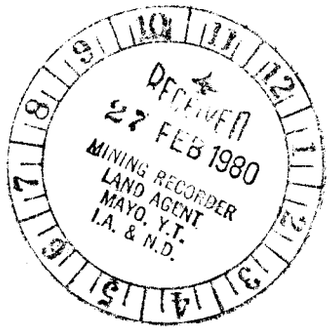
COMINCO LTD.

EXPLORATION
NTS: 115P/15

WESTERN DISTRICT



GEOLOGICAL AND GEOCHEMICAL REPORT

ON THE SP MINERAL CLAIMS

SITUATED AT: 63°50'N LATITUDE; 136°35'W LONGITUDE

MAYO MINING DISTRICT

PERIOD OF WORK: AUGUST 15 TO AUGUST 31, 1979

NOVEMBER 20, 1979

S.B. BUTRENCHUK

090586

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

$ 5,600.00

[signature]

[illegible] Geologist or
[illegible] Mining Engineer

Considered representation work under Section 53 of the Yukon Quartz Mining Act.

[signature]

B.R. BAXTER
Supervising Mining Recorder

for Commissioner of Yukon Territory

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ATTACHMENTS

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EXPLORATION
NTS: 115P/15

WESTERN DISTRICT
20 NOVEMBER 1979

GEOLOGICAL AND GEOCHEMICAL REPORT

ON THE SP GROUP OF MINERAL CLAIMS

INTRODUCTION

The SP group of 28 mineral claims was acquired in March 1979 to protect an area favourable for tin mineralization.

During the period August 15, 1979 to August 31, 1979 geological and geochemical surveys were completed on the claim group. This report describes the results of these surveys.

Personnel employed on the property during the course of the work are as follows:

S. Butrenchuk - geologist - 2 days - 700-409 Granville St., Vancouver
V. Steffler - summer asst. - 12 days - 700-409 Granville St., Vancouver
J. Jyu - summer asst. - 12 days - 700-409 Granville St., Vancouver

The above personnel completed work on the property during the period August 15, 1979 to August 31, 1979.

LOCATION AND ACCESS

The SP property is located on a tributary of Sprague Creek, approximately 50 km NNW of Mayo. The claims are located in the Mayo Mining District on NTS sheet 115 P/15.

Access to the property is via helicopter from Mayo. The nearest road is located approximately 15 km south of the property.

SUMMARY

Exploration work on the SP claims was completed during the period August 15, 1979 to August 31, 1979. Geological mapping at a scale of 1:10,000 was completed on the western half of the claim group. Soil sampling was done along three claim lines as well as along the 3000 foot elevation contour.

Geological mapping indicates that the property is underlain primarily by quartzite into which is intruded a quartz-feldspar porphyry dyke. Localized occurrences of rhyolite tuff, quartz-biotite schist, knotted-biotite schist and a gabbroic dyke were also located.

Soil geochemistry, in general, returned background values. Isolated high values for tin were obtained but no distinct anomalous area was obtained. Results for copper, lead and zinc also yielded background values.

GEOLOGY

Regional

The Sprague Creek area is located near the eastern terminus of the unglaciated region of the Yukon and is underlain by a succession of Proterozoic quartzites and schists. Intruded into this succession are quartz-monzonite intrusions of Cretaceous age.

Strata in this area are believed to be correlatable with the Grit Division (Units 3 and 4) and younger strata (Unit 2) of the Scougale Creek, Mayo Lake and McQueston Lake area, mapped by Green (1971). Rock units have been regionally metamorphosed within a lower subfacies of the greenschist facies. Foliation in varying degrees is present in all stratified units and in most areas appears to parallel the original bedding.

TABLE OF FORMATIONS

Era	Period or epoch	Name or map-unit	Lithology
Cenozoic	Recent		Stream deposits, talus, rock fragments transported by solifluction
	Pleistocene		Till, gravel, sand, and silt
	Unconformity		
	Tertiary (?)	11	Quartz porphyry, granite porphyry
Not in contact			
Mesozoic	Cretaceous	10	Granodiorite, quartz monzonite
	Intrusive contact		
	Cretaceous	9	Diorite, gabbro and altered equivalents
	Intrusive contact		
	Lower Cretaceous (?)	8; Keno Hill Quartzite	Massive quartzite, minor phyllite and graphitic phyllite
	Conformable contact		
	Jurassic	7; Lower Schists	Graphitic phyllite, phyllitic quartzite, phyllite
Unconformity			
Paleozoic	Ordovician to Silurian	6	Massive dolomite
		Unconformity	
		5	Phyllite, slate, chert, and quartzite
Probable unconformity			
Precambrian and later (?)		3 and 4; Grit	3; gritty quartzite, varicoloured phyllite and argillite, graphitic phyllite 4; limestone
		Not in contact, relationship unknown	
		2	Thin-bedded, phyllitic quartzite, phyllite
		Conformable contact (?)	
		1; Upper Schists	Phyllitic and thin-bedded quartzites, phyllite, graphitic phyllite

(Green, 1971, p. 10)

PROPERTY

The SP property is underlain by a series of Proterozoic metamorphic rocks consisting primarily of quartzite. Localized occurrences of rhyolite tuff and quartz-biotite schist are also present. The metamorphic sequence has been intruded by a gabbroic dyke and a quartz-feldspar porphyry dyke.

Quartzite

The predominant rock type on the property is a clean and intensely foliated quartzite. In areas of intense deformation, abundant muscovite occurs along foliation planes producing a quartz-muscovite schist. The quartzite occurs in beds that are 5 mm to 0.5 m thick, and is moderately to highly fractured with goethite commonly occurring along the fracture planes. Quartz veins up to 0.1 m thick and comprised of clean white bull quartz are found parallel to the foliation. The quartzite also contains quartz veins which have been forcefully injected at 90^{0} to the foliation.

Rhyolite Tuff

A 1 metre thick bed of rhyolite tuff unit was found at one location near the southern boundary of the claim group. This porous, light biege unit is a very fine-grained, siliceous rock containing occasional feldspar fragments.

Quartz-Biotite-Chlorite Schist

Quartz-biotite-chlorite schist is found in only a few scattered outcrops. The unit is intensely foliated with the biotite and chlorite forming distinct foliation planes. No quartz veining was found in the schist.

Knotted Biotite Schist

Knotted biotite schist represents a sub-unit of the quartz-biotite schist. Within this unit distinct biotite knots, parallel to foliation planes, occur in a quartz-biotite matrix.

Quartz-Feldspar Porphyry

The quartz feldspar porphyry is a late stage dyke consisting of a fine-grained quartz matrix with severely kaolinized phenocrysts of feldspar from 0.1 to 2 mm in diameter. In places this unit contains quartz eye phenocrysts from 0.1 to 0.5 mm in diameter. Locally in talus slopes, the porphyry is extremely weathered and coated with a fine layer of limonite. Pyrite cubes up to 1 mm wide are also commonly found in the porphyry.

Gabbroic Dyke

Near the southern boundary of the claim group several small felsenmeer patches containing boulders of gabbroic rock were observed. This medium-grained, dark black rock is believed to represent a late stage dyke.

STRUCTURE

The structure on this property indicates moderate to intense deformation. At many localities quartzite beds contain minor Z folds and in one outcrop the quartzite beds appeared to be rolled back on themselves. In this same outcrop quartz veins have been forcefully injected into the quartzite perpendicular to the foliation. Bedding is generally shallow dipping making it difficult to determine the actual strike. Also, in some places the beds were so deformed that no bedding attitudes were discernable.

The quartz-feldspar porphyry intrudes the quartzite vertically and has a trend of 080^{0} and a plunge of 20^{0} in the direction 080^{0}. The gabbroic dyke trends almost parallel to this unit, having a trend of 070^{0}.

MINERALIZATION

No mineralization of significance was indicated by the geological mapping. Two slightly gossanous areas were found to be caused by the presence of pyrite. At one locality, small resinous crystals, probably sphalerite, were observed in the quartz-feldspar porphyry but in insufficient quantity to be of economic interest.

GEOCHEMISTRY

General Statement

On the SP claims soil samples were collected at approximately 100 metre intervals along the three claim location lines and along a single line at the 3000 foot contour. A total of 159 samples was collected.

Wherever possible the "B" horizon was sampled. The collected samples were dried and the minus 80 mesh portions were analysed for copper, lead, zinc and tin. Copper, lead and zinc analyses were performed by atomic absorption following a hot nitric acid digestion. Tin analyses were done by XRF after Borax fusion.

Interpretation of Results

As an overall generality, the soil geochemical response in the area of the SP claims is of background magnitude. For individual metals a few high values were obtained but no distinct anomalies were defined.

For copper the range in values is 2-47 ppm and interpreted to be of background magnitude.

The range of values for tin in soil is 2-68 ppm with only three values exceeding 20 ppm. Values of 20 ppm or greater are considered to be anomalous. All of the values greater than 20 ppm are located west of the claims and are surrounded by background values.

For lead, the value range is 4-134 ppm. Only two values (84 ppm and 134 ppm) located west of the claim group are considered to be possibly anomalous. These two high values correspond to the two highest zinc values (111 ppm and 161 ppm). The values for zinc, although high, compared to the other values obtained, are not considered to be significantly anomalous. The background for zinc is 75 ppm.

CONCLUSIONS AND RECOMMENDATIONS

Geological mapping and soil geochemistry completed on the SP claims failed to locate any significant mineralization nor did they outline any potentially mineralized areas. No further work is recommended for these claims.

Report by: Stephen B. Butrenchuk
Stephen B. Butrenchuk
Geologist

Endorsed by: _____
D.L. Cooke
Senior Geologist

Approved for
Release by: _____
G. Harden, Manager
Exploration
Western District

SBB/gk

Distribution:

Mining Recorder (2)
Western District (1)
Administration (1)

REFERENCE:

Green, L.H. (1971), Geology of Mayo Lake, Scougale Creek and McQueston Lake map areas, Yukon Territory, G.S.C. Memoir 357, p. 10.

COMINCO LTD.

EXPLORATION
NTS: 115P/15

WESTERN DISTRICT
20 NOVEMBER 1979

GEOLOGICAL AND GEOCHEMICAL REPORT ON THE SP 41, 43-52, 63, 65-72, 85-92 GROUP OF MINERAL CLAIMS SITUATED AT: 63°50'N LATITUDE; 136°35'W LONGITUDE IN THE MAYO MINING DISTRICT, YUKON TERRITORY

Located claims on which assessment credits are requested:

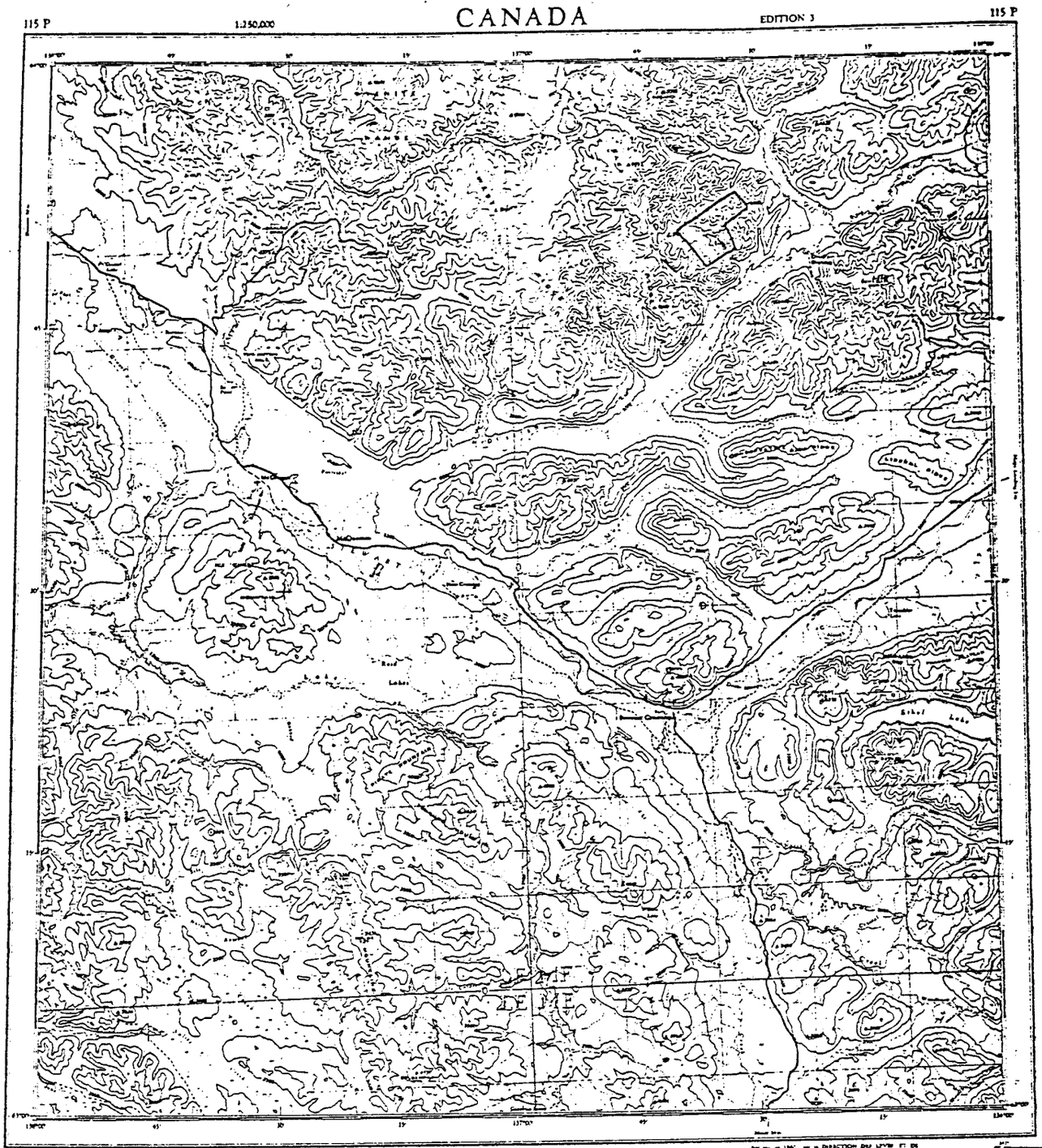
Claim Number	Record Number	Date Recorded	Assessment Amount	Assessment Credit
SP 41	YA 39348	March 28/79	$200	2 years
43	39350	March 28/79	200	2 years
44	39351	March 28/79	200	2 years
45	39352	March 28/79	200	2 years
46	39353	March 28/79	200	2 years
47	39354	March 28/79	200	2 years
48	39355	March 28/79	200	2 years
49	39356	March 28/79	200	2 years
50	39357	March 28/79	200	2 years
51	39358	March 28/79	200	2 years
52	39359	March 28/79	200	2 years
63	39370	March 28/79	200	2 years
65	39372	March 28/79	200	2 years
66	39373	March 28/79	200	2 years
67	39374	March 28/79	200	2 years
68	39375	March 28/79	200	2 years
69	39376	March 28/79	200	2 years
70	39377	March 28/79	200	2 years
71	39378	March 28/79	200	2 years
72	39379	March 28/79	200	2 years
85	39392	March 28/79	200	2 years
86	39393	March 28/79	200	2 years
87	39394	March 28/79	200	2 years
88	39395	March 28/79	200	2 years
89	39396	March 28/79	200	2 years
90	39397	March 28/79	200	2 years
91	39398	March 28/79	200	2 years
92	39399	March 28/79	200	2 years
			$5,600	56 years

Work was done on these claims during the period August 15 to August 31, 1979.

Report by: Stephen B. Butrenchuk
Stephen B. Butrenchuk
Geologist

Under the Supervision of D.L. Cooke, P.Eng.

115 P 1:250,000 CANADA EDITION 3 115 P



McQUESTEN
YUKON TERRITORY

Scale 1:250,000 Echelle

13	14	15	16
12	11	10	9
5	6	7	8
4	3	2	1

N.T.S. GRID REFERENCE

Drawn by:		Traced by:	
Revised by:	Date:	Revised by:	Date:

A, BIX, AND SP CLAIM GROUP

Information plotted on overlay by:	Date:	Scale: As shown	Date: Sept., 1973	Plate: SC-30
SBB				

SP (92 CLAIMS)

BIX

SUNSHINE CREEK (A)

CORDILLERAN TIN

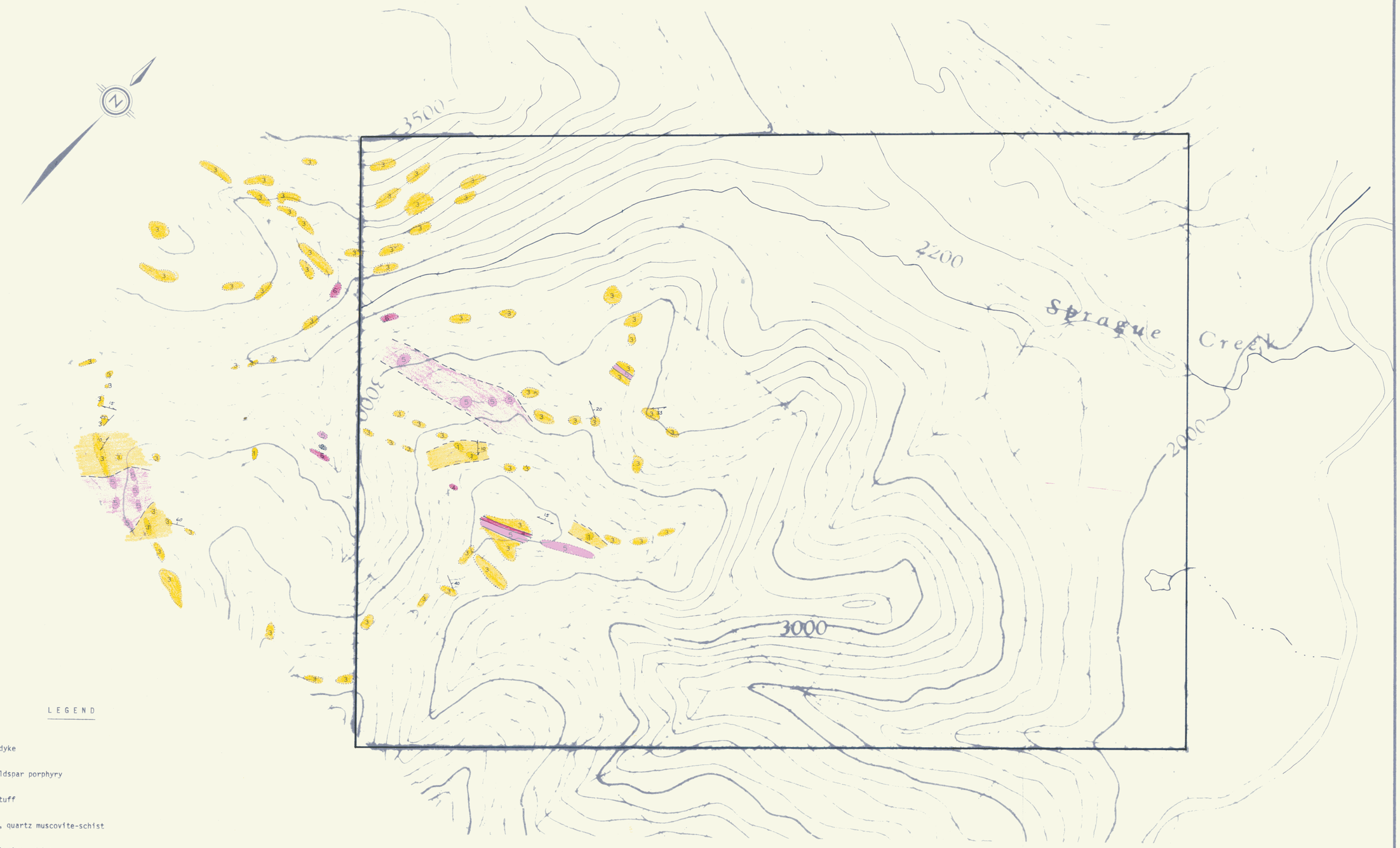
NTS 115 P/15

Cominco

Drawn by: DMC		Traced by:	
Revised by	Date	Revised by	Date

CLAIM MAP
SP CLAIMS

Scale: 1" = 1/2 Mi | Date: MAR 1979 | Plate: SC-31



LEGEND

- 6 Gabbroic dyke
- 5 Quartz-feldspar porphyry
- 4 Rhyolite tuff
- 3 Quartzite, quartz muscovite-schist
- 2 knotted-biotite schist
- 1 Quartz-biotite-chlorite schist

SYMBOLS

- 12 Bedding (inclined)
- 23 Foliation (inclined)
- Outcrop
- Geological contact (known/approximate)
- Claim boundary

0 100 200 300 400 500 1000 meters

ELEVATIONS ARE IN FEET

SUNSHINE CREEK

115 P/15

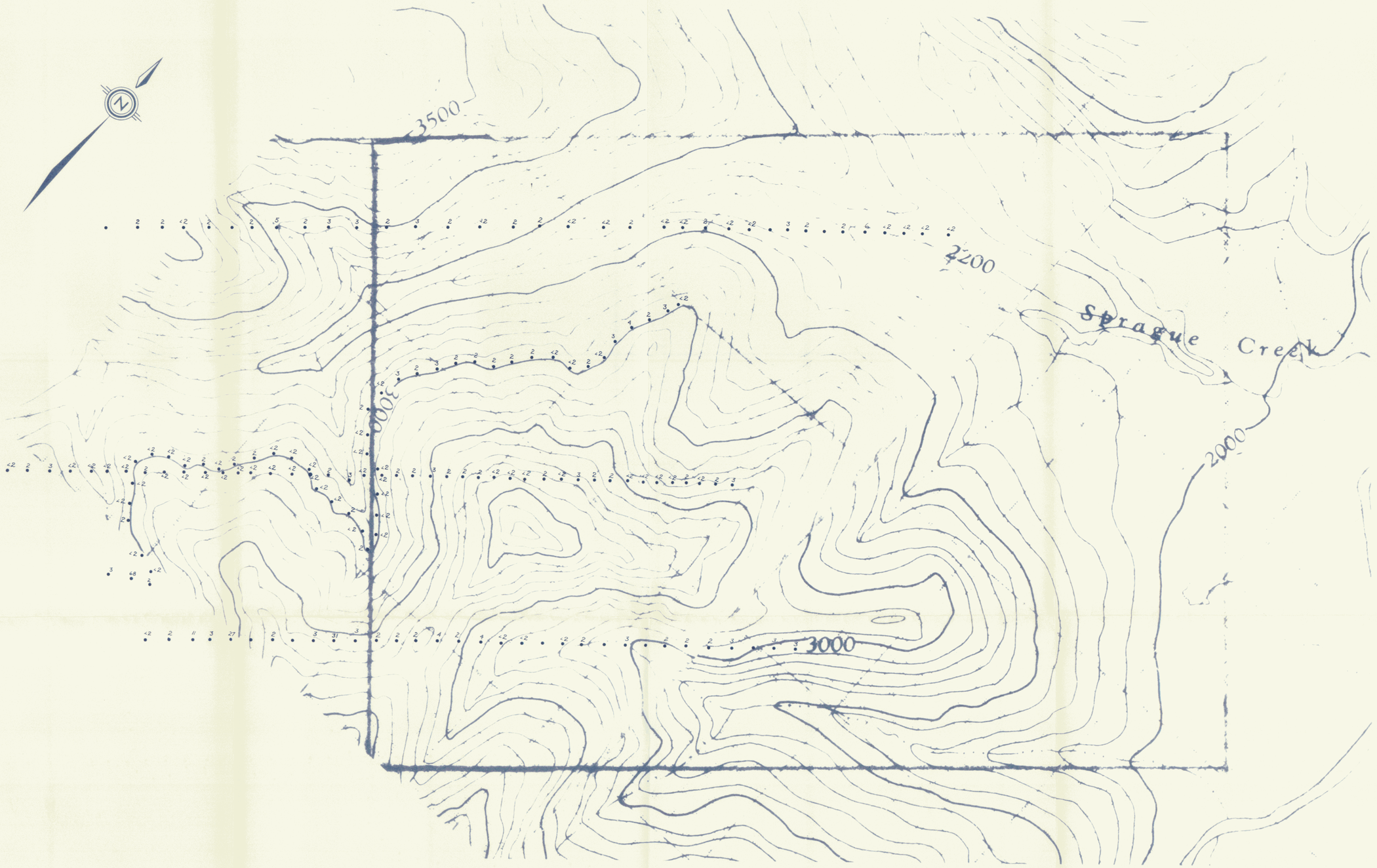
Drawn by:		Traced by: SBB	
Revised by	Date	Revised by	Date

SP GROUP

GENERAL GEOLOGY

Scale: 1 : 10000 Date: SEPT., 1979 Plate: SC – 32

FORM 210 0660



0 100 200 300 400 500 1000 meters

ELEVATIONS ARE IN FEET

SUNSHINE CREEK

115 P/15

Drawn by: S&B	Traced by:		
Revised by	Date	Revised by	Date

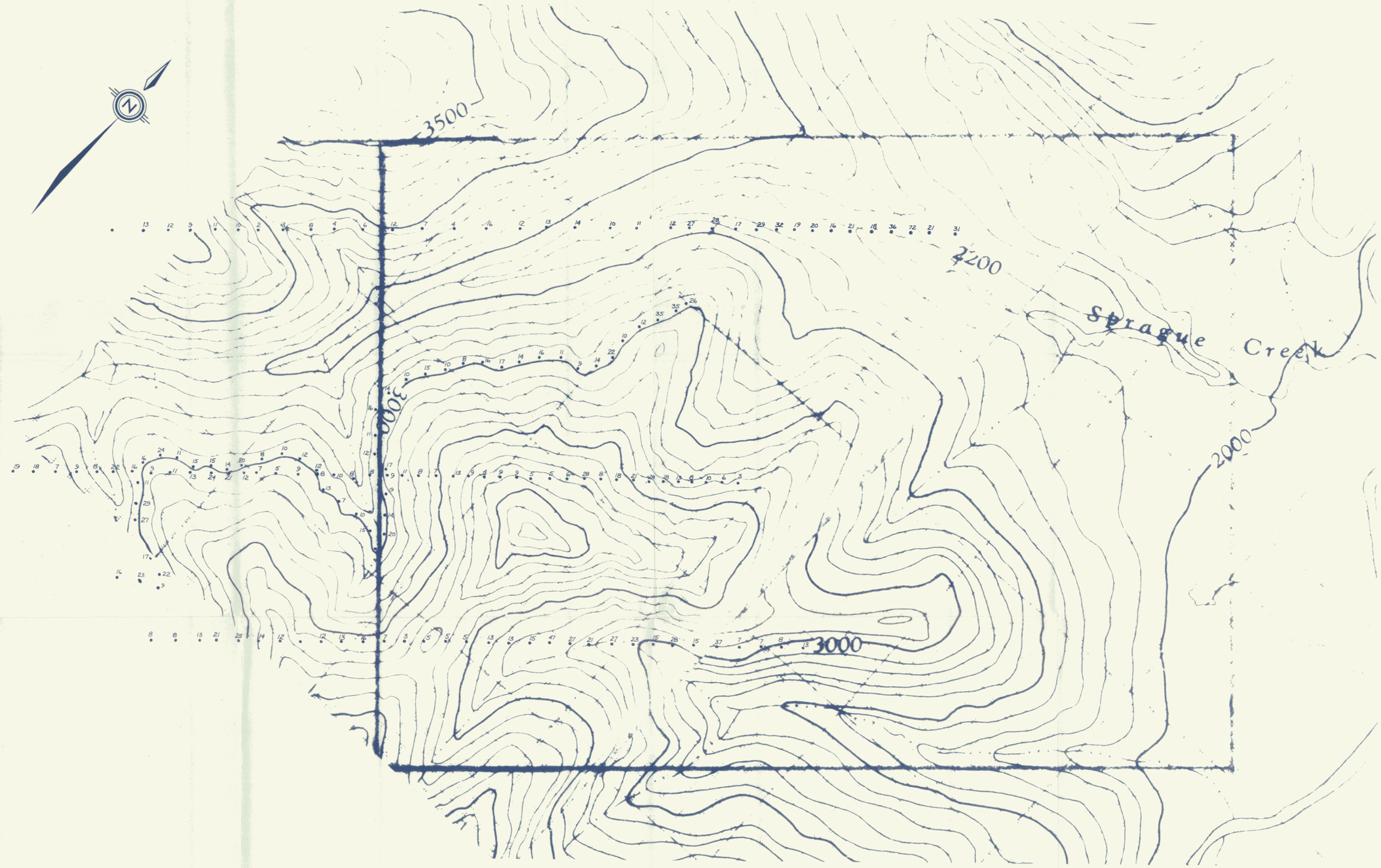
SP GROUP

SOIL GEOCHEMISTRY Sn (ppm)

Scale: 1 : 10000 | Date: SEPT., 1979 | Plate: SC – 33

NCI - 117 - CL

FORM 210 0660



0 100 200 300 400 500 1000 meters

ELEVATIONS ARE IN FEET

SUNSHINE CREEK

Cominco 115 P/15

SP GROUP

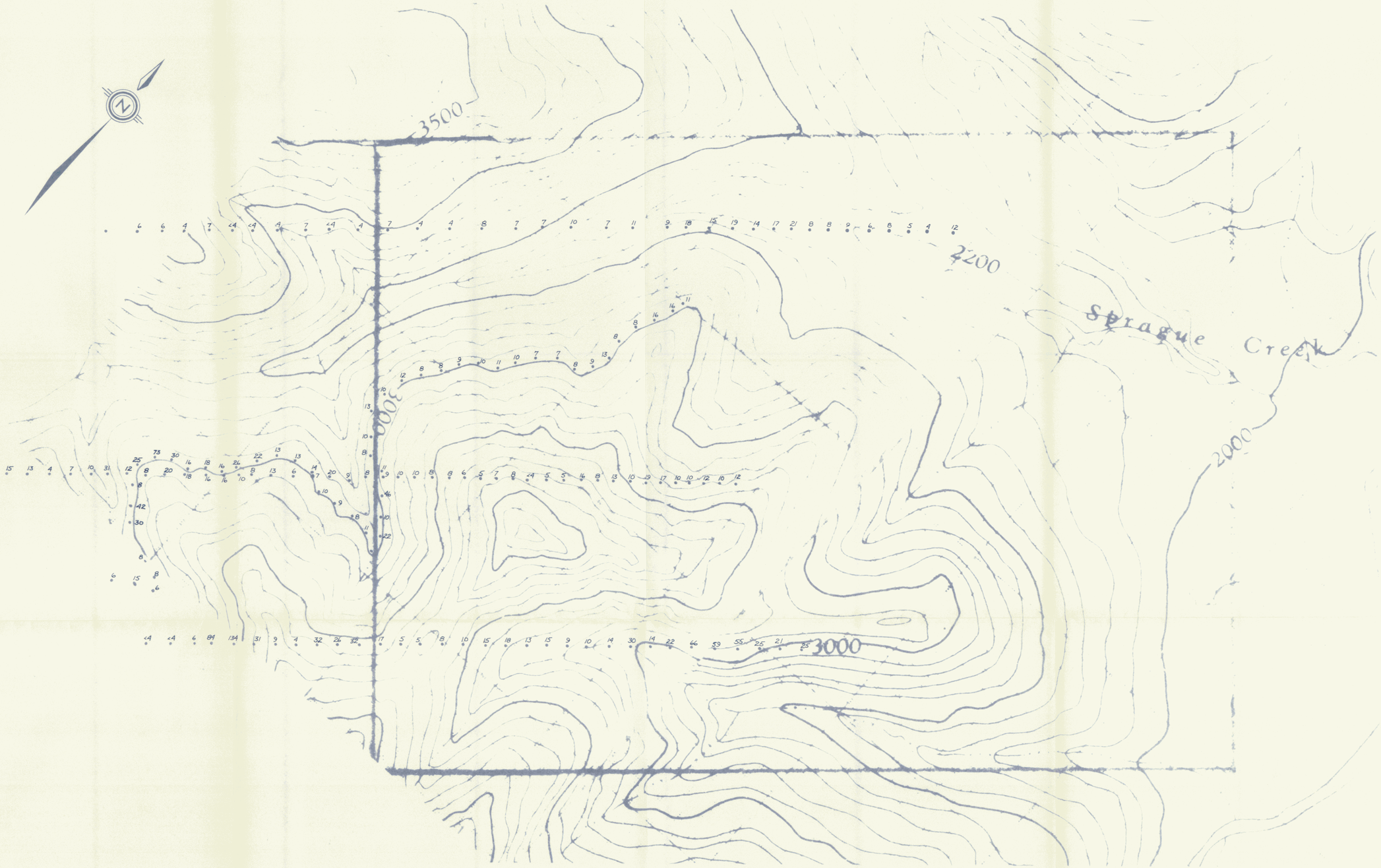
SOIL GEOCHEMISTRY Cu (ppm)

Drawn by:		Traced by: S.B.B.	
Revised by	Date	Revised by	Date

Scale: 1 : 10000 | Date: SEPT., 1979 | Plate: SC – 3.4

NCI - 117 - C.L.

FORM 210 0660



0 100 200 300 400 500 1000 meters

ELEVATIONS ARE IN FEET

SUNSHINE CREEK

Cominco 115F/15

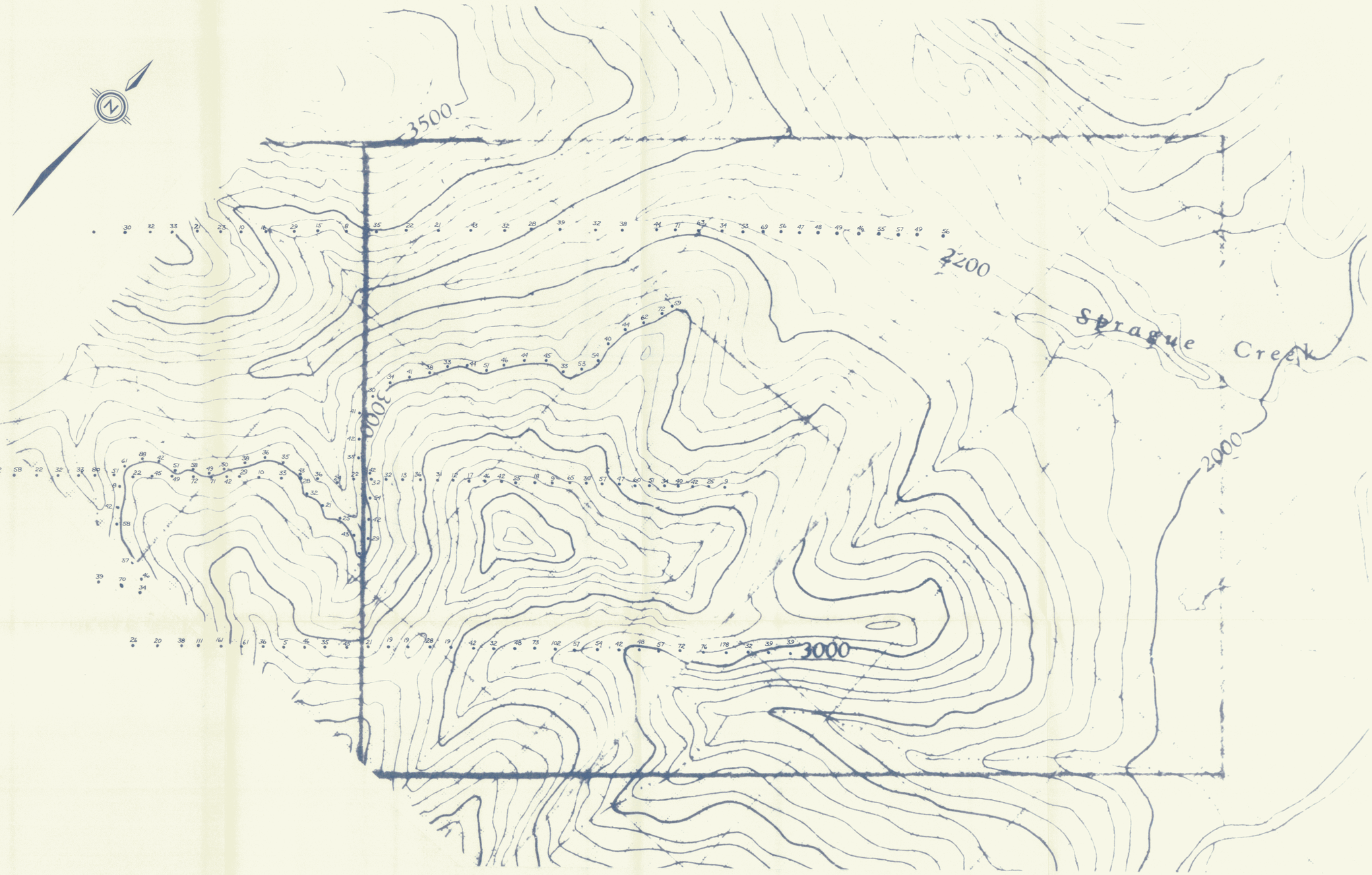
Drawn by:		Traced by:	
Revised by	Date	Revised by	Date

SP GROUP

SOIL GEOCHEMISTRY Pb (ppm)

Scale: 1:10000 Date: SEPT., 1973 Plate: SC-35

FORM 216 (4/66)



0 100 200 300 400 500 1000 meters

ELEVATIONS ARE IN FEET

SUNSHINE CREEK

Commerce 115 P/15

Drawn by:		Traced by: SBB	
Revised by	Date	Revised by	Date

SP GROUP

SOIL GEOCHEMISTRY Zn (ppm)

Scale: 1:10000 | Date: SEPT., 1979 | Plate: SC – 36

NCI - 117 - C.L.

FORM 210 0660