

668

REPORT OF GEOPHYSICAL SURVEYS,

GEOCHEMICAL SURVEY AND GEOPHYSICAL SURVEY.

BING NO. 48 AND BING NO. 83 CLAIM GROUPS

36 (5901, 5902, 5903, 5904, 5905, 5906, 5907, 5908, 5909,
5910, 5911, 5912, 5913, 5914, 5915, 5916, 5917, 5918,
5919, 5920, 5921, 5922, 5923, 5924, 6243, 6244, 6245,
6246, 6247, 6248, 6249, 6250, 6251, 6252, 6261, 6262)

30 (5887, 5888, 5889, 5890, 5891, 5892, 5893, 5894,
5895, 5896, 5897, 5898, 5899, 5900, 5925, 5926,
5927, 5928, 6253, 6254, 6255, 6256, 6257, 6258,
6259, 6260, 6263, 6264, 6265, 6266)

58° N 132° E

ATLIN MINING DIVISION

By: G. Guttrath, B. Sc. Department of
Supervised By: D. M. Cannon, P. Eng. Mines and Petroleum Resources

ASSESSMENT REPORT

May, 1965

MAP 823 ON

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MAPS

668-1 Bing Claims Trouble Creek Area NW B.C. - I.P. lines Showing Deduced Sulphide Zones Scale 1" - 200'	Pocket of Front Cover
2 Geology Map - Bing Group Scale 1" - 200'	" "
3 Bing Claim Group, Nos. 1-14, 33-84 Scale 1" - 1000'	" "
4 Ground Magnetometer Survey - Sheslay Project Scale 1" - 200'	" "
5 Airborne Magnetic Survey - Bing Claim Group, Bing Nos. 1-84 Scale 1" - 1000'	Pocket of Back Cover
6 Bing Group - Geochemical Survey 1964 Scale 1" - 200'	" "

REPORT OF GEOPHYSICAL SURVEYS,

GEOLOGICAL SURVEY, AND GEOCHEMICAL SURVEY.

BING #48 AND BING #83 CLAIM GROUPS

ATLIN MINING DIVISION

By: G. Gutrath, B. Sc.

Supervised By: D. M. Cannon, P. Eng.

INTRODUCTION

Between July 18th and October 15th, 1964, three geophysical surveys, a geological survey, and a geochemical survey were carried out on the Bing #48 and Bing #83 claim groups.

The base camp was located on Tatsamenie Lake, approximately 52 miles northwest of Telegraph Creek, B. C. The camp was serviced by Coast Range Airway "Beaver", from Atlin, B. C.

A temporary field camp was established on Bing #39, near the centre of the two claim groups. This camp was serviced by a Bell G-2 helicopter chartered from Klondike Helicopters, Whitehorse, Yukon.

The geophysical work consisted of a ground magnetometer survey, an induced potential survey, and an airborne magnetic survey.

The geochemical survey consisted of soil sampling at 100 foot and 200 foot intervals on a control grid. The samples were tested at the property by the Bloom heavy metal test. In addition, 67 samples from cross lines 32N and 88N were checked by Coast Eldridge Engineers & Chemists Ltd. for total Cu and Mo by spectrographic analysis.

The outcrop geology was mapped on a 1" = 200' scale using the grid for survey control.

Thin sections from a representative suite of Bing Group rocks were examined by Dr. H. T. Carswell, consulting petrographer.

LOCATION

The Bing Group #48 and #83 are located at 58° 20' North Latitude and 132° 10' East Longitude, about 52 miles northwest of Telegraph Creek, B. C.

PERSONNEL

Supervision

D. M. Cannon, P. Eng. - Overall supervision of Bing Group project for Newmont Mining Corporation of Canada Limited.

G. C. Gutrath, B. Sc., U.B.C., 1960, Geologist - Field supervision of Bing Group project.

Geophysics

Dr. A. A. Brant, consulting geophysicist for Bing Group project. Responsible for geophysical survey procedure and final interpretation of results.

Ground Magnetic Survey

J. Tribe - Magnetometer operator, engineering student, U.B.C. Three years, ground magnetic survey experience with Newmont Mining Corporation.

Airborne Magnetic Survey

G. Gutrath, B.Sc., U.B.C. 1960 - Instrument operator and data compiler. Four years experience with airborne magnetic surveys.

Induced Potential Survey

P. Norgaard - Geophysicist, contracted from Canadian Aero Service Ltd., 347 Bay Street, Toronto, Ontario.

Geochemistry

Dr. J. A. Coope - Consulting geochemist for Bing Group project. Responsible for geochemical survey procedure and interpretation of final results.

C. Ikona - Engineering student, U.B.C. Soil sampler and field analyst. Two years experience in geochemical surveying.

Geological

N. Tribe - U.B.C. 1964. geologist. Responsible for field mapping.

Dr. G. W. H. Norman - Consulting geologist, Newmont Mining Corporation of Canada Limited.

J. S. Livermore - Consulting geologist, Newmont Mining Corporation of Canada Limited.

Dr. H. T. Carswell, Consulting petrographer, Vancouver, B. C.

Survey Assistants

- N. Sankey - U.B.C. student
- A. W. Giesbrecht - Prospector and draftsman
- J. Burwash - U.B.C. student
- R. Mason - U.B.C. student
- I. McDougall - U.B.C. student
- A. Robb - U.B.C. student

GEOPHYSICAL SURVEYS.

Ground Magnetic Survey

Survey Instrument

The readings were taken with an Askania Torsion Magnetometer Gf3, with a sensitivity of 224.0 gammas per degree. The degrees are divided into 10 divisions. The instrument can be read to 1/100th part of a degree by interpolation.

Survey Procedure

A base station was selected near the camp and read daily with the magnetometer to check diurnal variation.

The magnetic values plotted on the contour plan are in gammas relative to the base station datum.

Survey Performed

Readings were taken at 100 foot intervals on the cross lines and base line of the grid.

The field survey and results were plotted by J. Tribe between July 20 and August 10, 1964.

Results

Dr. A. A. Brant has interpreted the magnetic survey results as follows:

" The diorites and presumed basic metavolcanics are magnetic. The porphyry and the silicified and feldspathized acid rock (acid metavolcanics?) are relatively non magnetic.

The picture that results is essentially a broad, originally anticlinorial area, to the west of the base line, followed to the east by a broad synclinorial area.

The common flank between the two lies about 5E, and is represented by a series of narrow broken magnetic highs which should represent original basic volcanics, likely now porphyritized.

The dioritized basic metavolcanics at about 52N, west of the base line, strike N to about 72N and then swing east in a series of drags to 84N.

The area then is pictured as a series of N-S striking interbedded basic and acid volcanics which have been tightly folded into an anticlinorium to the west, and a synclinorium to the east, and intruded by diorite and porphyry.

The main mass of porphyry west of the base line from 24N to 44N lies in the crest of the anticlinorium.

East of the base line the porphyry appears to be more a series of dike-like bodies than a single broad mass."

Airborne Magnetic Survey

Survey Instrument

The airborne magnetometer used for the survey was a Varian nuclear precession magnetometer that has been refined and improved by Mr. G. McLaughlin, electronic engineer, on the geophysical staff of Newmont Exploration Limited, Danbury, Connecticut.

The following is a brief description of the instrument by Dr. A. A. Brant, geophysicist, Newmont Exploration Limited.

" A cylindrical bottle of about one pint containing kerosene is placed within a direct current bearing coil and is oriented approximately horizontal in a bird. Direct current is pushed through the coil for approximately $\frac{1}{4}$ to $\frac{1}{2}$ second. In this time, the proton orbit planes of the hydrogen tend to align perpendicular to the coil axis. When the current is shut off, these orbit planes return to their random orientation generating a die away envelope at a frequency of about 1 c.p.s. for each 25 gammas of field present. Thus in a field of 60,000 c.p.s. the frequency generated would be 2,400 c.p.s. This signal is picked up in the same coil, scaled, converted to gammas, and recorded on a chart by step units plus chart indication. A reading is made every $\frac{1}{2}$ to 1 second so that the chart record appears as a series of points or strokes.

The sensitive bottle is placed in a bird and towed some 50 feet below a helicopter. A step switching and frequency control box is provided, and a pen and ink recorder. Total weight is about 40 pounds. Readings are good to ± 5 gammas."

The instrument measures the total intensity of the earth's field in gammas. The average total field in the area reported was approximately 57,000 gammas.

Survey Procedure

The magnetometer was mounted on a Bell G-4 helicopter CF-LIM, under charter from Klondike Helicopters Limited, Whitehorse, Yukon. The pilot, John King, was responsible for maintaining the 500 foot elevation interval and for following

a predetermined contour flight line. The magnetometer was operated by G. Gutrath, B. Sc., University of British Columbia, 1960, who has four years experience with airborne magnetic surveys.

Initial installation of the magnetometer in the helicopter was accomplished by Mr. G. McLaughlin. In addition, a series of test lines were also run in the Kennicott Lake area.

For this survey, the instrument bird was towed at 40 to 50 miles per hour and at an altitude of 500 feet above ground level.

Air photographs were used for navigation. In order to plot the flight lines on the map, all streams and prominent topographic features were marked on the recorder chart by a manually operated fiducial marker. Notes, regarding observations important to the interpretation of the chart or altitude readings from the helicopter altimeter, were recorded on the chart while it was operating.

Survey Performed

The airborne magnetic survey of the Bing Group covered an area of 56 square miles.

Between September 7 and September 9, Line 1 to Line 6 inclusive, were flown.

After completion of the flights, the magnetic charts were edited by G. Gutrath and the results checked by D. M. Cannon. The results were compiled and drafted on a contour map by A. Giesbrecht.

Final interpretation of the survey results was made by Dr. A. A. Brant.

Results

1. The general magnetic background in this area is established at approximately 58,000 gammas. This was the datum figure used for survey purposes.
2. The 2,800 gamma anomaly on the northwest side of the claim group is occasioned by two small magnetite skarn zones surrounded by a magnetite rich, foliated diorite.

3. The 2,000 gamma anomaly trending north-south in the central portion of the claim group outline is occasioned by a topographic high combined with a magnetite rich, foliated diorite.
4. The 800 to 1,200 gamma anomalies to the southwest of the claim group are occasioned by topographic highs and altered, magnetite rich, volcanic flows and associated sediments.

INDUCED POTENTIAL SURVEY

Survey Procedure

The induced potential survey was contracted to Canadian Aero Mineral Surveys. All survey equipment and equipment operator, Peer Norgaard, were supplied to Newmont Mining Corporation under the contract. The survey was carried out between August 19 and September 5, 1964.

A time domain I.P. system was used with charging time of $1\frac{1}{2}$ seconds, delay time of 10-20 milliseconds, and an integrating time of $\frac{1}{2}$ second. Equispaced 3 arrays of 200' and 400' were applied. Dipole-dipole arrays were run at 32N and 72N, and 3 array spacing of 50', 100', 200', and 400' were run on line 64N.

Dr. A. A. Brant, was responsible for the final interpretation of the results.

Results

Dr. A. A. Brant interpreted the results of the induced potential survey as follows:

" The deduced sulphide zones are shown in Figure 2B. (There are actually additional areas of weak and minor sulphides not shown.)

Actually there appears to be considerable zoning within the areas shown, so that it is expected, that across any zone, the sulphides will vary from higher than the value shown to lower, in a series of narrower linear belts.

The major sulphide zone of interest is the west zone from 48N, 2E-8E to 88N, 21E to 31E. The sulphides are expected rather than a uniform average.

The zone is expected to terminate around 88N to 90N.

GEOCHEMICAL SURVEY

Survey Equipment

The geochemical field kits used were assembled by Dr. J. A. Coope for the rapid determination of the cold extractable heavy metal content of soil and stream sediment samples. The method used is a slightly modified version of the original Bloom heavy metal test (Econ. Geol. Vol 50, P 533), and the principle metals detected by this technique are copper, lead, and zinc. Of these, the sensitivity of the determination of zinc is considerably higher than that of either copper or lead.

Survey Performed

A total of 789 soil samples were taken at intervals of 100 feet and 200 feet on the control grid. These samples were tested in the field by the Bloom heavy metal test. In addition, 67 samples from cross line 32N and 88N were checked by spectrographic analysis for total Cu and Mo by Coast Eldridge Engineers and Chemists Ltd.

On the enclosed geochemical contour map the cold-extractable metal readings are plotted in ml. of dithizone. This is the amount of dithizone solution used (in ml.) to titrate the sample to a selected colour endpoint. On cross line 32N and 88N the total Cu and Mo content in parts per million has been plotted.

Dr. J. A. Coope was responsible for the final interpretation of the results.

Results

The geochemical picture indicates a north-northwest alignment of the anomalous zone. This feature is dominant of the greater part of the area, but complexities are apparent in the northeastern sector. It would appear that this alignment is caused by structural zones that have influenced the emplacement

of the mineralization. The distribution of the anomalies indicates that the mineralization is intermittent along these zones and the steep sided nature of the geochemical sections across these zones suggests that the mineralization is restricted to relatively narrow bands.

GEOLOGICAL SURVEY

Survey Procedure

The geological mapping was carried out by N. Tribe, under the supervision of G. Gutrath, between August 1 and September 20, 1964. Dr. G. W. H. Norman and J. S. Livermore, consulting geologists, spent four days on the claim groups reviewing the geological mapping.

Thin sections from a representative suite of Bing Group rocks were examined by Dr. H. T. Carswell, consulting petrographer.

Survey Performed

The outcrop geology was mapped on a 1" = 200' scale using the grid for survey control.

Results

1. General Geology

The Bing Group covers an area of highly altered, often brecciated, Triassic and earlier volcanic rocks interbedded with discontinuous limy bands.

Cutting and sometimes completely engulfing the volcanic sediment is an upper Triassic, foliated diorite. This foliated diorite, covering approximately 16 square miles, is the largest intrusive mass associated with the property.

A feldspar porphyry, that is very fresh in appearance, probably post lower Jurassic, cuts the volcanic rock and foliated diorite. This intrusive is much smaller in mass, usually measured in hundreds of feet.

The exact role the porphyry plays in the concentration of the sulphides is not too apparent, but the contact of this intrusive with the foliated diorite is favourable for the development of silicified zones carrying sulphides.

Structural interpretation from the present surface geological mapping is difficult since there is very little outcrop exposed.

2. Alteration

There are three types of alteration associated with the sulphide mineralization on the Bing Group. The three types are feldspar-silica alteration, dioritization, and skarn alteration.

- (a) The feldspar-silica alteration is gradational from a completely altered light coloured siliceous rock to a rock that has been invaded by minor amounts of feldspar and silica in the form of veinlets and anhedral crystal patches.

The mineralization is usually in dioritized volcanic sediments that have been invaded by the feldspar-silica alteration.

- (b) Dioritization of the volcanic sediments is a common alteration feature but is not directly related to the sulphide mineralization.

A dioritized volcanic sediment in a hand specimen, appears to be a medium grained, foliated diorite, similar to the surrounding intrusive mass. But with the examination of a well exposed outcrop of dioritized volcanic sediment, discontinuous, sedimentary banding can be noted. Epidote is a common secondary mineral associated with the altered volcanic.


- (c) Interbedded with the volcanic sediments are limy members that have been completely altered to epidotes, actinolite, garnet, diopside skarn. Commonly associated with this alteration is chalcopyrite mineralization.

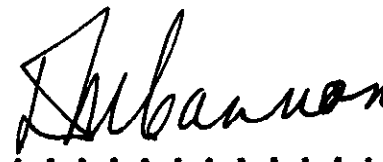
3. Mineralization

Widespread disseminated sulphides, carrying values in copper and molybdenum, is the typical mineralization of interest found on the Bing Group. This mineralization was first located in the beds of Moly Creek and Chalco Creek. Mineralization is not evenly disseminated but is related to zones of feldspar-silica alteration in dioritized volcanic sediments.

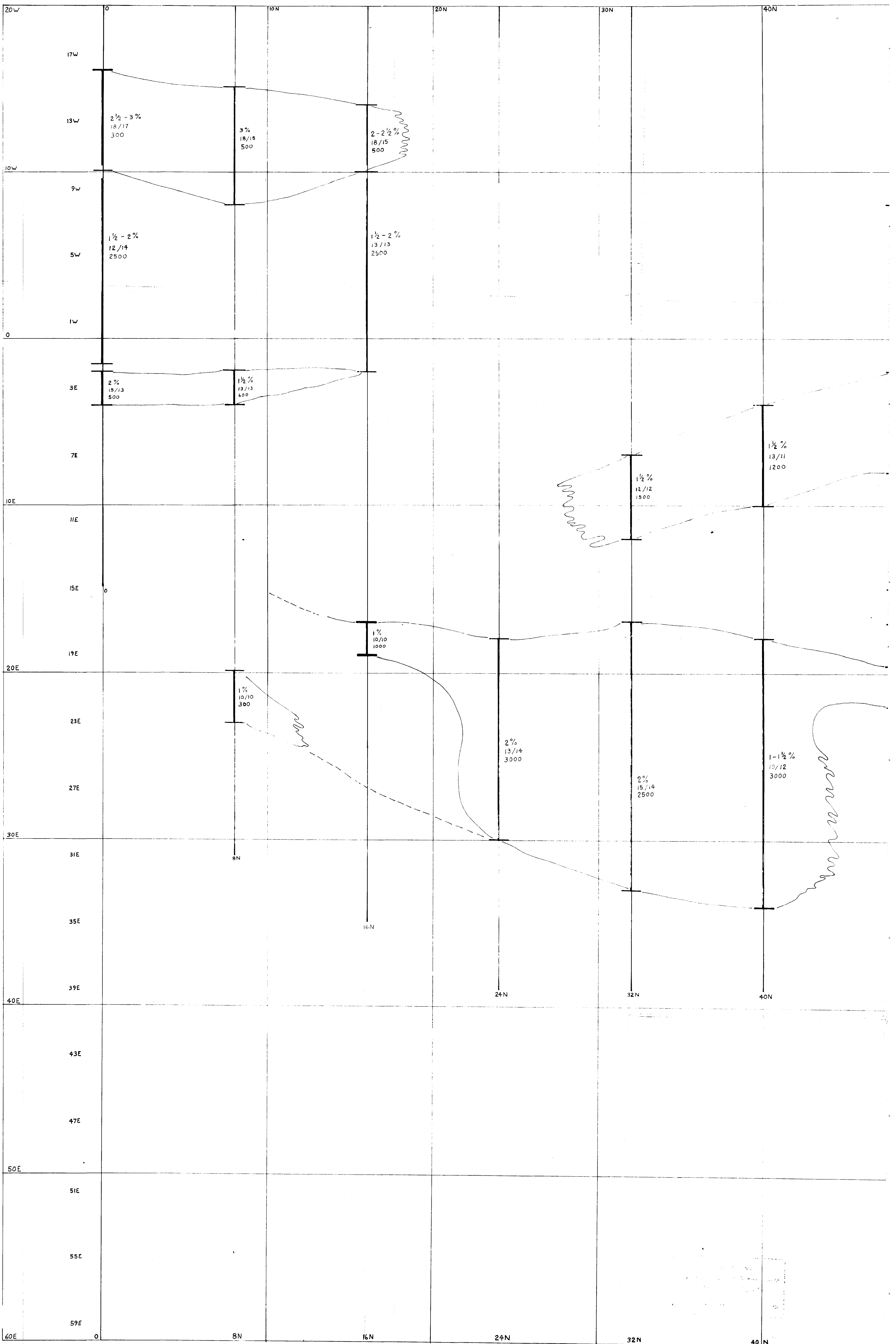
The skarn zone in the cirque area has been traced for approximately 1000 feet and averages 50 feet wide. It trends in a north-easterly direction and dips into the hill at 40° to 60°. Total sulphide varies between 1% to 6% by volume.

A combination skarn-silicified zone in a small trench 13 feet by 3 feet is located at Station 75N - 15E. Actinolite skarn makes up a good portion of the rock and it is poorly mineralized. The best chalcopyrite mineralization is associated with the feldspar-silica alteration.


.....
G. Gutrath


.....
D. M. Cannon.

May 11, 1965.



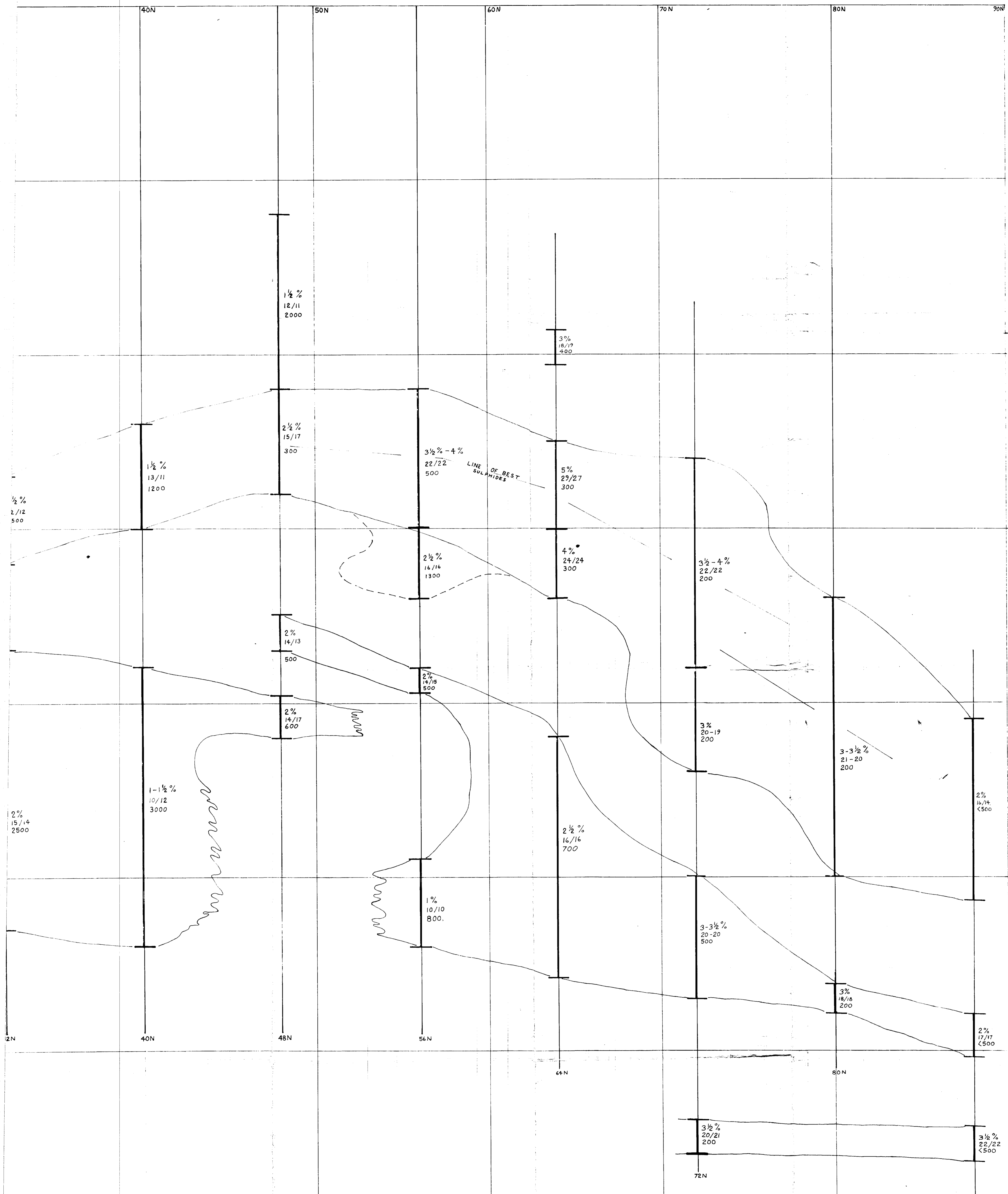


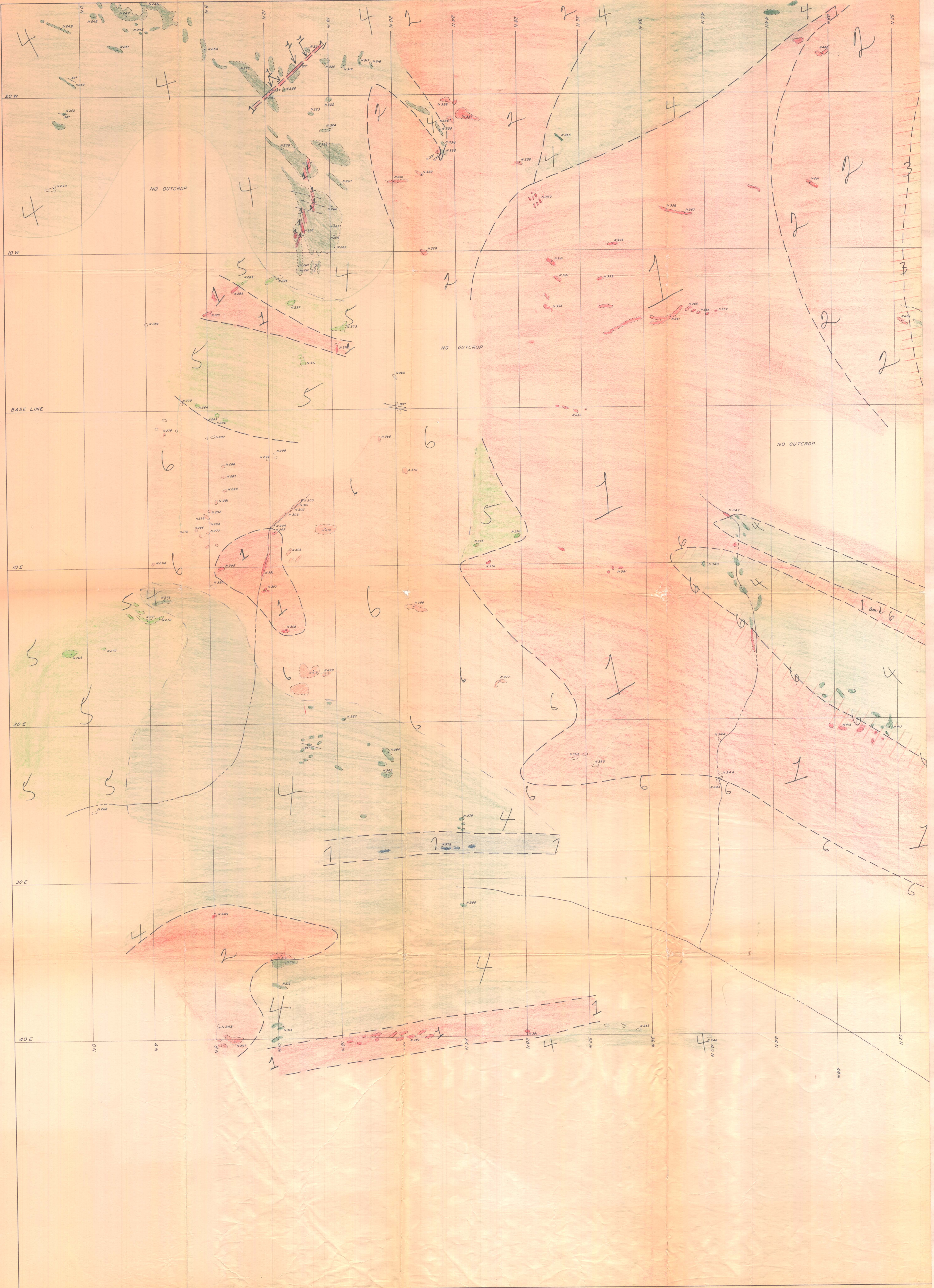
FIGURE 2B
 BING CLAIMS
 TROUBLE CREEK AREA NW BC.
 I.P. LINES SHOWING DEDUCED SULPHIDE ZONES

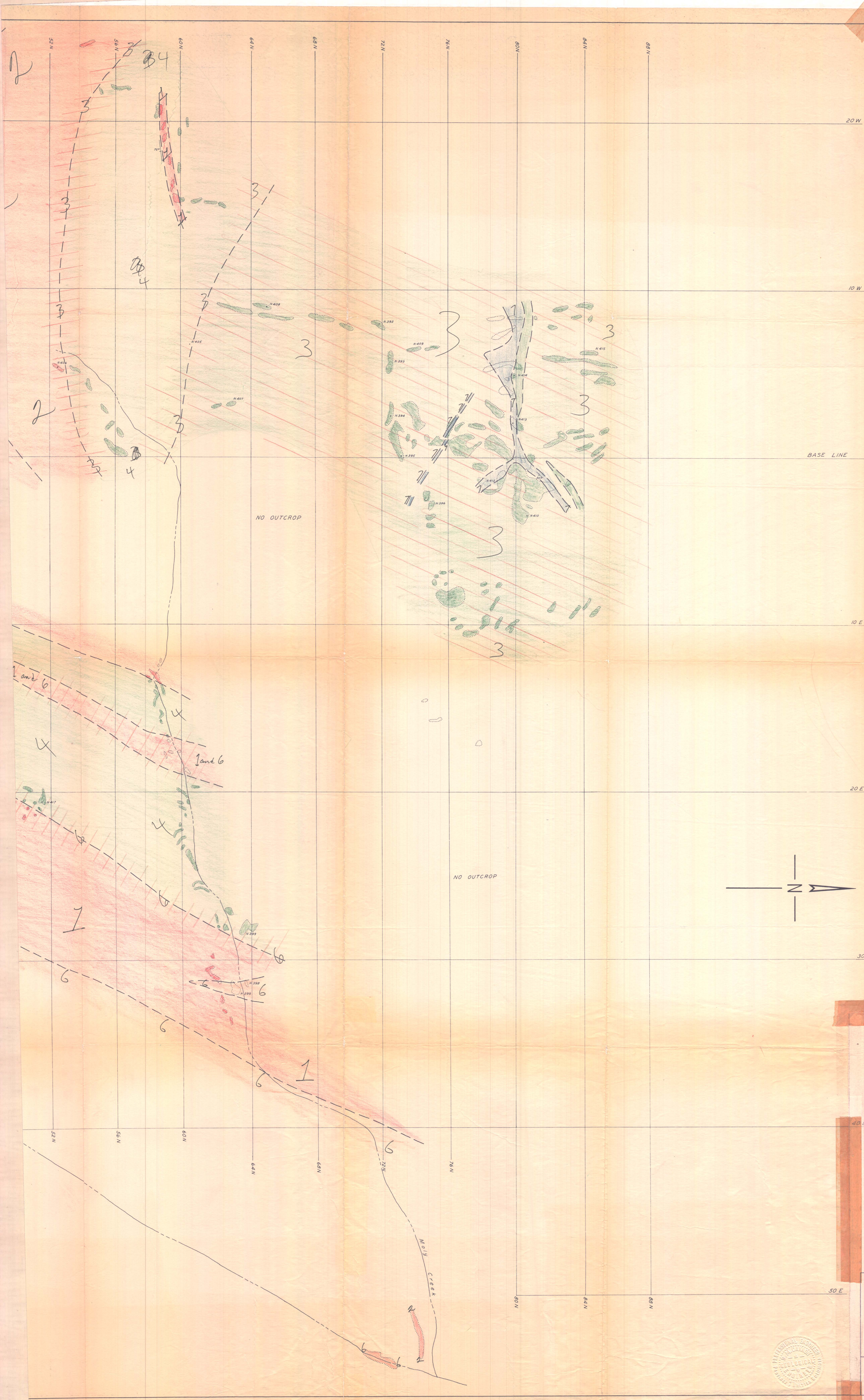
By: DR. AA. BRANT
 DEDUCED MAX. % SULPHIDES
 DEDUCED I.P. RESPONSE 200' SPACING / 400' SPACING
 DEDUCED WIDTH OF SULPHIDES
 DEDUCED RESISTIVITY IN OHM METERS
 SUPERVISED BY: D.M. CANNON P.ENG.
 20/8/64 - 5/19/64

Department of
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3%
 18/20
 1000
 SCALE: 1" = 200'

668





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- LEGEND**
- 1 Feldspar Porphyry - Medium to coarse grained phagioclase feldspars
 in fine grained monzonite ground mass. Fresh to highly altered.
 Pyrite 0% to 5%, magnetite 1%
 - 2 Diorite - Medium grained, foliated magnetite 1% to 5%, pyrite < 1%
 - 3 Dioritized Volcanics - Fine to medium grained, foliated, epidote, biotite, and
 actinolite alteration; pyrite 2% to 5%, magnetite < 2%
 - 4 Metavolcanics - Interbedded volcanic breccia & tuffs, foliated, epidote
 & biotite alteration; magnetite unevenly distributed 1% to 4%,
 pyrite 1% to 3%
 - 5 Breccia - Strongly fractured & altered, in part related to volcanics
 - 6 Silicification & Feldspathization - Aphanitic, light coloured siliceous rock,
 commonly related to contacts of feldspar porphyry. Alteration
 also invades dioritized volcanics. Sulphides 1% to 2%, but some
 narrow zones with up to 10% sulphides.
 - 1 Epidote, Actinolite, Diopside, Garnet Skarn - massive skarn usually
 1% sulphides but some zones with 3% to 6%
 - Mineralization - Chalcopyrite Cu Pyrrhotite Py
 Pyrite P Molybdenum Mo
 - Shearing and/or foliation
 - Bedding attitude
 - Observed contact
 - Assumed contact
 - N 383 Sample location

SUPERVISED BY: D.M. CANNON P. ENG.
[Signature]

NEWMONT MINING CORP.
 GEOLOGY MAP
 BING GROUP 668

Scale: 1" = 200'
 BY: N. TRIBE SEPT. 7, 1964



BING CLAIM GROUP 1-14, 33-84

Department of
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Newmont Mining Corporation
of Canada Limited
744 WEST HASTINGS ST.
VANCOUVER 1, B. C.

BY: G. GUTRATH
SUPERVISED BY: D.M. CANNON P. ENG.

G. Gutrath
D.M. Cannon

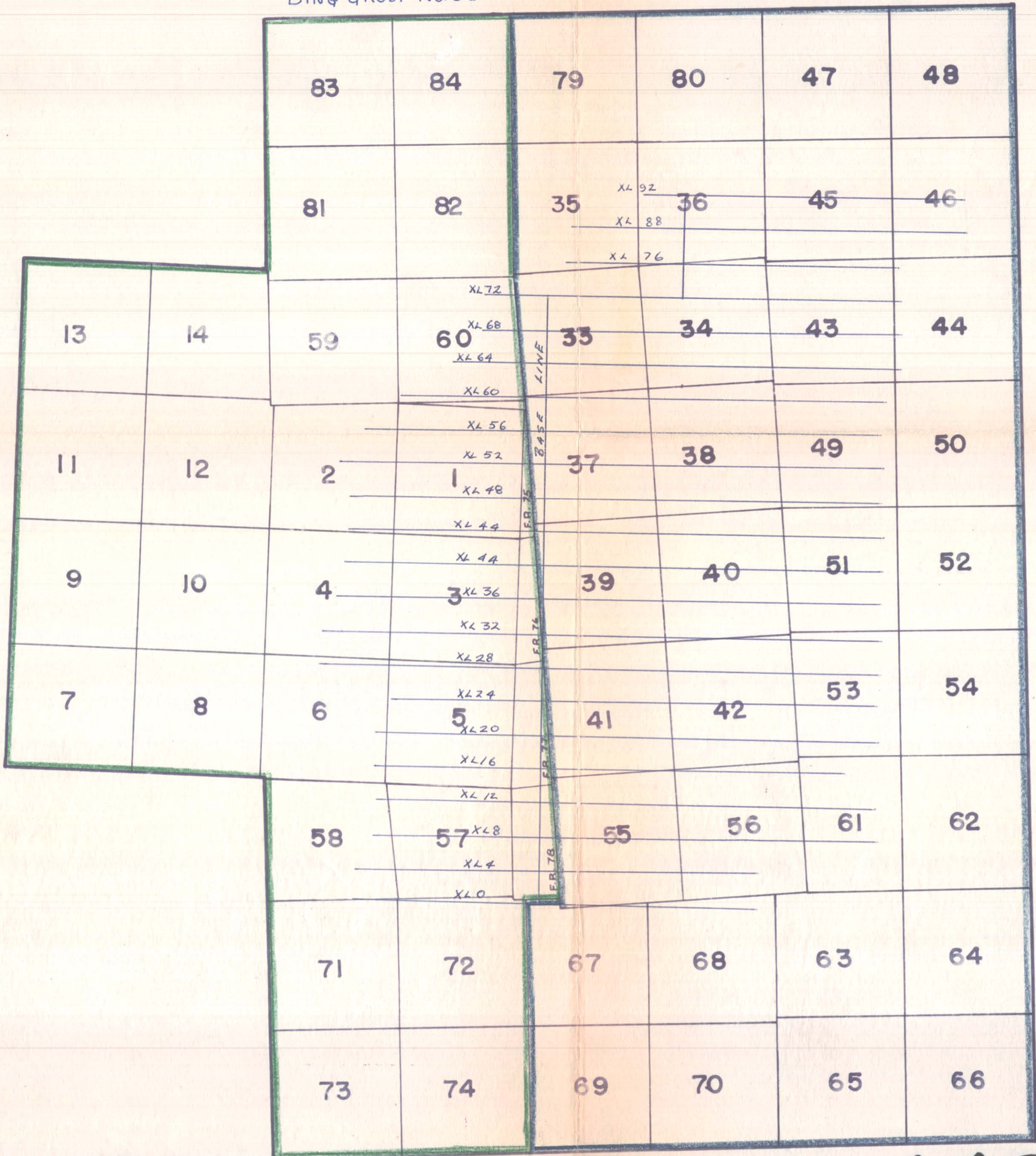


SCALE 1"=1000'

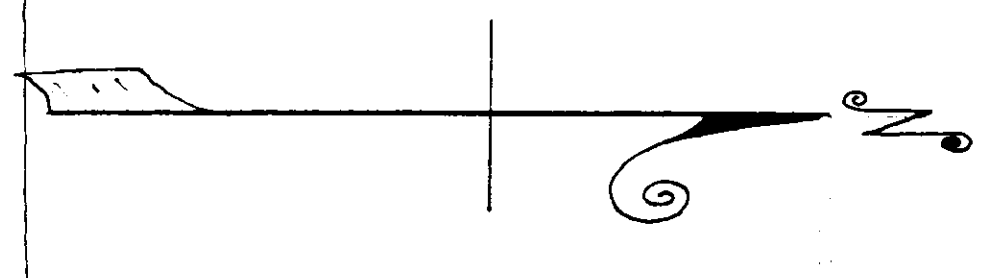
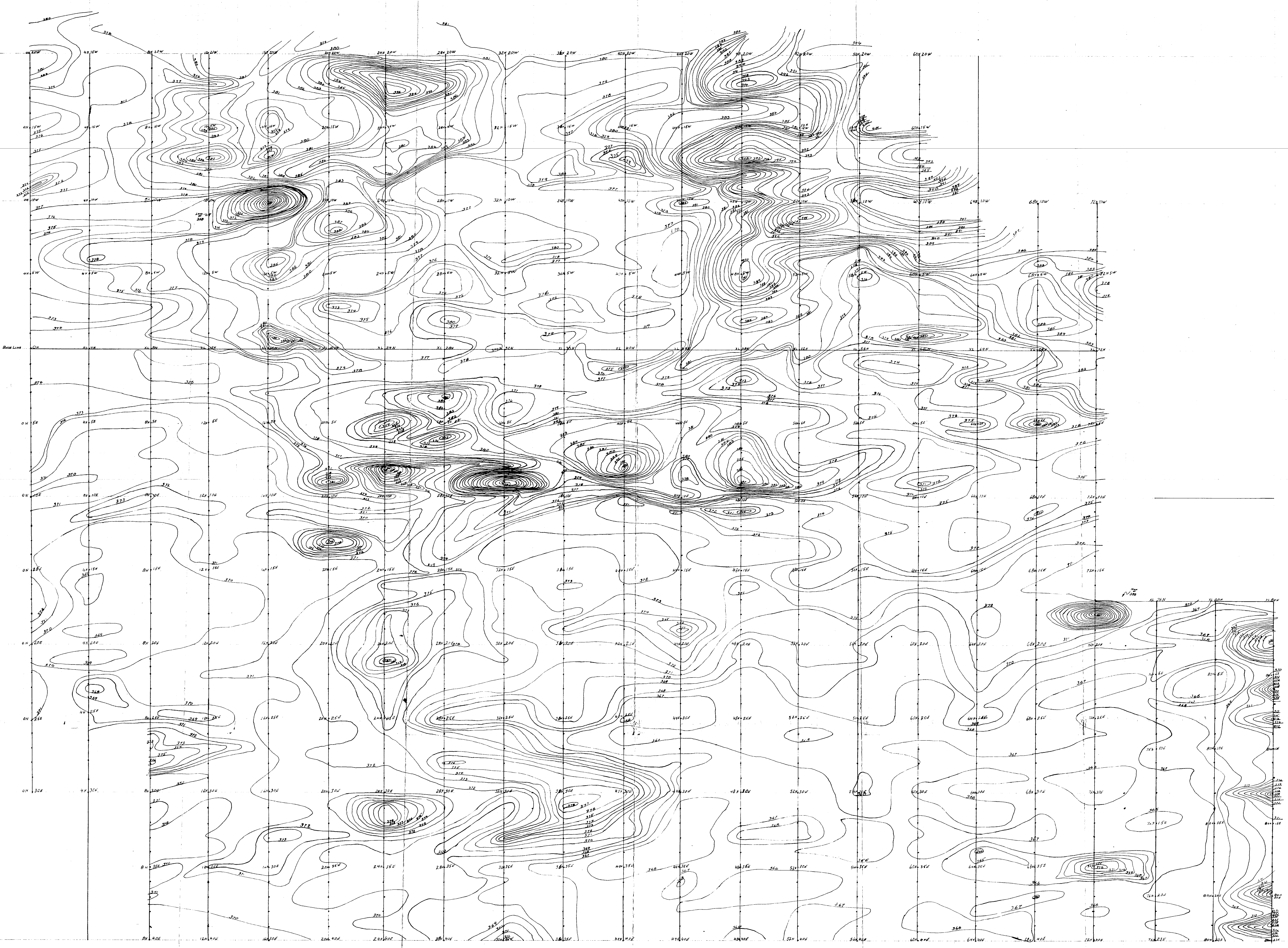


BING GROUP No. 83

BING GROUP No. 48



668

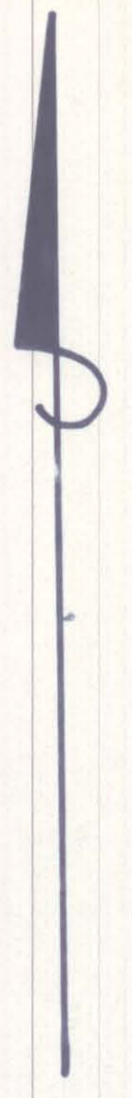


Department of
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NO. 668 MAP 4

GROUND MAGNETIC SURVEY	
SHEELAY	PARADE
BING CLIM GROUP	BING GRID #1
INSTRUMENT - ASKANIA MAGNETOMETER	
SCALE - 1" = 200'	CONTOUR INTERVAL - 100'
SURVEYED BY - J. TRIBE PLOTTED BY - J. TRIBE	
DATE - AUGUST 23, 1964	

SUPERVISED BY: D.M. CANNON P.ENG.
H. Bannan

668



ICY LAKE

ALF LAKE

SANCTUA RIVER

TROUBLE CREEK

Chasco Creek

Moy Creek

BING 1-14, 33-84

BING 15-32

START LINE 6

END LINE 5

START LINE 1

END LINE 6

START LINE 6

END LINE 4

START LINE 4

END LINE 2

START LINE 2





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Newmont Mining Corporation
of Canada Limited
744 WEST HASTINGS ST.
VANCOUVER 1, B.C.

AIRBORNE MAGNETIC SURVEY

BING CLAIM GROUP
Bing #1-#84
ATLIN MINING DIVISION

Legend:
Isogams 200 gamma interval
—57,800—
Flight lines with numbered
fiducial $\frac{20}{21}$

SCALE 1" = 1000'

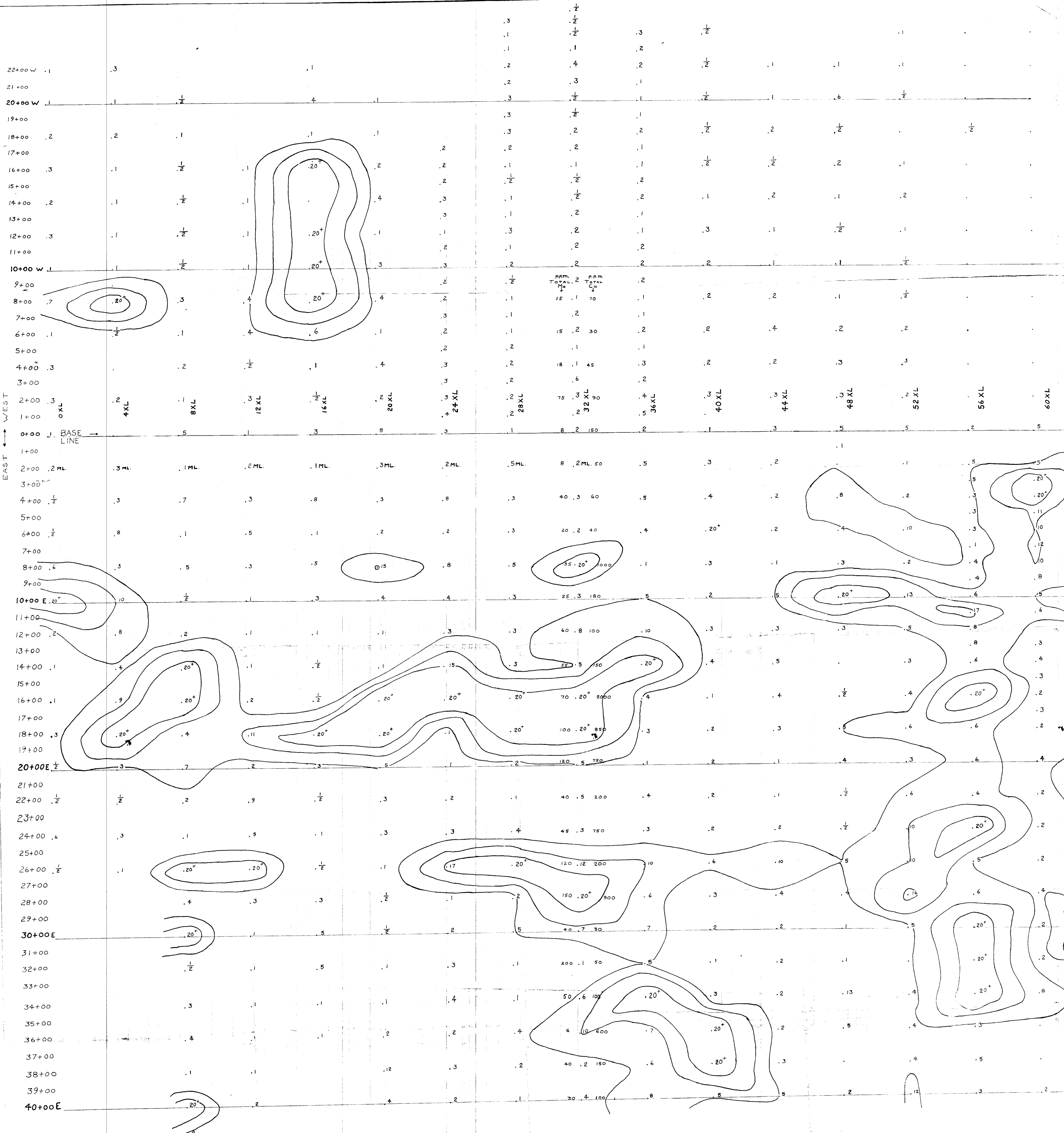
668

Surveyed: SEPTEMBER 1964

Operator: G. Guttrath
Supervisor: D.M. Cannon
P.Eng.

Subanon

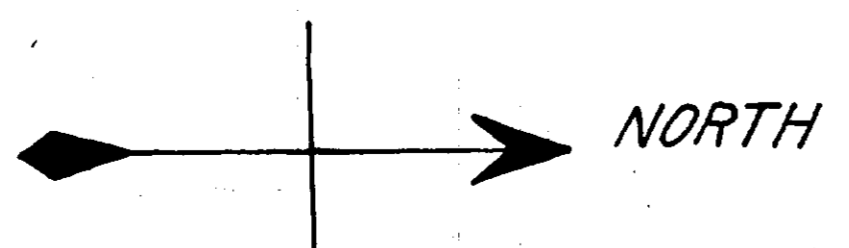




Department of
Mines and Petroleum Resources
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NO. 668 M.P. 6

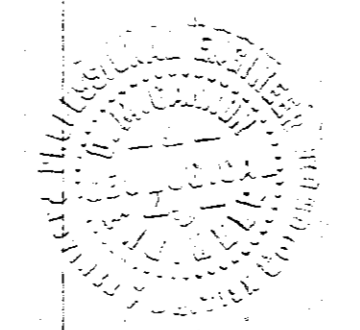
NEWMONT MINING
CORP.
BING GROUP
GEO-CHEM.
1964

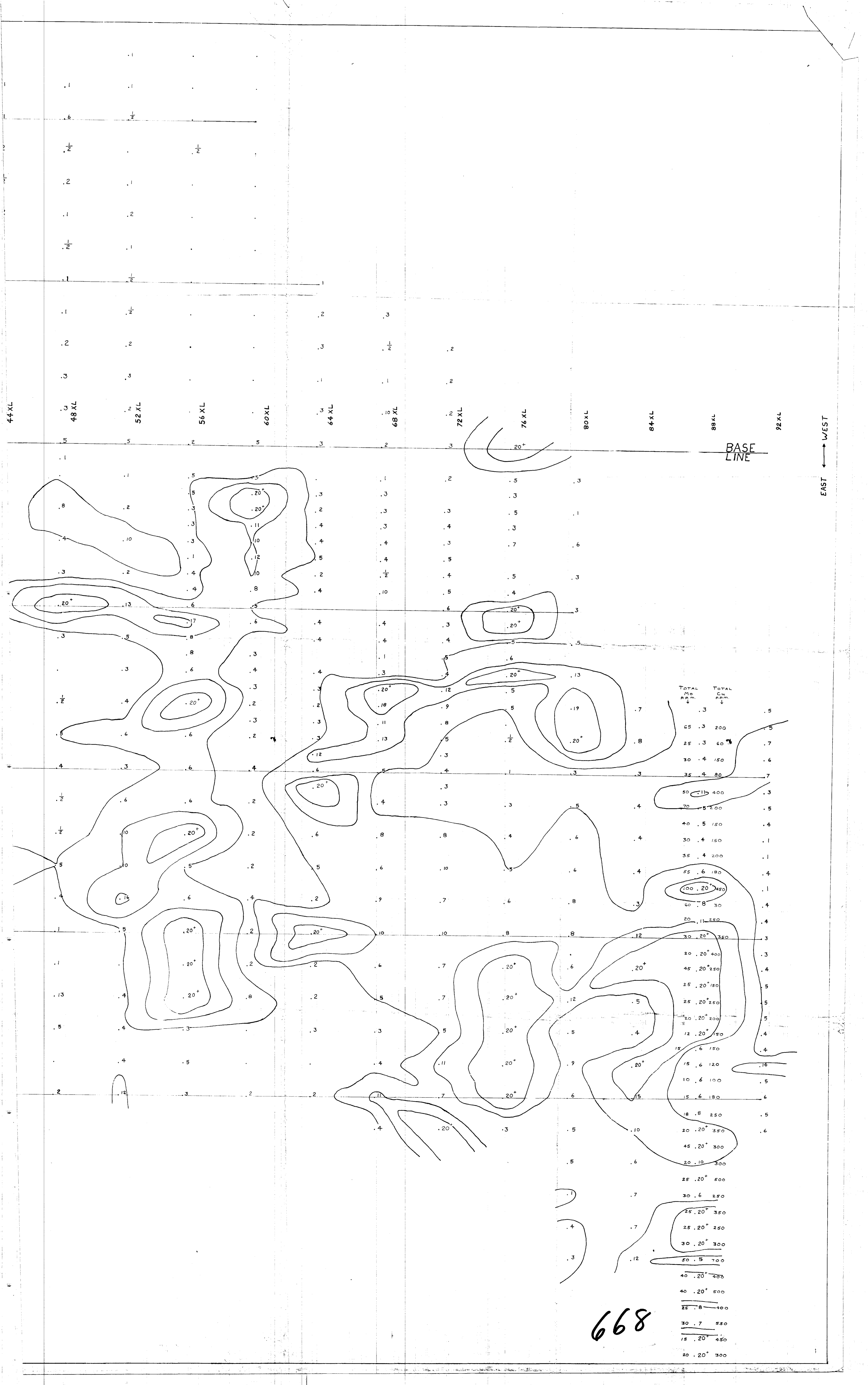
LEGEND
 .2 ml of dithizone solution
 — isograms for 5 ml, 10 ml, and 15 ml.



SCALE: 1" = 200'

By: G. GUTRATH
 SUPERVISED BY: D. M. CANNON P. ENG.
D. M. Cannon





BASE LINE

EAST WEST

TOTAL Mo. P.M. TOTAL Cu. P.M.

65	.3	200
25	.3	60
30	.4	150
35	.4	80
50	.11	400
70	.5	200
40	.5	150
30	.4	150
35	.4	200
55	.6	180
100	.20	450
60	.8	30
20	.11	250
30	.20	350
20	.20	400
45	.20	250
25	.20	150
25	.20	250
20	.20	200
12	.20	150
15	.6	150
15	.6	120
10	.6	100
15	.6	180
18	.8	250
20	.20	350
45	.20	300
20	.10	300
25	.20	500
30	.6	250
25	.20	350
25	.20	250
30	.20	300
50	.5	700
40	.20	400
40	.20	500
25	.8	400
30	.7	550
15	.20	450
20	.20	300

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