83-#463 - 11663

# ASSESSMENT REPORT

# TRENCH GEOLOGY AND GEOPHYSICAL SURVEY

## TOTEM GROUP

ATLIN MINING DIVISION

TATSAMENIE LAKE AREA, B. C.

N.T.S. 104K/TULSEQUAH SHEET

132°17'W
58°13'N



OWNER: CHEVRON CANADA LIMITED

OPERATOR: CHEVRON CANADA RESOURCES LIMITED

Authors: Derek Brown
Mike Thicke

October, 1983

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## INTRODUCTION

A long trench was established on the TOTEM claims to expose contact zones between greenstones and a limestone unit. Figure 3 illustrates the location of the trench with respect to the rest of the claim group. The magnetometer and VLF geophysical surveys were performed to (1) delineate possible faults (2) delineate possible conductive bodies (3) possibly define lithological contacts. The geophysical grid as illustrated on Figure 3 was established from a north-south baseline 2 km long. Lines were spaced 50 meters apart and station spacings along the lines were 12.5 meters. A total of 34.5 line kilometers were surveyed.

## LOCATION AND ACCESS

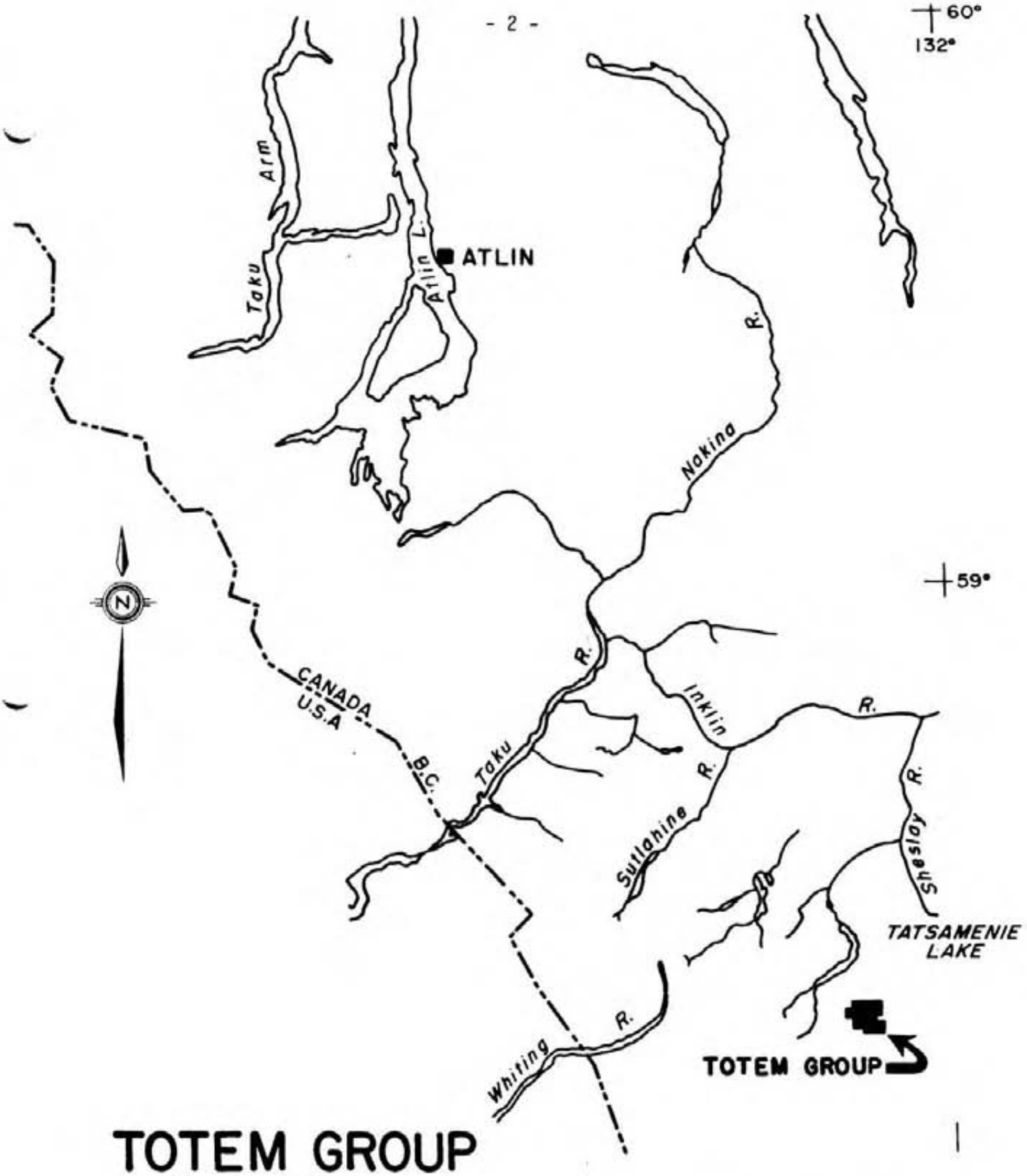
The TOTEM Group of claims is situated at approximately 132°17'W and 58°13'N about three kilometers north of Bearskin Lake (Figure 1). The claims are 170 km southeast of Atlin, B.C. and 75 km northwest of Telegraph Creek, B.C. A helicopter provided access to the property from a base camp at Bearskin Lake.

## CLAIMS

The TOTEM Group of claims were staked between March 1981 to August 1982 (Figure 2).

| Claim | Record No. | Record Date | No. of Units |
|---|---|---|---|
| SAM #1 | 1290 | March 5, 1981 | 15 |
| SAM #2 | 1291 | March 5, 1981 | 10 |
| TOTEM | 1488 | August 21, 1981 | 20 |
| POLE | 1490 | August 21, 1981 | 20 |
| TOTEM 2 | 1726 | August 21, 1982 | 20 |

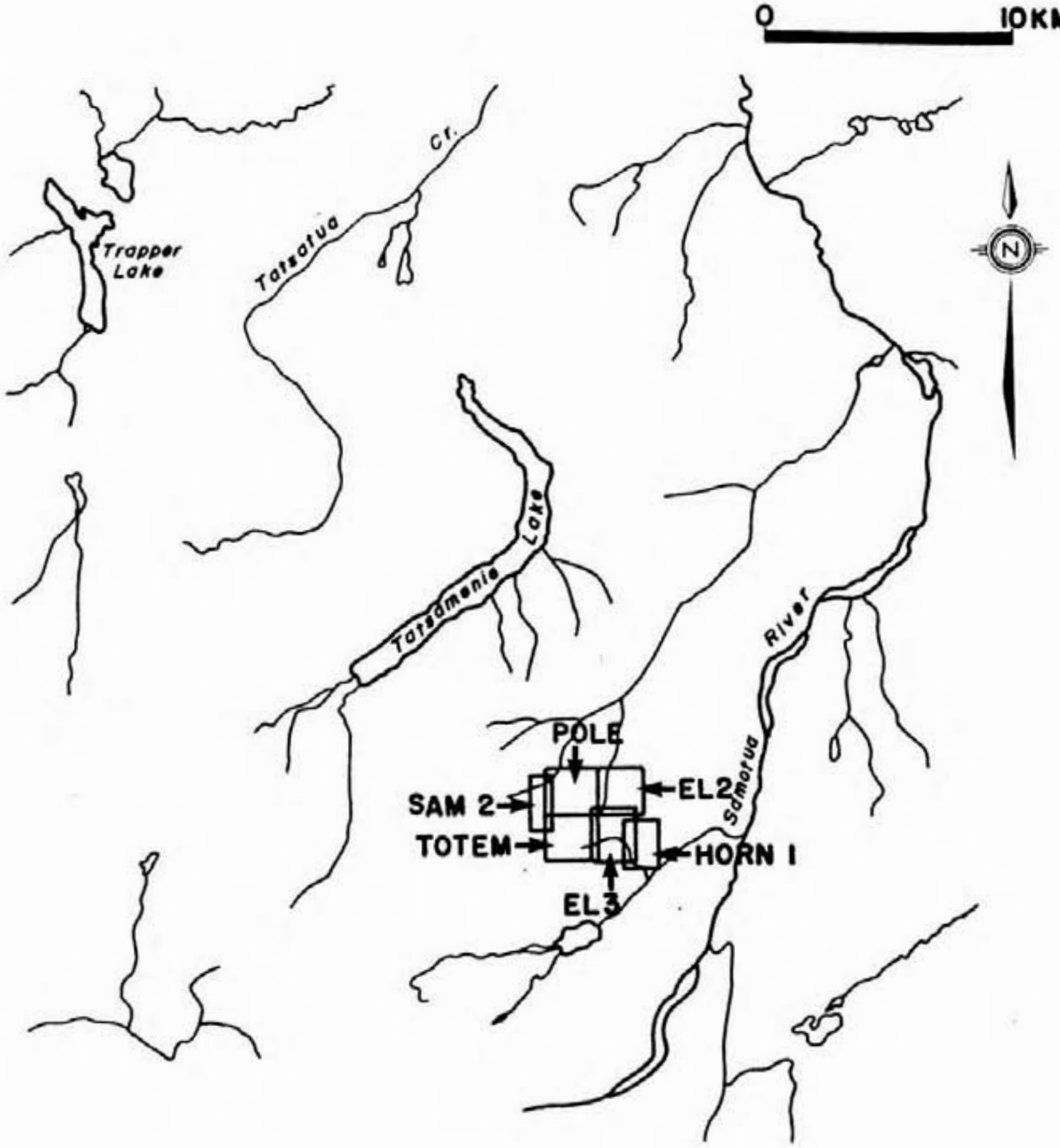
The claims cover previously unstaked ground.




# TOTEM GROUP
## LOCATION MAP

M523

FIGURE 1




# TOTEM GROUP CLAIM MAP

M523 FIGURE 2

## REGIONAL GEOLOGY

Fine to medium grained foliated diorite lies to the east and north of the group while limestone is situated south and west of the claims. Phyllitic rocks lie north and south of the TOTEM Group. Contacts between these rocks generally strike north-south. Regional and smaller scale folding is present particularly within the Permian limestone unit.

## TRENCH GEOLOGY

Employing a D8K caterpillar bulldozer, a trench measuring 140 m by 8 m by 2 m exposed a contact zone between greenstone, altered greenstone, phyllitic greenstone and dolomitic limestone (Figure 4). Narrow fault zones and gouge zones are exposed along the trench floor and walls. Gouge zones were the main units sampled for assay.

### Greenstone:

The greenstone unit is medium grey, often fresh but can be weakly dolomitized. Minor carbonate veinlets cut the greenstone at various orientations.

### Altered Greenstone:

The altered greenstone is light greyish-green to dark green and weathers a limonitic brown colour. Alteration is of moderate to intensely pervasive carbonate, usually dolomite. The altered greenstone is often blocky and well fractured. Hematite and manganese stains are often present on fractures. Locally abundant dolomite and calcite veins and veinlets cut the altered greenstone at various orientations. Minor quartz veinlets and rare chalcopyrite veinlets are found within the altered greenstone. Traces of disseminated

pyrite and specularite, locally more abundant, are contained throughout the altered greenstone. This unit is weakly to well foliated.

Phyllitic Greenstone:

The phyllitic greenstone is very similar to the altered greenstone unit. However, the phyllitic greenstone contains serpentinite on a few fracture planes.

Dolomitic Limestone and Carbonaceous Shale:

This western-most unit is thinly laminated and relatively fresh.

Gouge and Fault Zones:

Gouge zones are narrow, less than one meter wide, and often contained within a fault zone. The clay material within a gouge zone is limonitic, usually a yellowish-brown colour. Gouge material often contains wall rock fragments. Fault zones may contain up to 2% disseminated pyrite.

TRENCH ASSAY RESULTS

Twenty-one rock samples were collected in 1.0 meter sample intervals from the TOTEM trench. Samples were placed in heavy-duty, large plastic sample bags and shipped to Chemex Labs Limited in North Vancouver.

Silver and gold analyses are done by standard fire assay techniques. In the sample preparation stage the screens are checked for metallics which, if present, are assayed separately and calculated into the results obtained from the pulp assay.

0.5 assay ton sub samples are fused in litharge, carbonate and siliceous fluxes. The lead button containing the precious metals is cupelled in a muffle furnace. The combined Ag and Au is weighed on a microbalance, parted, annealed and again weighed as Au. The difference in the two weighings is Ag.

Generally, rock samples were collected from gouge zones and contiguous altered greenstones. No significant gold mineralization was found in rocks assayed. A few samples contained silver anomalies up to 22 grams per tonne, but most values were insignificant (Table 1).

MAGNETOMETER AND VLF GEOPHYSICAL SURVEY

A base station magnetometer, EDA Instruments Inc. Model PPM-375, Serial Number B0500, recorded the local magnetic field every 2 minutes during the survey. A second magnetometer, Model PPM-350, Serial Number B048, was carried over the grid and measured and recorded the total magnetic field at each station. Raw data from both instruments was recovered using a printer each evening. A diurnal variation correction was made automatically by running field data through the base station instrument. The corrected absolute values of the total magnetic field in gammas were printed-out and later plotted on Figure 5A, 5B.

The instrument used for the VLF survey was a Geonics Limited EM-16, Serial Number 18986. The grid lines as shown on Figures 3 and 5A, 5B, 6A and 6B were approximately perpendicular to the Seattle, Washington transmitter. The station (NLK) transmits at 18.6 kHz.

## LIST OF ASSAY RESULTS

| | Ag FA g/tonne | Au FA g/tonne |
|---|---|---|
| MP 3T1 077 | 7.5 | <0.1 |
| MP 3T1 078 | 6.8 | <0.1 |
| MP 3T1 079 | 11.0 | <0.1 |
| MP 3T1 080 | 21.9 | 0.1 |
| MP 3T1 081 | 5.5 | <0.1 |
| MP 3T1 082 | 4.1 | <0.1 |
| MP 3T1 083 | 4.1 | <0.1 |
| MP 3T1 084 | 4.1 | <0.1 |
| MP 3T1 085 | 3.4 | <0.1 |
| MP 3T1 086 | 0.3 | <0.1 |
| MP 3T1 087 | 5.5 | <0.1 |
| MP 3T1 088 | 4.8 | <0.1 |
| MP 3T1 089 | 0.3 | <0.1 |
| MP 3T1 090 | 11.0 | <0.1 |
| MP 3T1 091 | 4.8 | <0.1 |
| MP 3T1 092 | 1.4 | 0.6 |
| MP 3T1 093 | 3.4 | <0.1 |
| MP 3T1 094 | 4.1 | <0.1 |
| MP 3T1 095 | 4.1 | 0.1 |
| MP 3T1 096 | 6.2 | <0.1 |
| MP 3T1 097 | 3.4 | <0.1 |

TABLE 1

Readings were taken every 12.5 m and the In-phase and quadrature profiles are plotted on Figure 6A, 6B.

## GEOPHYSICAL INTERPRETATION

VLF cross-overs are marked on Figure 6A, 6B. Cross-overs that correlate across several lines are interpreted as faults and they are plotted on Figure 6A, 6B. The quadrature results are affected by overburden and topography; therefore, they are not plotted. The isolated In-Phase cross-overs restricted to one line are not considered significant.

The interpreted faults trend north-south; their abrupt terminations may be due to cross-faults.

The magnetometer survey was conducted to define lithological contacts. The results do not help differentiate greenstone, limestone or quartz. The magnetometer highs are isolated and of limited areal extent therefore they are probably related to magnetite bearing float (i.e. basalt and diorite). The lows in Figures 5A, 5B do crudely correspond to some of the interpreted faults from the VLF survey.

## CONCLUSIONS AND RECOMMENDATIONS

Approximately 48 man days were spent on geophysical and trench work on the TOTEM claims. Trenching uncovered no zones of mineralization along fault zones or geological contacts. The magnetometer survey did not aid in defining geological contacts. The VLF survey enabled the interpretation of north-south trending faults.

Detailed geological mapping should be conducted around magnetometer and VLF anomalies. The interpreted fault zones should be trenched to determine the presence of mineralization.

## REFERENCE

Souther, J.G.(1971). Geology and mineral deposits of Tulsequah map-area, British Columbia. Geological Survey of Canada, Memoir 362, 84 p.

# 1983 EXPLORATION PROGRAM
# TOTEM GROUP CLAIMS
# COST STATEMENT

PERIOD: June 18 to July 8, 1983

## GEOPHYSICS

1. LABOUR

| | Position | Field Days | Office Days |
|---|---|---|---|
| J. Steele | Geophysicist | 2 | 1 |
| P. Henry | Supervisor | 1 | - |
| D. Brown | Geologist | 9 | 6 |
| M. Gray | Assistant | 8.5 | 3.5 |
| J. Armstrong | Assistant | 6 | - |
| F. Wohlgemuth | Assistant | 5 | - |
| D. Hodge | Assistant | 1 | - |
| W. Hewgill | Assistant | 5.5 | .5 |
| R. Daniel | Assistant | 1 | - |
| M. Woods | Assistant | 5 | - |
| D. Day | Assistant | 3 | - |
| | Total Man Days | 47 | 11 |

| | | |
|---|---|---|
| Average cost per field man day = | $100. | $4,700.00 |
| Average cost per office man day = | $150. | 1,650.00 |
| Drafting cost: 2 days @$100./day | | 200.00 |

2. CAMP COSTS

| | |
|---|---|
| Total man days 47 @$60. per day | 2,820.00 |

3. HELICOPTER

| | |
|---|---|
| 3.6 hrs. @$500. per hr. including fuel | 1,800.00 |
| TOTAL | $11,170.00 |

## TRENCHING

1. LABOUR

| | | |
|---|---|---|
| Contractor: | 1 man day @$300. per day | $ 300.00 |
| Cat Work: | D8K - 24 hrs. @$95. per hr. | 2,280.00 |

2. GEOCHEM

| | |
|---|---|
| 21 rocks at $10.55 (assay) | 221.55 |

3. HELICOPTER

| | |
|---|---|
| 4.6 hrs. @$500. including fuel | 2,300.00 |
| | $ 5,101.55 |

| | |
|---|---|
| TOTAL GEOPHYSICS | $11,170.00 |
| TOTAL TRENCHING | $ 5,101.55 |
| TOTAL | $16,271.55 |

## STATEMENT OF QUALIFICATIONS

I, Mike Thicke, graduated from the University of British Columbia in May, 1980 with a B.Sc. degree in geology. Six seasons have been spent working in exploration geology in B.C., including four since graduation. I am presently employed as a geologist by Chevron Canada Resources Limited of Vancouver, B. C.

Mike Thicke

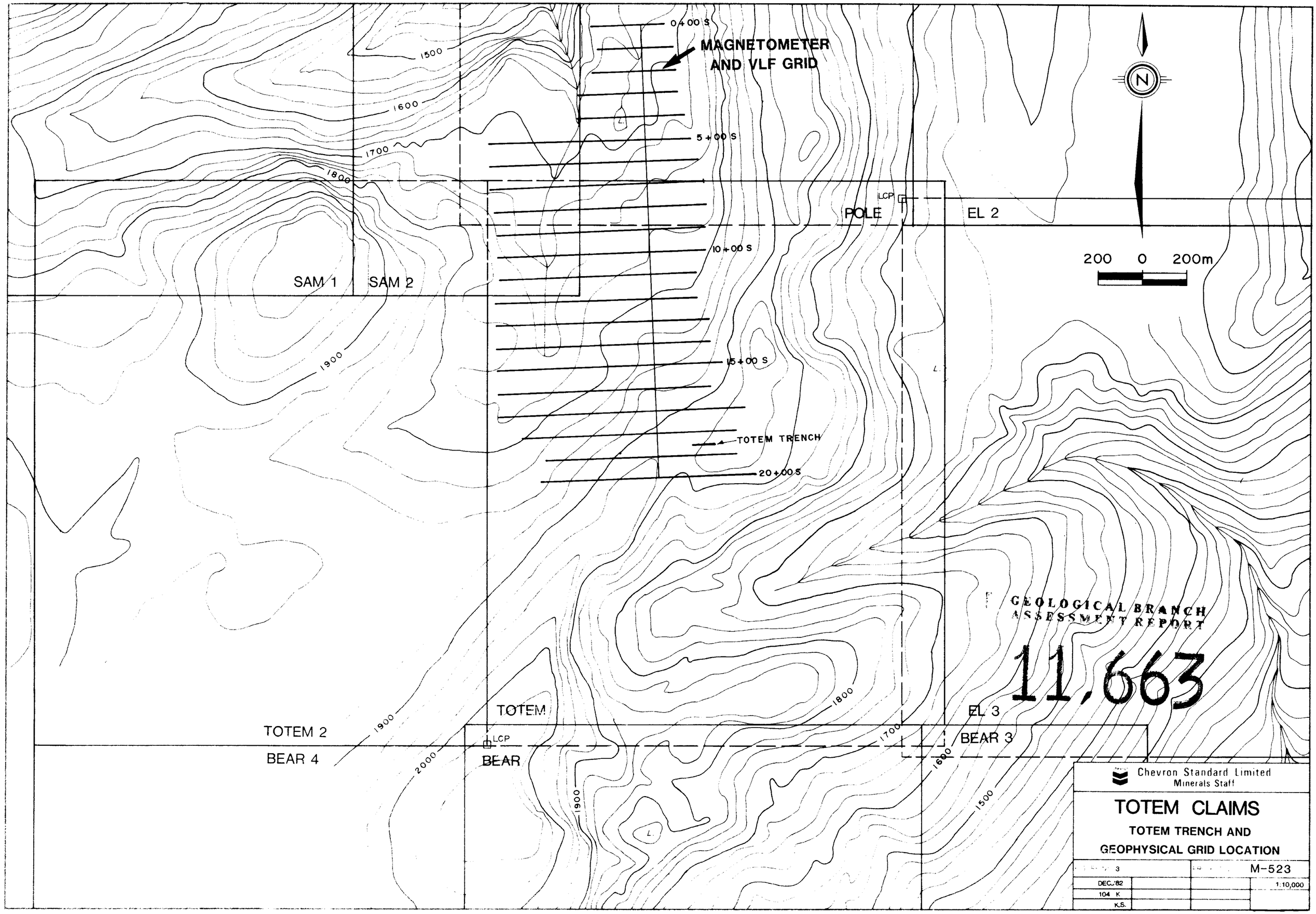
Mike Thicke

STATEMENT OF QUALIFICATIONS

I, Derek Brown, graudated in May, 1981 with a B.Sc. (Hons. Geology) from Carleton University, Ontario. I have worked as a geologist since graduation and am presently employed on a temporary basis by Chevron Canada Resources Limited of Vancouver, B. C.

Derek Brown

Derek Brown



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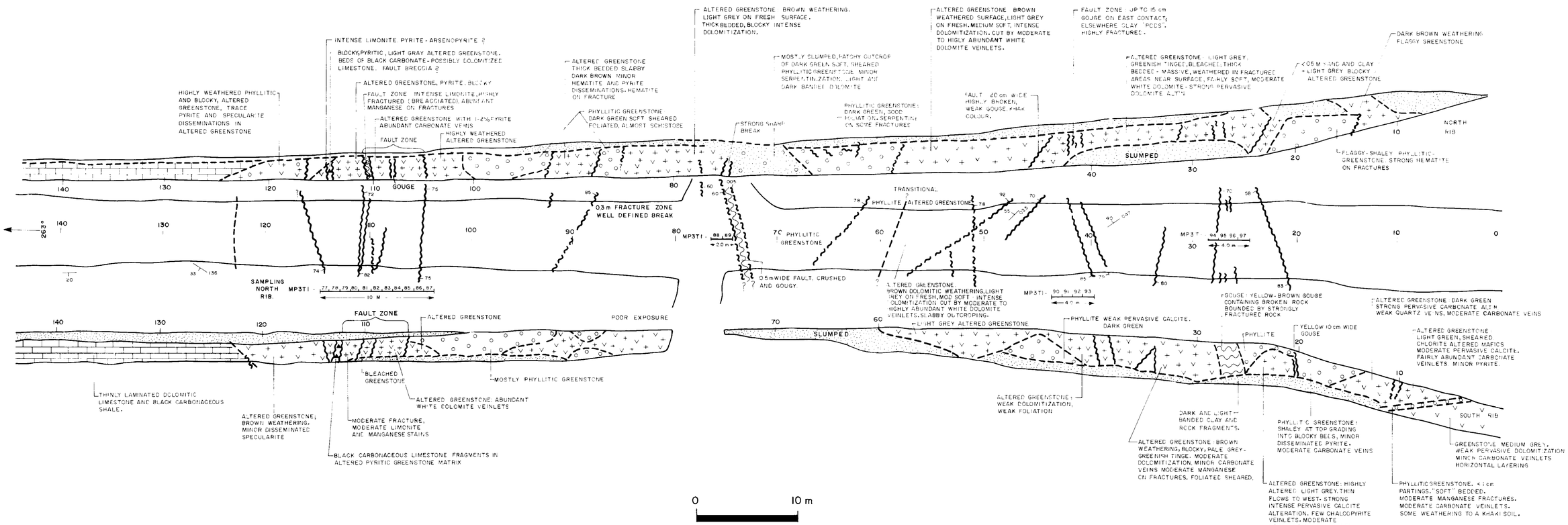
Minerals Staff

# TOTEM CLAIMS

## TOTEM TRENCH AND GEOPHYSICAL GRID LOCATION

| | | | |
|---|---|---|---|
| 3 | | | M-523 |
| DEC./82 | | | 1:10,000 |
| 104 K | | | |
| K.S. | | | |

# TOTEM TRENCH GEOLOGY




## LEGEND

- OVERBURDEN, SLUMPED MATERIAL
- ALTERED GREENSTONE: DOLOMITIZATION
- PHYLLITIC GREENSTONE: PLATY, SHEARED, DARK GREEN
- THINLY LAMINATED DOLOMITIC LIMESTONE AND BLACK CARBONACEOUS SHALE
- GREENSTONE: FRESH - WEAKLY ALTERED
- GOUGE

- 30 / 120 — BEDDING: STRIKE AND DIP
- FAULT: ASSUMED, DEFINED (WITH DIP)
- CONTACT: ASSUMED, DEFINED
- BRECCIA
- MP3 TI-79 — ROCK SAMPLE

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TOTEM TRENCH
GEOLOGY

| | | | |
|---|---|---|---|
| FIGURE No. 4 | | PROJECT No. M-523 | |
| DATE | REVISIONS | | SCALE 1:200 |
| NTS No. | | | |
| COMPILED BY M.T. | | | |

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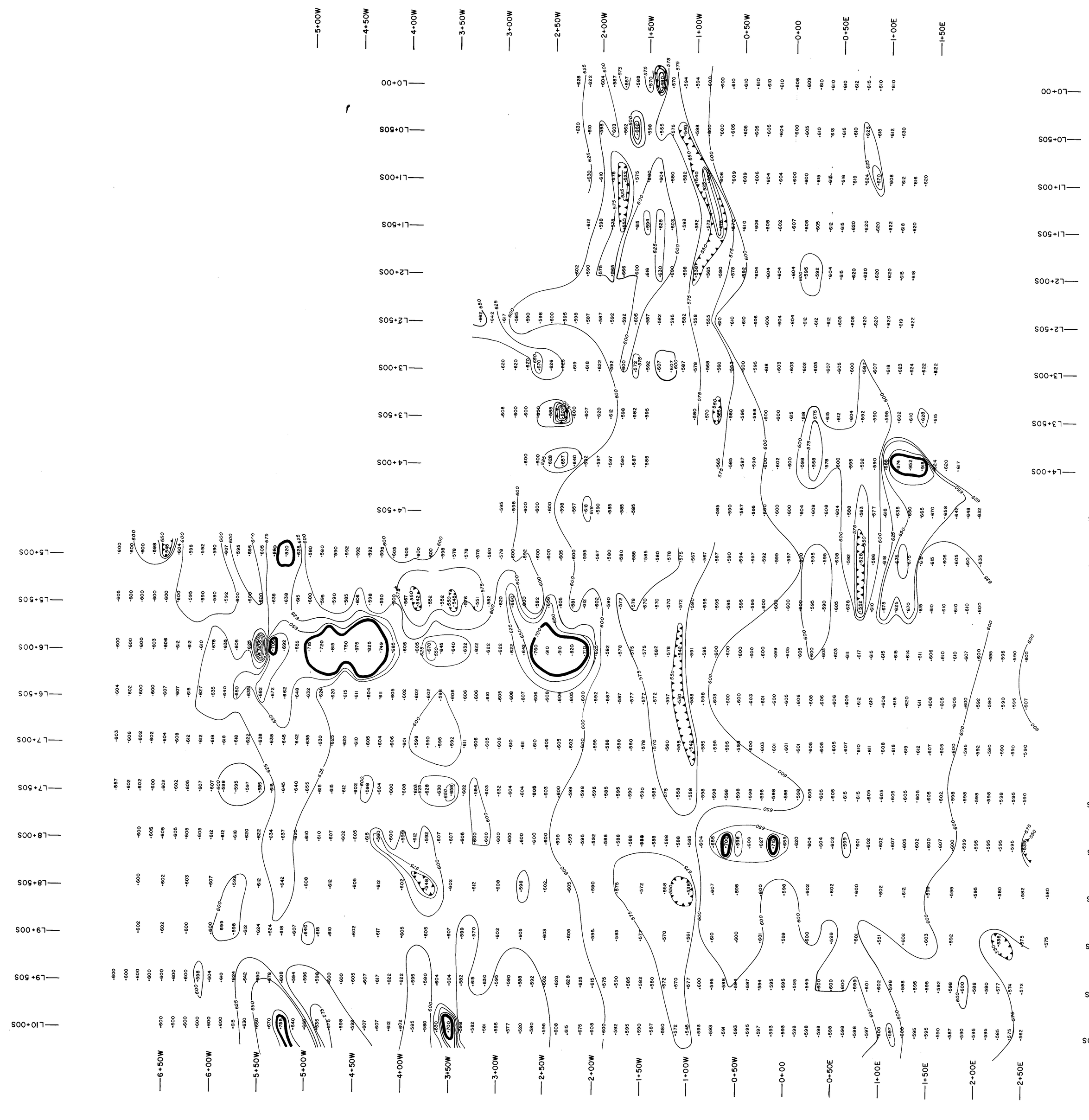
# TOTEM MAGNETOMETER GEOPHYSICS SURVEY

FIGURE No. 5A | PROJECT No. M523 | OCT / 83 | 1:500



L17+00S | L16+50S | L16+00S | L15+50S | L15+00S | L14+50S | L14+00S | L13+50S | L13+00S | L12+50S | L12+00S | L11+50S | L11+00S | L10+50S

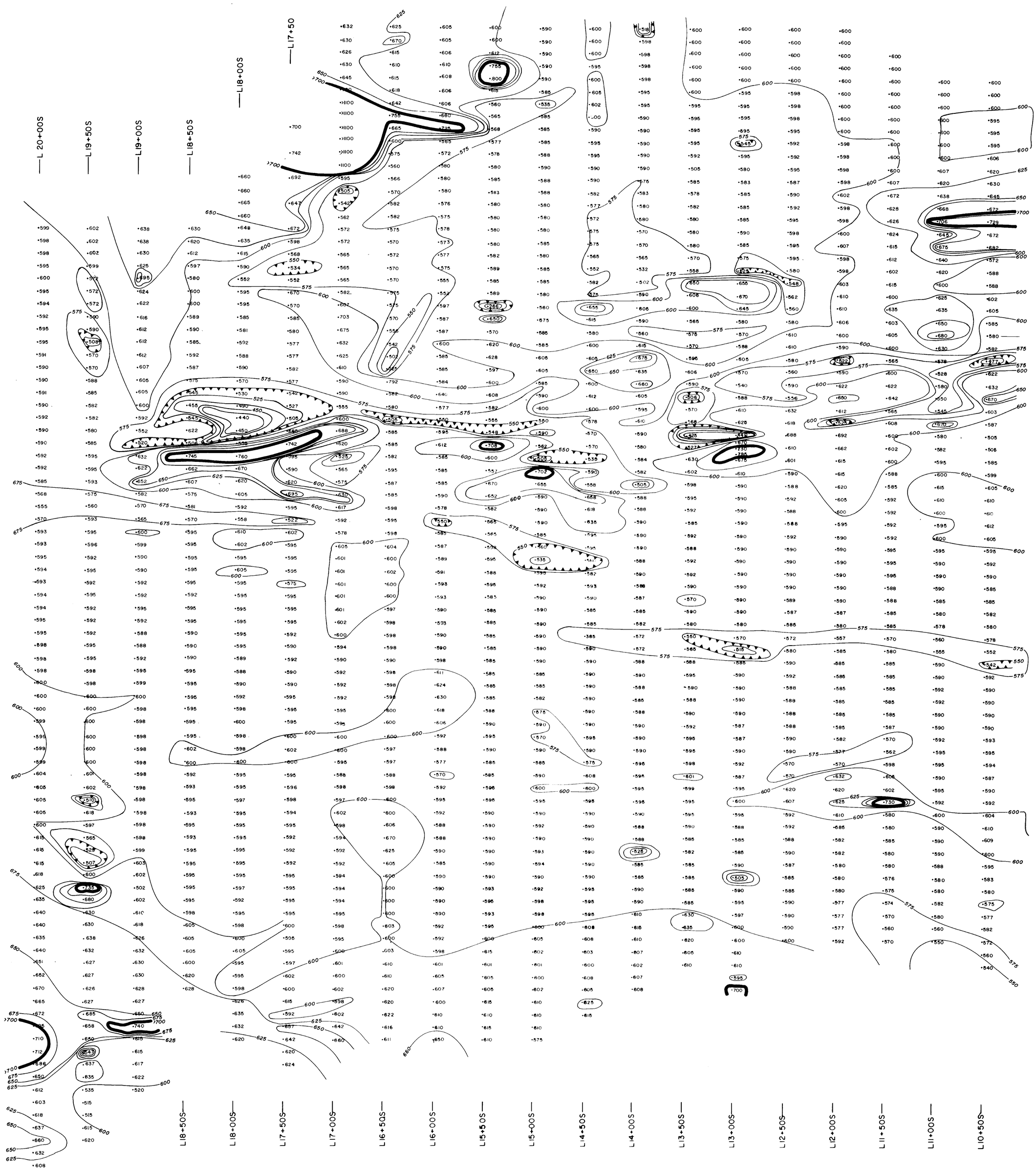
L17+50 | L18+00S

L20+00S | L19+50S | L19+00S | L18+50S

5+00W | 4+50W | 4+00W | 3+50W | 3+00W | 2+50W | 2+00W | 1+50W | 1+00W | 0+50W | 0+00 | 0+50E | 1+00E | 1+50E | 2+00E | 2+50E | 3+00E | 3+50E | 4+00E

L18+50S | L18+00S | L17+50S | L17+00S | L16+50S | L16+00S | L15+50S | L15+00S | L14+50S | L14+00S | L13+50S | L13+00S | L12+50S | L12+00S | L11+50S | L11+00S | L10+50S

L20+00S | L19+50S | L19+00



## LEGEND

25γ INTERVALS
<550
>700

*NOTE*

BACKGROUND IS 57000 GAMMAS
ONLY LAST 3 DIGITS ARE PLOTTED

B | A

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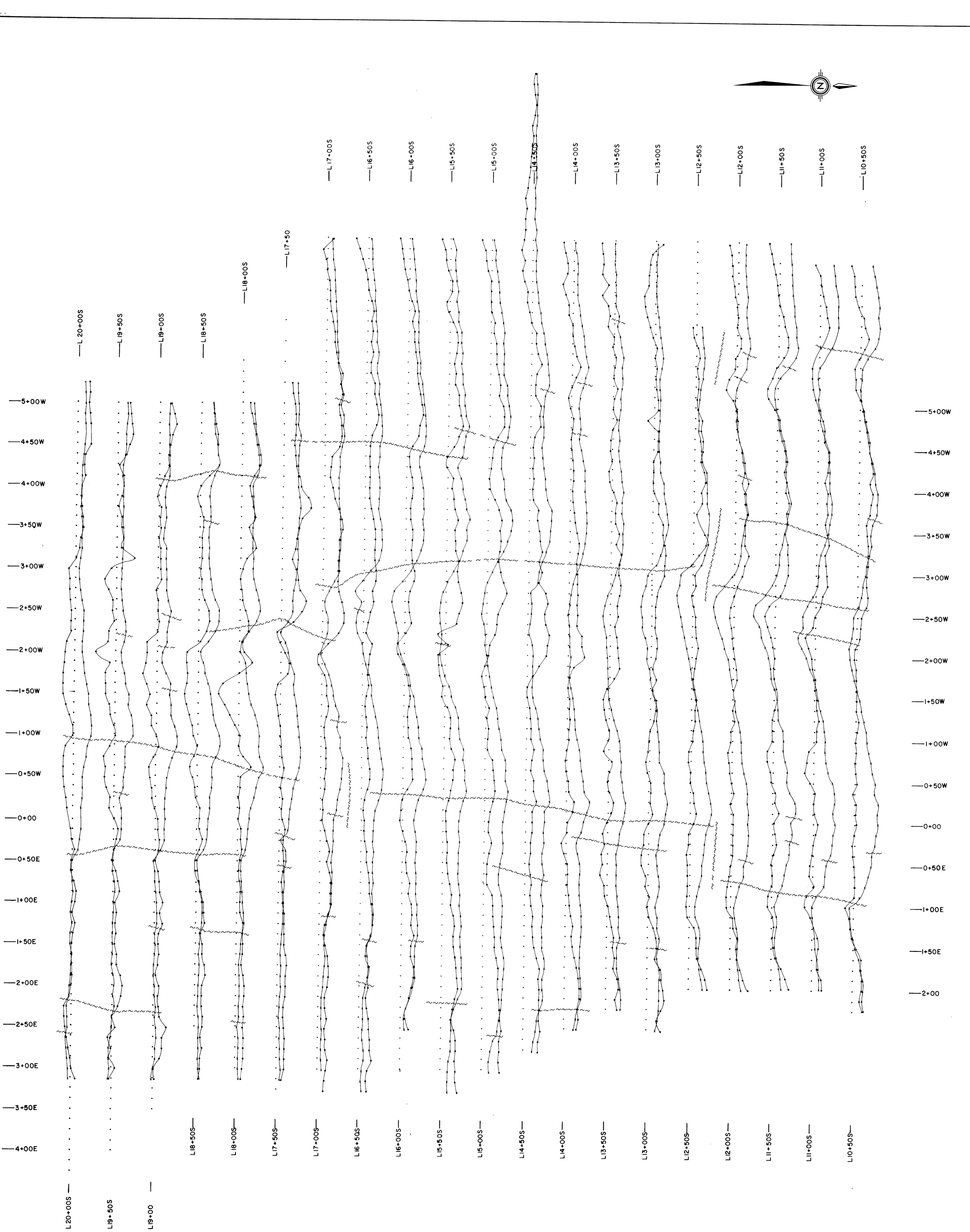
# TOTEM
# MAGNETOMETER
# GEOPHYSICS SURVEY

| | |
|---|---|
| FIGURE No. 5B | PROJECT No. M523 |
| DATE OCT / 83 | SCALE 1:1500 |
| D.B. | |




TOTEM GEOPHYSICS GRID

EM-16 IN-PHASE AND QUADRATURE PROFILES

• = O.P. SCALE 1cm = 10%

x = I.P. SCALE 1cm = 20%

PROPER X-OVER:
(FACING EAST)

GRID SCALE
0 10 20 30 40 50 M
1:1500

SHEET INDEX
A B

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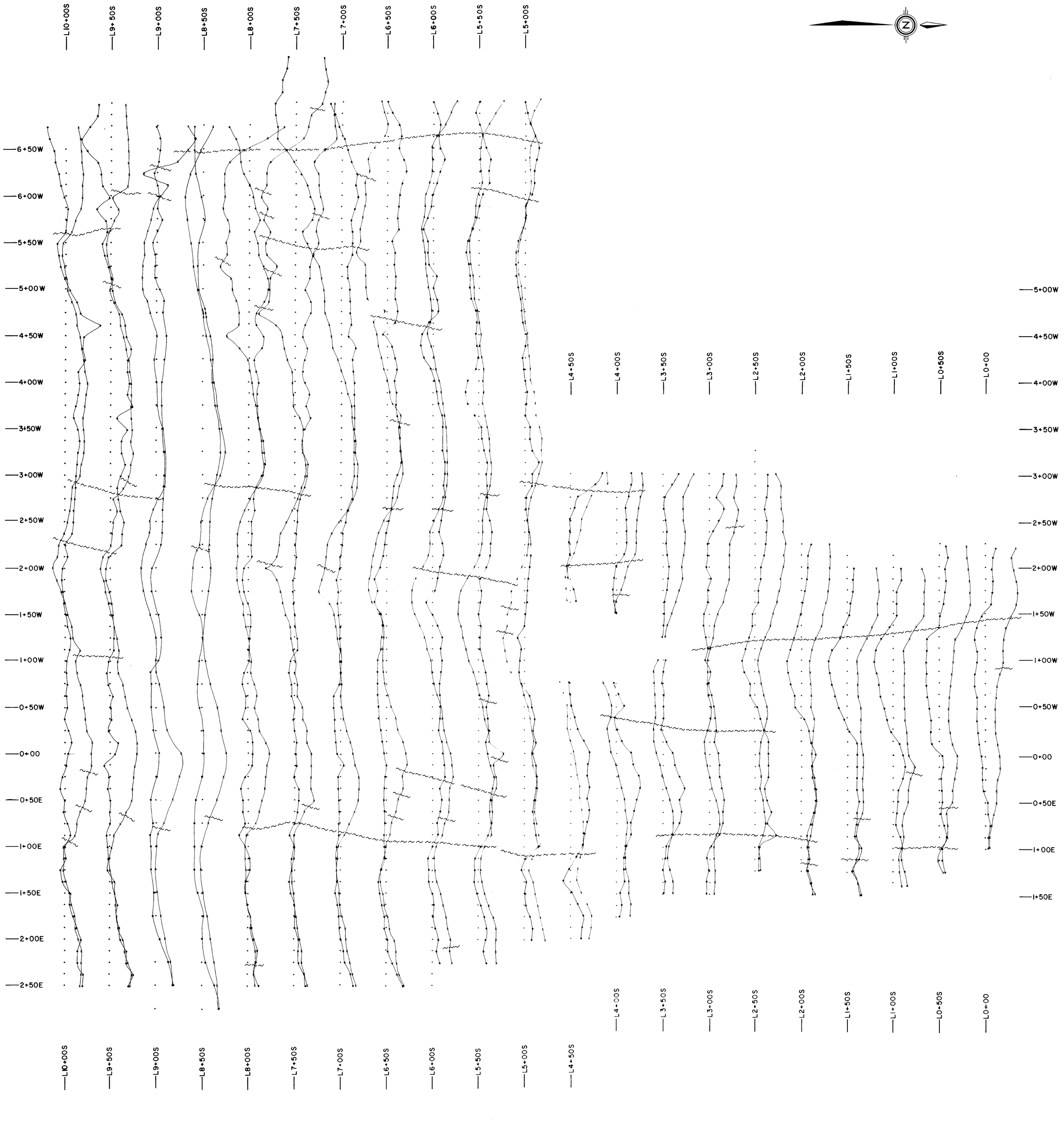
# TOTEM

GEOPHYSICS

VLF (EM-16) PROFILES

| | | | |
|---|---|---|---|
| FIGURE No 6A | | PROJECT No M-523 | |
| DATE OCT. 1983 | REVISION No | | SCALE 1:1500 |
| NTS No. | | | FILE No. |
| COMPILED BY D.B. | | | P-1 |




TOTEM GEOPHYSICS GRID

EM-16 IN-PHASE AND QUADRATURE PROFILES

• = OP SCALE 1cm = 10%

x = IP SCALE 1cm = 20%

PROPER X-OVER:
(FACING EAST)

GRID SCALE

0 10 20 30 40 50 M

1 : 1500

SHEET INDEX

A | B

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# TOTEM

GEOPHYSICS

VLF (EM-16) PROFILES

| | | | |
|---|---|---|---|
| FIGURE No 6B | | PROJECT No M-523 | |
| OCT. 1983 | | | 1:1500 |
| | | | |
| D.B. | | | P-2 |