

2820

ADDENDUM TO THE GEOCHEMICAL

AND GEOLOGICAL REPORT OF DECEMBER 1970

ON THE TI, BUD, MD, MON CLAIMS

FOR

ACHERON MINES LTD. (N.P.L.)

DATED FEBRUARY, 1970

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. **2820** MAP

August 27, 1970

Vancouver, B.C.

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SCALE

- #1 SURFACE PLAN AND GEOLOGY.....1 inch = 400 feet
- #2 MAGNETOMETER SURVEY.....1 inch = 200 feet
- #3 GEOCHEMICAL SURVEY.....1 inch = 400 feet
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INTRODUCTION:

During May 1970 the last part of stage 1 of the exploration program recommended by G.P.E. White in his report on the Ti claims of December 18, 1970 was completed.

The final work consisted of soil sampling along a 400 foot by 200 foot grid in the south western, and along an 800 foot by 200 foot grid in the northern portion of the claim group.

In addition, geological mapping at a scale of 1 inch = 400 feet was conducted in the same area and a magnetometer survey conducted over a geochemical anomaly outlined in the center of the property.

The work consisted of a total of 8 line miles of soil sampling, 9½ line miles of magnetometer surveying and geological mapping on all or portions of the following claims: Mo 1 - 4

Mon 1 - 2

Ti 1 - 28

Ti 35 - 49

GEOLOGY:

The regional geology has been discussed and outlined in the report of December 1970.

GENERAL:

Detailed geological mapping at a scale of 1 inch = 400 feet has been completed over the whole claim group.

A grid consisting of 400 foot line spacing and 200 foot stations over the southern portion, and 800 foot lines spacing with 200 foot stations over the northern part of the property, was used to obtain ground control.

DISCUSSION OF DETAIL GEOLOGY:

Stratigraphy:

Late Jurassic (?) Intrusive rocks

Quartz Diorite: The late Jurassic quartz diorite is predominate in the northern half of the claim group. The contact with the Karmutsen andesites is generally conformable to the regional strike in the northeastern part and swing west in the north-western part of the property.

The intrusive is a coarse grained, pyroxene rich quartz diorite. The pyroxene content varies with the distance from the volcanics and is a maximum along the contact.

Smaller intrusive bodies are present within the limestone and the Bonanza volcanics. Here, the quartz diorite is fine grained, and contains very little pyroxene.

Silicification and pyritization are common along the contact with the Bonanza volcanics.

Skarn float, carrying sphalerite, pyrite and chalcopryrite has been found along the limestone-intrusive contact.

The main copper and zinc soil anomalies are related to these small intrusions.

The writer believes that all intrusions are part of the same stock.

Andesite Dykes and/or Sills (?): A series of andesitic to dacitic sills have been observed in the upper section of the Quatsino limestone and the lower part of the Bonanza sediments.

In the centre part, the Quatsino limestone consists of two bands, separated by dark, fine-grained andesite.

The andesite is conformable to the bedding. Although no intrusive relationship has been found, mapping west of the T1 claims showed that andesitic sills within the upper part of the limestone are frequently present and trend slightly oblique to the strike of the sediments.

A similar andesitic rock type has been found in the lower Bonanza sediments, but in this setting it is more difficult to differentiate between thin volcanic flows and sills.

Any interpretation is hindered by the absence of continuity between outcrops or absence of outcrops.

Upper Triassic and (?) Jurassic, Bonanza Sub-Group:

The Lower Bonanza sediments outcrop in the southern and western sections of the mapped area. They are well banded and strongly silicified. Banding, where observed, has variable attitudes over short distances in the proximity of the andesitic sills, and is uniform N45W/30° SW where not deformed.

A zone of rhyolitic appearing rocks overlies the Quatsino limestone in the extreme west, and similar appearing outcrops occur within the banded sediments. In both places pyritization is present.

A similar rock type was mapped to the west of this claim group in the vicinity of acidic intrusives and faults. At this locality a gradational change from rhyolitic-appearing rocks to Bonanza volcanics or sediments has been observed. There is a good indication that this rhyolitic appearance is due to strong alteration (silicification and pyritization).

STRUCTURE:

The structural setting as indicated by attitudes and outcrop pattern is not quite understood on a detail scale.

In the vicinity of intrusives or fault zones sudden changes of strike and dip have been observed.

Minor, small scale drag folding is indicated along a major north-west trending fault zone trending through the centre of the property, but outcrops are too small and limited to allow any positive interpretation.

Offsets along the northwest trending faults have been observed, but the pattern is not quite clear. In general, a north-westerly shift of the northern section of the units is indicated.

MINERALIZATION:

Tuffaceous and rhyolitic (?) float has been found carrying minor chalcopyrite.

A pyrite-rich quartz diorite float returned .1% copper. Skarn boulders, bearing sphalerite and minor galena have been found in the vicinity of the limestone-intrusive contact.

GEOCHEMICAL SURVEY:

The survey consisted of extending the reconnaissance soil sampling westerly along the grid established during November 1968, along lines 400 feet apart with 200 foot stations, plus detail sampling of anomalous copper areas outlined by earlier work consisting of establishing lines 200 feet apart with 100 foot stations. All samples were analyzed for zinc and copper.

Procedure:

Soil samples were collected along lines 400 feet apart and 200 foot stations, reconnaissance spacing; or along lines 200 feet apart at 100 foot stations in detailed areas, to sample the oxidized layer immediately below the humus layer (B horizon). At each site notes were recorded regarding soil type, topography, sample depth and vegetation to facilitate the interpretation of the results.

Samples were packed in kraft envelopes and forwarded to Chemex Labs Ltd. of North Vancouver. There the samples were dried, screened to -80 mesh and tested for copper and zinc by the atomic absorption method.

Interpretation of Results:

The background for copper was established by statistical analysis. The copper values were grouped at 10 parts per million (ppm), and percent frequency and accumulated percent frequency were calculated and plotted on arithmetic probability paper. From the plotted data the range of background, mixed zone, and anomalous zone was read.

Background: Less than 30 ppm

Mixed zone: 30 ppm to 70 ppm

Anomalous zone: Greater than 70 ppm

A total of approximately 8 miles was sampled along 400 foot lines and 200 foot stations or 800 foot lines and 200 foot stations.

Results:

No anomalous zones have been indicated by this survey, although 6 isolated samples are above 70 ppm.

MAGNETOMETER SURVEY:

A magnetometer survey was conducted over the anomalous geochemical area outlined by a detailed geochemical survey.

A total of 9 line miles were surveyed.

Instrument:

A Sharp MFI fluxgate magnetometer was used for this survey. The instrument measures the vertical component of the earth's magnetic field. It is direction and temperature compensated.

Maximum readability on the 1,000 gammas scale is + 5 gammas.

Procedure:

The background of the area was established by running a 1 mile traverse across the property and taking readings at set intervals. The instrument was adjusted to read on the 1,000 gammas scale for maximum sensitivity.

A master base station was established by taking 3 readings at half hour intervals and averaging the readings.

Other base stations were tied into the master base station. The values used are an average value from 3 readings taken at half hour intervals and corrected for long and short term variations.

All other stations have been tied into the base station by loops, for which the elapsed time did not exceed 1 hour.

The readings have been corrected, plotted and contoured for interpretational purposes.

Result:

The main feature outlined by this survey is a northwesterly trending zone with a very steep magnetic gradient, bounded by a series of magnetic lows, in the northeastern part of the surveyed area.

A comparison with the geological map shows that this zone is nearly coinciding with the limestone-intrusive contact, bounded by the northwesterly trending fault.

The geological setting combined with the magnetic survey indicates that this area would be very favorable for skarn type replacement bodies.

A skarn float carrying sphalerite was found in this area.

The geochemical anomaly, high in copper, is also overlaying the same area.

Correlation between the magnetic survey, soil values for zinc and geology in the western part of the detailed area is inclusive.

Although a magnetic high with a peak value of .1500 gammas exists in the area it covers only part of the zinc anomaly. The geology map shows that this area is underlain by the lower Bonanza sediments. Small intrusions are within the general area, but the anomalous zone is overburden covered.

CONCLUSIONS:

- 1) Recent work showed that the northern part of the Ti claim group is underlain by quartz diorite.
- 2) The central and south western part is underlain by members of the Vancouver group intruded by small quartz diorite stocks.
- 3) The detail copper anomaly outlined by soil sampling is coincident with a magnetic high and overlies the contact between intrusive rocks and limestone, favorable for skarn type mineralization.
- 4) No new soil anomalies have been outlined by the latest soil sampling program covering the northern and southwestern section of the claim group.

- 5) Stage one of the outlined program has been completed and stage 2 should be initiated to check the outlined anomalous areas by trenching and/or X-Ray diamond drilling.

Respectfully Submitted

F. Holcapek, Geologist



Endorsed by: R.H.D. Philp, P. Eng.



August 27, 1970

Vancouver, B.C.

DOMINION OF CANADA:
PROVINCE OF BRITISH COLUMBIA.

To Wit:

In the Matter of the geological, geophysical and geochemical surveys Tiand Nah Groups of claims West of Nahwitti Lake in the Nanaimo Mining Div. for Acheron Mines Ltd. (N.P.L.)

I, Fred Holcapek

of 201-714 West Hastings St., Vancouver 1, B. C.

in the Province of British Columbia, do solemnly declare that the following personnel were employed and costs incurred during April, May, 1970

PERSONNEL:

F. Holcapek-Geologist- Field-	8 days @	\$ 80.00 day	\$ 640.00
" " Office	3 " @	80.00 "	240.00
R. MacBean- Party Chief-	21 " @	50.00 "	1,050.00
R. Kirk- - Field	11 " @	40.00 "	440.00
H. Hessing- Field	15 " @	35.00 "	525.00
L. Marsh- Draughting	90 hrs. @	5.00 hr.	450.00
			\$ 3,345.00

DISBURSEMENTS:

Chemex Laboratories - Analysis-	124.67	
Meals and acc.	163.89	
Groceries	232.02	
Supplies, gas, mileage	283.73	
Truck rental, ferries, air fares	445.00	
Misc. printing, typing, telephone	123.21	
Camp charges	100.00	
Magnetometer rental	80.00	
	\$ 1,552.52	
10% Overhead on disbursements	155.25	\$ 1,707.77
<u>Total</u>		\$ <u>5,052.77</u>

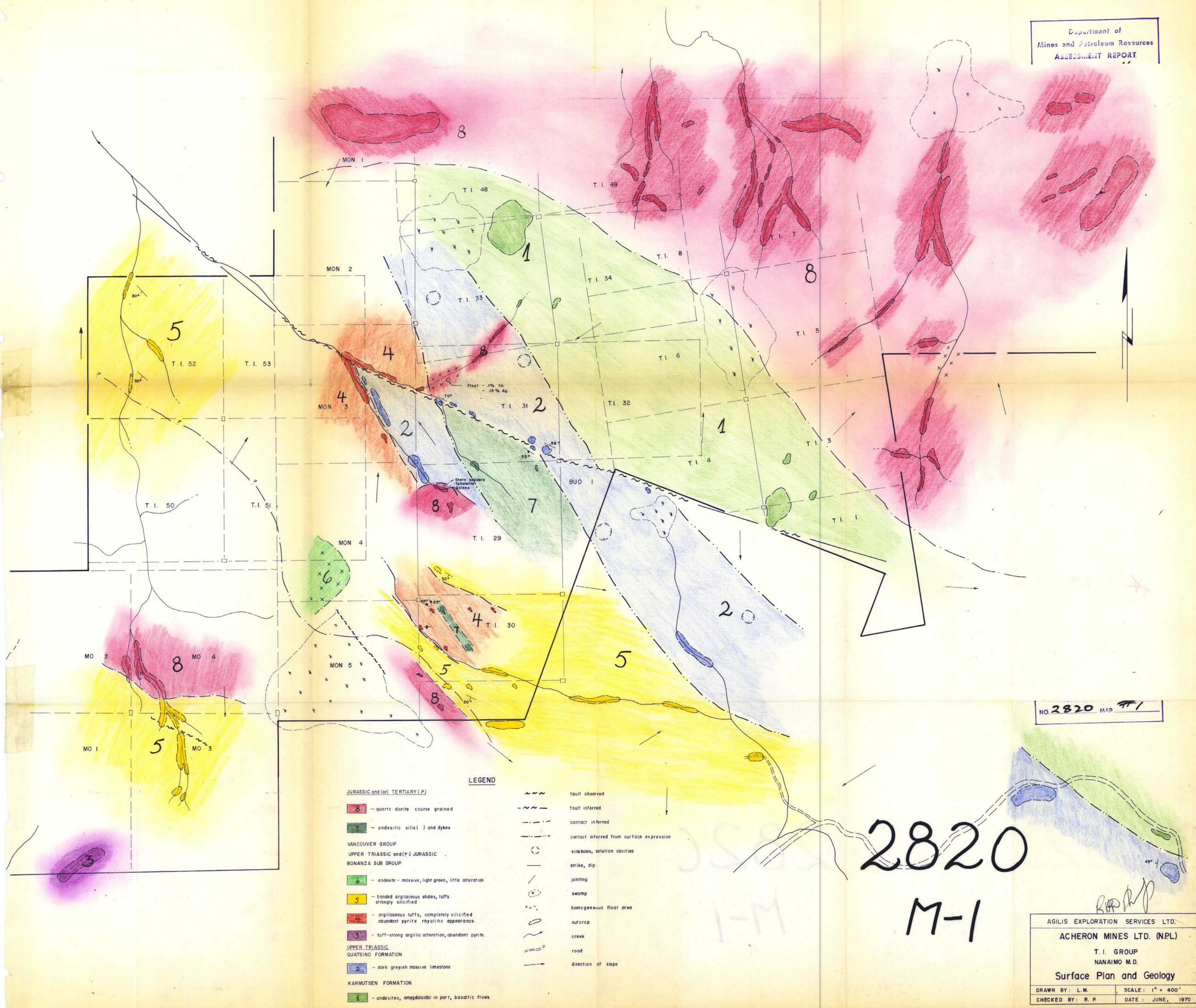
And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the City
of Vancouver, in the
Province of British Columbia, this 19th
day of January 1971, A.D.




A Commissioner for taking Affidavits within British Columbia or
A Notary Public in and for the Province of British Columbia.

SUB-MINING RECORDER



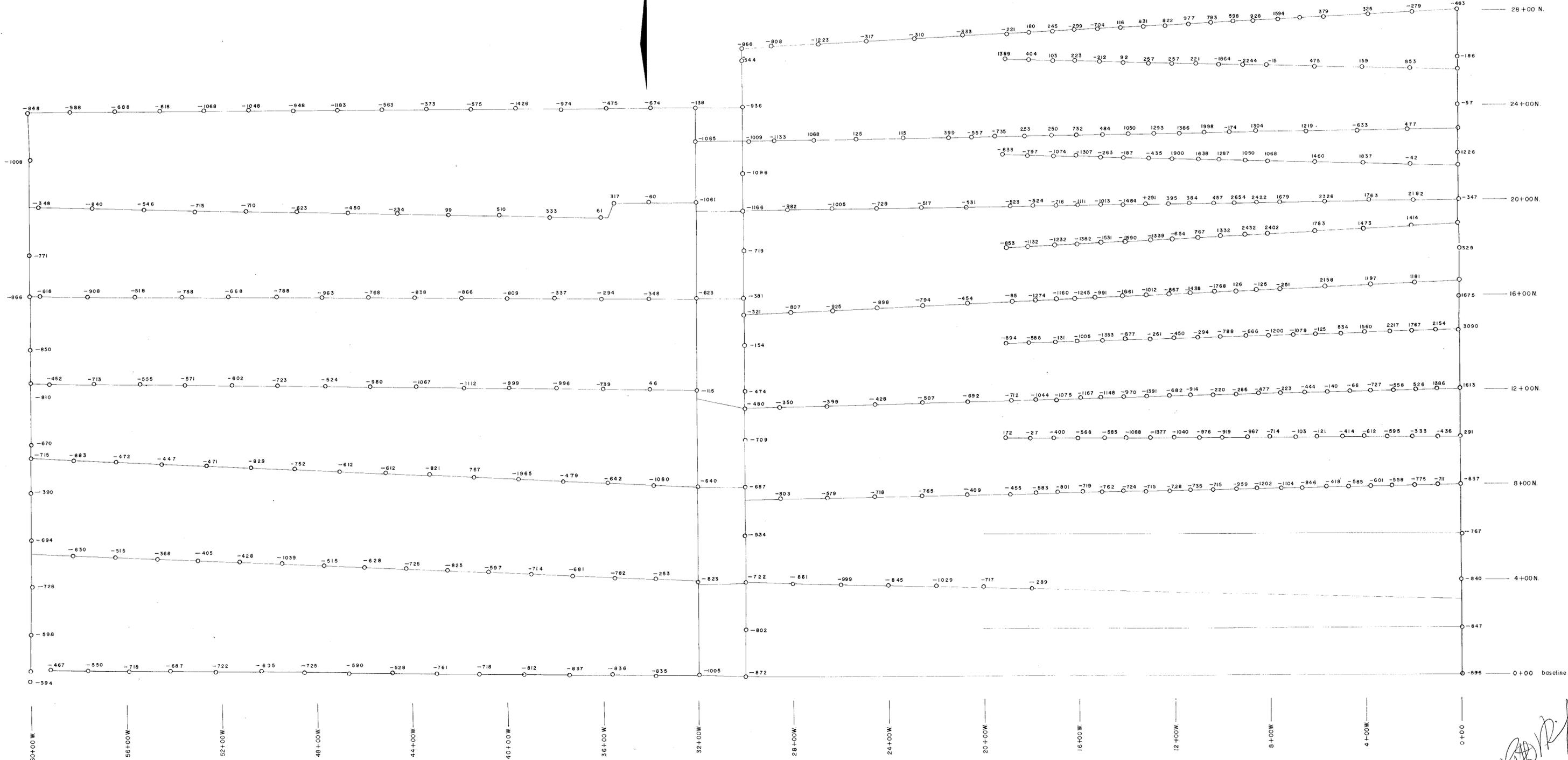
LEGEND

- | | | |
|---|--|--|
| JURASSIC and (or) TERTIARY (P) | | fault observed |
| 8 - quartz diorite coarse grained | | fault inferred |
| 7 - andesitic sills () and dykes | | contact inferred |
| VANCOUVER GROUP | | contact inferred from surface expression |
| UPPER TRIASSIC and (?) JURASSIC | | sinkholes, solution cavities |
| BONANZA SUB GROUP | | strike, dip |
| 6 - andesite - massive, light green, little alteration | | jointing |
| 5 - banded argillaceous shales, tuffs strongly silicified | | swamp |
| 4 - argillaceous tuffs, completely silicified abundant pyrite rhyolitic appearance. | | homogeneous float area |
| 3 - tuff - strong argillic alteration, abundant pyrite. | | outcrop |
| UPPER TRIASSIC | | creek |
| QUATSINO FORMATION | | road |
| 2 - dark greyish massive limestone | | direction of slope |
| KARMUTSEN FORMATION | | |
| 1 - andesites, amygdaloidal in part, basaltic flows. | | |

NO. 2820 MAP #1

2820
M-1

AGILIS EXPLORATION SERVICES LTD.
ACHERON MINES LTD. (NPL)
T. I. GROUP
NANAIMO M.D.
Surface Plan and Geology
DRAWN BY: L.M. SCALE: 1" = 400'
CHECKED BY: R.P. DATE: JUNE, 1970



LEGEND
510 — Magnetometer reading (gammas)

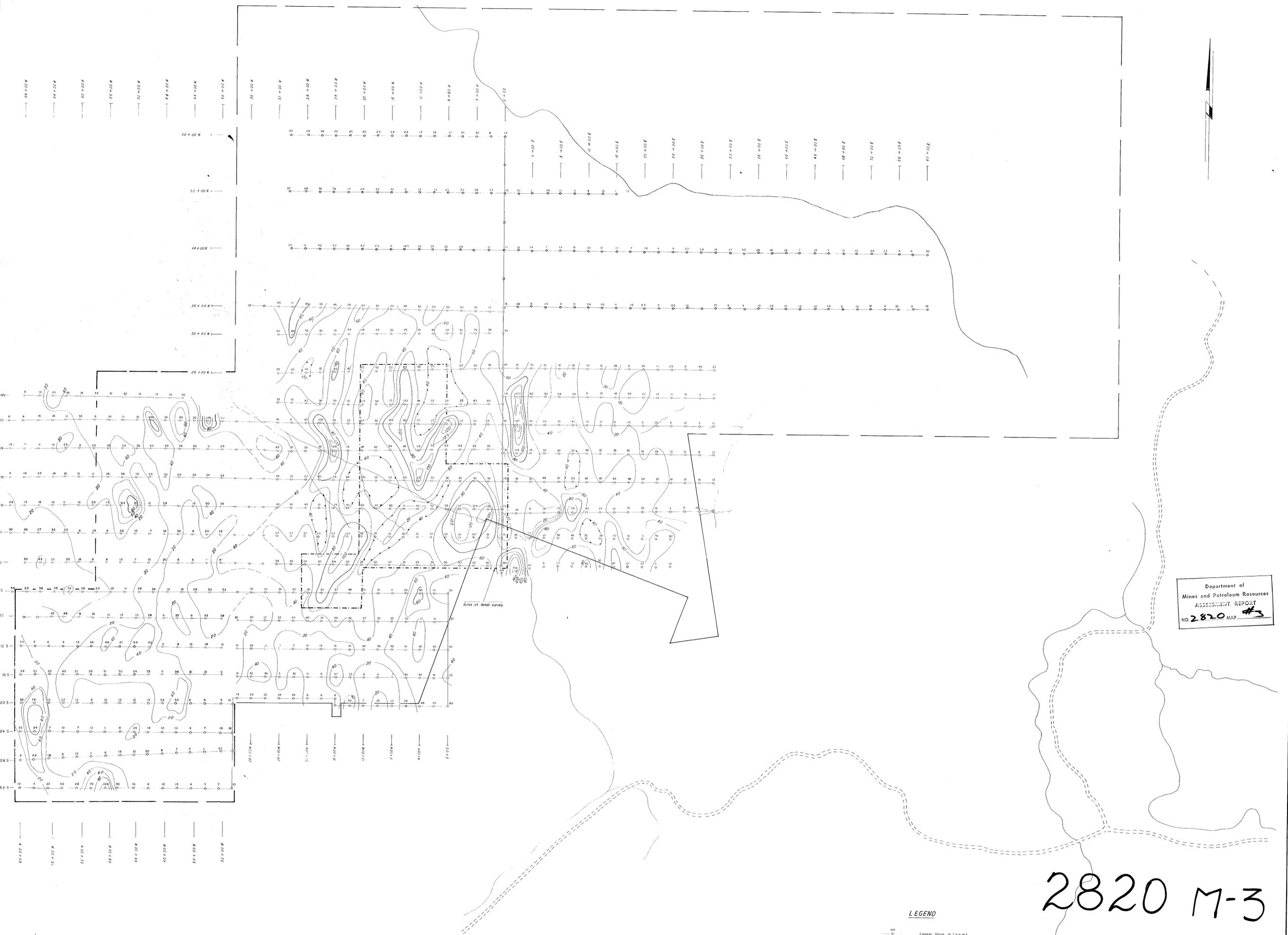
2820 M-2

AGILIS EXPLORATION SERVICES LTD.	
ACHERON MINES LTD. (N.P.L.)	
T.I. GROUP	
VANCOUVER ISLAND, B.C.	
Magnetometer Survey	
DRAWN BY: L.M.	SCALE: 1" = 200'
CHECKED BY: R.P.	DATE: June, 1970

R.P.P.

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
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2820 M-3

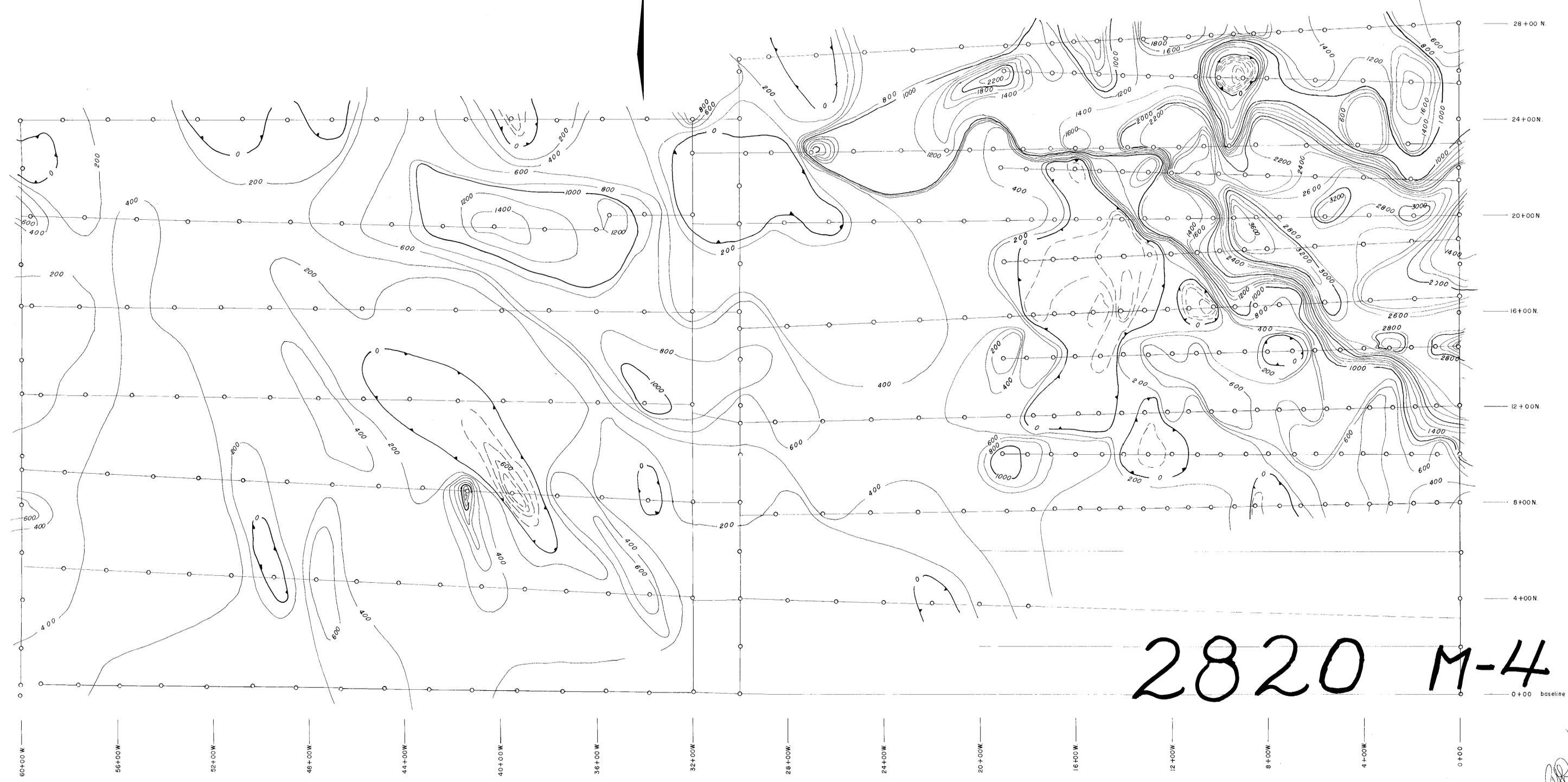


LEGEND

- Copper Value in (p.p.m.)
- /— Copper Contour Interval (20 p.p.m.)
- - - - - Area detail

ADDITION: February, 1970
L.M.

AGILIS EXPLORATION SERVICES LTD.
ACHERON MINES LTD. (N.P.L.)
T.I. GROUP
NANAIMO MINING DIVISION
Geochemical Survey
DRAWN BY: K.K. SCALE: 1" = 400 feet
CHECKED BY: R.P. DATE: December, 1968



2820 M-4

LEGEND

- Magnetometer reading contour adjusted by + 1000 g
- Negative contour.

AGLIS EXPLORATION SERVICES LTD.	
ACHERON MINES LTD. (N.P.L.)	
T.I. GROUP	
VANCOUVER ISLAND, B.C.	
Magnetometer Survey	
CONTOUR MAP	
DRAWN BY: L.M.	SCALE: 1" = 200'
CHECKED BY: R.P.	DATE: June, 1970