

GEOLOGICAL AND GEOCHEMICAL REPORT  
ON THE  
TO 1-49 MINERAL CLAIMS  
OF  
MINAS DE CERRO DORADO LTD (INPL)  
SUMMIT LAKE AREA,  
NORTHWEST TERRITORIES

060097

November 7, 1973  
Vancouver, B.C.

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Geologist.

*Received Ottawa  
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GEOLOGICAL AND GEOCHEMICAL SURVEY REPORT  
ON THE  
TO 1-49 MINERAL CLAIMS  
of  
MINAS DE CERRO DORADO LTD. (NPL)  
SUMMIT LAKE AREA, NORTHWEST TERRITORIES

INTRODUCTION

The TO group was staked in February, 1973 to cover potentially favourable formations following the announcement by Canex-Placer of the discovery of a major lead-zinc deposit in Howard Pass. The property lies in the Northwest Territories, five miles due east of the Canex-Placer deposit.

During the summer of 1973 a geochemical survey was conducted on the property, followed by geological mapping by Dr. A.M. de Quadros. All work was performed by personnel of Agilis Engineering Ltd., under the direct supervision of the writer.

LOCATION AND ACCESS

The TO group is 14 miles northeast of Summit Lake which is 158 miles north of Watson Lake, Yukon Territory. The property is five miles inside the Northwest Territories boundary at Howard Pass.

The property is located:-

62° 28' N; 129° 00' W

and is in the Nahanni Mining Division of the North West Territories.

Access to the property at the present time is by fixed-wing aircraft to Summit Lake from Watson Lake or Ross River, Y.T. From Summit Lake access is by helicopter.

#### PHYSIOGRAPHY AND CLIMATE

The topography of the TO group is generally steep, with rounded open ridges. Some central and northeasterly areas of the group are sub-precipitous but negotiable.

Generally, the property is centered on an east-west ridge with deeply incised creeks cutting into the northern and southern flanks.

Elevations on the property range from 4600 - 6500 feet a.s.l.

Most of the property is above the tree line and is covered by Caribou moss and grass. Low valleys are covered by dense stunted spruce and buckbrush.

#### PROPERTY

The TO mineral claim group consists of 49 claims located in the Nahanni Division of the North West Territories. The claims were located in February, 1973 by Acheron Mines Ltd (NPL) and Cream

Silver Mines Ltd (NPL) and were acquired by the Company in the early Spring of 1973.

The property is comprised of:

<u>Claim Name</u>	<u>Record Number</u>
TO 1-49	A66601-A66650

#### REGIONAL GEOLOGY

The regional geology in this area has been mapped by the Geological Survey of Canada and is covered by their Map 8-1967, Nahanni, 1 inch = 4 miles sheet.

In the claims area the basement is of Cambrian, vari-coloured slates and phyllites with minor siltstone and fine grained quartzite.

This sequence is overlain by Upper Cambrian and (?) Ordovician limestone, dolomitic siltstone, and silty dolomite with minor basal sandy dolomite and quartzite.

Unconformably overlying this sequence is Devonian and (?) Mississippian black shale and argillite, minor brown sandstone, siltstone and banded chert, and chert pebble conglomerate.

The unconformity at the base of the Devonian in some areas contains Upper Ordovician and Silurian black graptolitic shale, argillaceous limestone, and minor black chert, cherty argillite and dolomite.

Folding in the area is moderate to intense and is consistently northwesterly striking, with strong parallel cleavage.

### PROPERTY GEOLOGY

The majority of the exposures on the TO group appear to represent Upper Cambrian, Ordovician and Silurian sequences. The Devonian is positively identified across the centre of the property at the centre of a synclinal structure, where one large outcrop of chert pebble conglomerate, red and black shale, and sandstone, is centered overlying west-northwesterly striking grey argillaceous limestone, and grey to black siliceous shale which apparently outcrops only on the south limb.

This sequence is underlain by Upper Devonian and Silurian black siliceous graptolitic shale which is thicker on the south limb of the syncline than the north.

Upper Cambrian and (?) Ordovician black calcareous graptolitic shale (possibly Upper Ordovician), black calcareous shale, wavy banded and fragmental limestone, underlie the siliceous graptolitic shale, the fragmental limestone being either on a minor anticlinal fold or as a lens within the wavy banded limestone.

A large sandstone outcrop occurs close to the northeastern corner of the property, apparently interbedded in the Upper Cambrian black calcareous shale. The northeast corner of the property is underlain by unconformably overlain Cambrian mixed calcareous and siliceous, red and orange weathering, shale, and red and black siliceous shale.

The whole lithological sequence is synclinally folded around the Devonian core in a slightly overturned isoclinal fold whose axis is striking  $120^{\circ}$ , with the axial plane dipping about  $60^{\circ}$  southwest.

The fragmental limestone exposure is possibly on a minor anticlinal structure, if so apparently at the termination of a parallel cylindrical structure.

Cleavage is parallel to sub-parallel with the bedding and is moderate to intense, particularly intense in the brittle shale sequences.

No visible hand specimen lead or zinc mineralization was noted on the property during mapping. However, considerable pyrite was encountered in the calcareous shale as disseminations.

The graptolitic shale and calcareous shale units correlate to those in the Howard Pass in which Canex-Placer's deposit occurs.

#### GEOCHEMICAL SURVEY

A geochemical survey was conducted on a grid established on the property. The flagged grid consists of east-west lines 400 feet apart with sample stations every 200 feet along the lines.

#### Field Procedures:

Soil samples were taken using mattocks and were generally taken from 6 to 10 inches depth. In area of talus a soil fraction was extracted from rock fragments. In areas of outcrop a rock sample was collected. All samples were placed in grid referenced kraft paper soil sample bags provided by the laboratory.

#### Analysis:

All soil samples were shipped to Core Laboratories Ltd., 325 Howe Street, Vancouver, B.C. Analysis was conducted on a minus 80 mesh fraction of the sample which was digested in hot nitric acid for 2½ hours. Quantitative analysis for ppm lead and zinc content was performed by atomic absorption methods on a Jarell Ash 800 machine.

All rock samples were shipped to Agilis Engineering Ltd base camp at Summit Lake, Y.T. where a laboratory was set up equipped with a crusher and an X-ray refraction machine. All samples

were crushed and a minus 80 mesh fraction was taken for XRF analysis. Two readings for each element, lead and zinc, were taken from each sample. Analysis was conducted on an Echo Portable Mineral Analyser M8524.

Results:

A total of 1,184 soil samples were submitted for analysis of ppm lead and zinc content.

Results were plotted for statistical analysis as cumulative percent frequency on arithmetic probability paper and the following values were obtained:

	<u>Range ppm</u>	<u>Background ppm</u>	<u>Anomalous ppm</u>
Pb	0 - 250	28	47
Zn	0 - greater than 8,000	180	580

The results correlate well with the regional geochemical expression found during work in the Howard Pass area in the summer of 1973, although the anomalous zinc value is somewhat higher than usual.

A total of 199 rock samples were taken from the reconnaissance grid. These samples yielded 53 lead values above reliable detectable limit (0.10% on at least one reading), the highest value being 0.31 - 0.32% Pb at Station 26N, 30W. Zinc results yielded 3 readable samples, all over 0.20%, the highest value being 0.47 - 0.50% at Station 48S, 10W.

Interpretation:

Generally speaking, geochemical expression in the Cambrian and Earlier and the Devonian areas of the property are markedly low.

Two anomalous areas have developed on the property toward the west side. The most prominent of these lies in the southwest corner of the claim area. The zinc anomaly is generally, but sporadically, distributed over an area about 2,500 feet in diameter. The area of the anomaly is underlain by graptolitic siliceous and calcareous shale. This anomaly is supported by a smaller but more fully defined lead anomaly across its northwesterly half.

The second anomaly lies in the northwesterly sector of the property. The zinc high in this area is about 1,200 feet long in a north south line and 400 to 600 feet wide. The anomaly is unsupported by a lead anomaly, but has a lead anomaly flanking it to the south. The zinc anomaly is underlain by Upper Cambrian wavy banded limestone and fragmental limestone.

Structural relationships between the geochemical anomalies and the geology are difficult to determine without more detailed sampling, due to the spotty nature of the anomalies and the poor soil development on the steep slopes on the property. The highest zinc rock sample comes from within the southern anomaly.

#### CONCLUSIONS

Two soil sample anomalies have been located on the TO mineral claim group of Minas de Cerro Dorado Ltd (NPL) in the North West Territories Howard Pass area.

A roughly coincident lead and zinc anomaly has been located on the southeast sector of the property in an area of graptolitic shale directly correlatable to strata containing the Canex-Placer lead-zinc deposit in Howard Pass, five miles east of the property.

The second anomaly is smaller and consists of adjacent lead and zinc anomalies in wavy banded limestone and fragmental limestone in a sequence stratigraphically immediately adjacent to and below those containing the Howard Pass deposit.

Little of immediate interest has been discovered on the remainder of the property.

The area between the two anomalies is underlain at some depth by mineralogically and stratigraphically favourable sequences expressed by the anomalies.

#### RECOMMENDATIONS

Both of the anomalous areas located should be more thoroughly investigated by carefully controlled geochemical soil and rock sampling.

Detailed structural mapping should be performed on and between the anomalies in order to determine the depth and potential of favourable horizons where they are concealed in the centre of the synclinal structure.

As roads are developed to Howard Pass, the area should be trenched by bulldozer in order to gather more structural data and assay samples. The present winter tote-road from Cantung could be used to bring in a bulldozer.

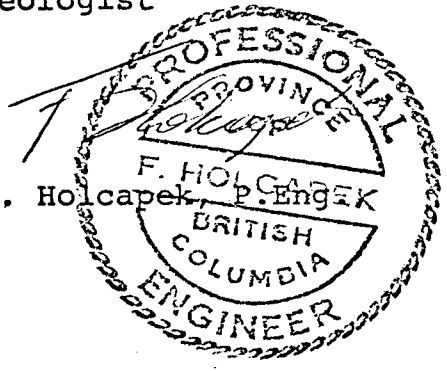
Contingent upon the results from this work, consideration should be given to diamond drilling of the favourable structure preferably with NQ wireline equipment.

Respectfully submitted,

D. P. Taylor, M.Sc., D.I.C.  
Geologist

Endorsed by:

F. Holcapek, P. Eng



Vancouver, B.C.  
October 29, 1973

## CERTIFICATION

I, David Pelham Taylor, of Vancouver, British Columbia, do hereby certify that:

1. I am an exploration geologist, residing at 2097 West 6th Avenue, Vancouver, British Columbia.
2. I am a graduate of the Royal School of Mines, London University (M.Sc., D.I.C. 1971).
3. I have practised as an exploration geologist in British Columbia for five years.
4. I am registered as an Engineer-in-Training with The Association of Professional Engineers of the Province of British Columbia.
5. The work subject of this report was conducted by myself and a crew under my supervision.

D.P. Taylor, M.Sc., D.I.C.

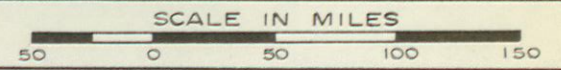
Vancouver, B.C.  
November 7, 1973

**YUKON TERRITORY  
AND PART OF THE  
NORTHWEST TERRITORIES**

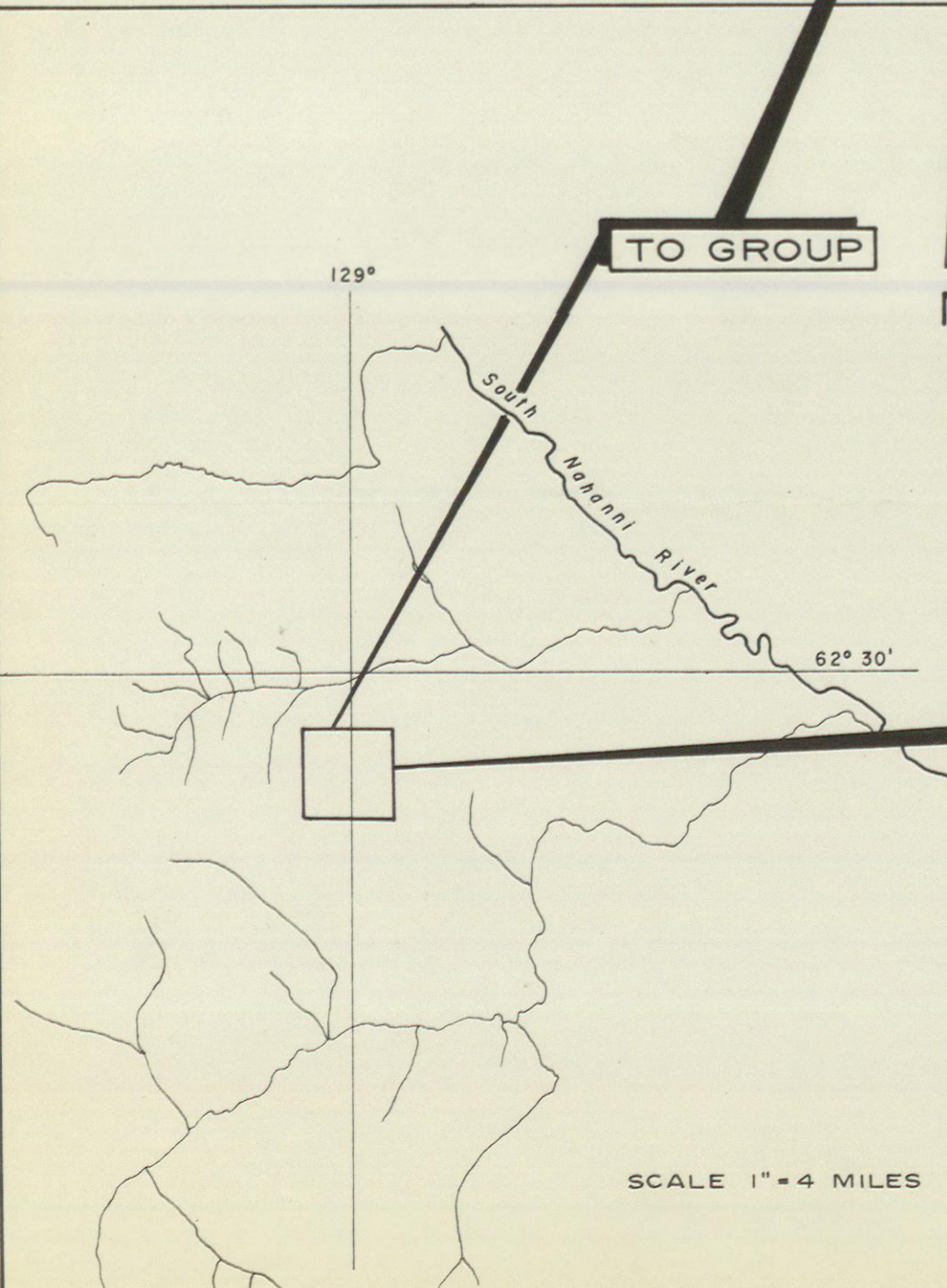
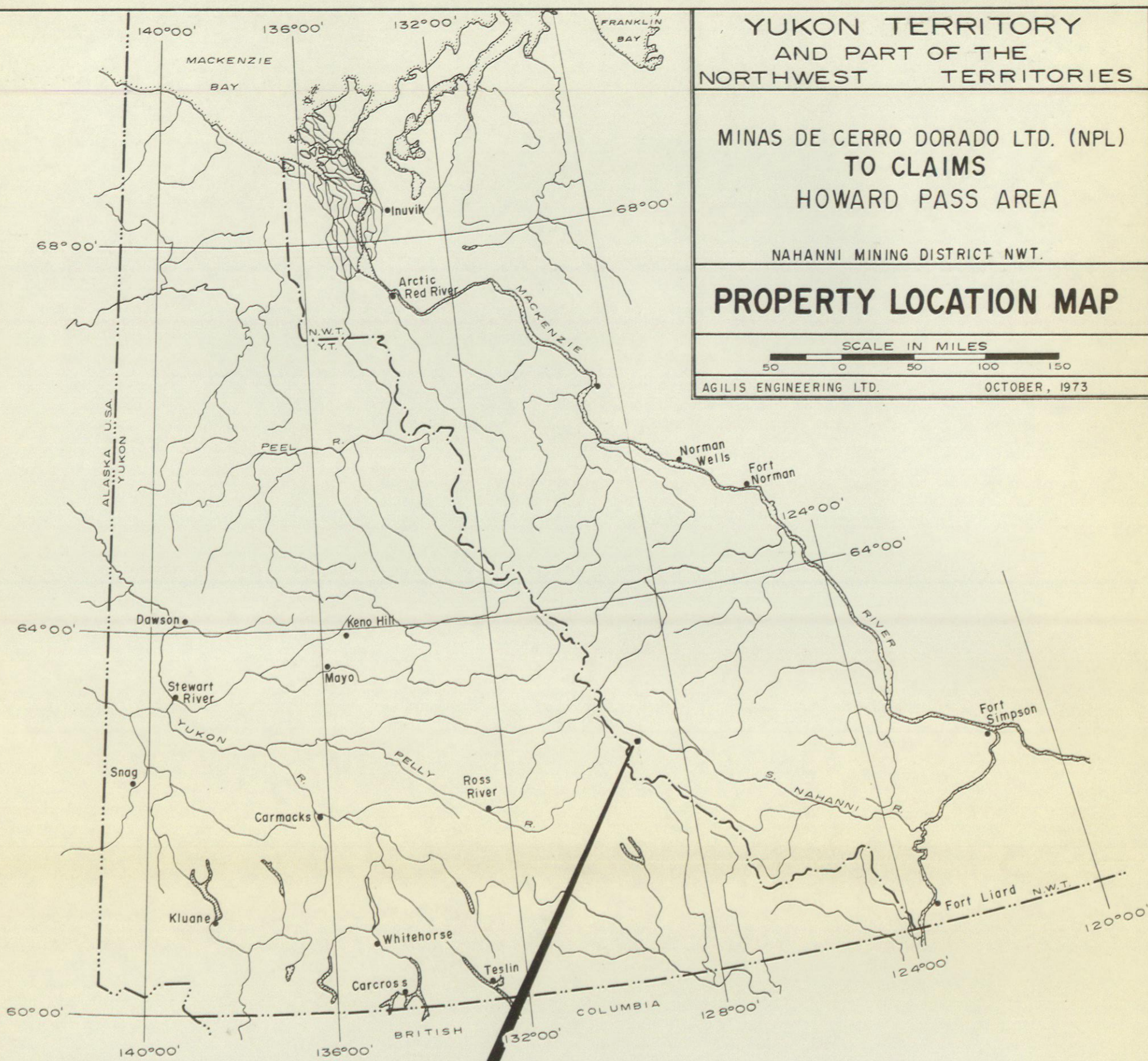
**MINAS DE CERRO DORADO LTD. (NPL)  
TO CLAIMS  
HOWARD PASS AREA**

NAHANNI MINING DISTRICT N.W.T.

**PROPERTY LOCATION MAP**



AGILIS ENGINEERING LTD. OCTOBER, 1973

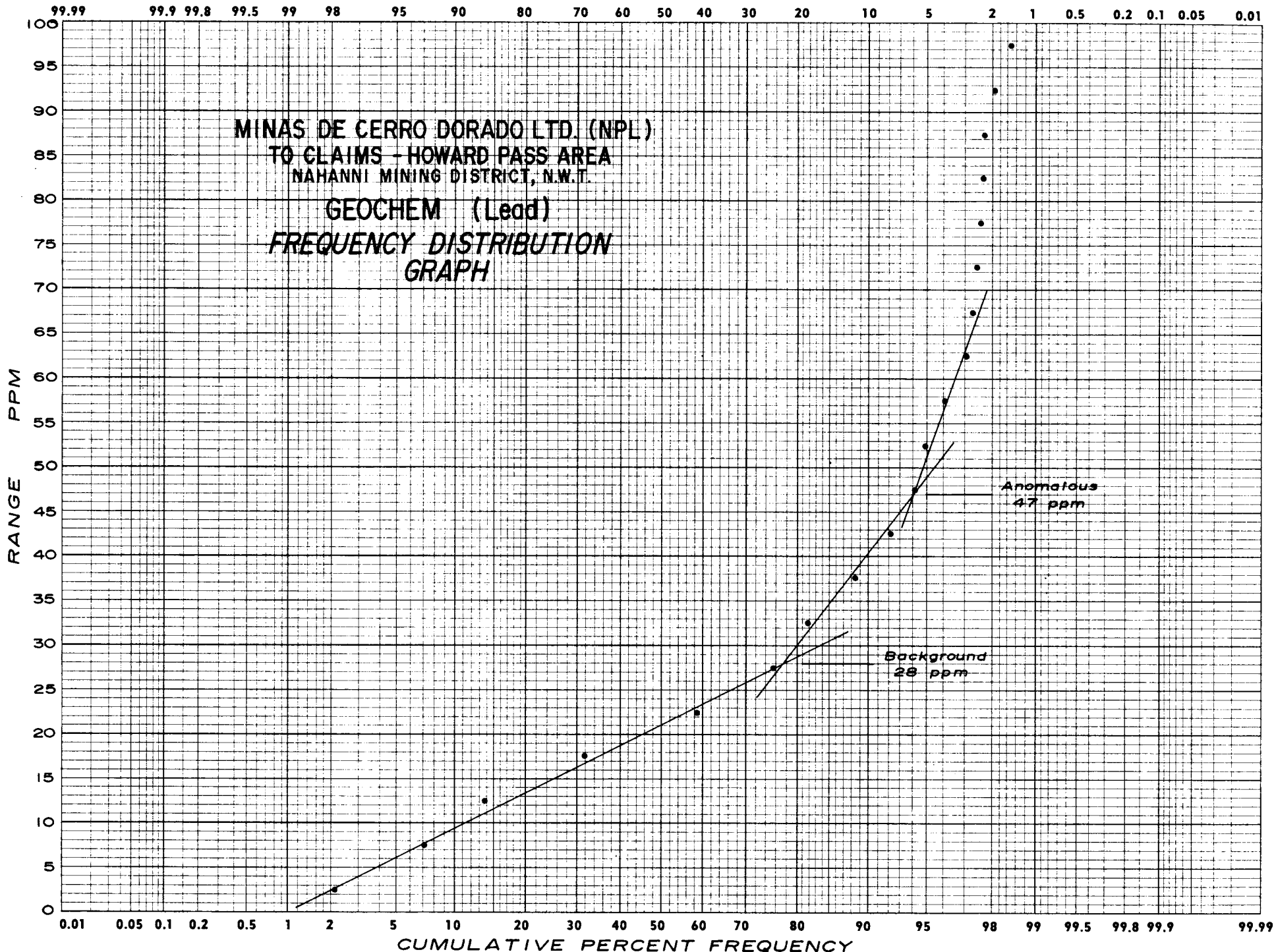


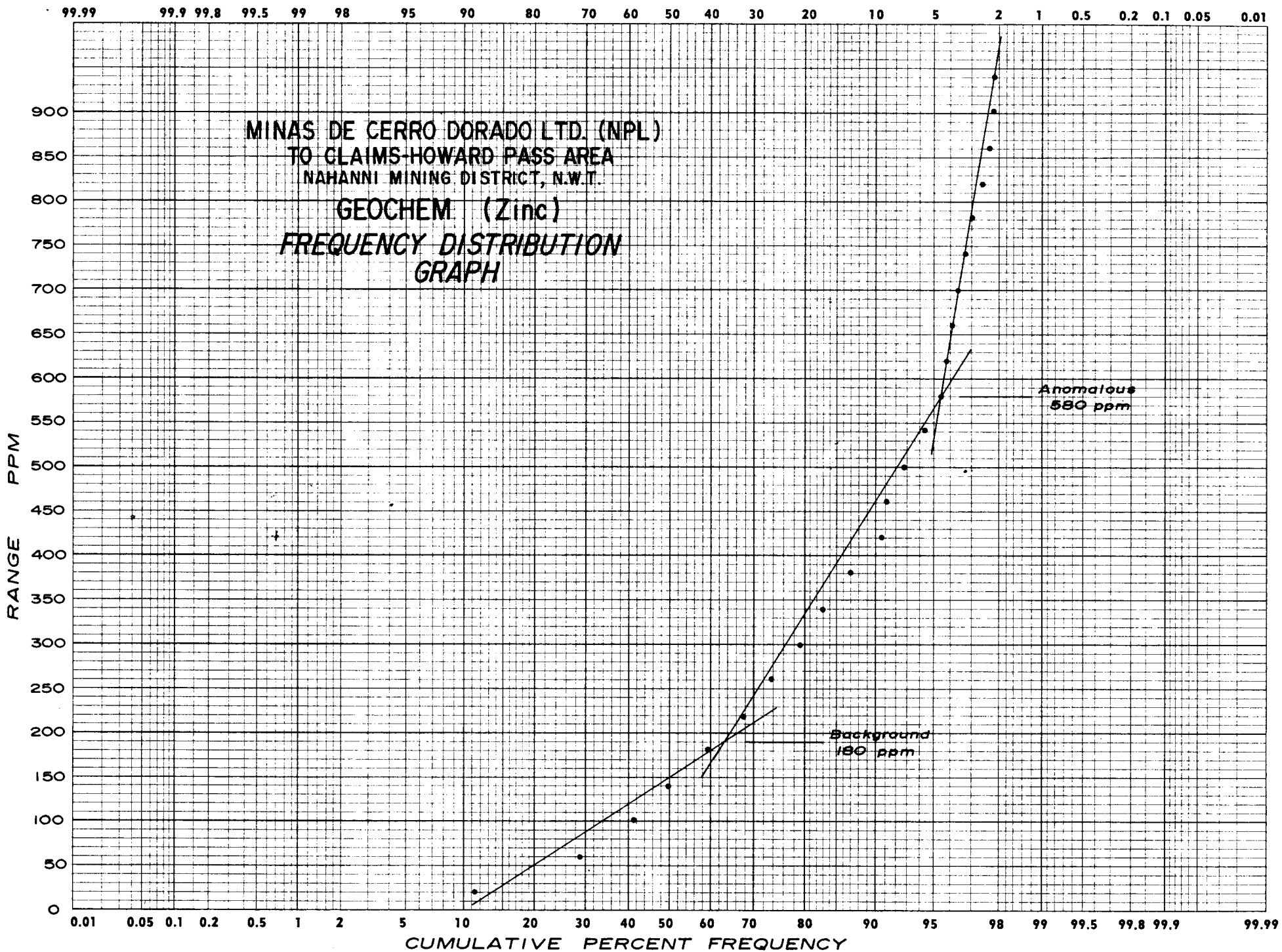
**TO GROUP**

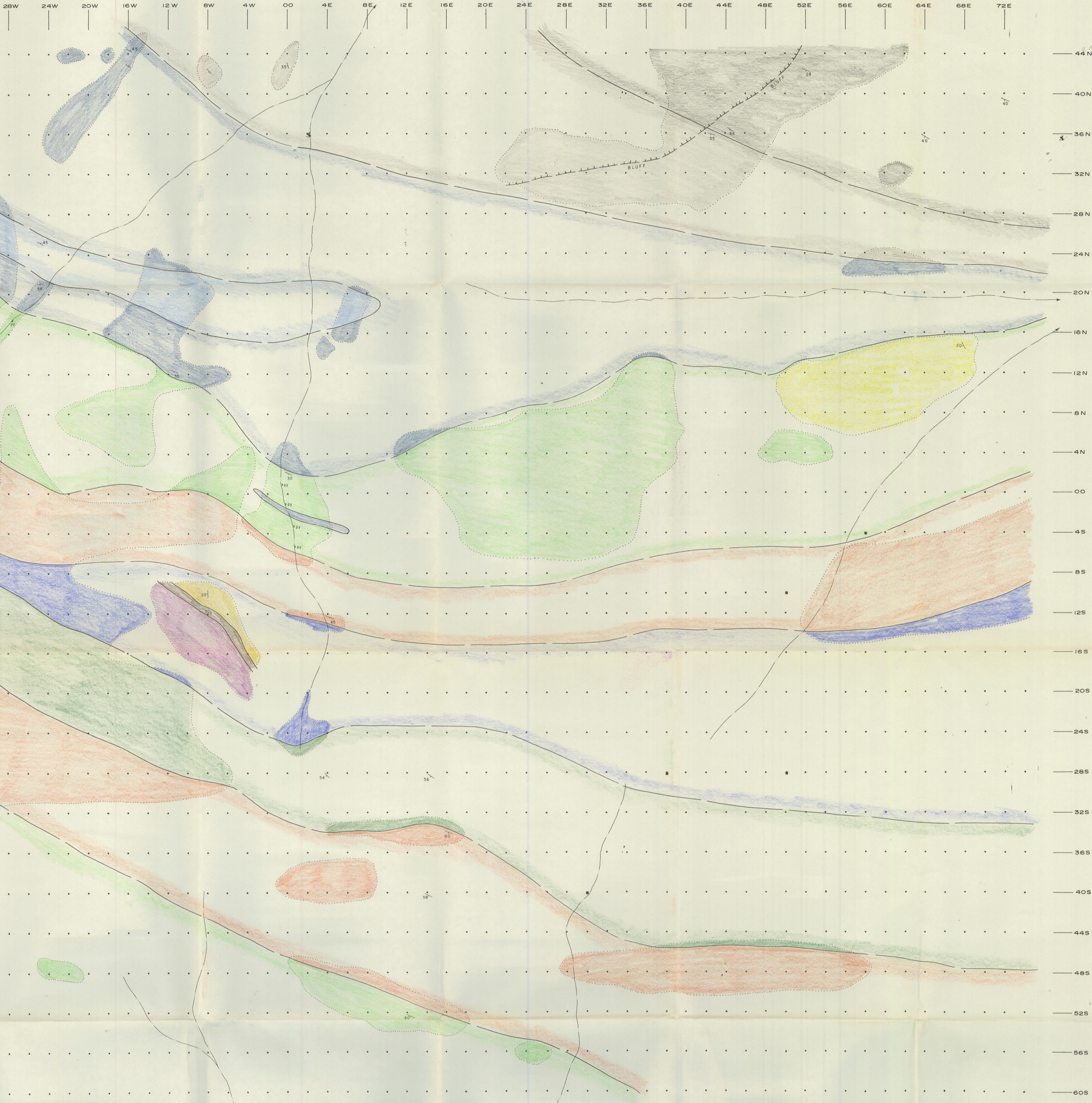
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6	13	20	27	34	41	48
5	12	19	26	33	40	47
4	11	18	25	32	39	46
3	10	17	24	31	38	45
2	9	16	23	30	37	44
1	8	15	22	29	36	43

SCALE 1" = 4 MILES

SCALE 1" = 4000 FEET







LEGEND:

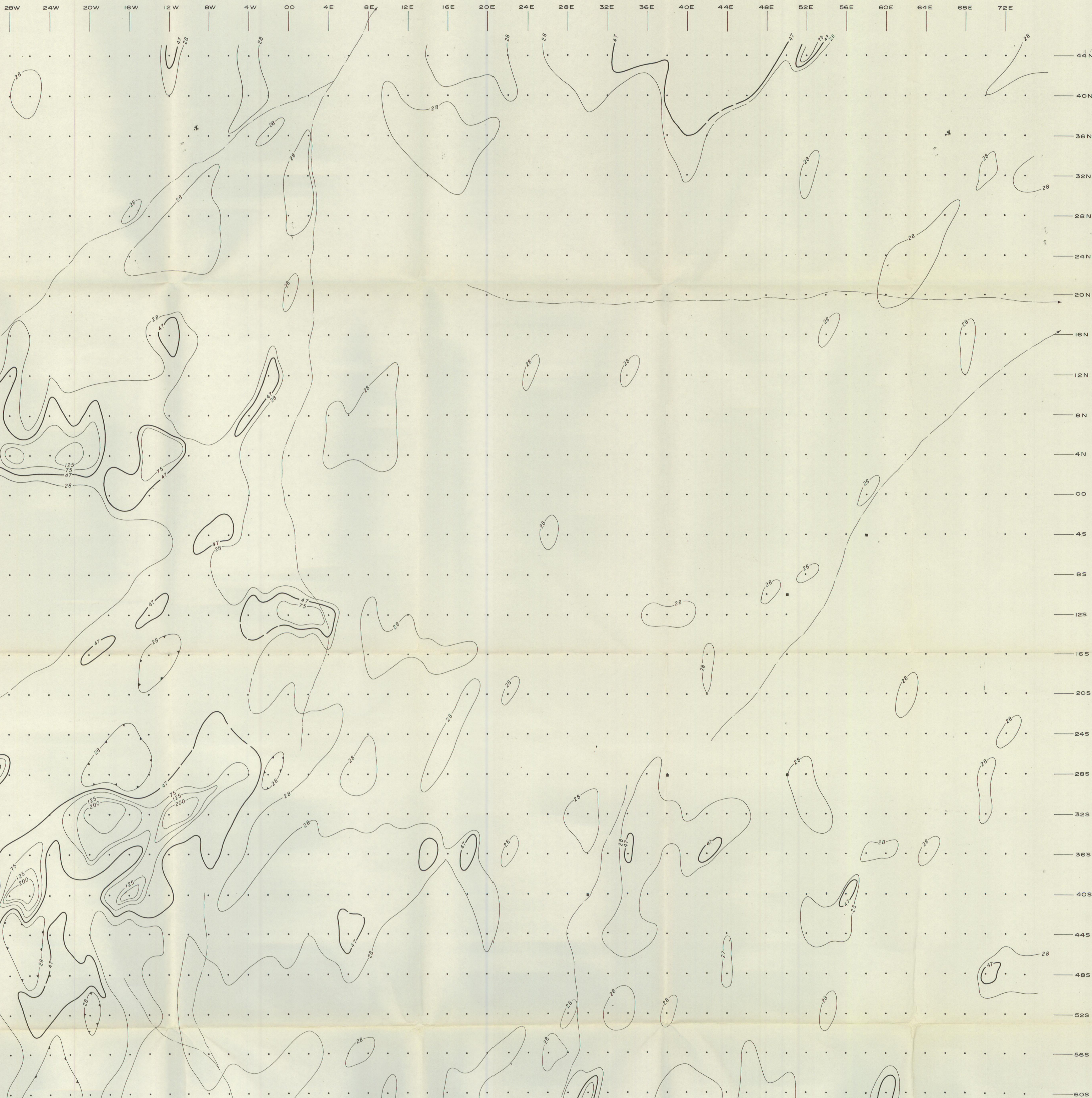
- |   |   |
|---|---|
| <b>DEVONIAN &amp; (?) MISSISSIPPIAN</b> | <b>UPPER CAMBIAN &amp; (?) ORDOVICIAN</b> |
| Chert conglomerate                      | Unconformity                              |
| Red to black fissile shales             | Wavy banded limestone                     |
| Sandstone                               | Fragmental limestone                      |
| Unconformity                            | Sandstone                                 |
| Grey to black siliceous shale           | <b>CAMBIAN &amp; EARLIER</b>              |
| Argillaceous limestone                  | Mixed calcareous & siliceous shale        |
|   | Red & black siliceous shale               |
| <b>UPPER ORDOVICIAN &amp; SILURIAN</b>  | Outcrop                                   |
| Graptolitic siliceous shale             | Contact definite, inferred                |
| Graptolitic calcareous shale            | Strike & dip                              |
|   | Pyrite                                    |

MINAS DE CERRO DORODO LTD. (NPL)  
TO CLAIM GROUP  
NAHANNI MINING DISTRICT N.W.T.

**GEOLOGY MAP**

SCALE IN FEET  
0 400 800 1200

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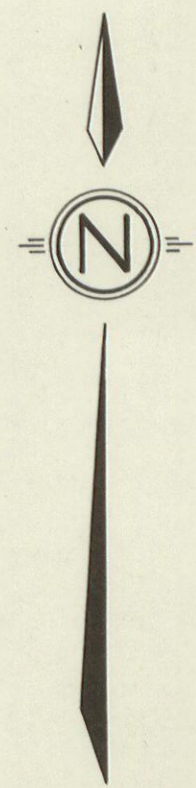


MINAS DE CERRO DORODO  
LTD. (NPL)  
TO CLAIM GROUP  
NAHANNI MINING DISTRICT N.W.T.

**GEOCHEMICAL  
SURVEY**  
LEAD  
Contours at: 28, 47, 75, 125 & 200 ppm.

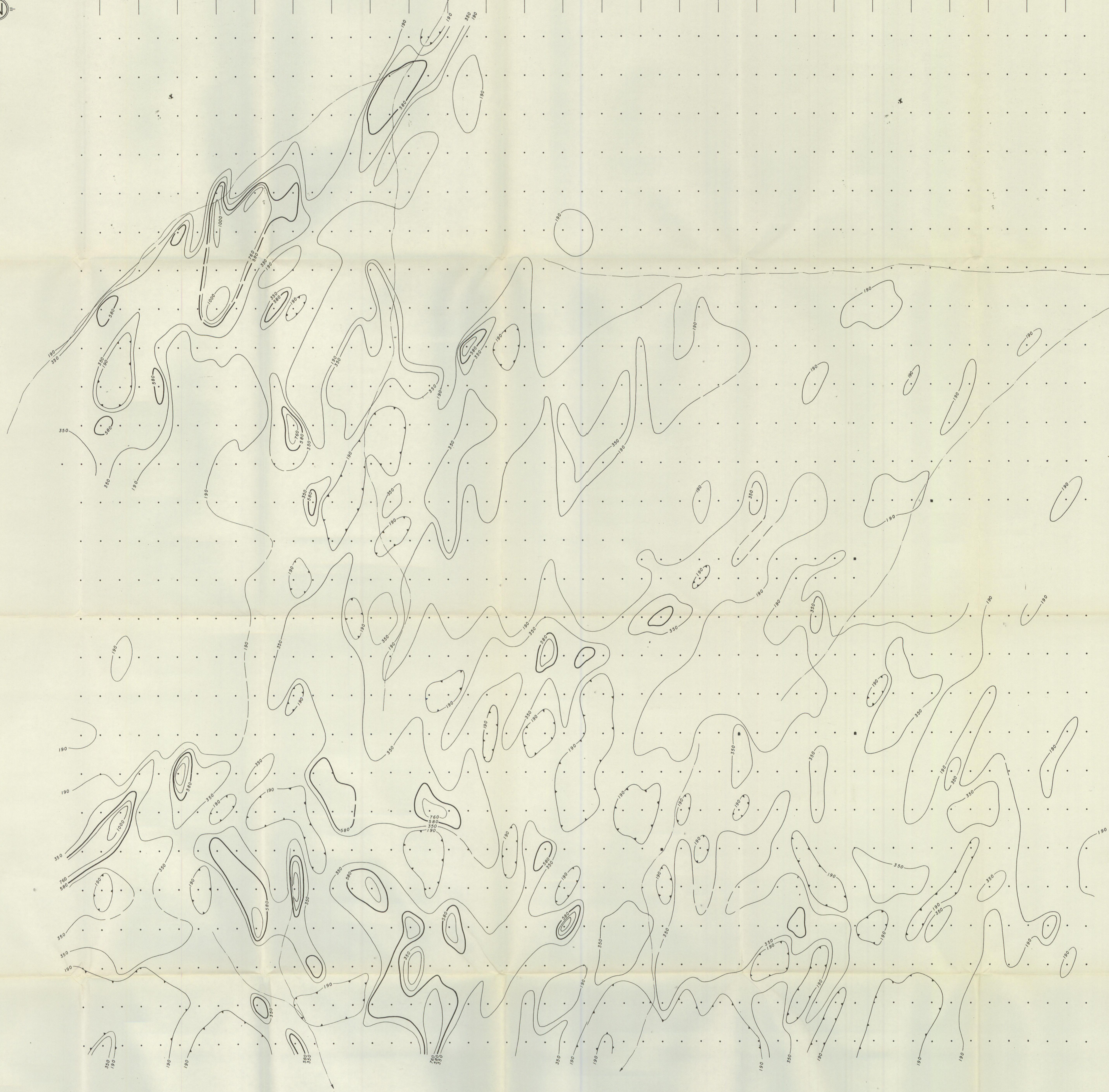
SCALE IN FEET  
0 400 800 1200

AGILIS ENGINEERING LTD. OCTOBER, 1973



26W 24W 20W 16W 12W 8W 4W 00 4E 8E 12E 16E 20E 24E 28E 32E 36E 40E 44E 48E 52E 56E 60E 64E 68E 72E

44N  
40N  
36N  
32N  
28N  
24N  
20N  
16N  
12N  
8N  
4N  
00  
4S  
8S  
12S  
16S  
20S  
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44S  
48S  
52S  
56S  
60S



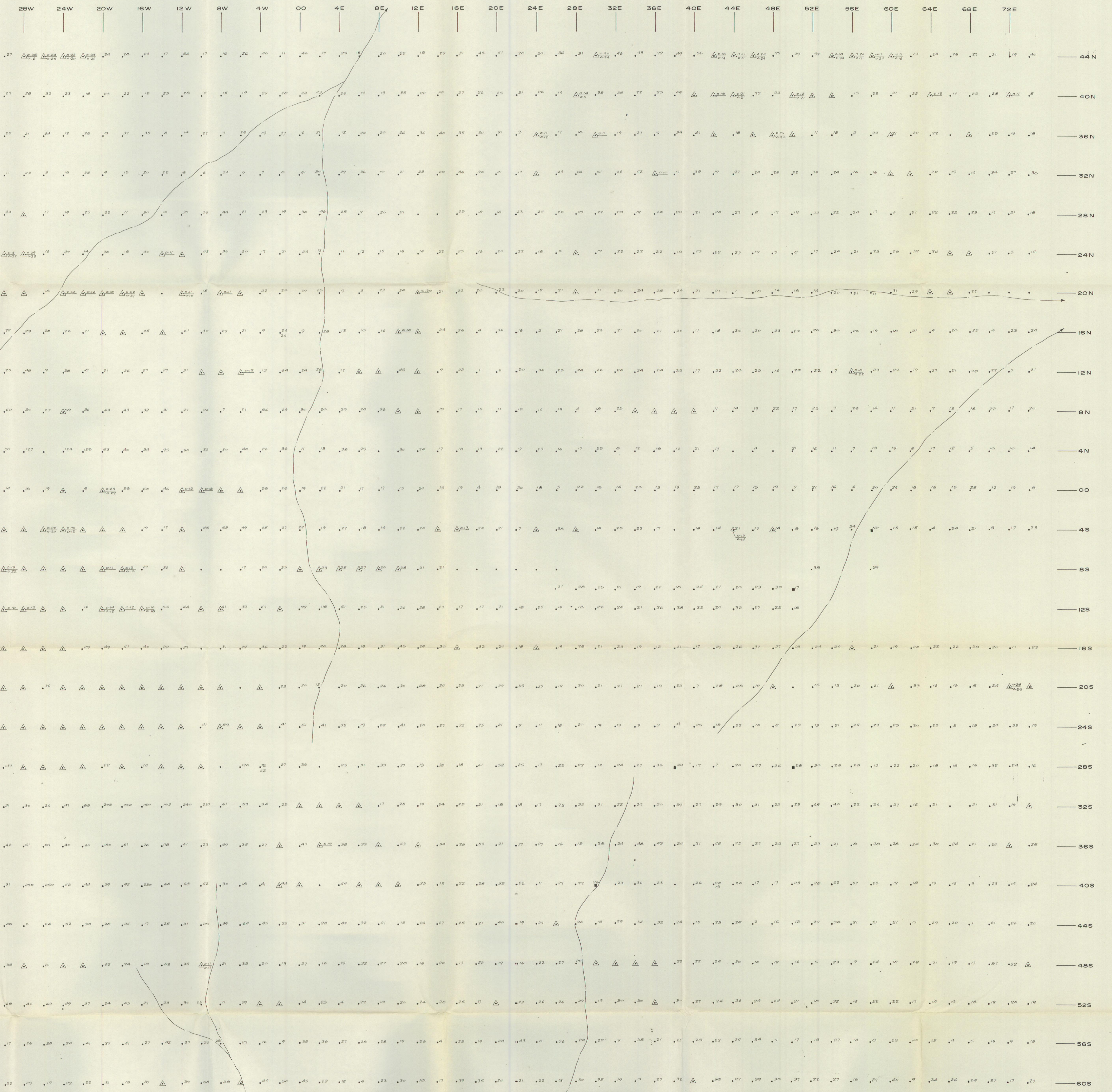
MINAS DE CERRO DORADO  
LTD. (NPL)  
TO CLAIM GROUP  
NAHANNI MINING DISTRICT N.W.T.

**GEOCHEMICAL  
SURVEY**  
ZINC

Contours at: 190, 350, 580, 760 & 1000 ppm.

SCALE IN FEET  
0 400 800 1200

AGILIS ENGINEERING LTD. OCTOBER, 1973

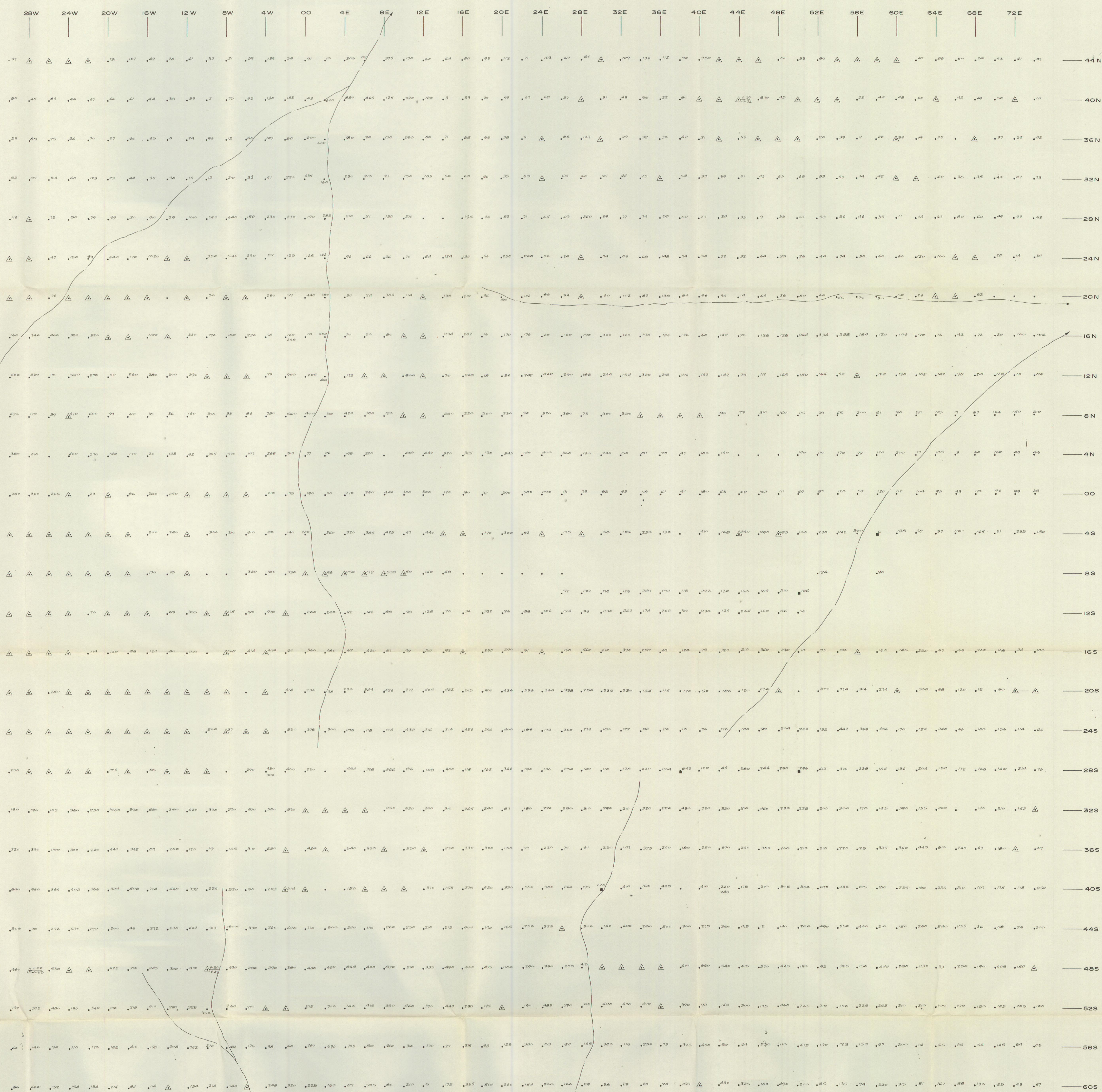
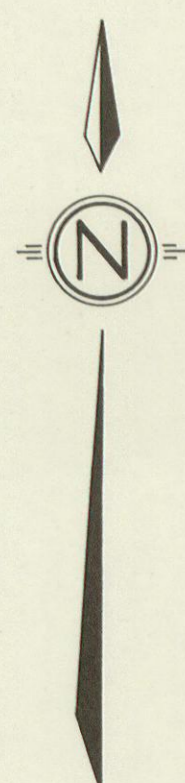


MINAS DE CERRO DORADO  
LTD. (NPL)  
TO CLAIM GROUP  
NAHANNI MINING DISTRICT N.W.T.

**GEOCHEMICAL  
SURVEY  
LEAD**

SCALE IN FEET  
0 400 800 1200

AGILIS ENGINEERING LTD. OCTOBER, 1973



MINAS DE CERRO DORODO  
LTD. (NPL)  
TO CLAIM GROUP  
NAHANNI MINING DISTRICT N.W.T.

**GEOCHEMICAL  
SURVEY**  
ZINC

SCALE IN FEET  
0 400 800 1200

AGLIS ENGINEERING LTD. OCTOBER, 1973