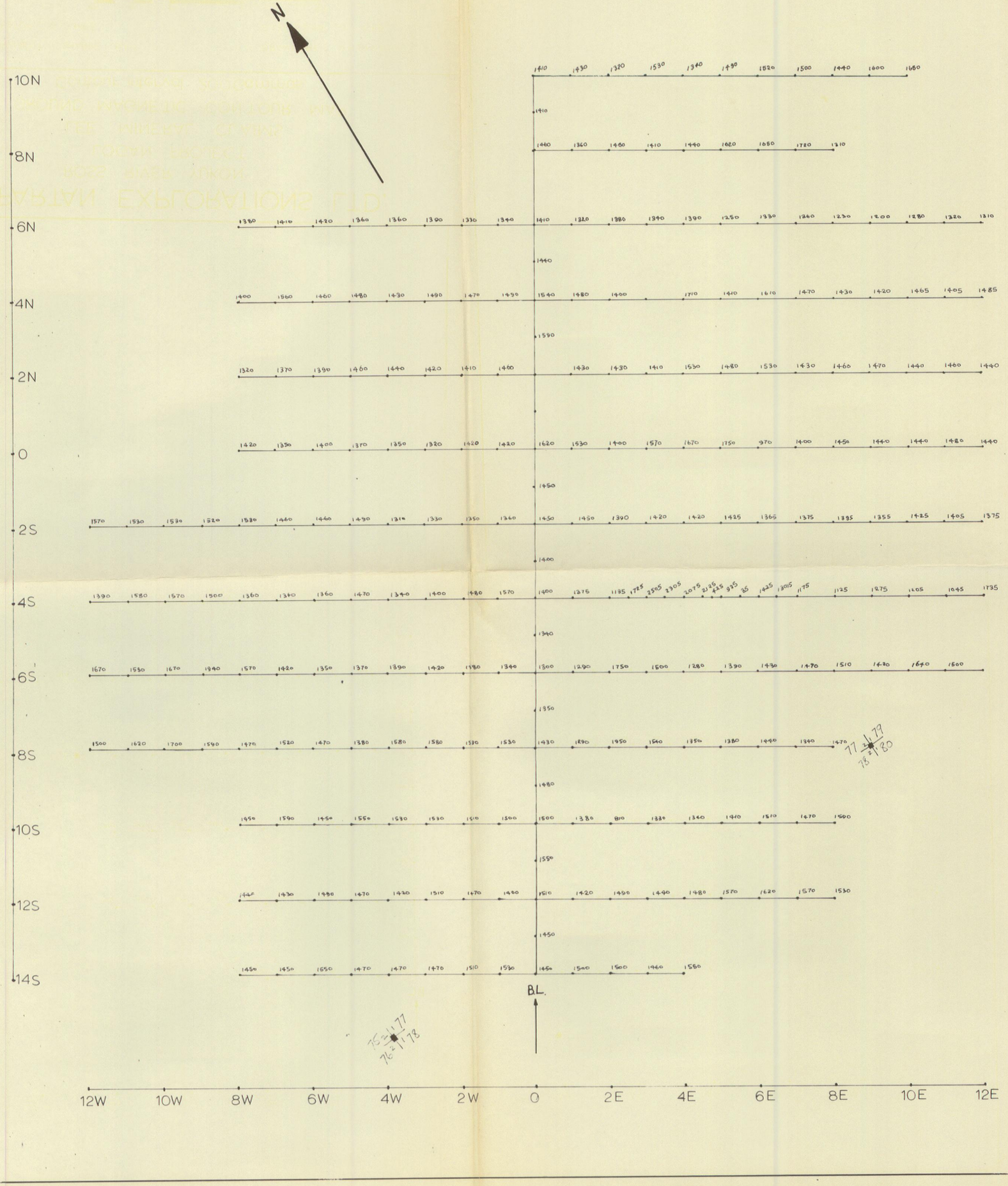
DRAWN BY : N.H.SIMMONS.

DATE : JUNE 24, 1968.

200 100 0 200 400

Scale in feet

FIG. 8

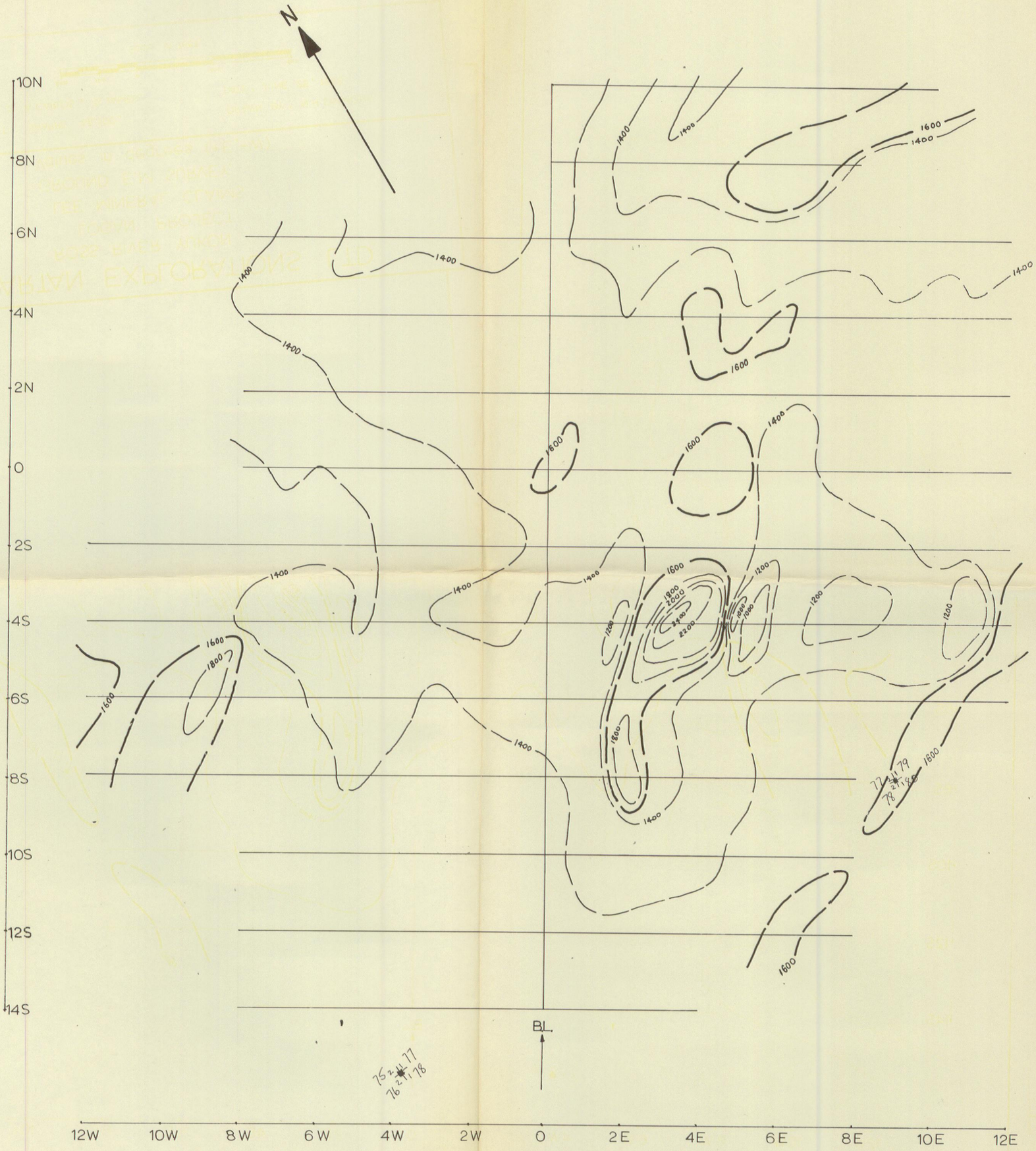


SPARTAN EXPLORATIONS LIMITED
ROSS RIVER YUKON
LOGAN PROJECT
LEE MINERAL CLAIMS
GROUND MAGNETIC MAP
Values in Gammas

INSTRUMENT : SHARPE MF-1
OPERATOR : G.JAMES
DATE : JUNE 21, 1968.
DRAWN BY : N.H.SIMMONS

200 100 0 200 400
Scale in feet.

FIG. 9



SPARTAN EXPLORATIONS LTD.

ROSS RIVER YUKON

LOGAN PROJECT

LEE MINERAL CLAIMS

GROUND MAGNETIC CONTOUR MAP

Contour interval 200 Gammas.

INSTRUMENT : SHARPE MF-1

OPERATOR : G.JAMES

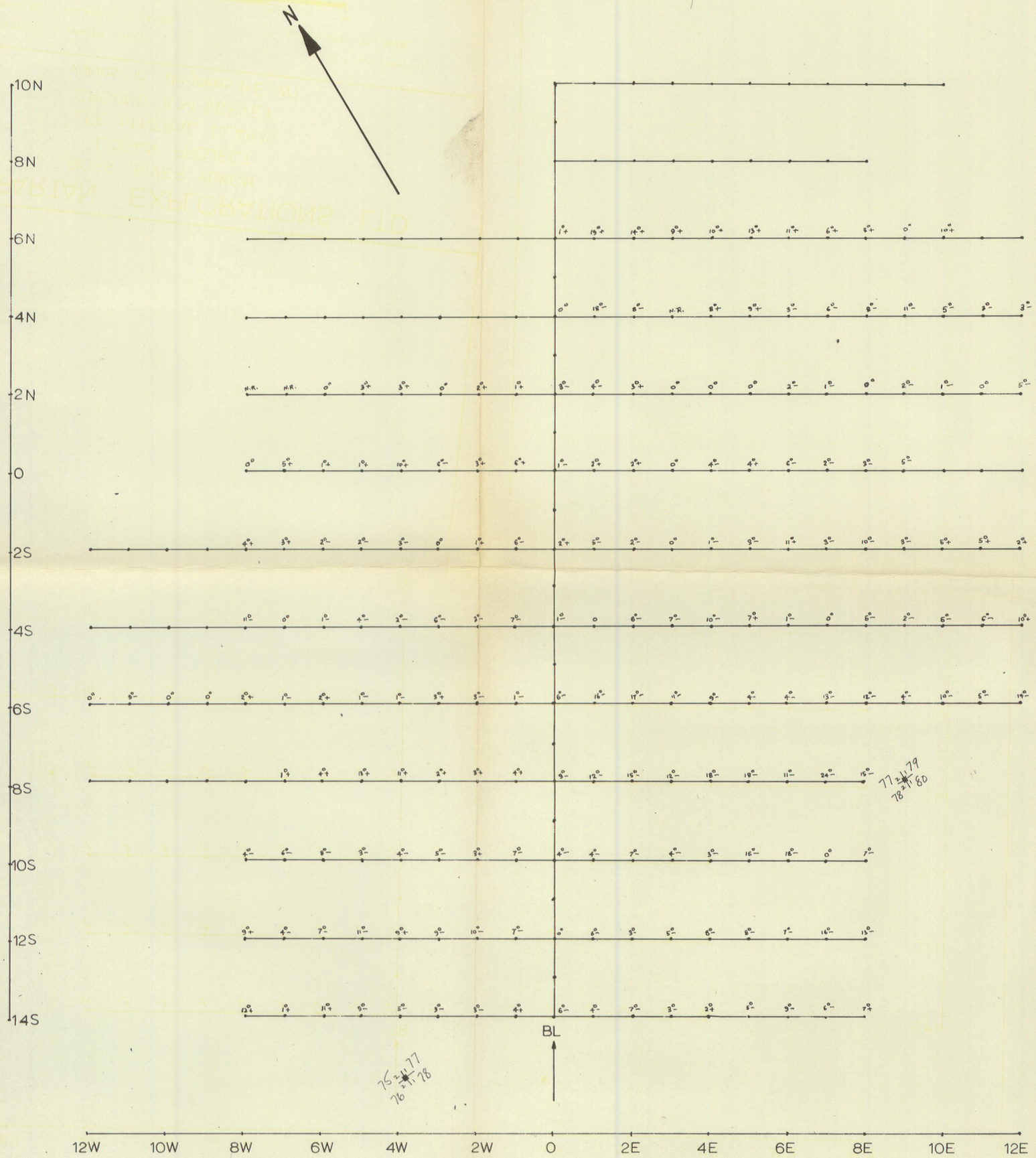
DRAWN BY : N.H.SIMMONS

DATE : JUNE 23, 1968.

200 100 0 200 400

Scale in feet

FIG. 10 L



SPARTAN EXPLORATIONS LTD.

ROSS RIVER YUKON

LOGAN PROJECT

LEE MINERAL CLAIMS

GROUND E.M. SURVEY.

Values in degrees (+E,-W)

INSTRUMENT : SHARPE SE300.

OPERATORS : A CARLOS , G JAMES.

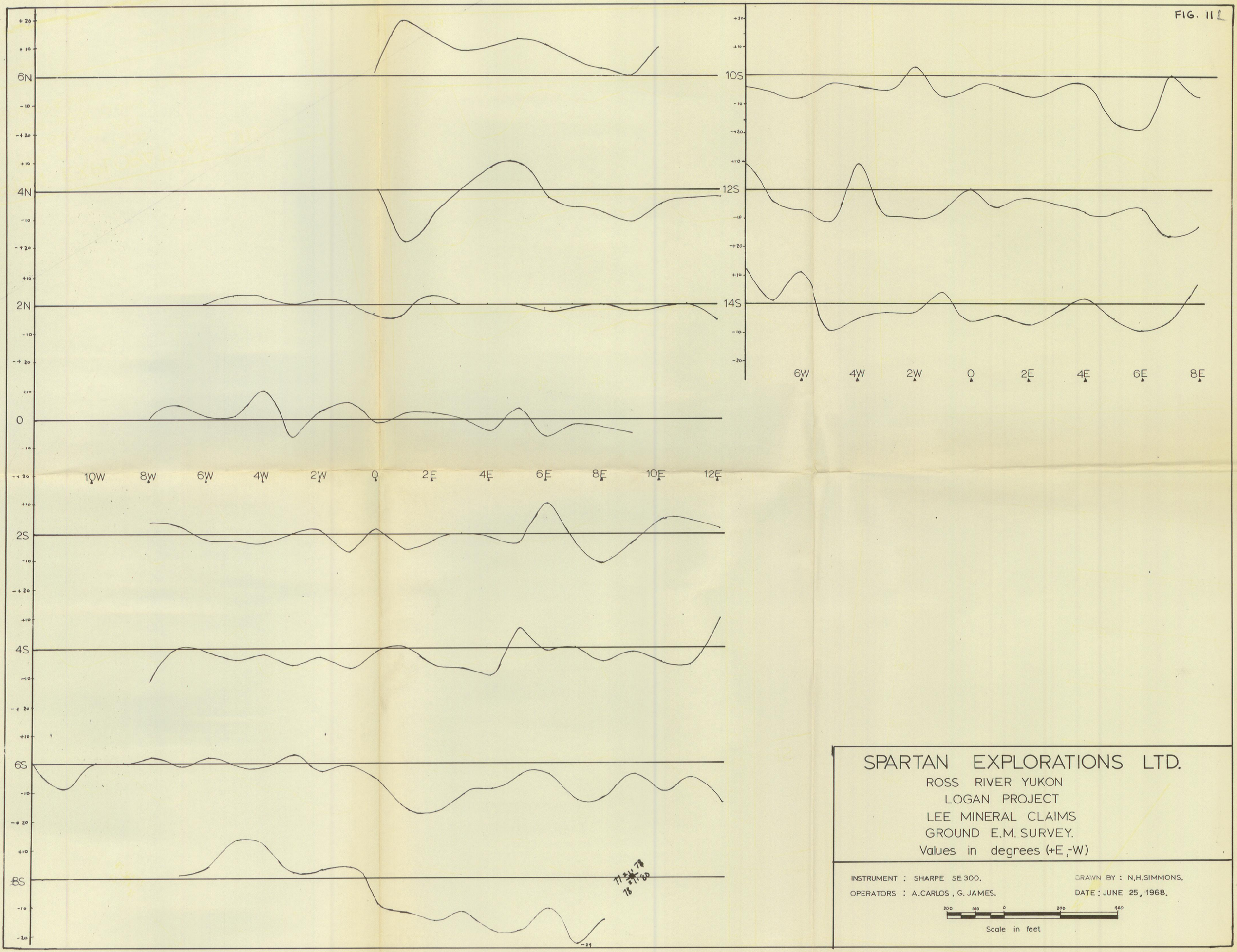
DRAWN BY : N H SIMMONS.

DATE : JUNE 25, 1968.

200 100 0 200 400

Scale in feet.

FIG. 11



SPARTAN EXPLORATIONS LTD.

ROSS RIVER YUKON

LOGAN PROJECT

LEE MINERAL CLAIMS

GROUND E.M. SURVEY.

Values in degrees (+E, -W)

INSTRUMENT : SHARPE SE 300.

OPERATORS : A.CARLOS, G. JAMES.

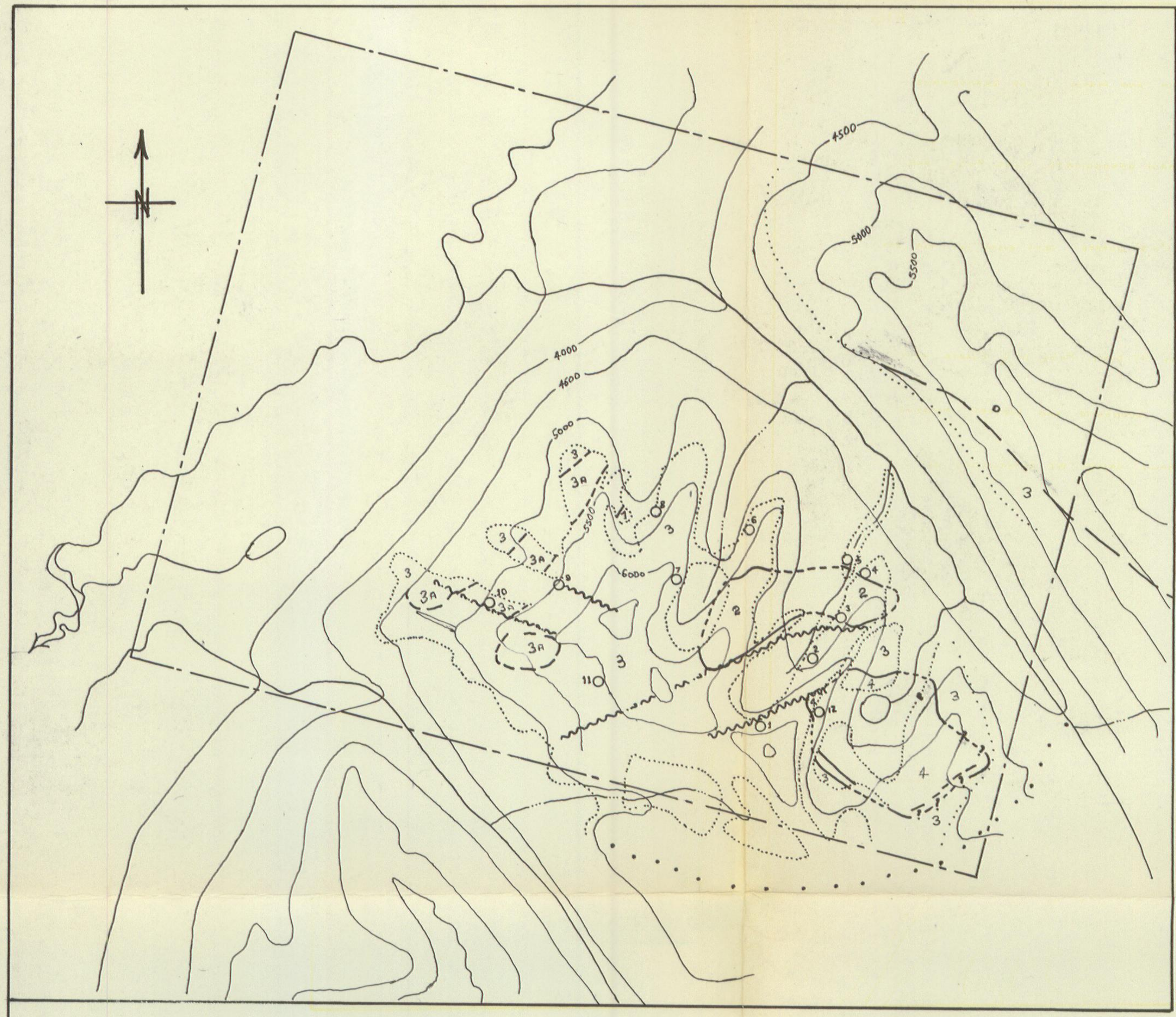
DRAWN BY : N.H.SIMMONS.

DATE : JUNE 25, 1968.

200 100 0 200 400

Scale in feet

FIG. 12



KEY TO MINERAL OCCURRENCES

1. 3 ONLY 1" TO 3" QUARTZ VEINS 20' APART. MUSCOVITE ALTERATION FOR 2' ACROSS STRIKE. MoS_2 IN VEIN AND ACROSS 1' OF GRANODIORITE AT BEST. MINOR SCHEELITE IN VEIN STRIKE 120/VERTICAL.
2. 1' SHEAR IN GRANODIORITE. ESTIMATED. 0.05% MoS_2. STRIKE 130/VERTICAL.
3. SCATTERED QUARTZ VEINS MAINLY 120/40-60 SW IN MUSCOVITE ALTERED GRANODIORITE AND FINE GRAIN GRANODIORITE. MINOR MoS_2 AND SCHEELITE IN VEINS.
4. FLOAT. MINOR SCHEELITE IN HIGH MUSCOVITE ROCK. 50% O.C. NONE SEEN IN PLACE.
5. 6" LENTICULAR QUARTZ VEIN. ESTIMATED 0.5% Cu (Cpy), 0.5% MoS_2, MINOR SCHEELITE. OTHER 1"–3" QUARTZ VEINS EVERY 100' FOR 600'. ALL IN GRANODIORITE. 120-130/VERTICAL, SHEAR CONTROL.
6. SHEAR. LENS 2' x 40'. SPHALERITE DISSEMINATED, ESTIMATED 5% Zn (MAX.).
7. SHEAR, 2", SPHALERITE.
8. 2 ONLY 1' SHEARS, 120/80NE, 000/60W, INTERSECT, MAKING RUSTY ZONE. 20' x 50' ON CLIFF. FLOAT (1) DUSTY MoS_2 IN $\frac{1}{4}$" QUARTZ VEIN (2) MINOR CHALCOPYRITE IN QUARTZ VEIN.
9. FLOAT FROM SHEAR. STRONG Mn STAIN PROBALLY < 2' WIDE. GALENA, SPHALERITE, CHALCOPYRITE, RHODONITE AND SHEARED INTRUSIVE GANGUE. Au — oz/T Ag — oz/T.
10. CHLORITIZED ZONE WITH PYRITE DISSEMINATED AND IN QUARTZ VEINS ON 140/VERTICAL JOINTS. PROBALLY CAUSED BY INTERSECTION OF 140 AND 050 FRACTURE SYSTEMS. A FEW SPECKS OF SCHEELITE.
11. 1 ONLY $\frac{1}{4}$" QUARTZ VEIN WITH DUSTY MoS_2 IN 110 JOINT.
12. SHEAR, 4", MINOR SPHALERITE, GALENA, 050/VERTICAL.

LEGEND

4	BIOTITE QUARTZ MONZONITE: PINK MEDIUM TO COARSE GRAINED HYPIDIOMORPHIC GRANULAR TEXTURE. WHITE TO GREY WEATHERING INCLUDES FINE GRAINED WHITE EDGE PHASE.
3 / 3A	BIOTITE GRANODIORITE: WHITE, MEDIUM GRAINED, HYPIDIOMORPHIC GRANULAR, WHITE TO GREY WEATHERING. 3A IS WEAK CHLORITE-PYRITE ALTERATION ZONE.
2	BIOTITE GRANODIORITE: WHITE TO GREY, FINE GRAINED, WEAK FOLIATION DUE TO BIOTITE ALIGNMENT. MAY BE YOUNGER THAN 3.
1	AMPHIBOLITE GNEISS: DARK WEATHERING, MEDIUM GRAINED, EQUIGRANULAR. PROBALLY META SEDIMENT.
0	QUARTZITE AND PHYLLITE.
—·—	CLAIM GROUP BOUNDARY.
....	LIMIT OF OUTCROP.
• • • • • •	LIMIT OF MAPPING.
——, - - -, — —	GEOLOGICAL CONTACT, DEFINED, APPROXIMATE, ASSUMED.
~~, ~?~	FAULT, DEFINED, ASSUMED.
O1	MINERAL OCCURRENCE.

SPARTAN EXPLORATIONS LTD.

ROSS RIVER YUKON
LOGAN PROJECT
THOR WEST CLAIMS
GEOLOGY & MINERAL OCCURRENCES

GEOLOGY: M.R.WOLFHARD.

DRAWN BY: N.H.SIMMONS.
DATE: JUNE 29, 1968.

1500 0 1500 3000 4500 6000 7500
Scale in feet

FIG. 13

KEY TO MINERAL OCCURRENCES

1. Quartz vein in 000 shear. Sphalerite, galena. Est. 1% Zn over 1 foot.
2. 2" Quartz vein in 000 shear. Few specks MoS_2, 6" coarse muscovite alteration.
3. Float, similar to 2.
4. 3" Quartz vein, 120/vertical. Minor chalcopyrite, sphalerite, galena.
5. 6" Quartz vein, 080/vertical. Erratic MoS_2, for 50 feet on either side are 080/vertical joints spaced 5-10 feet with coarse muscovite over 2-4" and erratic MoS_2, 200 feet N. is 2 foot Quartz vein with magnetite. Sampled, — oz $Au/_T$, — oz $Ag/_T$ over 2.5 feet.
6. Continuation of 5. MoS_2 vein sampled over 2 feet — % MoS_2.
7. 50' x 100' area of irregular quartz, with minor MoS_2.
8. Few specks of MoS_2 in siliceous garnet scarn.
9. 100 feet patch of granitized biotite hornfels. Malachite, minor chalcopyrite erratically distributed.
10. Few grains of $CaWO_4$, MoS_2 in scarn remnant 100' x 300'.
11. 10 feet irregularly silicified fracture zone, est. 5% magnetite — oz $Au/_T$, — oz $Ag/_T$, — % MoS_2
12. 100 feet zone with magnetite on 120 fractures every 1 foot. Every 5-10 feet is 2-4" coarse muscovite alteration on 120/vertical joint, with erratic MoS_2.
13. 100 feet zone of fine muscovite alteration minor $CaWO_4$.
14. 150 feet zone of fine muscovite alteration minor $CaWO_4$. Some narrow quartz vein MoS_2 float at base of hill.
15. Aat showing 200' x 1500' argillic altered zone related to 020 shearing. See 200' scale sample plan.
16. Lenticular quartz vein, 3 foot at best related to 130/vertical shear. — % MoS_2, — oz $Au/_T$, — oz $Ag/_T$, — % WO_3 over 3 feet. 2 more 1 foot veins 50 feet and 100 feet N. Minor MoS_2 pyrite.
17. 3 only 3" x 50' quartz veins, 130/steep, over 50 feet. Pyrite, erratic MoS_2. Some barren hairline quartz veins.
18. Fine muscovite over 200' x 200'. Few grains scheelite.
19. Minor scheelite in chlorite alteration related to shear.
20. Quartz vein, 2" x 40', 130/steep, < 1% scheelite, few grains MoS_2.
21. Minor scheelite in chlorite alteration related to 120/vertical and 160/vertical shears.
22. Quartz vein ½ inch thick along joint plane, with minor Mo and pyrite. Granite with coarse muscovite alteration for 2-4" in either side of quartz vein. Sampled over 8", — % MoS_2
23. Quartz vein 2" thick in granite with disseminated Mo and pods of pyrite. Coarse muscovite alteration of granite extends up to 1 foot from the vein. Sampled over 1 foot, — % MoS_2.
24. Granite dyke up to 8 feet wide with Mo and pyrite mineralization in central siliceous zone of less than 18" in thickness. Samples over 18" — % MoS_2, — oz/T Au, — oz/T Ag.
25. Shear in granodiorite containing lenses of quartz with disseminated flakes of Mo and pods of pyrite. Maximum thickness of quartz is 20 inches. Sampled over 20 inches — % MoS_2, — oz/T Au, — oz/T Ag.
26. 3 only 1" shears over 5 feet, 135/vertical minor pyrite, MoS_2 in shears.
27. Quartz vein float up to 4" wide, probably from snow covered gullays (shears?) some MoS_2.

LEGEND

- Alteration — sericitic, argillic.
- 4 — Biotite granite — 1-2 mm, 30-40% quartz occasionally granophyric to 5 mm, 50% pink feldspar, 10% white feldspar, <2% biotite.
- 3 — Quartz monzonite — 3-4 mm, 30% quartz, 35% pink feldspar, 30% plagioclase, 5% biotite, hypidiomorphic granular texture.
- 2 — Granodiorite — 2-3 mm, 25% quartz, 60% feldspar (mainly plagioclase), 15% biotite.
- 1 — Metasediments — Biotite hornfels, scarn, quartzite, schist.
- Claim Boundary.
- Geological contact, defined, approximate, assumed.
- Limit of outcrop.
- Fault or shear zone, defined, approximate.
- (14) Mineral occurrence.

SPARTAN EXPLORATIONS LTD.

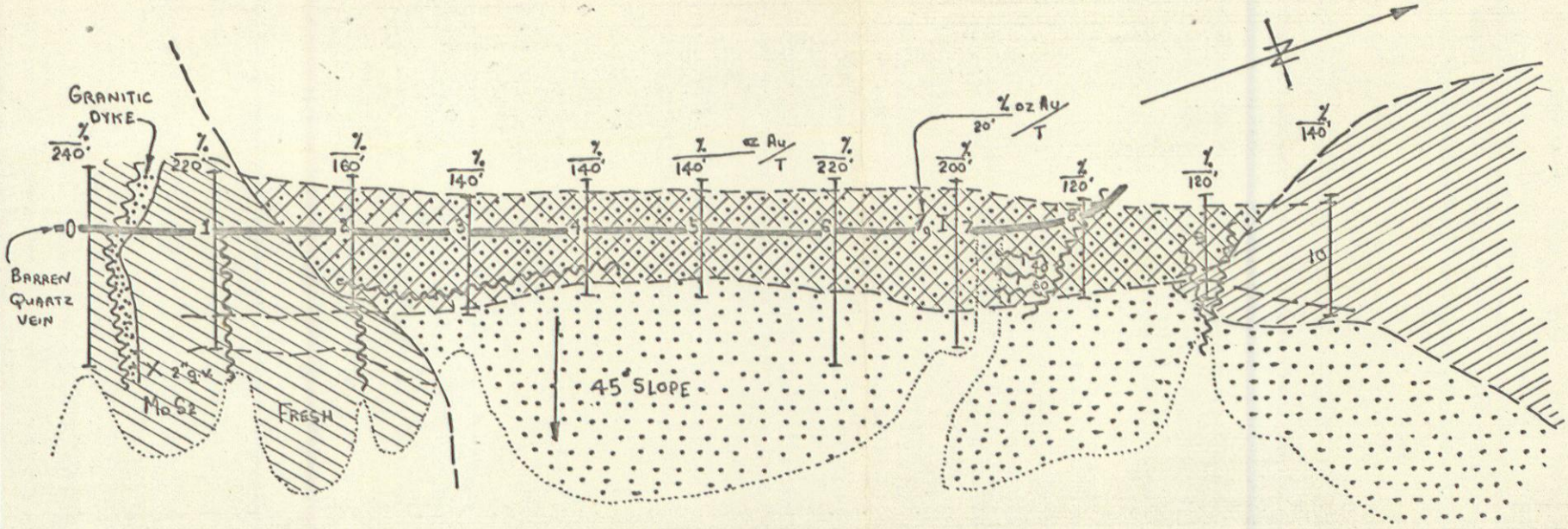
ROSS RIVER YUKON
LOGAN PROJECT
THOR EAST CLAIMS
GEOLOGY & MINERAL OCCURENCES

GEOLOGY: W. ROBERTS.
M. WOLFHARD.

DRAWN BY: N. H. SIMMONS.
DATE: JULY 7, 1968.

1500 0 1500 3000 4500 6000 7500

Scale in feet.



LEGEND

- LEUCO GRANITE ± 0.5mm GROUNDMASS WITH 1-2 mm ANHEDRAL QUARTZ PHENOCRYSTS NO BIOTITE.
- QUARTZ MONZONITE ± 30-40% QUARTZ, 2-3mm, HYPIDIOMORPHIC GRANULAR TEXTURE, < 5% BIOTITE.
- GRANODIORITE ± 2mm, 20-30% QUARTZ, NO PINK FELDSPAR, 10% BIOTITE.
- BARREN QUARTZ VEIN ± 1' TO 3', FINE CRYSTALLINE, WAXY W.S.
- ARGILIC ALTERATION ± FELDSPARS, PARTICULARLY PLAGIOCLASE, CHALKY.
- CHLORITE ALTERATION.

SPARTAN EXPLORATIONS LTD.
ROSS RIVER YUKON.
THOR EAST PROJECT.
ART SHOWING.
GEOLOGY & SAMPLE SHOWINGS.

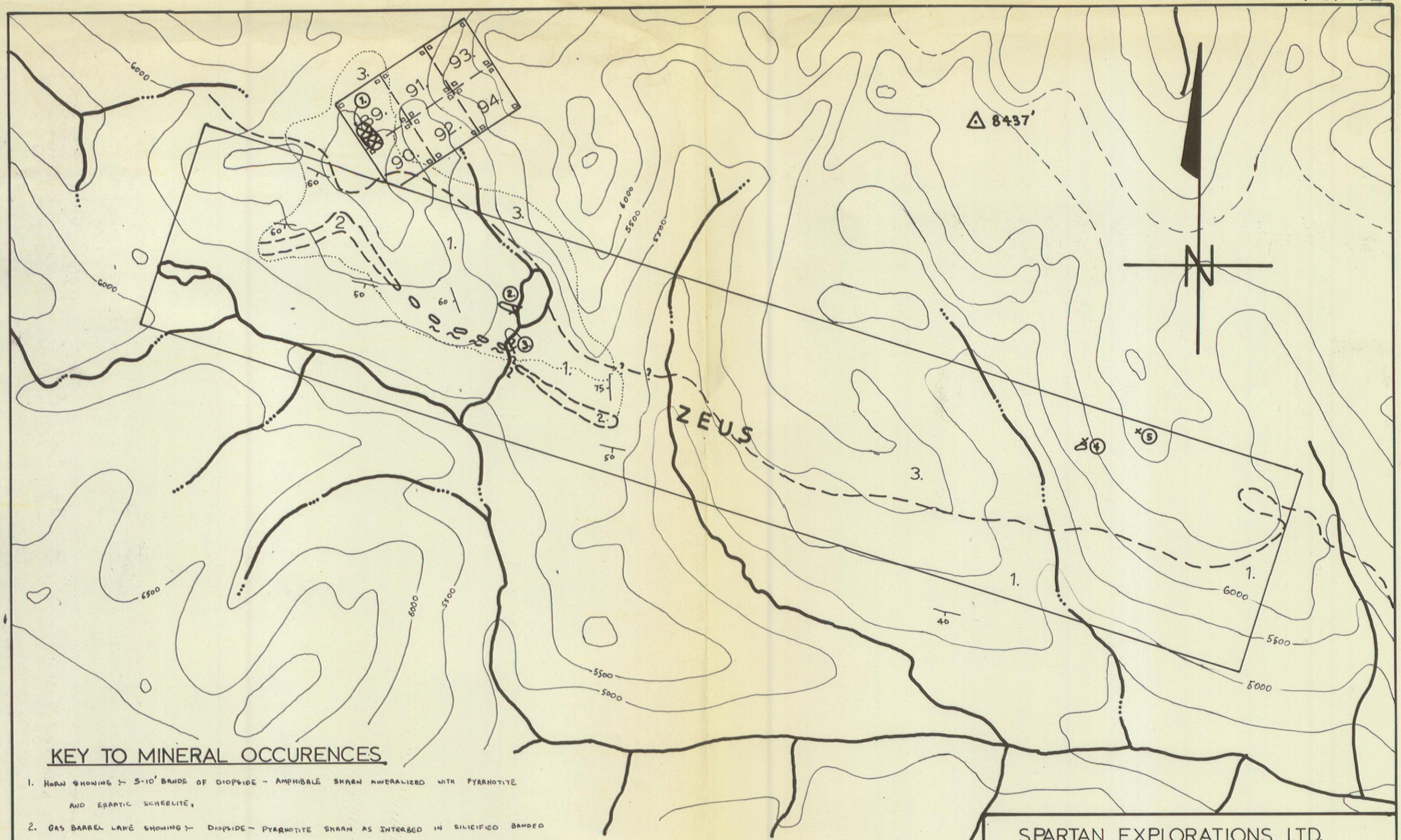
GEOLOGY & SAMPLING:
D.W. GOODBRAND.
W. ROBERTS.
M.R. WOLFHARD.

DRAWN BY: N.H. SIMMONS
DATE: JULY 4, 1968.

200 100 0 200

Scale in feet.

FIG. 15



KEY TO MINERAL OCCURENCES

1. HORN SHOWING :- 5-10' BANDS OF DIOPSIDE - AMPHIBALE SKARN MINERALIZED WITH PYRRHOTITE AND ERRATIC SCHEELITE.
2. GAS BARREL LAKE SHOWING :- DIOPSIDE - PYRRHOTITE SKARN AS INTERBED IN SILICIFIED BANDED PHYLLITE. GALENA AND SPHALERITE OBSERVED.
3. SHOWING BW :- MASSIVE PYRRHOTITE - DIOPSIDE SKARN WITH MINOR Pb, Zn, Cu IN CHERTY BANDED LIMESTONE. LIMESTONE IS ALONG SHEAR IN SILICIFIED BANDED PHYLLITE.
4. P.S. SHOWING :- QUARTZ VEIN UP TO 4' THICK, EXPOSED LENGTH 200' IN MASSIVE GRANODIORITE, MINOR WO_3
5. QUARTZ VEIN 2' THICK WITH LENSES UP TO 3' MINOR WO_3

LEGEND

3	MEDIUM GRAINED HYPIDIOMORPHIC GRANULAR GRANODIORITE.
2	DARK GREY CRYSTALLINE LIMESTONE WITH CHERTY INTERBEDS.
1	VERY SILICIFIED BANDED LIGHT GREY PHYLLITE. WELL BEDDED TO HIGHLY SHEARED AND FOLDED.

SPARTAN EXPLORATIONS LTD.

ROSS RIVER YUKON
LOGAN PROJECT
ZEUS GROUP
GEOLOGY

GEOLOGY & SAMPLING :
W. ROBERTS.
M. R. WOLFHARD.

DRAWN BY : N. H. SIMMONS
DATE : OCTOBER 24, 1968.

1500 0 1500 3000 4500
Scale in feet.

FIG. 16

CREE GROUP

ANDERSON LAKE

TOY

LEGEND

- Pyritic zone.
- 1. Fine grained white to grey biotite granodiorite.
- ⊗ Occurence of minor molybdenite mineralization in narrow quartz veins.

SPARTAN EXPLORATIONS LTD.

ROSS RIVER YUKON

LOGAN PROJECT

CREE GROUP

Geology and Mineral Occurences

GEOLOGY & SAMPLING : M.R.WOLFHARD.

DRAWN BY : W. ROBERTS.

DATE : OCTOBER 24, 1968.

1500 0 1500 3000 4500 6000 7500 9000 10500

Scale in feet.

FIG. 17

LEE GROUP

Pb-Zn
Cu-Ag

Mo

THOR GROUP WEST

Mo

Mo-W

THOR GROUP EAST

129°00'
61°55'

129°00'
61°50'

W

Pb-
Zn-W

ZEUS GROUP

Mo

Mo

Mo

Mo-W

Mo

7783'

McPHERSON LAKE

TILLEI LAKE

TUSTLES LAKE

BROTTEN LAKE

1

2

3

LEGEND

X Mo — MINERAL SHOWING Mo = MOLYBDENUM W = TUNGSTEN Pb = LEAD Zn = ZINC Ag = SILVER	1 — PROTEROZOIC METASEDIMENTARY ROCKS
GOSSAN, SKARN	(2) — GRANODIORITE
GLACIERS	(3) — YOUNGER POTASSIUM-RICH INTRUSIVE ROCKS

SPARTAN EXPLORATIONS LTD.(N.P.L.)

Mc PHERSON LAKE AREA YUKON TERRITORY

CLAIM & MINERAL SHOWING MAP
LEE, THOR, & ZEUS
MINERAL CLAIM GROUPS

SCALE 2 1 1/2 1 1/2 0 2 4 MILES

DATE : BY :

FIG. 18

Mc Pherson Lake

Lee.

Py.

Thor West.

Zeus.

Shenmon Creek

TILLEI LAKE

Thor East.

Tustles Lake

Broten Lake

RIVER

ANDERSON LAKE

Creek

THOMAS

Anderson

SPARTAN EXPLORATIONS LTD.

ROSS RIVER YUKON

LOGAN PROJECT

REGIONAL GEOCHEMICAL SURVEY

Values of Molybdenum in p.p.m.

ANALYSES : BARRINGER RESEARCH, ROSS RIVER, BISULPHATE EXTRACTION.

LEGEND

△ 1.ppm.
▲ 2.ppm.
③ 3.ppm.
■ 4.ppm.
⑤ 5-6 ppm.
⑧ 7 & over.

SAMPLERS : I.HILL.
J.STRONG.
B.THOMPSON.
B.WOODSWORTH.

DRAWN BY : N.H.SIMMONS.
DATE : JULY 24, 1968.

Scale in miles