

REPORT ON  
GEOLOGICAL & GEOCHEMICAL WORK

92-L-12E

810180

MAR GROUP: MAR 1-14, 17-36, 39-44  
BON-BID GROUP: BON 27-32, 60-61, 67, 69-70 FR  
BID 7-10, 17-20, 28-30, 35-40  
BON-NOB GROUP: NOB 1-4 FR, BON 15-16, 21-26,  
58-59, 62, 68

Near Coal Harbour and Quatse Lake,  
Nanaimo Mining Division, B. C.

Latitude 127°35' Longitude 50°37'

NTS Map Sheet 92L/12E

Report by Andrew E. Nevin, P. Eng.

on behalf of

Marshall Creek Copper Mines Ltd.,  
Consolidated Altair Development Ltd.  
and  
D. W. Milburn

Work Conducted 17 April - 27 July, 1972

ANDREW E. NEVIN CONSULTANTS LTD.  
426-470 GRANVILLE ST.  
VANCOUVER 2, B.C.  
(604) 683-3425

October 24, 1972

REPORT ON

GEOLOGICAL & GEOCHEMICAL WORK

MAR GROUP:

MAR 1-14, 17-36, 39-44

BON-BID GROUP:

BON 27-32, 60-61, 67,  
69-70 FR, BID 7-10,  
17-20, 28-30, 35-40

BON-NOB GROUP:

NOB 1-4 FR, BON 15-16,  
21-26, 58-59, 62, 68

Near Coal Harbour and Quatse Lake,  
Nanaimo Mining Division, B. C.

Latitude 127°35' Longitude 50°37'

NTS Map Sheet 92L/12E

Report by Andrew E. Nevin, P. Eng.

on behalf of

Marshall Creek Copper Mines Ltd.,  
Consolidated Altair Development Ltd.  
and  
D. W. Milburn

Work Conducted 17 April - 27 July, 1972

October 24, 1972

Vancouver, B. C.

# C O N T E N T S

	<u>Page</u>
SUMMARY . . . . .	1
INTRODUCTION	
Terms of Reference . . . . .	1
Claims and Ownership. . . . .	1, 2
Location and Access . . . . .	2
WORK DONE . . . . .	2
GEOLOGY	
Rocks . . . . .	2, 3
Alteration . . . . .	3
GEOCHEMISTRY. . . . .	3, 4
CONCLUSIONS . . . . .	4

## APPENDICES

i	Personnel
ii	Affidavit re Cost of Survey
iii	Certificate

## DRAWINGS

1.	Location Map
2.	Geologic Map
3.	Geochemistry - Mo
4.	" - Cu
5.	" - Zn
6.	" - Ag
7.	" - Hg
8.	" - F
9.	Frequency Curves - Mo
10.	" " - Cu
11.	" " - Zn
12.	" " - Ag
13.	" " - Hg
14.	" " - F

## SUMMARY

Rocks on the MAR, BON, BID and NOB claims are Bonanza fragmental andesites and tuffaceous sandstones, unconformably overlain to the south by Cretaceous sandstone which is generally considered post-ore in the district. The Bonanza volcanics are sporadically altered to pyrite, kaolin, chlorite and zeolites in weak amounts.

About 60 rock chip samples were analyzed for Mo, Cu, Zn, Ag, Hg and F. No pattern or mutual correlation emerged from this work, part of a larger study including adjacent ground. The work did not disclose any specific target for continued exploration.

## INTRODUCTION

### Terms of Reference

Quintana Minerals Corporation and Garnet Exploration Corporation Ltd. performed geological and geochemical work on the 80 MAR, BON, BID and NOB claims as part of an exploration programme which ran from 17 April, 1972 through 27 July, 1972. Work was conducted by Andrew E. Nevin, Cliff Banninger and D. Small. The purpose was to identify features indicative of a large porphyry copper deposit.

### Claims and Ownership

The subject claims are owned by Marshall Creek Copper Mines Ltd. and Consolidated Altair Development Ltd. and are as follows, for a total of 80:

<u>Claim</u>	<u>Record No.</u>	<u>Claim</u>	<u>Record No.</u>
MAR 1 - 14	20741 - 54	BON 67 - 68	24628 - 29
MAR 17 - 36	20757 - 76	BON 69 - 70FR	25028 - 9
MAR 39 - 44	20777 - 82	BID 7 - 10	20167 - 70
BON 15 - 16	20797 - 8	BID 17 - 20	30177 - 80
BON 21 - 32	20803 - 14	BID 28 - 30	20188 - 90
BON 58 - 62	24619 - 23	BID 35 - 40	20195 - 200

In addition, four fractional claims, NOB 1 - 4 FR, Record Numbers 35356 - 9, were staked early in the project and are held by D. W. Milburn.

Notices to Group were filed for purposes of applying assessment work into three groups.

#### Location and Access

The claims are located on NTS Map Sheet 92L/12E, at approximate Latitude  $127^{\circ}35'$ , Longitude  $50^{\circ}37'$ . They are immediately north of Coal Harbour and south of Quatse Lake. Access is via the Port Hardy - Coal Harbour road, or by boat from Holberg Inlet.

#### WORK DONE

Previous workers, in particular MacDonald Consultants on behalf of a client, conducted a soil geochemical survey and mapped local geology at 1000-scale. They also drilled 3 diamond drill holes for a total of about 2000 feet.

The Quintana - Garnet work of this report consisted of geological mapping, with special emphasis on identifying facies of hydrothermal alteration, and geochemical sampling of rock outcrops. The programme was part of one encompassing surrounding ground also.

#### GEOLOGY

##### Rocks

Outcrop on the claims is far less than 1%, as shown on the geologic map (Drawing 2). The southern half of the area consists of Cretaceous sandstone, which is considered post-ore on Northern Vancouver Island. These rocks lie unconformably upon pre-ore rocks and dip gently to the south. Pre-ore rocks consist entirely of fragmental andesites and dacites of the Bonanza formation. Owing to the nature of these fragmental

volcanics no information is available on the exact structure, that is the strike and dip, of subunits on the MAR, BON, BID and NOB claims. Such structural information has to be interpolated from regional data, which suggest that subunits within the Bonanza strike northwest and dip moderately south. Again outcrop is too poor to allow identification of any fabric of significant faulting or fracturing. A major regional fault does, however, extend in a  $290^{\circ}$  direction along the south edge of the area.

#### Alteration

The Bonanza volcanics locally contain pyrite, kaolin, diaspora, sericite, chlorite, and laumontite as alteration products. Typically these are present on the scale of one outcrop that is 20 x 30 feet in area. They do not persist over large areas. In the most intense of these altered areas, pyrite reaches concentrations of 10%. Typical unaltered Bonanza volcanics contain 0.1 to 0.25% pyrite and minor traces, that is, 5% kaolin and laumontite in small irregular veinlets.

#### GEOCHEMISTRY

The general distributions of 212 rock samples, which were analyzed for Mo, Cu, Zn, Ag, Hg and F in the regional study, are shown in Drawings 9 - 14.

Molybdenum has a median of .58 ppm; one fat mode ranges from .4 to .9 ppm and contains nearly all the samples. Only one population was sampled and this curve is skewed to the left with a long tail to the right, up to 10 ppm or so. No threshold value is readily apparent, but 4 - 5 ppm might be considered threshold.

Copper has a median of 30 ppm. Four modes are present at 3, 40, 600 and 2500 ppm. The 40 ppm mode is the biggest and extends from 15 - 150 ppm. Threshold is apparently 200 ppm.

Zinc has a median of 65 ppm, and is a nearly symmetrical bimodal curve with peaks at 6.5 and 90 ppm. Clearly two populations were sampled. 150 ppm might be a meaningful threshold value.

Silver has a median at .85 ppm. One population was sampled. The curve is bumpy at less than .6 ppm, which might reflect analytical scatter. A long tail extends to the right from the curve. Threshold value is questionably 1.5 ppm.

Mercury has a median at 35 ppb, and modes at 30 and 70 ppb with long tails on both sides of the curve. A threshold value might be 100 or 120 ppb.

Fluorine has a median at 400 ppm and a rather steep curve with modes at 220, 550 and 2000 ppm. A threshold might be 900 ppm.

About 60 of the samples were taken on the MAR, BON, BID and NOB claims. Specific results are plotted in Drawings 3 - 8.

#### CONCLUSIONS

1. No intrusive rocks are present within the mapped area.
2. Rock alteration is weak and shows no coherent or zonal pattern; it is believed to be the product of deuteric processes, rather than significant hydrothermal processes.
3. There is no zonal pattern evident in the geochemical results for Mo, Cu, Zn, Ag, Hg and F. In fact, there is little correlation between the isolated anomalous values for one element and anomalous values for the others.
4. No specific target for additional work emerged from the foregoing studies.

Respectfully submitted,

  
Andrew E. Nevin, P. Eng.



PERSONNEL

<u>Name &amp; Address</u>	<u>Position</u>	<u>Dates</u>	<u>No. of Days</u>
Andrew E. Nevin 426 - 470 Granville St. Vancouver 2, B. C.	Geologist	Apr.17 - July 27/72	102
Cliff Banninger 2005 - 1160 Haro St. Vancouver 5, B. C.	Geologist	Apr.17 - July 27/72	102
D. Small 1215 - 2 Bentall Centre Vancouver 1, B. C.	Geological Technician	Apr.17 - May 30/72	44



AFFIDAVIT RE COST OF SURVEY

I, Andrew E. Nevin, P. Eng., of 426 - 470 Granville Street, Vancouver 2, B. C., do solemnly declare that the geological and geochemical survey of the MAR, BON, BID and NOB claims of Marshall Creek Copper Mines Ltd., Consolidated Altair Development Ltd. and D. W. Milburn, was conducted during the field season of 1972 and is described in this report. Work on the MAR, BON, BID and NOB claims was part of a larger project which included surrounding ground. Costs on the total project were:

Salaries and wages	\$ 10,542.91
Surveying	544.54
Consulting	7,444.85
Geochemical Analyses	3,920.00
Thin sections and assays	1,257.40
Air travel	1,700.25
Equipment	194.03
Vehicle rent, camp, motel cost	3,568.99
Maintenance and misc.	669.35
	<u>\$ 29,842.32</u>

Of this total \$8,400 is assignable to the MAR, BON, BID and NOB claims, \$4,200 for geological and \$4,200 for geochemical work.

I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act".

Declared before me at  
the City of Vancouver  
in the Province of  
British Columbia,  
this \_\_\_\_\_ day of  
October, A. D. 1972

\_\_\_\_\_  
Andrew E. Nevin

CERTIFICATE

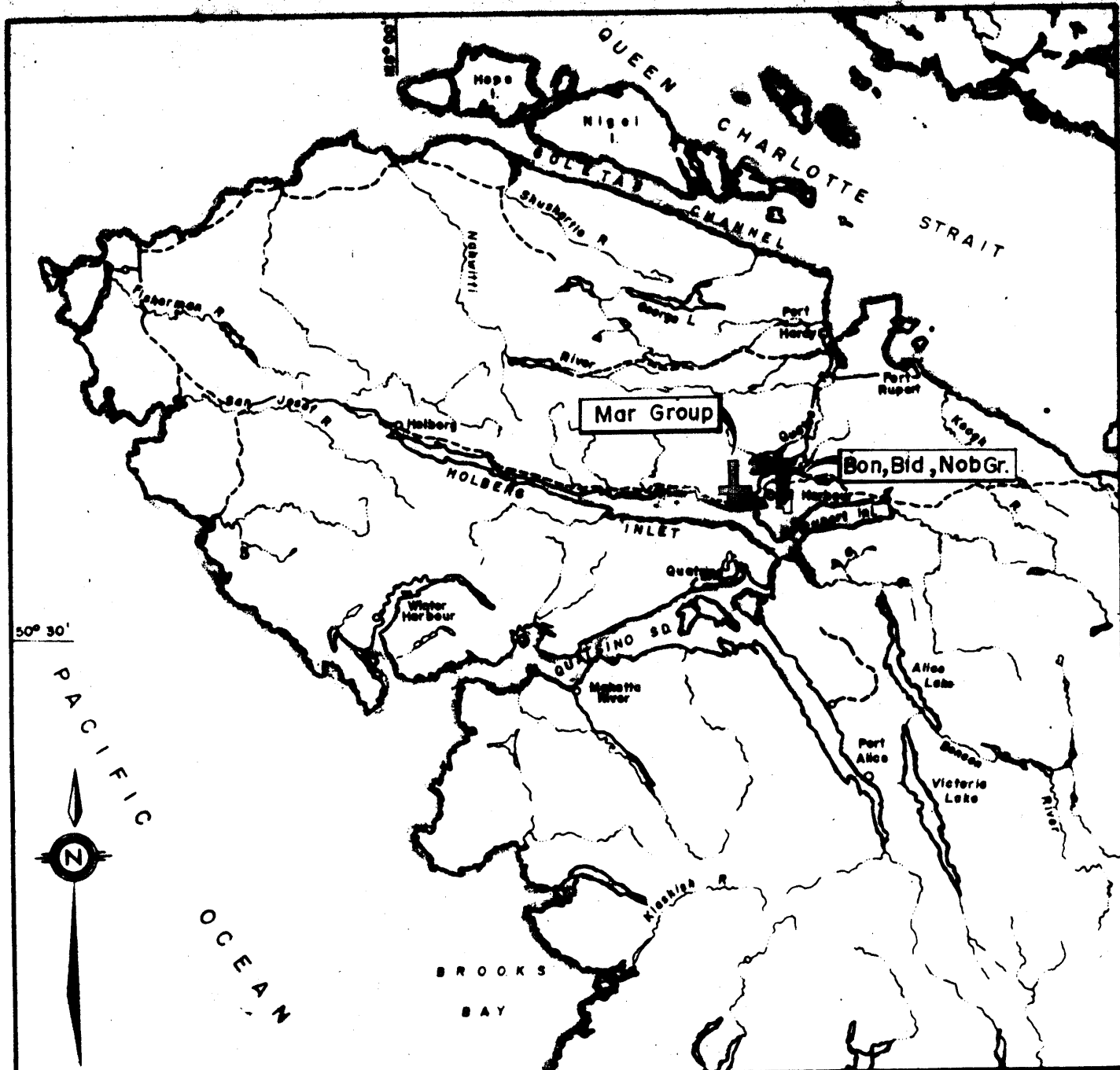
I, Andrew E. Nevin, hereby certify that:

1. My residence address is 962 Montroyal Blvd., North Vancouver, B. C., my office address is 426 - 470 Granville Street, Vancouver 2, B. C., and that I am a Geologist by occupation.
2. I hold a B. Sc. in Geophysics from St. Lawrence University, a M. A. in Geology from University of California, Berkeley, and a Ph. D. in Geology from University of Idaho. I have been practicing my profession since 1961 and I am a member of the Association of Professional Engineers (Geological) of the Province of British Columbia.
3. I personally supervised and conducted the work performed on the MAR, BON, BID and NOB claims during 1972, which is described herein.
4. I hold no direct or indirect interest in the claims described in this report nor in the securities of the companies holding the claims.

---

Andrew E. Nevin, Ph.D., P. Eng.

October 24, 1972



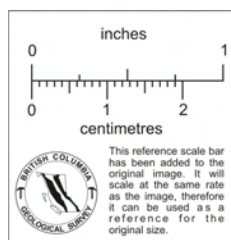
# BON, BID, NOB & MAR CLAIMS COAL HARBOUR—NANAIMO M. D.

## PROPERTY LOCATION MAP by

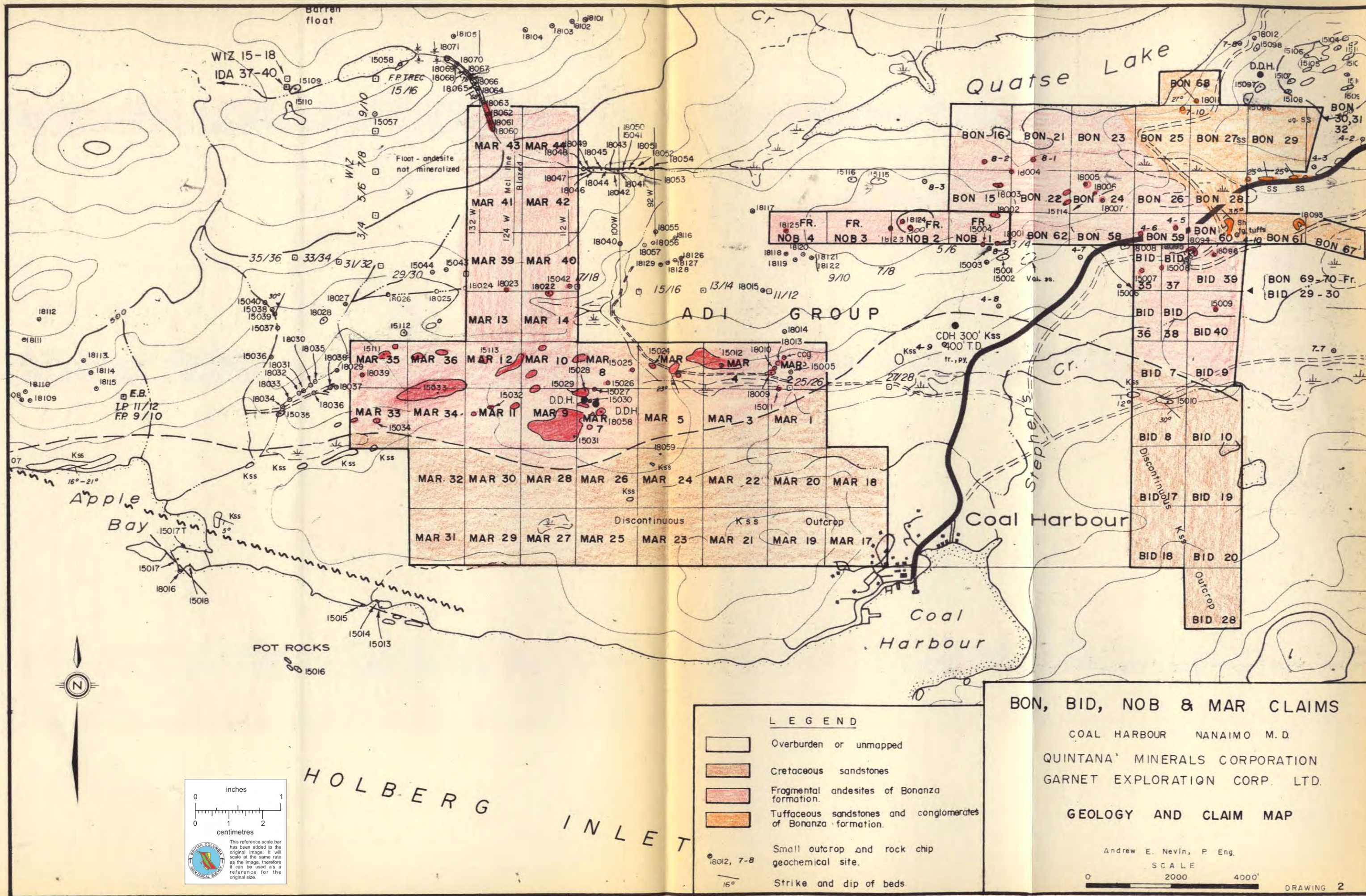
QUINTANA MINERALS CORPORATION  
GARNET EXPLORATION CORP. LTD.

Andrew E. Nevin, P. Eng.  
Scale 1:500,000

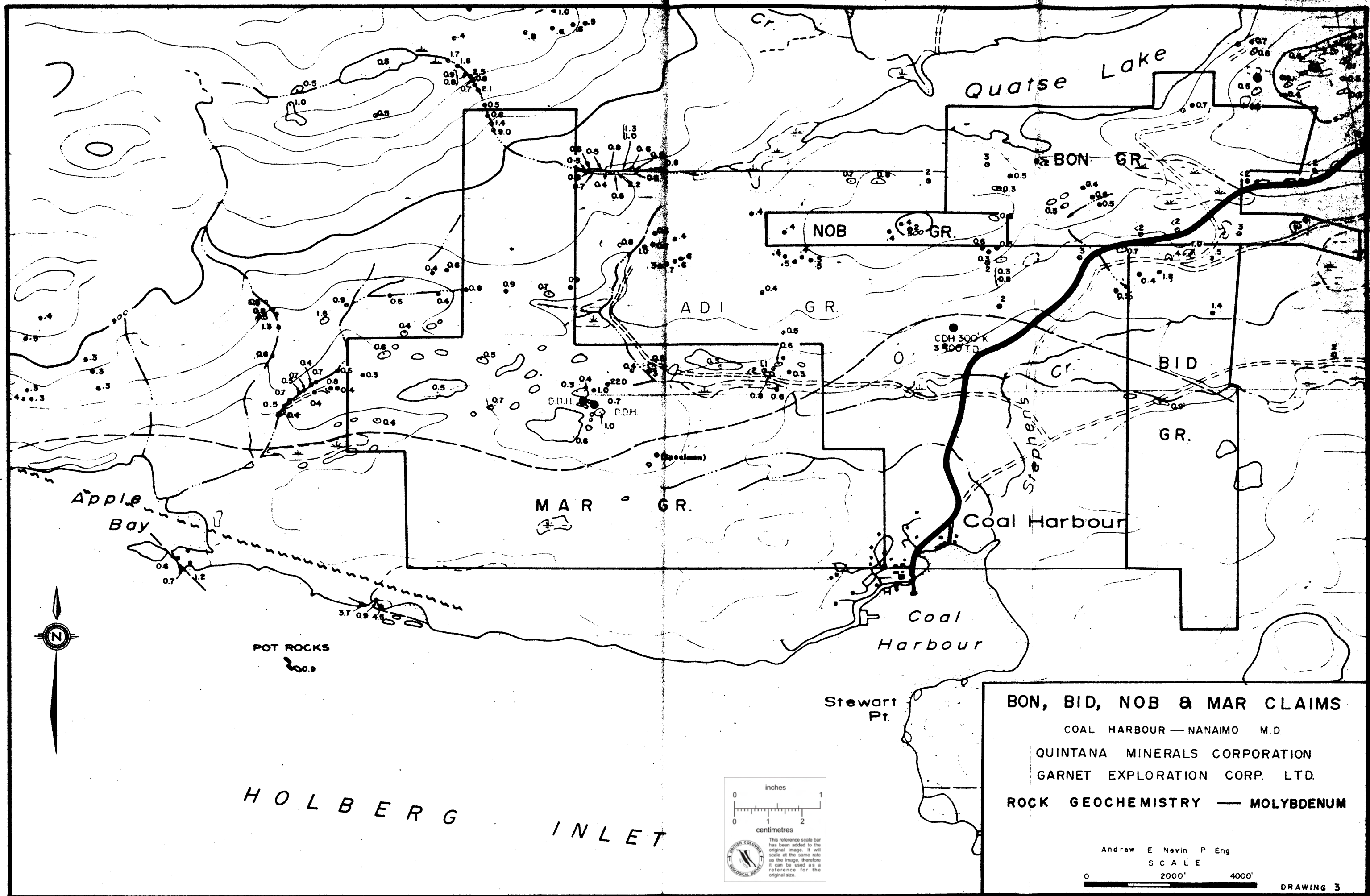
DRAWING 1











**BON, BID, NOB & MAR CLAIMS**

COAL HARBOUR — NANAIMO M.D.

QUINTANA MINERALS CORPORATION

GARNET EXPLORATION CORP. LTD.

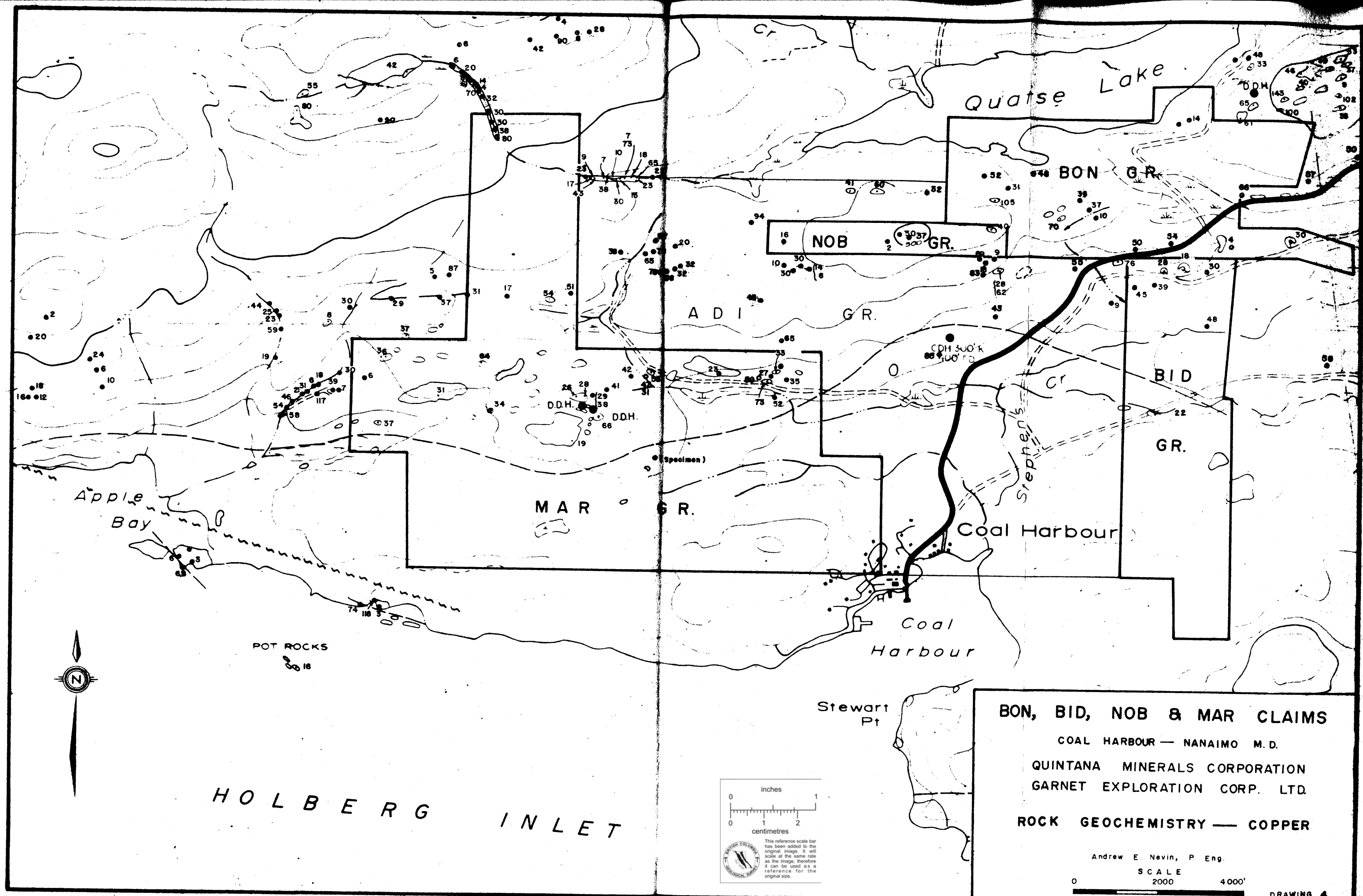
**ROCK GEOCHEMISTRY — MOLYBDENUM**

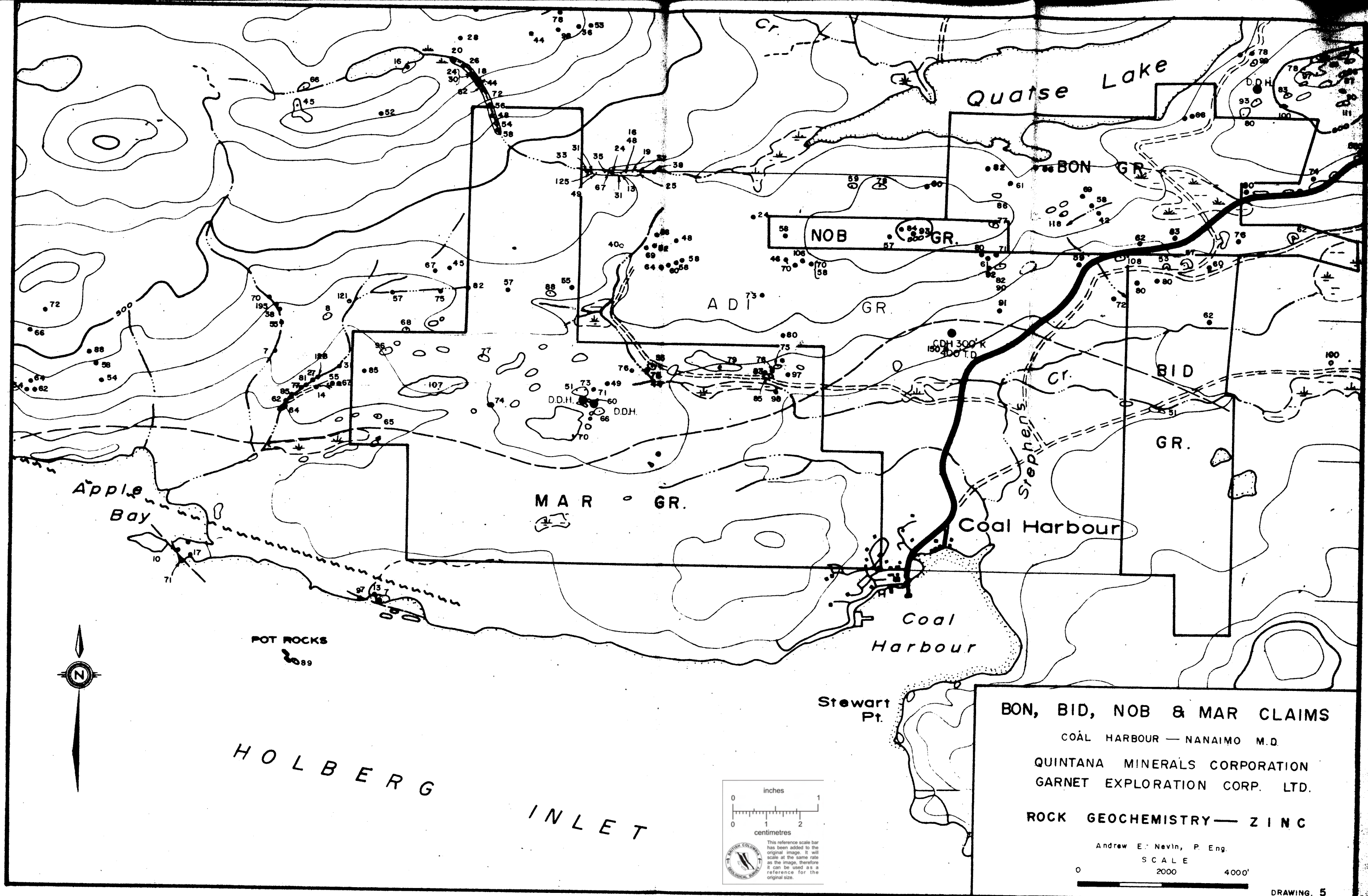
Andrew E. Navin P. Eng.

SCALE

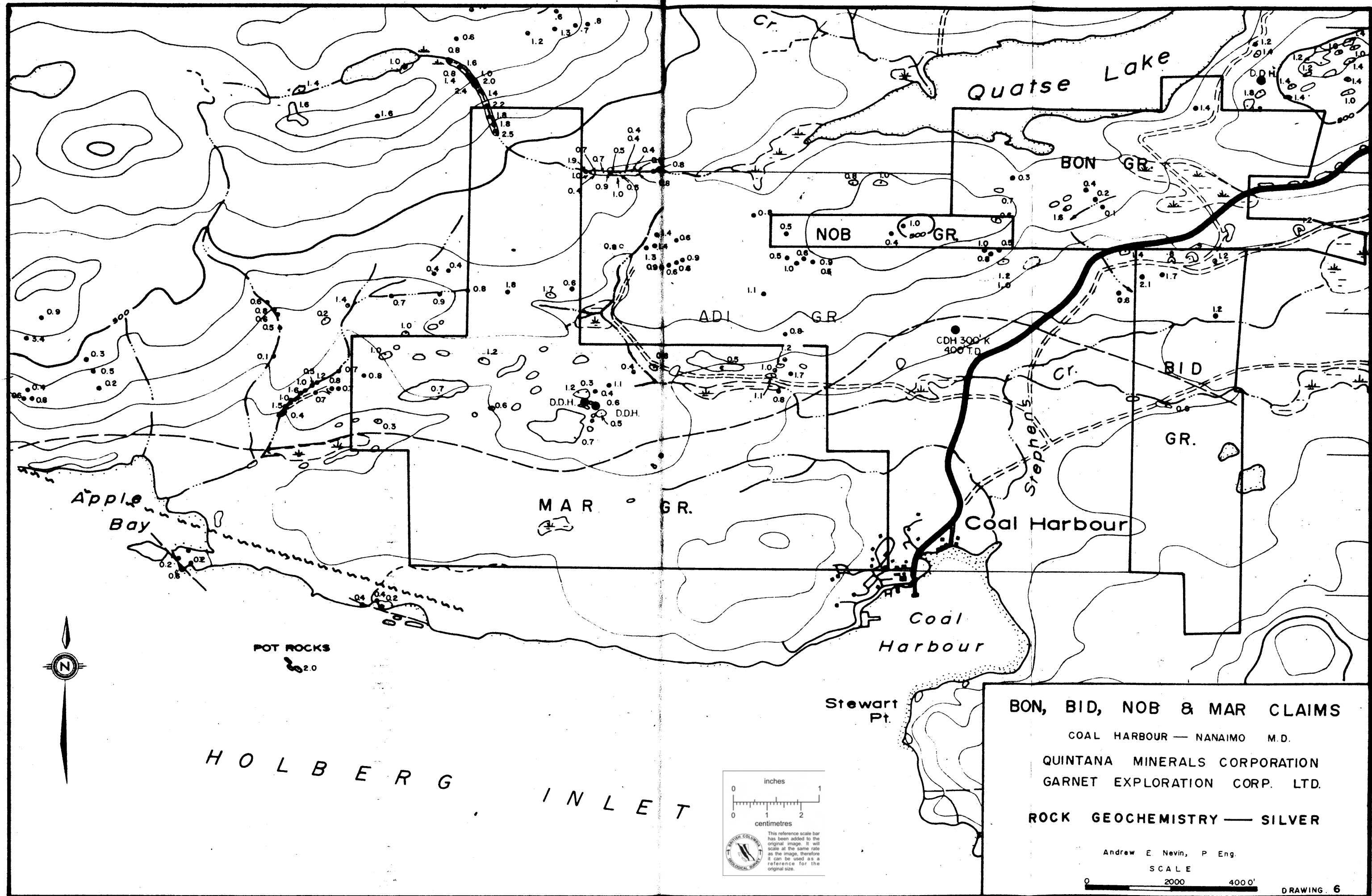
0 2000' 4000'

DRAWING 3

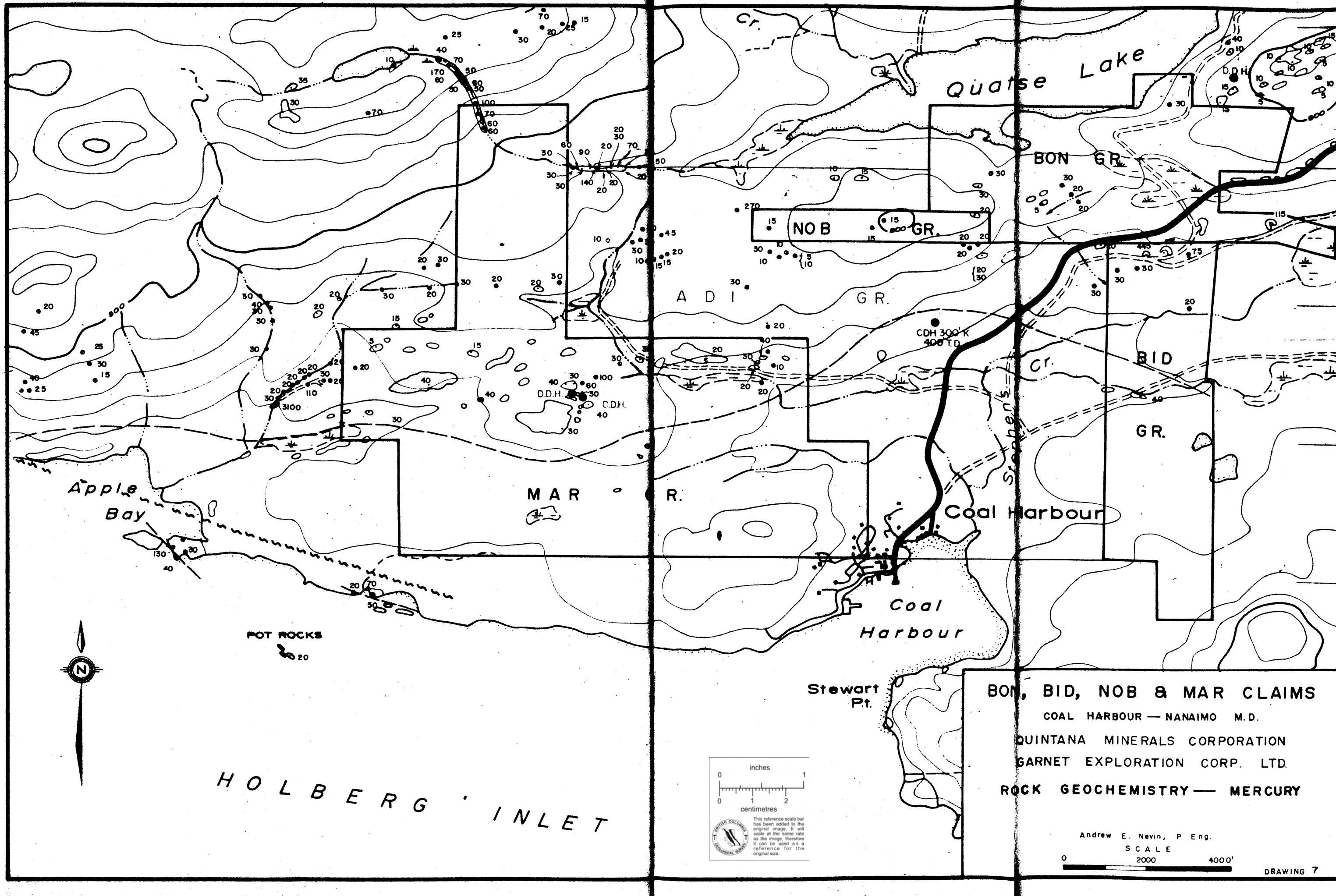


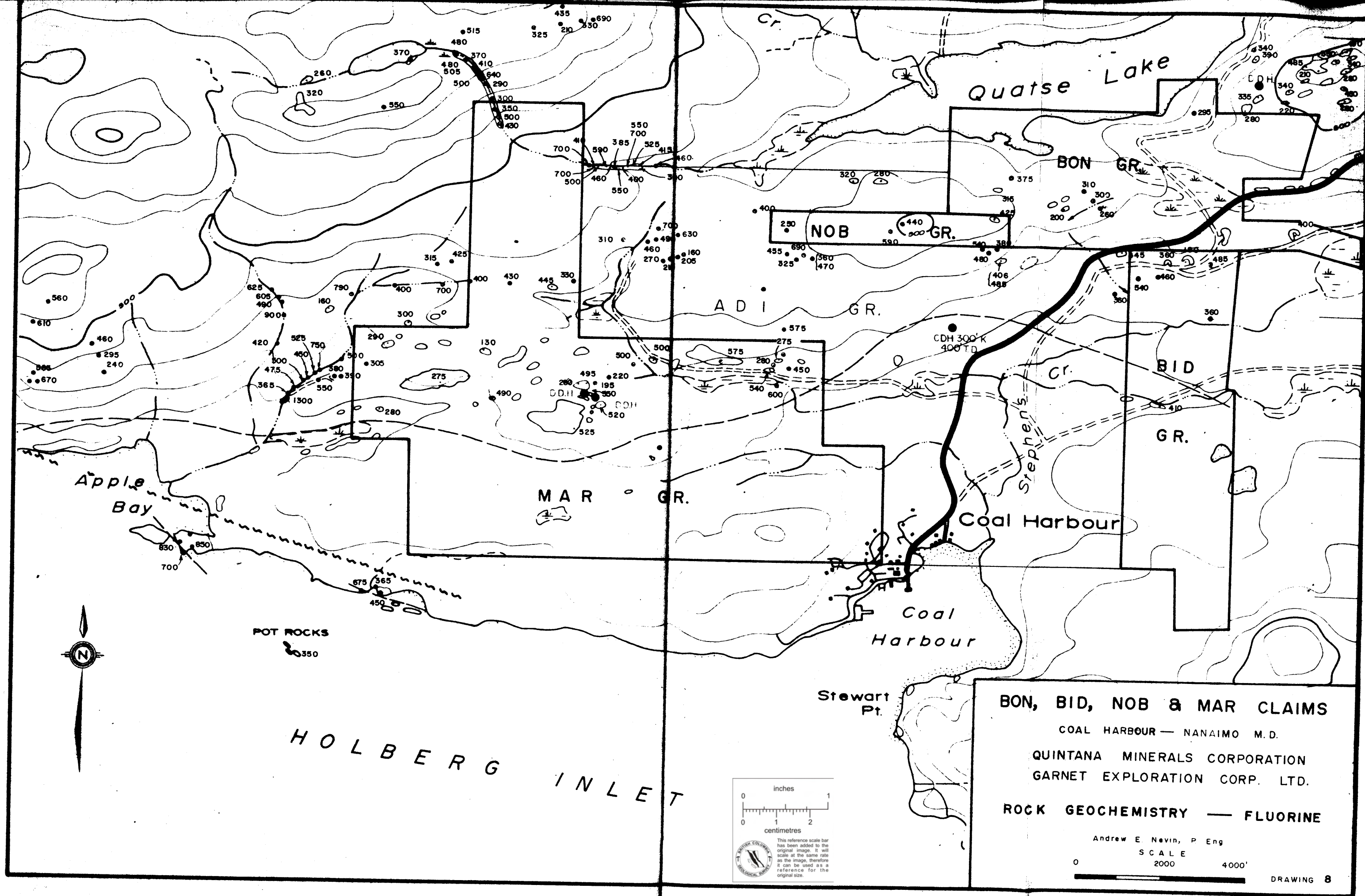












**BON, BID, NOB & MAR CLAIMS**

COAL HARBOUR — NANAIMO M.D.

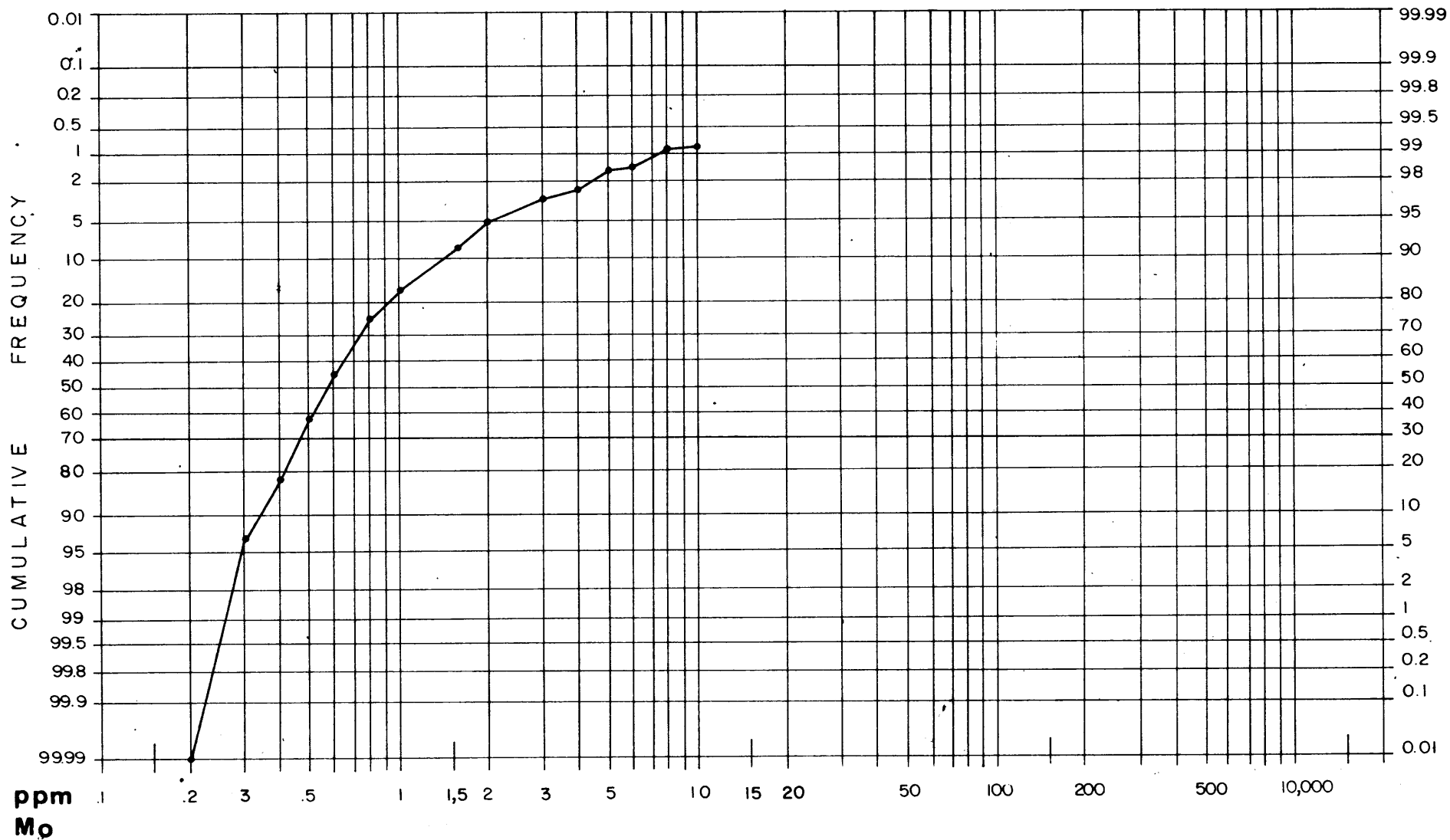
QUINTANA MINERALS CORPORATION  
GARNET EXPLORATION CORP. LTD.

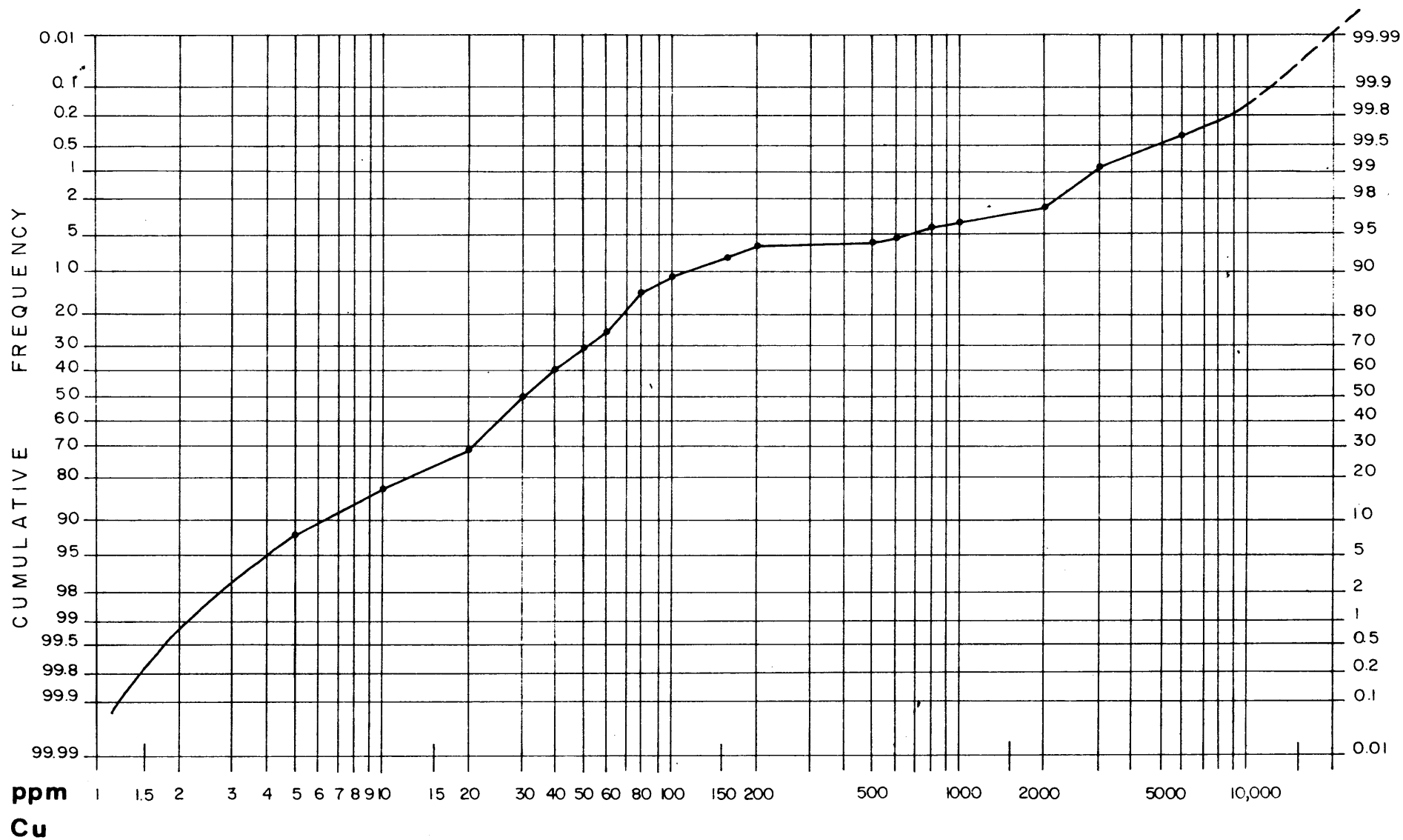
**ROCK GEOCHEMISTRY — FLUORINE**

Andrew E. Nevin, P. Eng

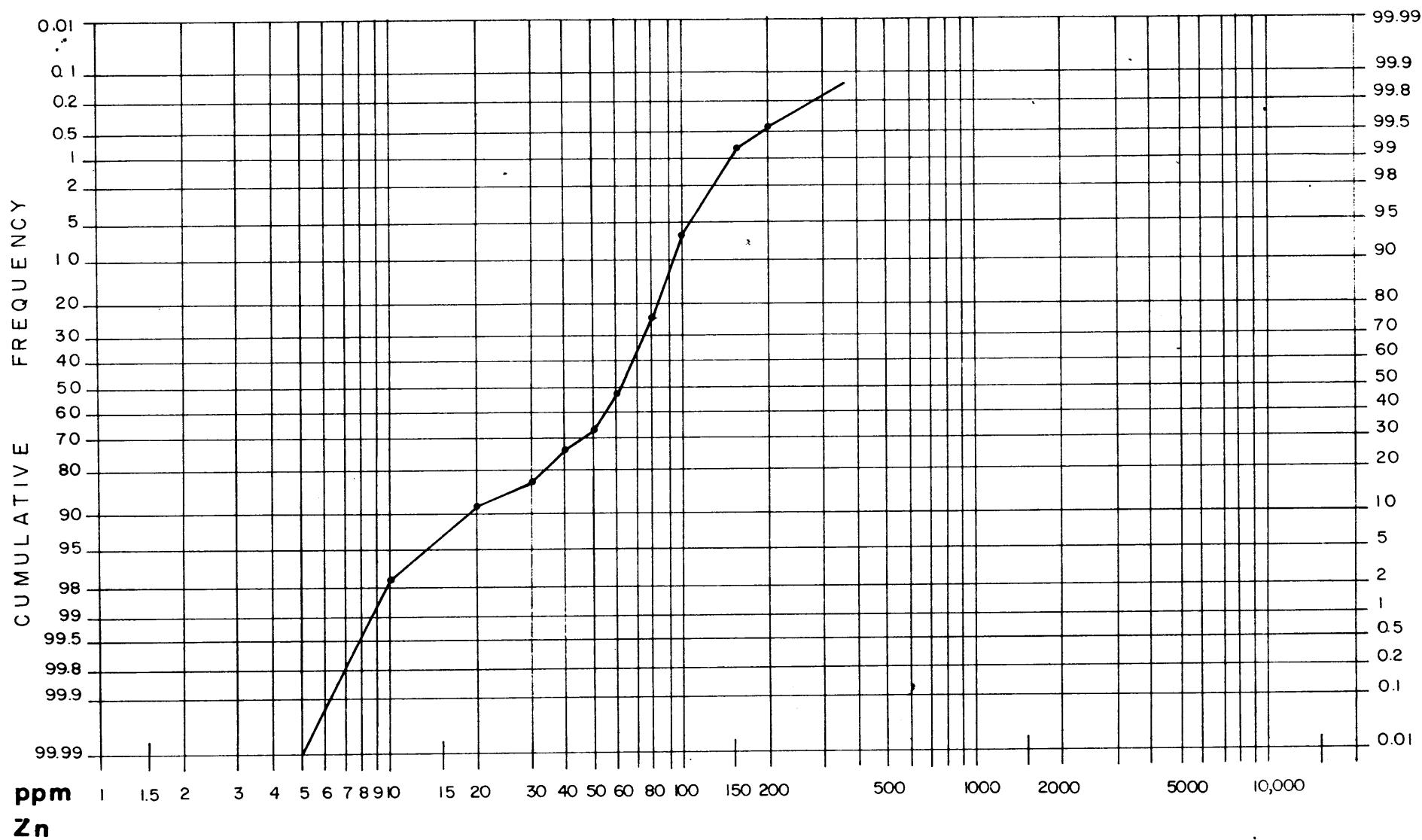
SCALE

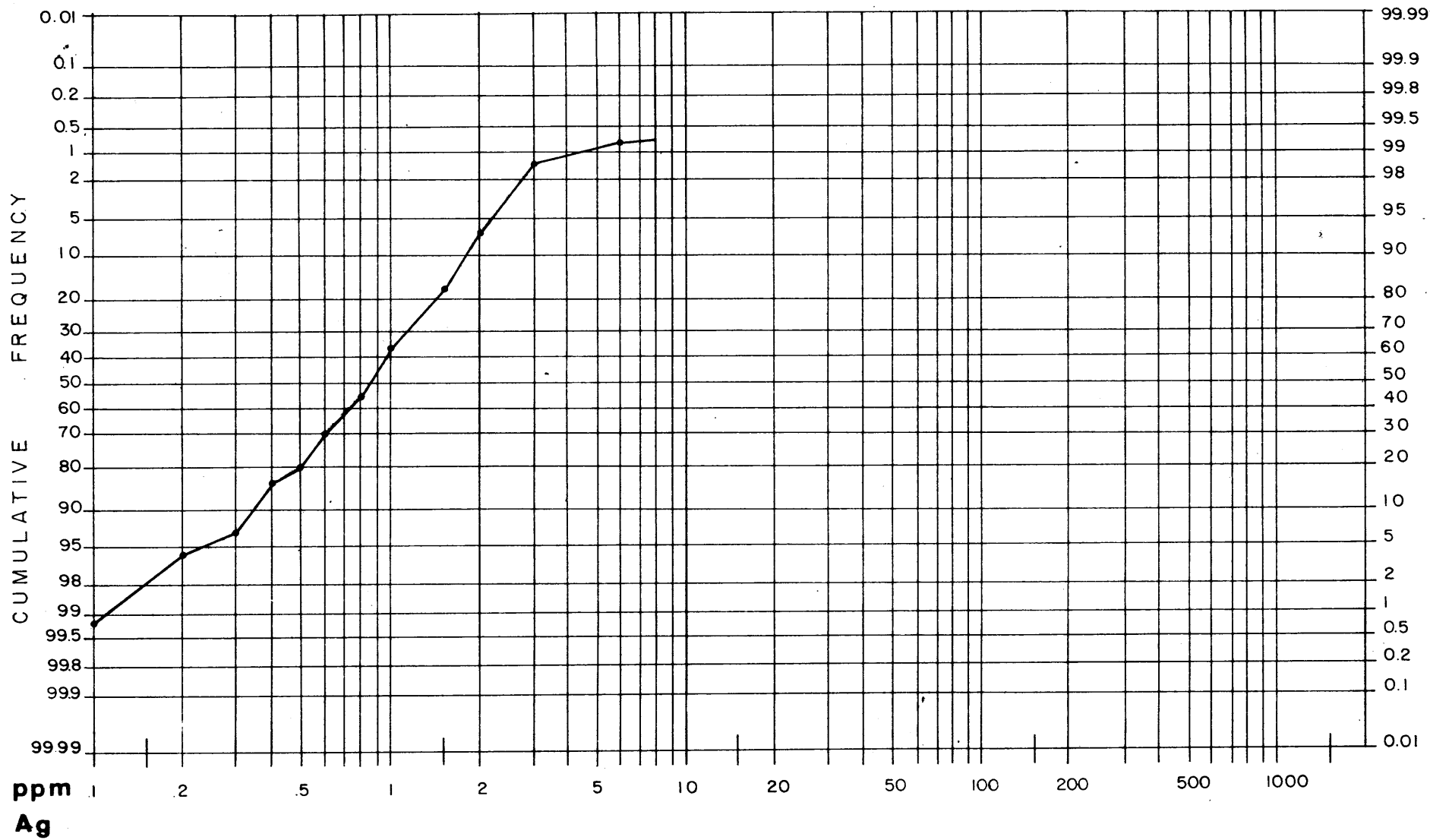
2000 4000'





DRAWING 10





DRAWING 12

