GEOCHEMICAL

GEOPHYSICAL REPORT

ON

JOY MINERAL CLAIMS

ITSI LAKE AREA

Watson Lake Mining Division
Yukon Territory

Latitude 62° 45'N.

Longitude 130° 15'W.

62°N. 130°W.

Map Sheet 105-J-9

This report has been examined by th Geological Evaluation Unit.
Approved as to technical worth by:

D.B. Craig
RESIDENT GEOLOGIST

Approved as to cost in the a mount of: $ 1631.00

R.T. Dudden
RESIDENT MINING ENGINEER

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

COMMISSIONER OF YUKON

By

Glen Woodsworth,
Geologist.

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

July 1st, -- September 1st, 1968.

TABLE OF CONTENTS

ILLUSTRATIONS

LIST OF CLAIMS

Claim Numbers	Grant Numbers	Date Recorded
JOY 1-60	Y27976-Y28035	September 9, 1967.

INTRODUCTION

During the summer of 1968, Spartan Explorations conducted a reconnaissance program of geochemistry, geological mapping, and prospecting in the Itsi Lake area. The JOY group of 60 mineral claims was staked in early September, 1967, to cover a tungsten-copper occurrence in float discovered by the primary prospecting program. The mineralized float was found in a geologically favourable area of chert, limestone, conglomerate and dolomite. Geological, geophysical and geochemical work was done in an effort to locate the source of the mineralized boulders.

LOCATION AND ACCESS

The JOY group is centered at latitude 62° 45' N. and longitude 130° 15' W., about 5 miles south of the western end of Itsi Lake. The best access to the property is by helicopter, although the broad open creek valleys make access by foot from Itsi and John Lakes relatively easy.

GEOLOGY

The claims are underlain by an east-west trending syncline. The core of the syncline is composed of slates of Devonian age, while the limbs consist of underlying Lower Cambrian (?) cherts and dolomite. Small east-west trending stocks and dykes of Cretaceous (?) quartz porphyry intrudes the syncline and the presence of an underlying stock is assumed.

A boulder of skarn containing significant amounts of sphalerite, chalcopyrite and scheelite was found on a JOY 19 claim near the contact between the favourable dolomite and the overlying slates. Tungsten grade in the boulder was visually estimated at 3% WO_3. No other mineralization of economic importance was observed on the claims.

SURVEY TECHNIQUES

Line Cutting

Soil sample surveys were conducted on a grid consisting of a total of 140,000 feet of cut line. The grid is made up of two east-west trending base lines

Survey Techniques - Line Cutting Continued,...

each 15,000 feet in length. Cross line are between and at right angles to the base lines, average 8,000 feet in length, and are spaced approximately 1,000 feet apart. The grid was laid out so that cross lines run roughly perpendicular to the favourable limestone shale contact.

Soil Sampling

The soil sampling survey was carried out in conjunction with the magnetic survey. The samples were obtained by use of a prospector's grub hoe which was found to be an adequate tool for cutting through layers of organic material overlying the soil. Samples were taken at 500-foot stations over the entire grid. Typical B-horizon soils were seldom encountered and a grey soil of probable glacial origin was normally sampled. Approximately 100 grams of soil were taken from each sample site and placed in Kraft bags which were then periodically shipped to the Barringer Research Geochemical Laboratory in Ross River.

Method of Analysis

All samples were analyzed in a complete testing laboratory in Ross River. When the samples were received each was dried while in its Kraft bag and screened to minus 80-mesh, weighed out to .5 grams and digested in hot aqua regia or hydrochloric acid. Samples were then diluted, clarified for a number of hours and tested for copper, lead, and zinc, by atomic absorptions spectrophotometer. The AA unit used a Perkins-Almer model and accuracy of the instrument is believed to be about 1% of the amount of metal present. Individual cathode lamps were used for each element determination and a direct read-out is given for the element being tested. A colourometric method was used to test for molybdenum.

Treatment of Data

One hundred and ninety soil samples were obtained from the area. Results in parts per million as reported from the laboratory were plotted on

Survey Techniques - Treatment of Data (Continued)....

a one inch - 1,000 inch scale map. A topographic map was constructed to aid in the geochemical interpretation.

The upper limits of background variation was calculated for each metal. These limits are: zinc: $\leq$600 ppm; lead: $\leq$ 20 ppm; Molybdenum $\leq$ 40 ppm; copper $\leq$100 ppm.

GEOCHEMICAL ENVIRONMENT AND SOIL TYPES

Topography on the JOY claims is moderately sloping and relief is moderately great. At higher elevations, the terrain is rugged and mountainous, overburden is very shallow; creek valleys are generally U-shaped and overburden depths are believed to be greater than 20 feet. An extensive swamp occupies the valley in the southwest portion of the claim group.

Soil profiles typically consist of a layer of organic Ao horizon below which is a well developed and thick A1 soil. A rather homogeneous grey glacial till with a slight evidence of a B-horizon was encountered at about 2 feet in depth, and was the material sampled.

DESCRIPTION OF ANOMALIES AND INTERPRETATIONS

In general, zinc values north of 50N. are higher than those to the south. The area of higher values corresponds roughly with the topographically higher portions of the claim in which there is a higher percentage of outcrop. The eight zinc anomalies are all isolated and erratically distributed with respect to one another. Four of these anomalies are in or near areas mapped as being underlain by quartz porphyry, suggesting a spatial relationship between the quartz porphyry and a high zinc content in soil.

One one lead anomaly at 90N. 50E was found. This sample site also gives extremely high values of zinc and molybdenum and it situated near a dolomite-quartz porphyry contact.

Six scattered molybdenum anomalies occur on the property. Four of these are in or near areas underlain by quartz porphyry. There is a generally good

Description of Anomalies and Interpretations (Continued)....

correlation between the anomalous molybdenum values and high, although not anomalous, values of copper and zinc.

Scattered copper values between 100 and 146 ppm are not considered to be significantly separate and distinct from the background population to be anomalous.

With the possible exception of the anomaly at 90N, 50E, none of the anomalies are considered to be worth a test pit. Potentially mineralized skarn zones may be too small to have been detected by the 500 foot sampling intervals and the 1,000-foot line spacings used in the survey.

No anomalies were obtained from the vicinity of the rich scheelite-bearing boulder on the JOY 19 claim.

CONCLUSIONS AND RECOMMENDATIONS

Scattered zinc, lead and molybdenum anomalies are often located near favourable intrusive dolomite contacts. The anomaly at 90N, 50E, should be tested by means of a pit sunk to bedrock at the sample site, and by soil sampling the surrounding area on a 50-foot grid. The other anomalies should be tested by soil sampling the area within 200 feet of each site on a 50-foot grid.

Respectfully submitted,

G. Woodsworth

Glen Woodsworth,
Geologist.

September 4, 1969.

APPENDIX I

SUMMARY OF COSTS

1. **Geochemical Surveys:**		
Wages, Salaries, Bonuses	420.00	
Assaying	425.00	
Ross River Base Camp	210.00	
Super Cub Support	170.00	
Camp Support	295.00	1,520.00
2. **General Supervision:**		
Helicopter Support	45.00	
Fuel	5.00	50.00
	GRAND TOTAL	$1,570.00

APPENDIX II

AFFIDAVIT

Supporting Summary of Costs

I, Glen Woodsworth, Geologist, Spartan Explorations Limited, of Vancouver, British Columbia, do hereby state that to the best of my knowledge and belief the summary of costs as presented in Appendix I of this report "Geochemical Report on the JOY Mineral Claims" is both true and correct.

DATED AT Vancouver, British Columbia, this eighth day of September, A.D., 1969.

SWORN BEFORE ME at Vancouver, British Columbia, this 8th day of September, A.D., 1969.

A Commissioner for taking Affidavits in the Yukon Territory.

Glen Woodsworth.

APPENDIX III

PERSONNEL

Names	Position	Address
M. Early	Soil Sampler	Ross River, Y. T.
A. MacLeod	Soil Sampler	Ross River, Y. T.
C. Ollie	Soil Sampler	Ross River, Y. T.
N. Simmons	Soil Sampler	Vancouver, B. C.
G. James	Geologist	Hedley, B. C.

FIG1-I

SPARTAN EXPLORATIONS LTD.

VANCOUVER B.C.

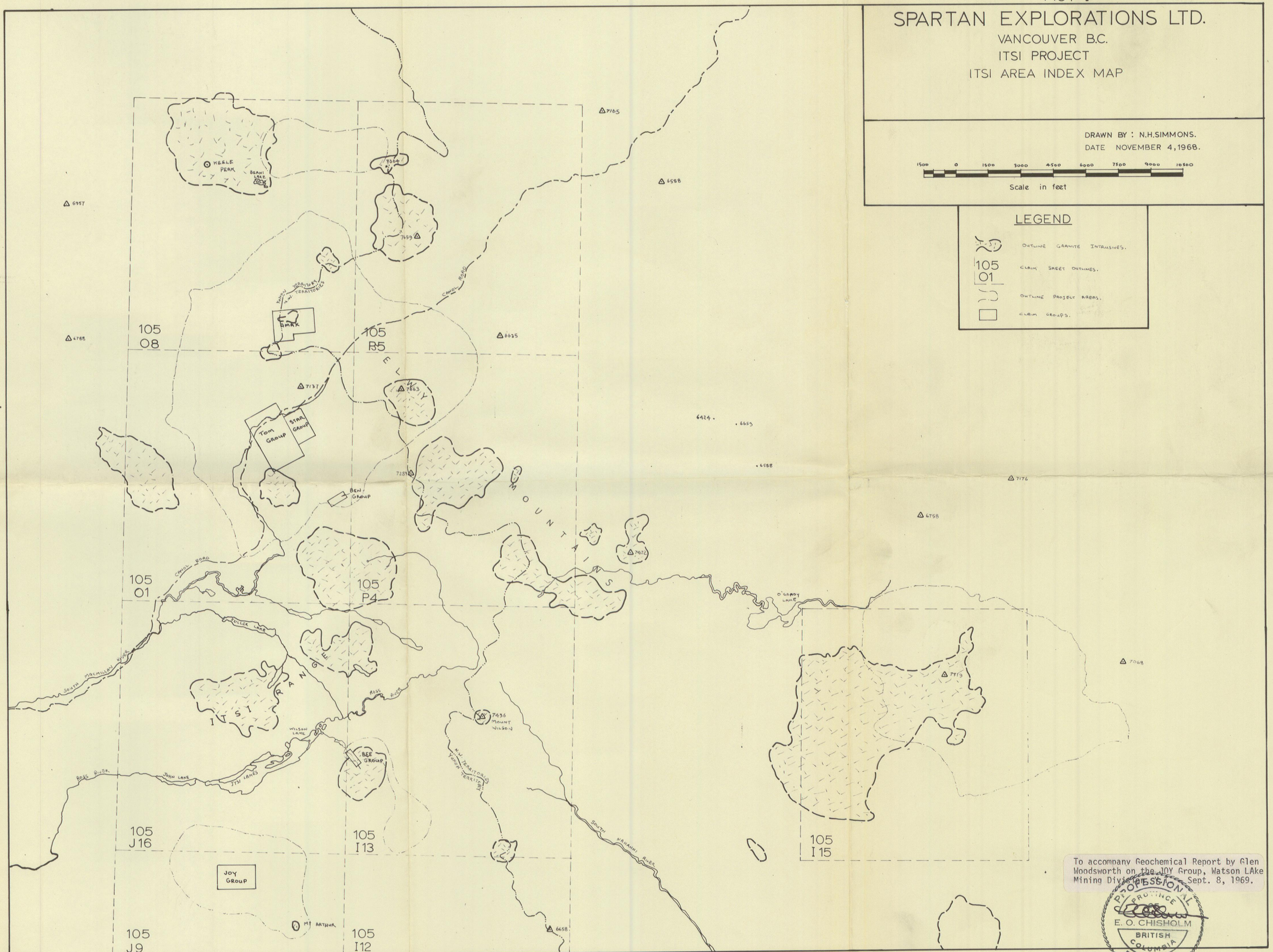
ITSI PROJECT

ITSI AREA INDEX MAP

DRAWN BY : N.H.SIMMONS.

DATE NOVEMBER 4,1968.

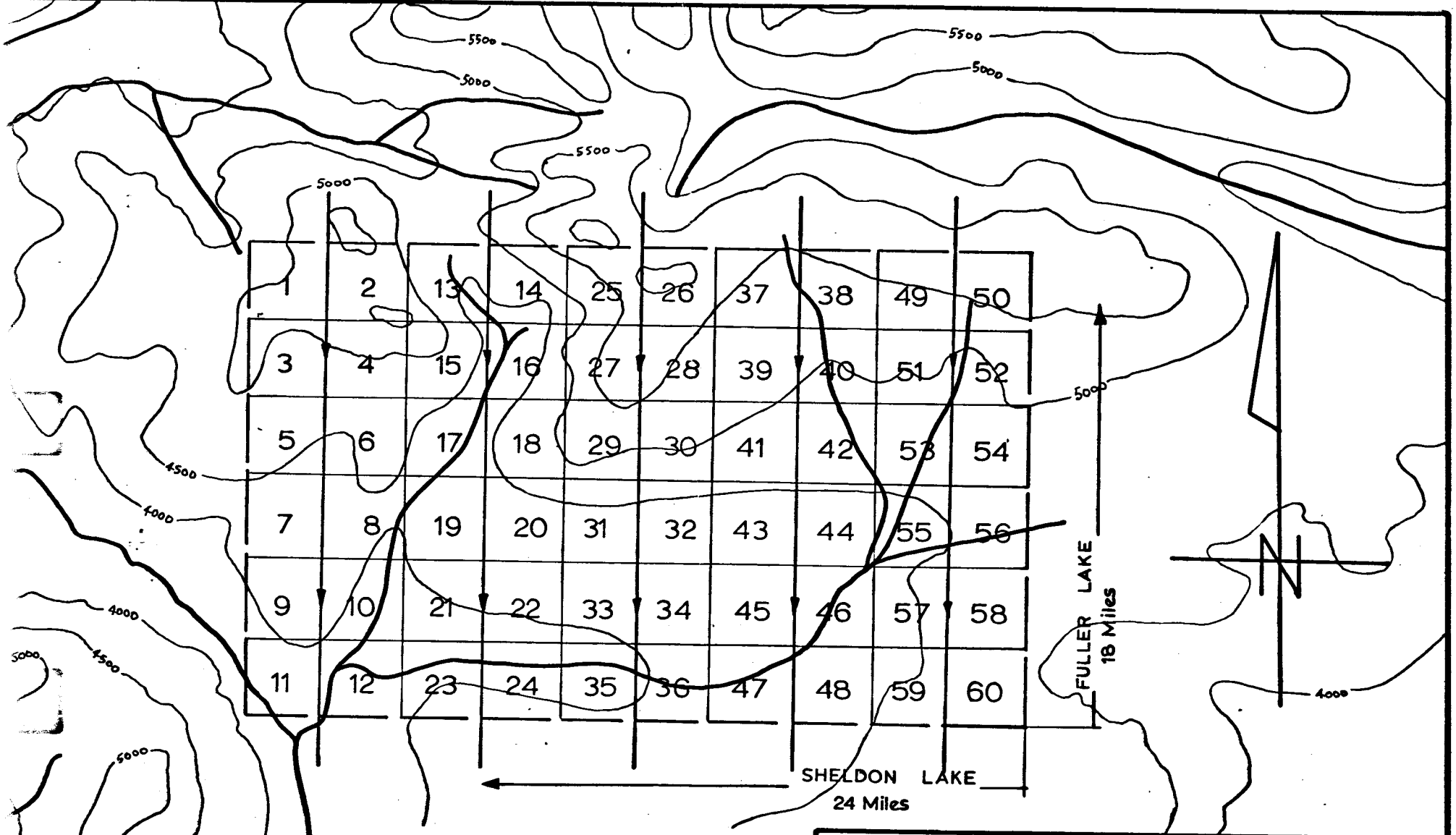
Scale in feet



1500 0 1500 3000 4500 6000 7500 9000 10500
LEGEND
OUTLINE GRANITE INTRUSIVES.
105 01 CLAIM SHEET OUTLINES.
OUTLINE PROJECT AREAS.
CLAIM GROUPS.
KEELE PEAK
105 O8
105 P5
105 O1
105 P4
105 J16
105 I13
105 J9
105 I12
105 I15
AMAX
TOM GROUP
STAR GROUP
BEN GROUP
BEE GROUP
JOY GROUP
CANOL ROAD
SELWYN
MOUNTAINS
ITSI RANGE
FULLER LAKE
SOUTH MACMILLAN RIVER
ROSS RIVER
WILSON LAKE
JOHN LAKE
ITSI LAKES
O'GRADY LAKE
7436 MOUNT WILSON
MT ARTHUR
N.W. TERRITORIES
YUKON TERRITORY
SOUTH NAHANNI RIVER
7165
6588
6957
6788
6625
7137
7663
7659
7281
6424
6659
6588
7176
6758
7672
7068
6658

To accompany Geochemical Report by Glen Woodsworth on the JOY Group, Watson LAke Mining Division ... Sept. 8, 1969.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
E. O. CHISHOLM



CLAIMS STAKED BY:-

1-8 W. ROBERTS.
9-16 M. EARLY.
17-24 G. ETZEL.
25-32 N. SIMMONS.
33-40 C. SMITH.
41-48 M. WOLFHARD.
49-56 C. OLLIE.
57-60 A. McLEOD.

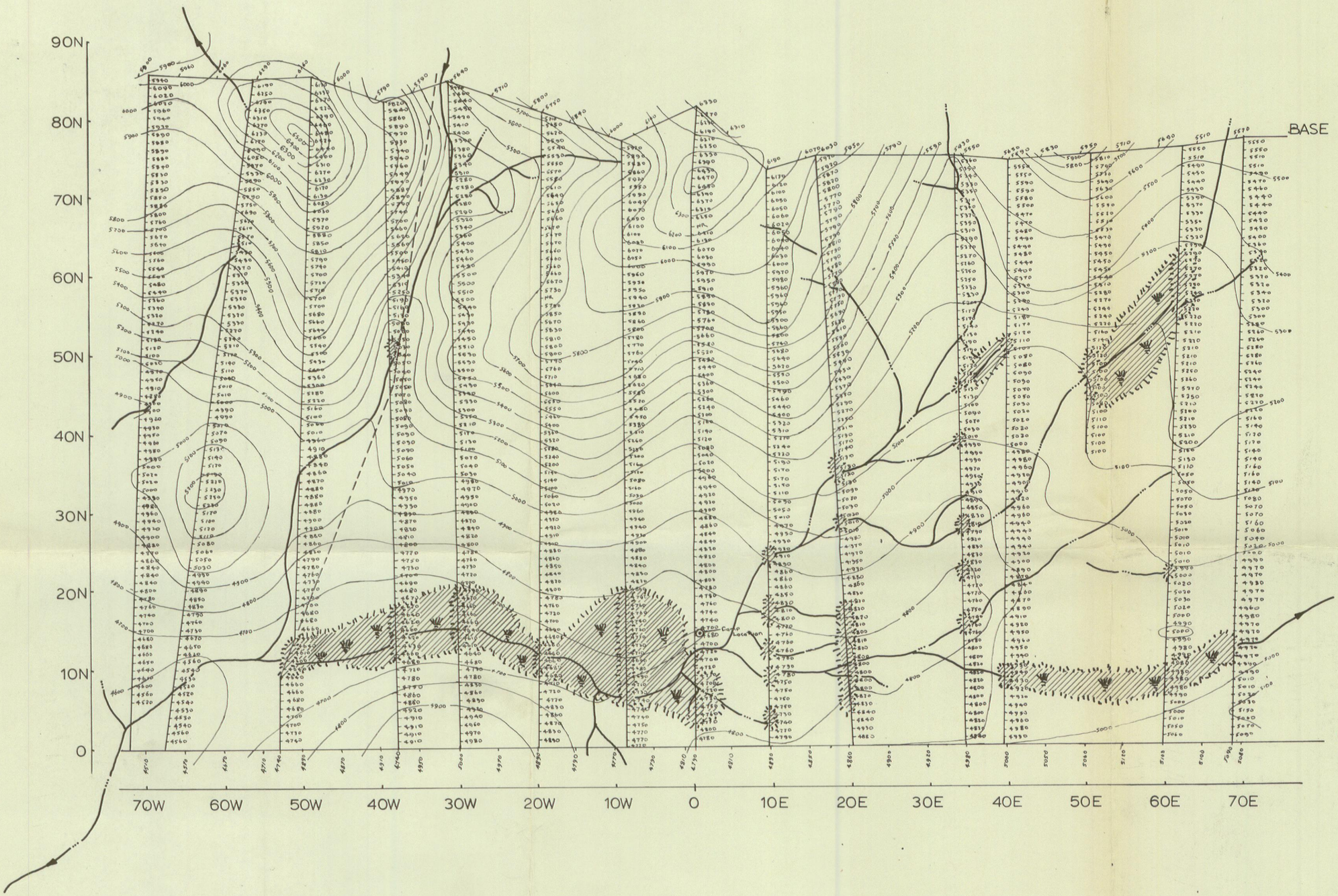
SPARTAN EXPLORATIONS LTD.

ROSS RIVER YUKON
ITSI PROJECT
JOY CLAIM GROUP
STAKING MAP

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

500 0 500 1000 2000 3000
Scale in feet

To accompany Geochemical Report by Glen Woodsworth on the JOY Group, Watson Lake Mining Division, Y.T. - Sept. 8, 1969.



NOTE

SWAMP

To accompany Geochemical Report by Glen Woodsworth on the JOY Group, Watson Lake Mining Division, B.C. Sept. 8, 1969.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
E. O. CHISHOLM

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ROSS RIVER YUKON

ITSI PROJECT

JOY CLAIM GROUP

TOPOGRAPHICAL MAP

CAMP LOCATION USED AS DATUM (4630')

TOPOGRAPHY BY : G.JAMES.

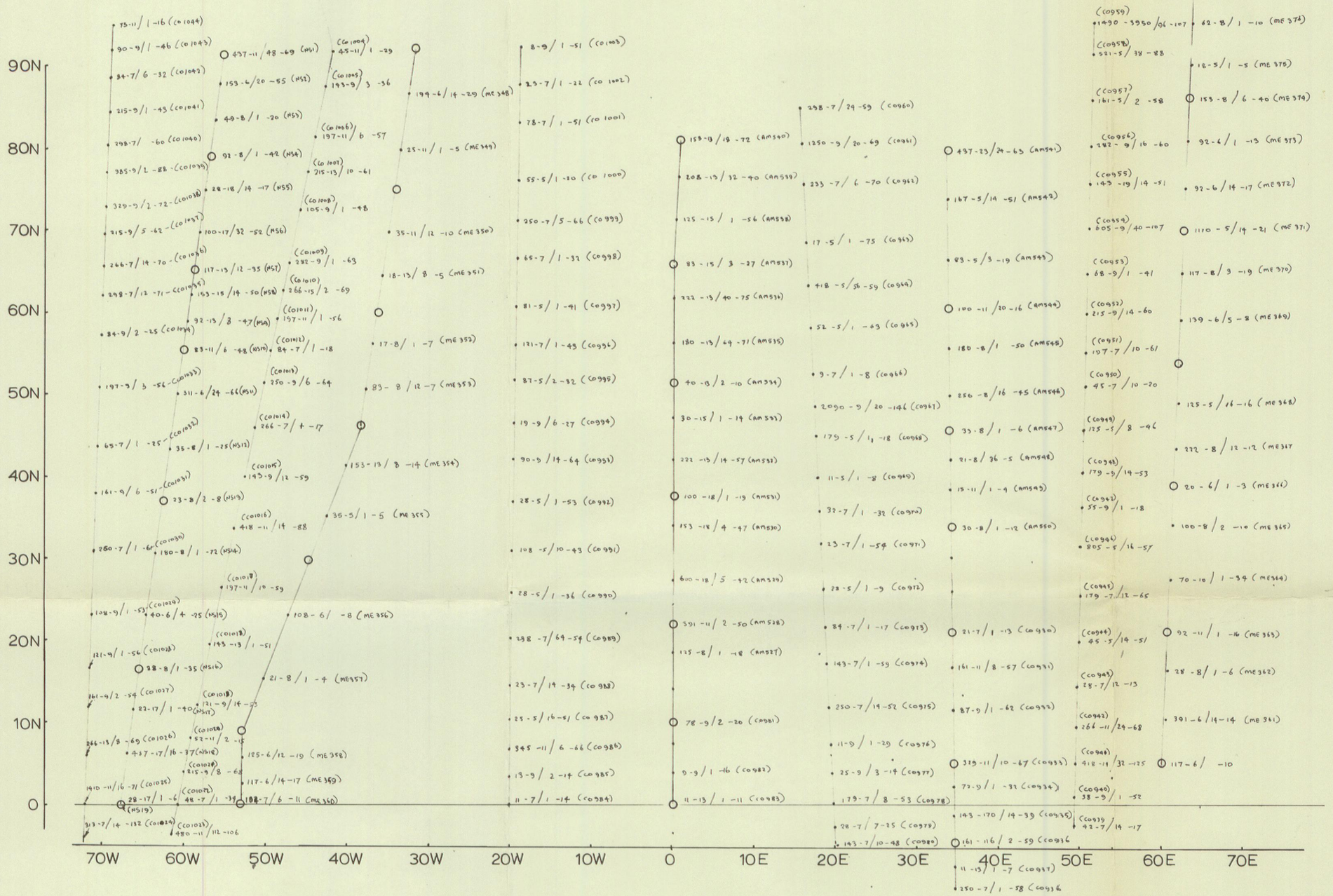
Contour interval – 100 feet.

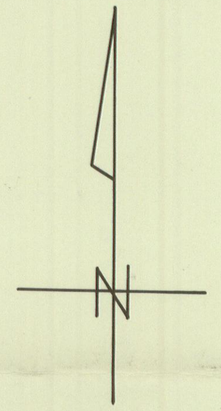
DRAWN BY : N.H.SIMMONS.

DATE : SEPTEMBER 3, 1968.

1000 500 0 1000 2000 3000 4000

Scale in feet





To accompany Geochemical Report by Glen Woodsworth on the JOY Group, Watson Lake Mining Division, B.C. Sept. 8, 1969.

E. O. CHISHOLM
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA

SPARTAN EXPLORATIONS LTD.

ROSS RIVER YUKON

ITSI PROJECT

JOY CLAIM GROUPS

GEOCHEMICAL SOIL GRID

Zn-Pb / Mo-Cu

SOIL SAMPLERS: M. EARLY, C. OLLIE, A. MACLEOD, N. SIMMONS.

DRAWN BY: N.H.SIMMONS.

DATE: SEPTEMBER 2, 1968.

1000 500 0 1000 2000 3000 4000

Scale in feet