ZAPOPAN NL

EL 2459 - (STOW CREEK)

FINAL REPORT

Author : K. Kenny
Date : October 1992

Report No: AR40.92

Distribution

1.	NTDME Darwin	x 1
2.	Zapopan Perth	x 1
3.	Zapopan Darwin	x 1
4.	Zapopan Katherine	x 1

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1.0 INTRODUCTION

Exploration licence 2459, Stow Creek, is situated in the southern part of the Pine Creek Geosyncline approximately 60km north west of Katherine (See Figure 1).

The Licence formed part of the Mt Todd Joint Venture between Billiton Australia Gold Pty, Ltd., and Zapopan NL and was transferred as part of the agreement over the Mt Todd Project area to 100% Zapopan control in April 1992.

The exploration licence was granted on 3 October 1987 and expired on 2 October 1992, and initially comprised 11 graticular units or parts thereof, equivalent to an area of approximately 30 km^2.

This report documents all work conducted within the expired blocks, Blocks 47/20, 48/20 and 49/20 of the 1:50,000 Katherine Mining Tenure Sheet 21/1. (See Figure 1).

2.0 REGIONAL GEOLOGICAL SETTING

The northern portion of the exploration licence, from BMR - based mapping, is underlain by greywacke sediments of the lower Proterozoic Burrell Creek Formation which is overlain unconformably in the south by greywacke - sediments of the Tollis Formation. (See Figures 2, 3, and 4).

Recent JV - funded PhD work in the Batman area to the west, however suggests that the mapped contact between the two Formations marks a lithological contact or facies change within the Burrell Creek Formation only and that therefore all sediments in the area belong to this Formation.

Two phases of deformation have occurred in the area; an assymetric F_1 folding event with north-south orientated fold axes with generally broad synclines and tight anticlines and a less prominent F_2 event with east-west orientated fold axes. (See Figure 3)

Geological reconnaissance in the area of the Dick Greyson aeromagnetic anomaly (See Section 3.2) detected iron-rich weathered rocks of high magnetic susceptibility which are thought to most probably represent small inliers and cappings of mafic volcanics of the Edith River Group (See Figure 16).

3.0 WORK COMPLETED

Work carried out area the area has consisted of airborne geophysics, stream sediment sampling, grid-based soil sampling and geological and rock chip sampling follow up.

3.1 STREAM SEDIMENT GEOCHEMISTRY

The area was initially screened using multiple passes of stream sediment sampling and anomaly follow-up. A total of 54, five kilogram stream sediment samples were collected and analysed for gold using the bulk cyanide leach method at Australian Assay Labs, Pine Creek (See Figure 5). Sediment samples, seived to -80 mesh, were also collected and analysed for Cu, Pb and Zn using AAS techniques (See Figure 6).

Cu, Pb and Zn values are all low order (See Figure 6) with maximum values of 16, 13 and 29 ppm respectively and are not considered to have economic significance.

Gold values are highly variable (See Figure 5) ranging from near detection levels to an apparently highly anomalous maximum value of 56.6 ppb. Other initial phase highly anomalous results (eg. 44.7 ppb, 30 ppb, 9.90 ppb etc) failed to repeat on later check sampling. In spite of this poor repeatability, most anomalous areas were later covered by soil sampling grids for detailed checking. (See Section 3.3).

3.2 GEOPHYSICS

The area was flown in 1988 by the Mt Todd Joint Venture with airborne magnetics and radiometrics (See Figures 7 - 12). No radiometric anomalies of apparent direct economic significance were detected (See Figures 7 - 10). Magnetic surveying however detected a prominent magnetic anomaly covering the southern portion of the licence area. (See Figure 11). This anomaly was named the "Dick Greyson" anomaly and, due to the presence of an associated magnetic anomaly with the nearby Batman deposit, was subject to a number of stages of ground checking. On best available ground evidence, the anomaly is though to be due to

mafic volcanics probably of the Edith River Group. The anomaly is interpreted to represent a faulted off portion of Edith River volcanics which are mapped in outcrop (in a box-shaped fold - See Figure 3) immediately to the south-west of the licence area.

3.3 SOIL SAMPLING RESULTS

As a check follow-up of the initial anomalous stream sediment results and follow-up of the aeromagnetic anomaly two areas, the Joker and Dick Greyson Grid, were gridded and soil sampled.

3.3.1 Joker Grid

Eleven 200 metre spaced lines of soil sampling covering an area of approximately 2.4 sq.km were used to follow-up stream sediment anomalies in the north-western portion of the licence area.

Samples were collected every 10 metres and composited over 50 metre intervals. The resultant 2-5kg samples were analysed for gold using BCL techniques at AAL, Pine Creek. Results are plotted on Figure 15. Geological mapping and rock chip sampling results are presented on Figures 13 and 14.

Results are generally low, however define an erratically anomalous north-easterly trending zone containing spot geochemical highs up to 36.7 ppb Au, roughly corresponding to the course of the main drainage in the area (Figure 15).

Mapping in the area detected north-easterly trending zones of veining in a similar area to the soil anomalism (See Figure 14). Rock-chip sampling however returned only low gold values, generally below 0.6g/t Au and rising to a single point maximum value of 4 g/t Au in the south-east of the grid area. It was therefore concluded that the soil Au- anomalism is related to low order alluvial concentrations and dispersion associated with the trend of the area's main drainage.

3.3.2 Dick Greyson Grid

As a final check of the Dick Greyson aeromagnetic anomaly, three scout reconnaisance soil lines were gridded in an east-west and north-south direction across the magnetic anomaly (See Figure 16).

Samples were collected by compositing 10 metre into 50 metre samples, with samples analysed for Au using BCL-techniques. A minus 80 mesh soil sample was also similarly collected and analysed for Cu, Pb, Zn and As using AAS techniques (See Figures 17 to 22).

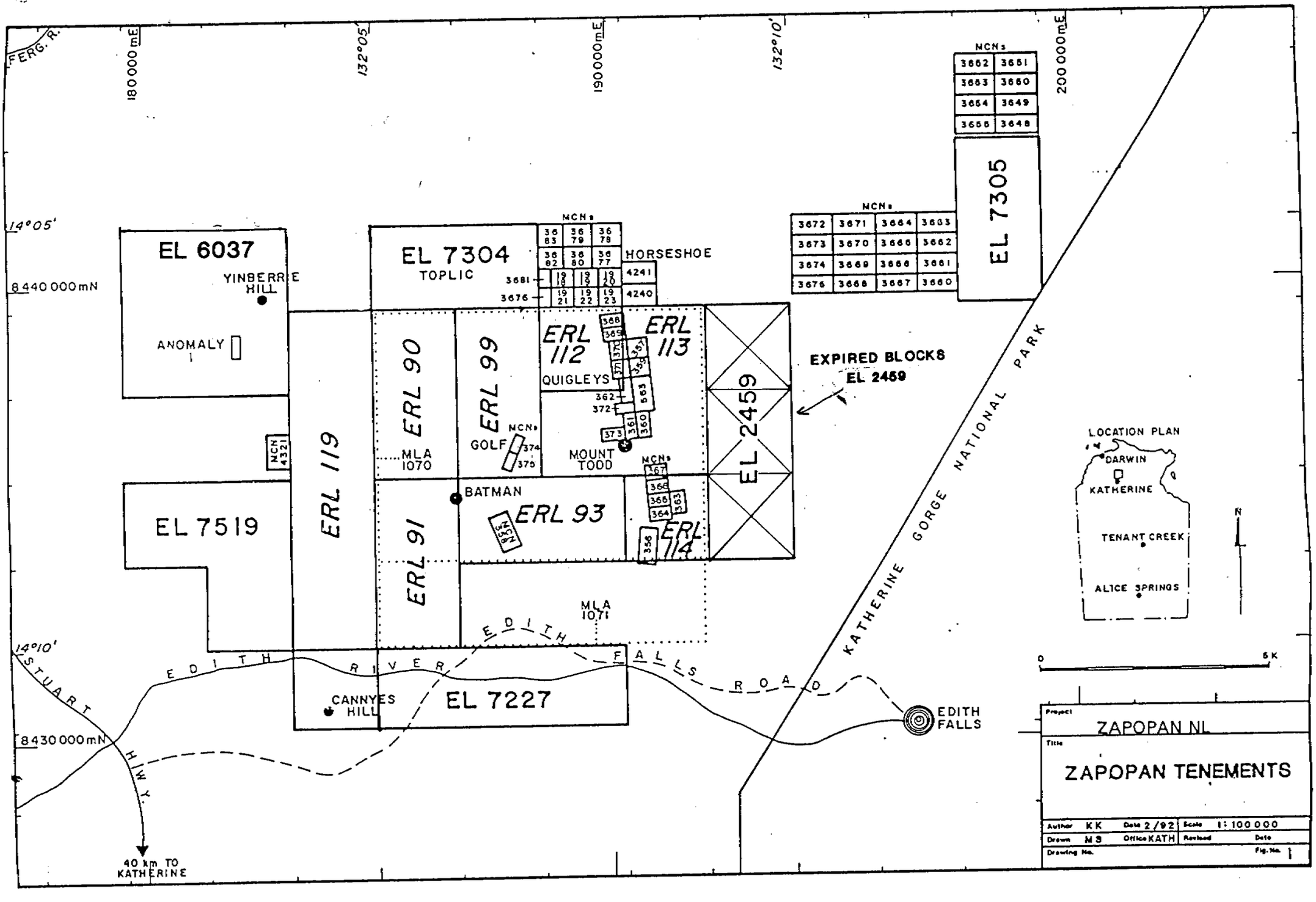
Gold results over the area of the magnetic anomaly are low order (generally in the range of 0 - 2 ppb) and rise to a spot maximum value of 42 ppb Au on line 17500E (See Figure 18).

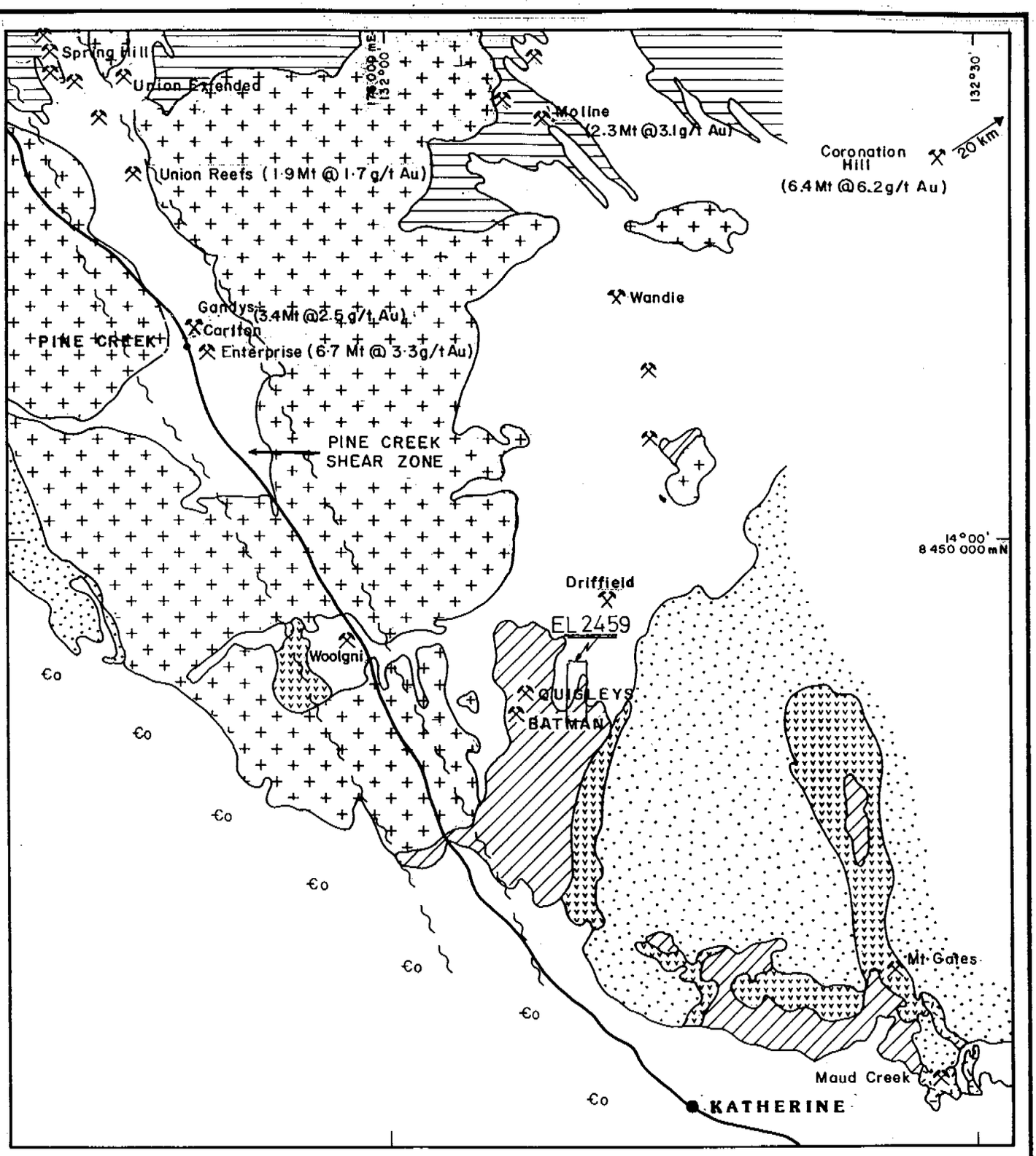
Cu, Pb, Zn and As values over the magnetic anomaly are not considered to be anomalous and rise to maximum of 34, 230, 53 and 20 ppm respectively.

Rock chip sampling returned low order gold values (Figure 16 and 23) generally near detection, with a maximum value of 0.38 g/t Au being recorded in the area. A few samples from the north-west of the grid area were analysed for Cu, Pb, Zn and As and returned no values of economic interest with maximum of 21, 110, 69 and 240 ppm respectively being recorded.

4.0 CONCLUSIONS

The Exploration Licence has been screened using multiple passes of stream sediment sampling, rock chip sampling and reconnaisance geological mapping. The available evidence downgrades the potential for large scale economic grade mineralisation to exist in the area and accordingly the area has not been retained.


FERG. R.
180 000 mE
132°05'
190 000 mE
132°10'
200 000 mE
14°05'
8 440 000 mN
EL 6037
YINBERRIE HILL
ANOMALY 1
EL 7304
TOPLIC
HORSESHOE
4241
4240
EL 7305
EXPIRED BLOCKS
EL 2459
ERL 112
QUIGLEYS
ERL 113
ERL 90
ERL 99
ERL 119
MLA 1070
GOLF
MOUNT TODD
BATMAN
ERL 93
ERL 91
ERL 114
EL 2459
EL 7519
MLA 1071
EDITH RIVER
EDITH FALLS ROAD
KATHERINE GORGE NATIONAL PARK
CANNYES HILL
EL 7227
EDITH FALLS
14°10'
STUART HWY.
8 430 000 mN
40 km TO KATHERINE
LOCATION PLAN
DARWIN
KATHERINE
TENANT CREEK
ALICE SPRINGS
N
0
5K
Project
ZAPOPAN NL
Title
ZAPOPAN TENEMENTS
Author KK
Date 2/92
Scale 1:100 000
Drawn MS
Office KATH
Revised
Date
Drawing No.
Fig. No. 1



Palaeozoic

Middle Proterozoic

EARLY PROTEROZOIC

Cullen Batholith

Edith River Group (including Plum Tree Ck. volc.)

El Sherana Group

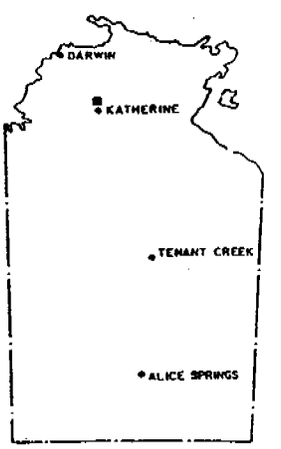
Burrell Creek Formation

Pre Burrell Creek Formation

Dolerite

Gold mineralization

LOCATION PLAN



0 20 km

Project

Title

MOUNT TODD REGIONAL GEOLOGICAL SETTING

Author	F F	Date	5-88	Scale	1:500 000
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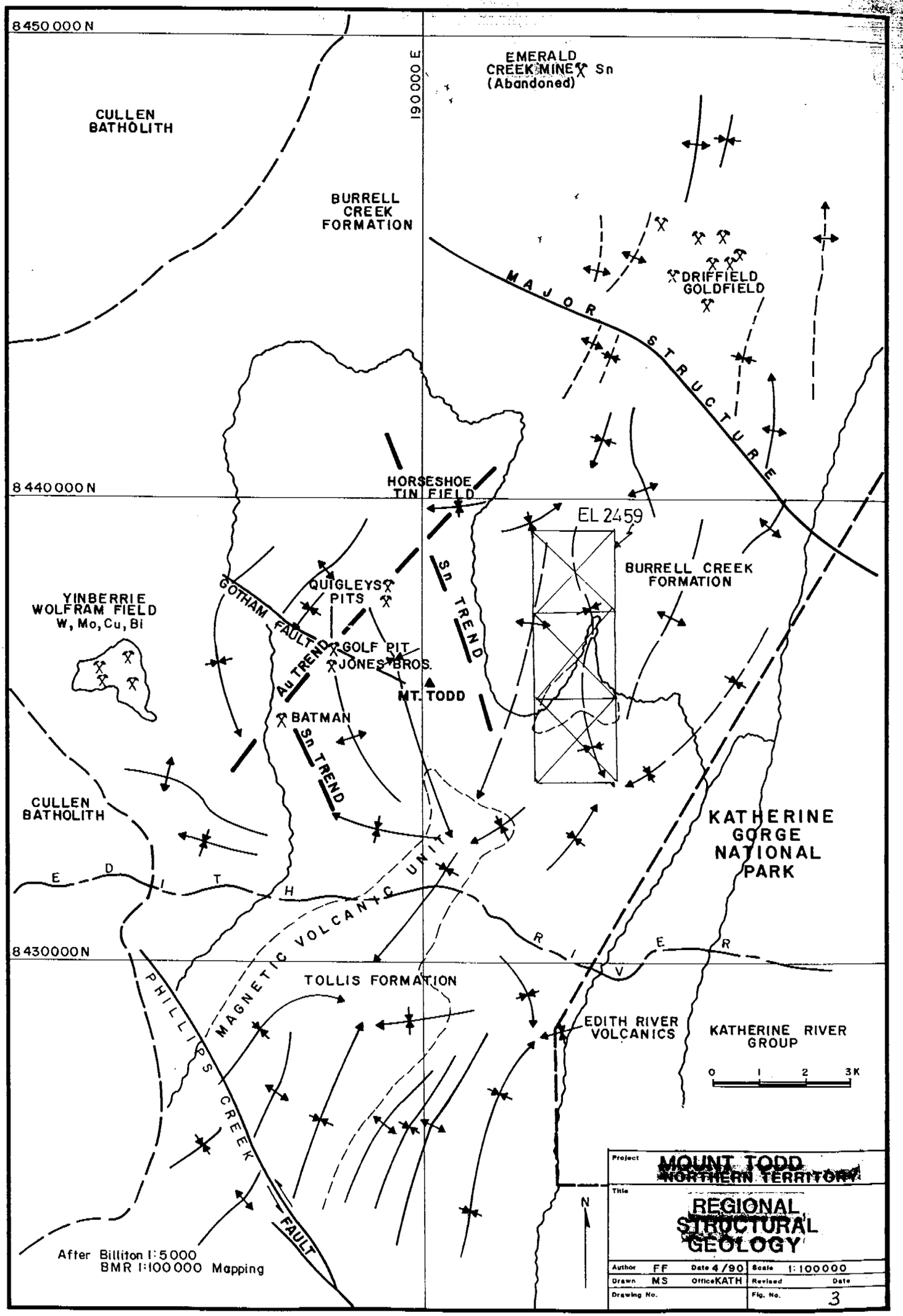
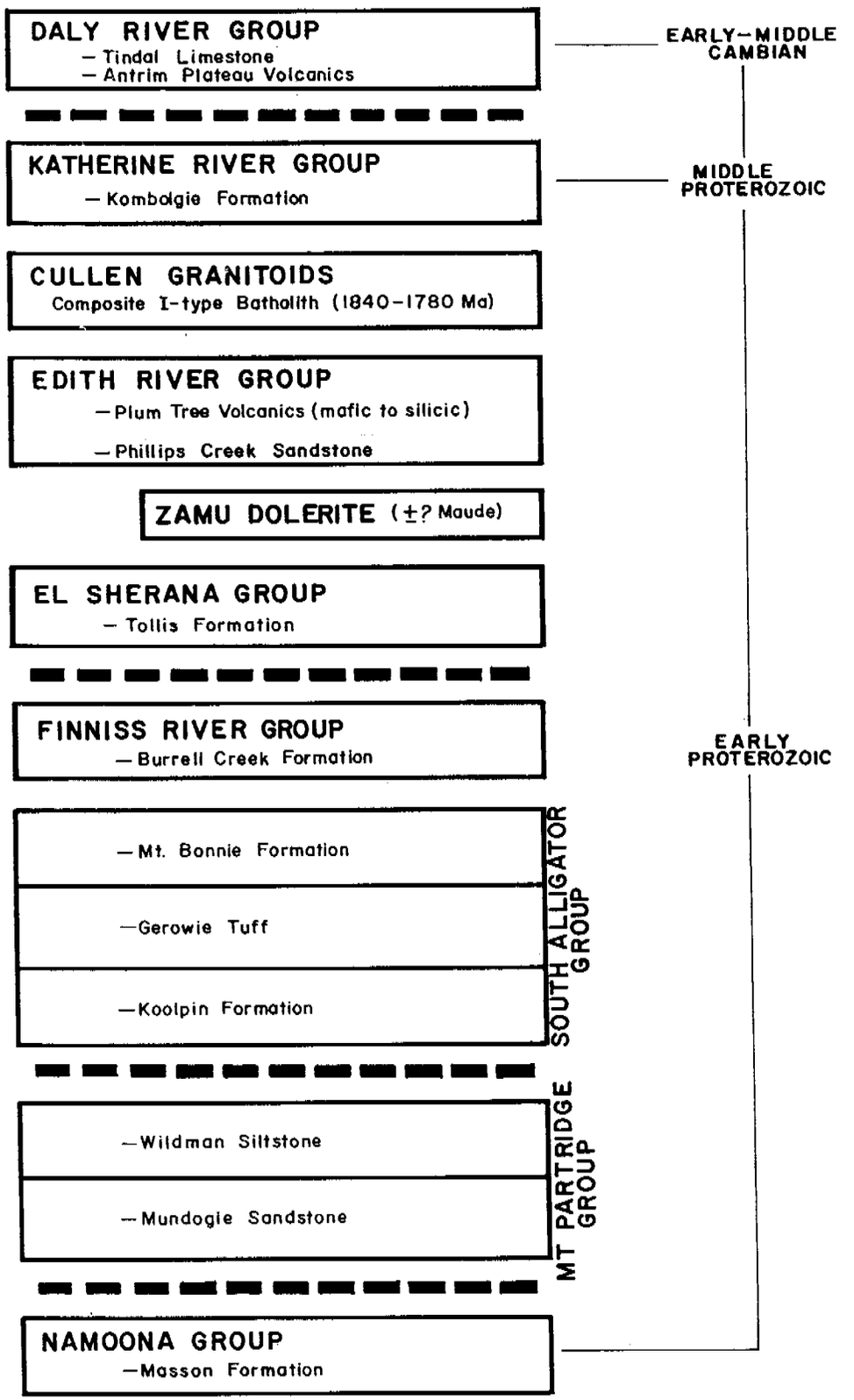

8450000N
190000E
EMERALD CREEK MINE Sn (Abandoned)
CULLEN BATHOLITH
BURRELL CREEK FORMATION
DRIFFIELD GOLDFIELD
MAJOR STRUCTURE
8440000N
HORSESHOE TIN FIELD
EL 2459
BURRELL CREEK FORMATION
YINBERRIE WOLFRAM FIELD W, Mo, Cu, Bi
GOTHAM FAULT
QUIGLEYS PITS
Sn TREND
Au TREND
GOLF PIT
JONES BROS.
MT. TODD
BATMAN
Sn TREND
CULLEN BATHOLITH
KATHERINE GORGE NATIONAL PARK
EDITH RIVER
MAGNETIC VOLCANIC UNIT
8430000N
TOLLIS FORMATION
PHILLIPS CREEK FAULT
EDITH RIVER VOLCANICS
KATHERINE RIVER GROUP
0 1 2 3K
After Billiton 1:5000
BMR 1:100000 Mapping
N
Project MOUNT TODD NORTHERN TERRITORY
Title REGIONAL STRUCTURAL GEOLOGY
Author FF Date 4/90 Scale 1:100000
Drawn MS Office KATH Revised Date
Drawing No. Fig. No. 3

STRATIGRAPHIC COLUMN



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Drawn MS	Office KATH	Revised	Date:
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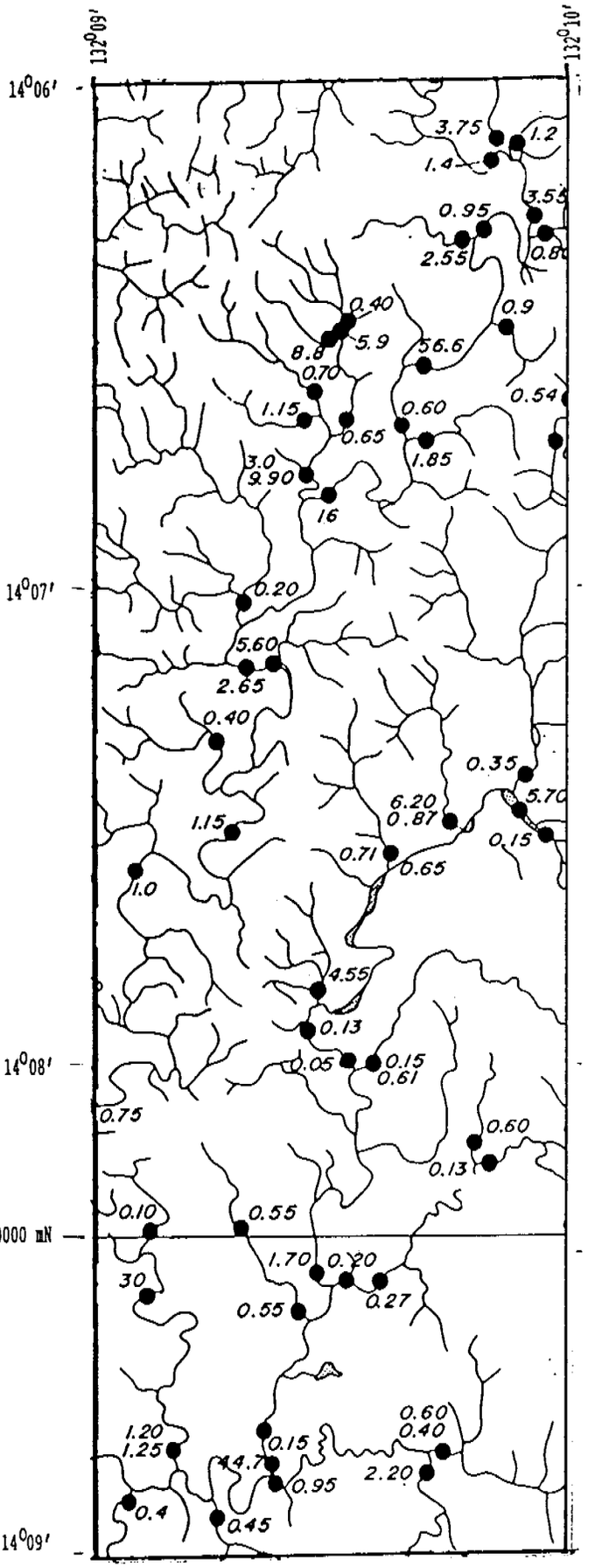

GN

0 0.5 1 K 1.5

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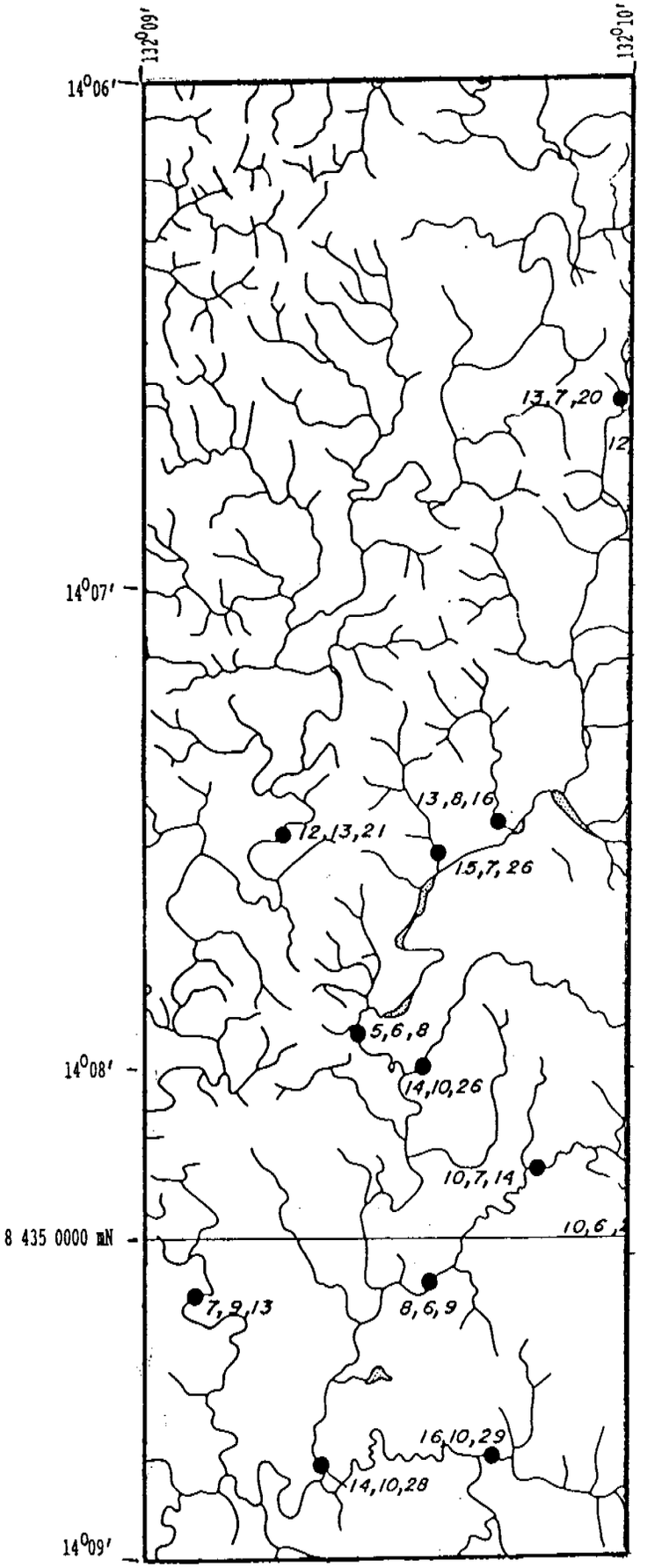

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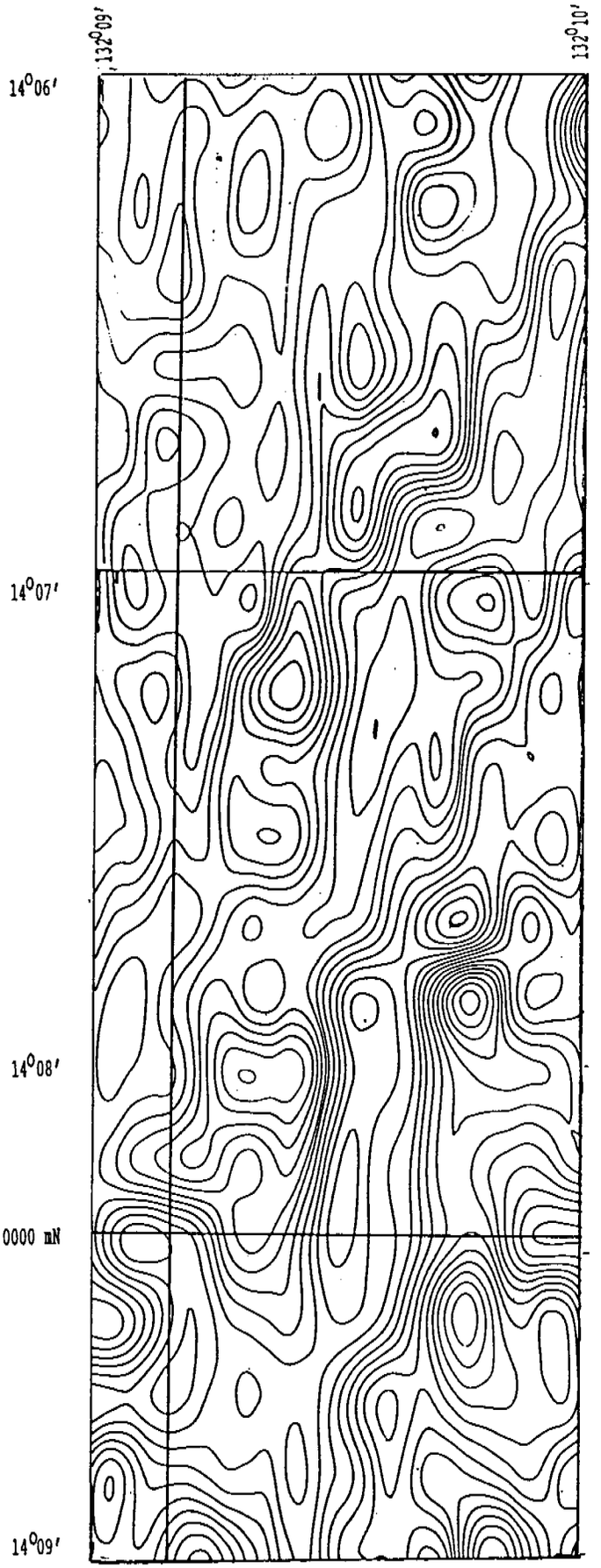

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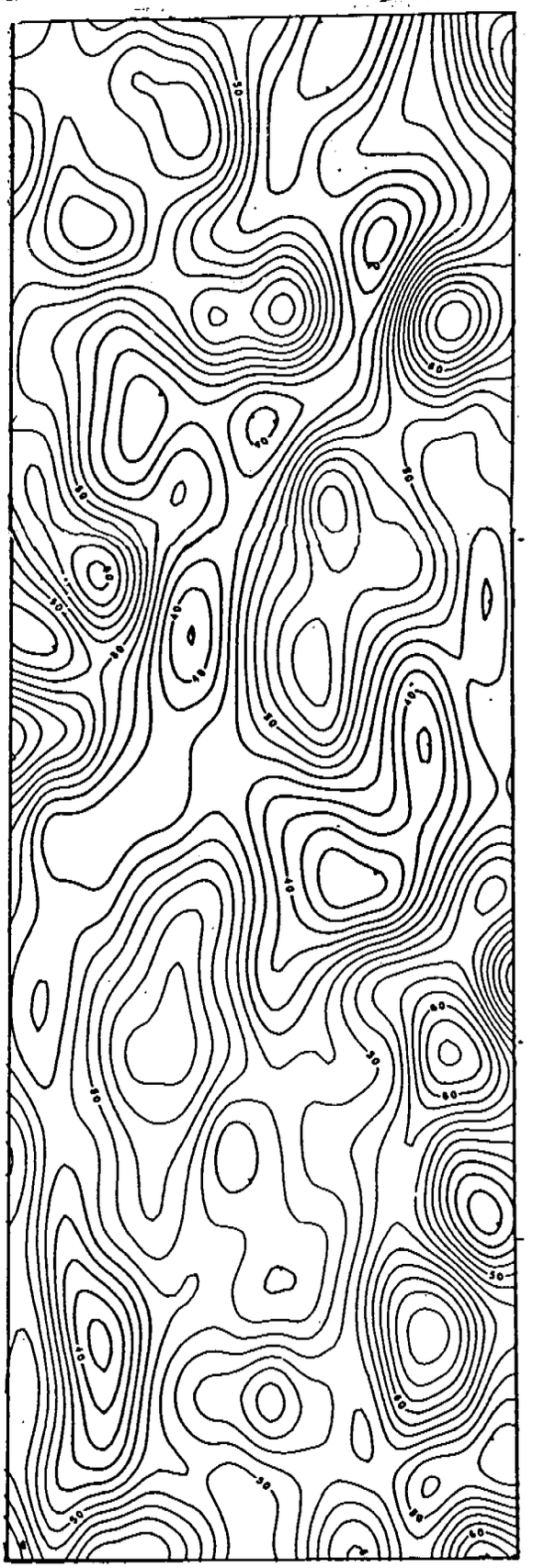

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ZAPOPAN NL	
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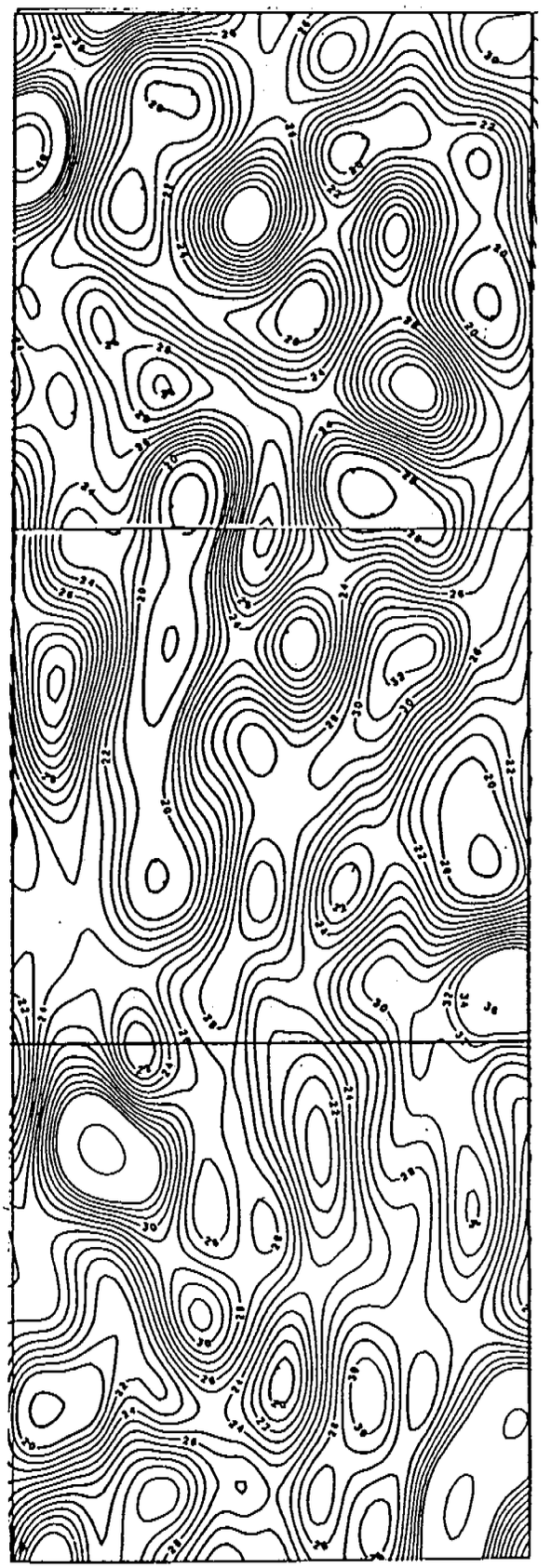

GN

0 0.5 1K 1.5

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Date 9/92	Scale 1:25000
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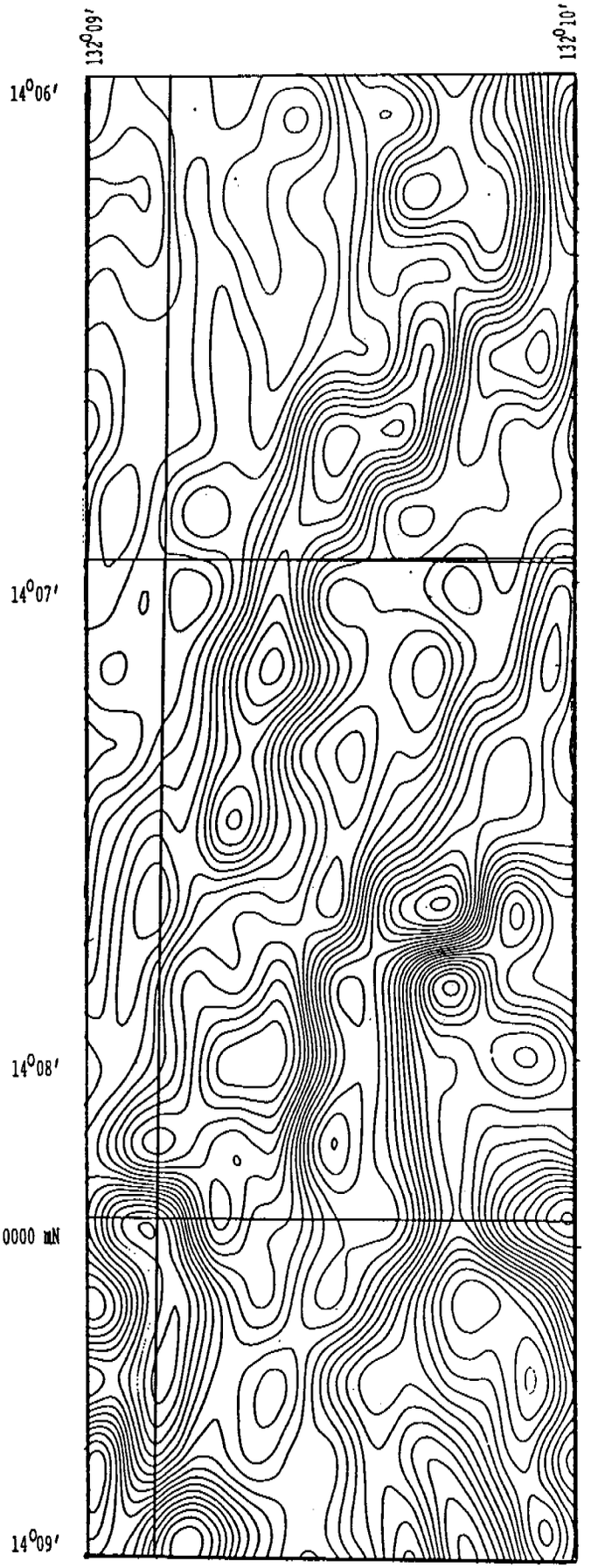

GN

0 0.5 1 K 1.5

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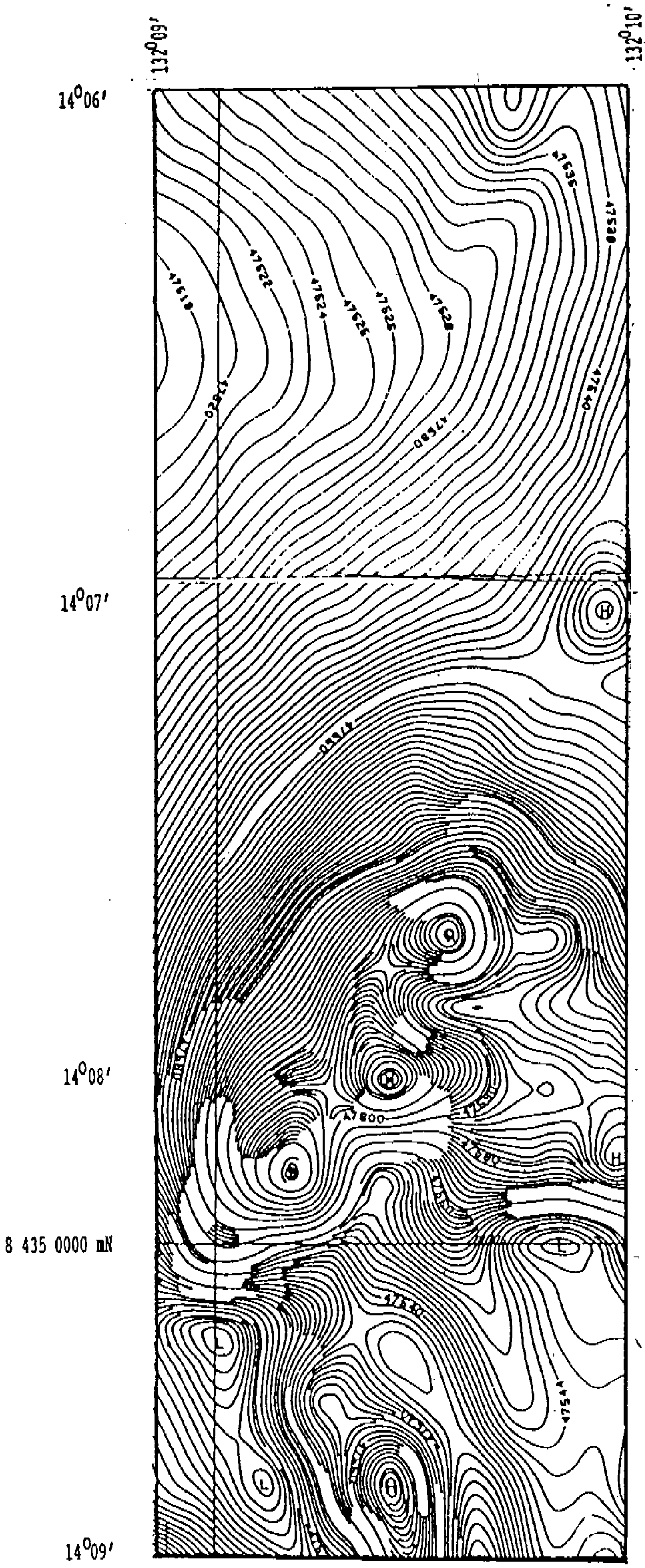
Date 9/92	Scale 1:25000
Drawing No.	Figure No. 10



GN

0 0.5 1 K 1.5

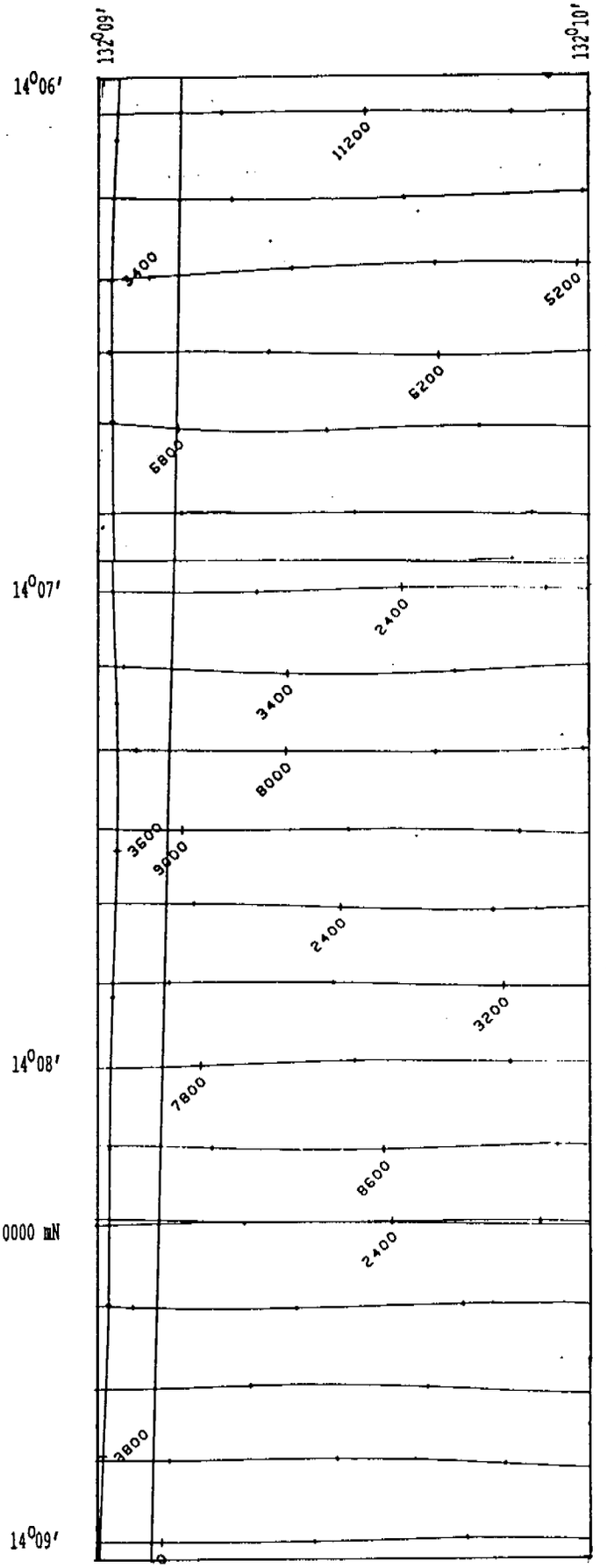
Z A P O P A N   N L

Project:
MT TODD PROJECT
NORTHERN TERRITORY

Title: EL 2459

TOTAL MAGNETIC INTESITY
CONTOUR MAP

Date 9/92	Scale 1:25000
Drawing No.	Figure No. 11



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Title: EL 2459 FLIGHT PATHS	
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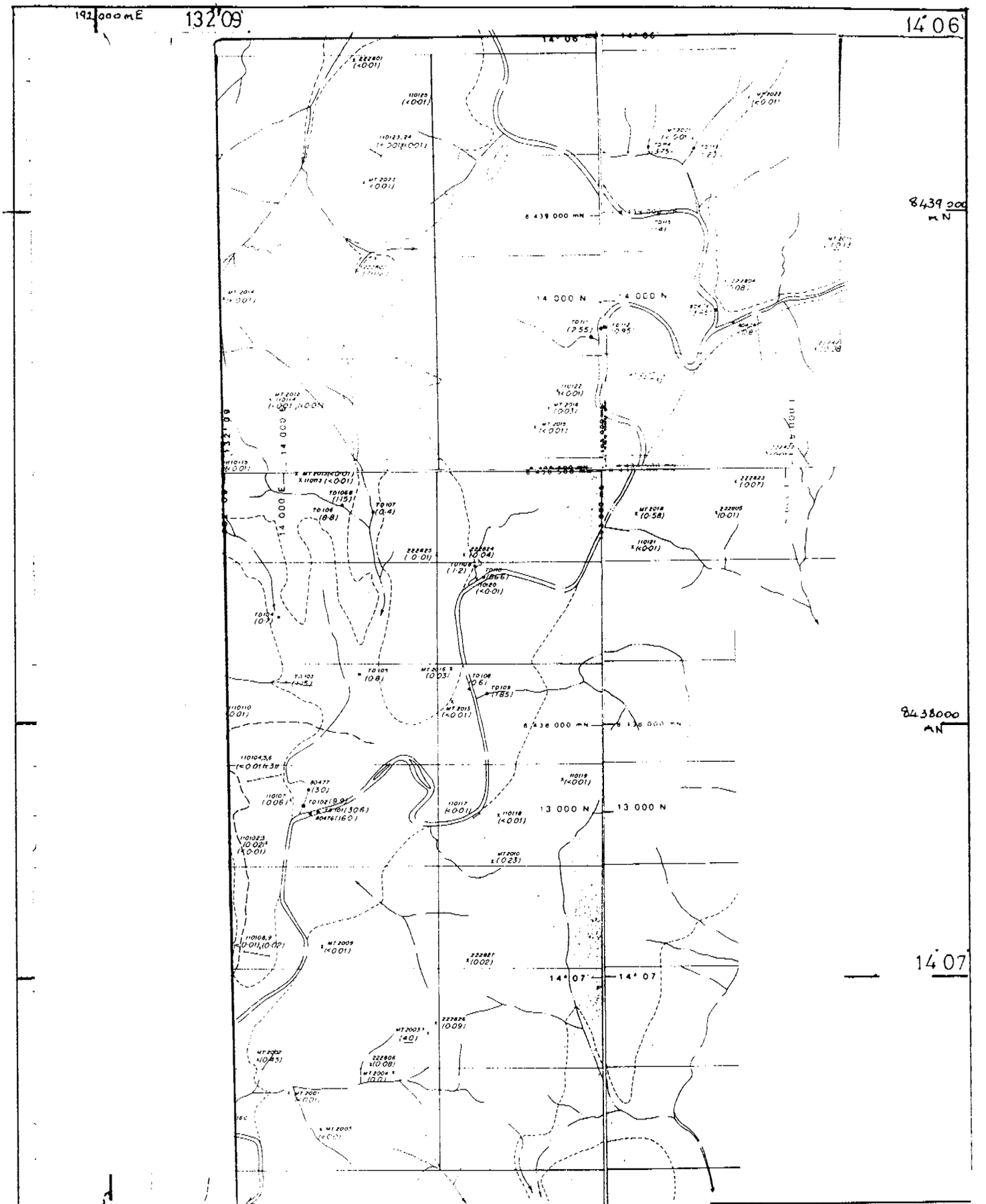
Drawing No.	Figure No. 12



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EL 2459 JOKER GRID	
Rock Chip and Stream Sediment Results (Au)	
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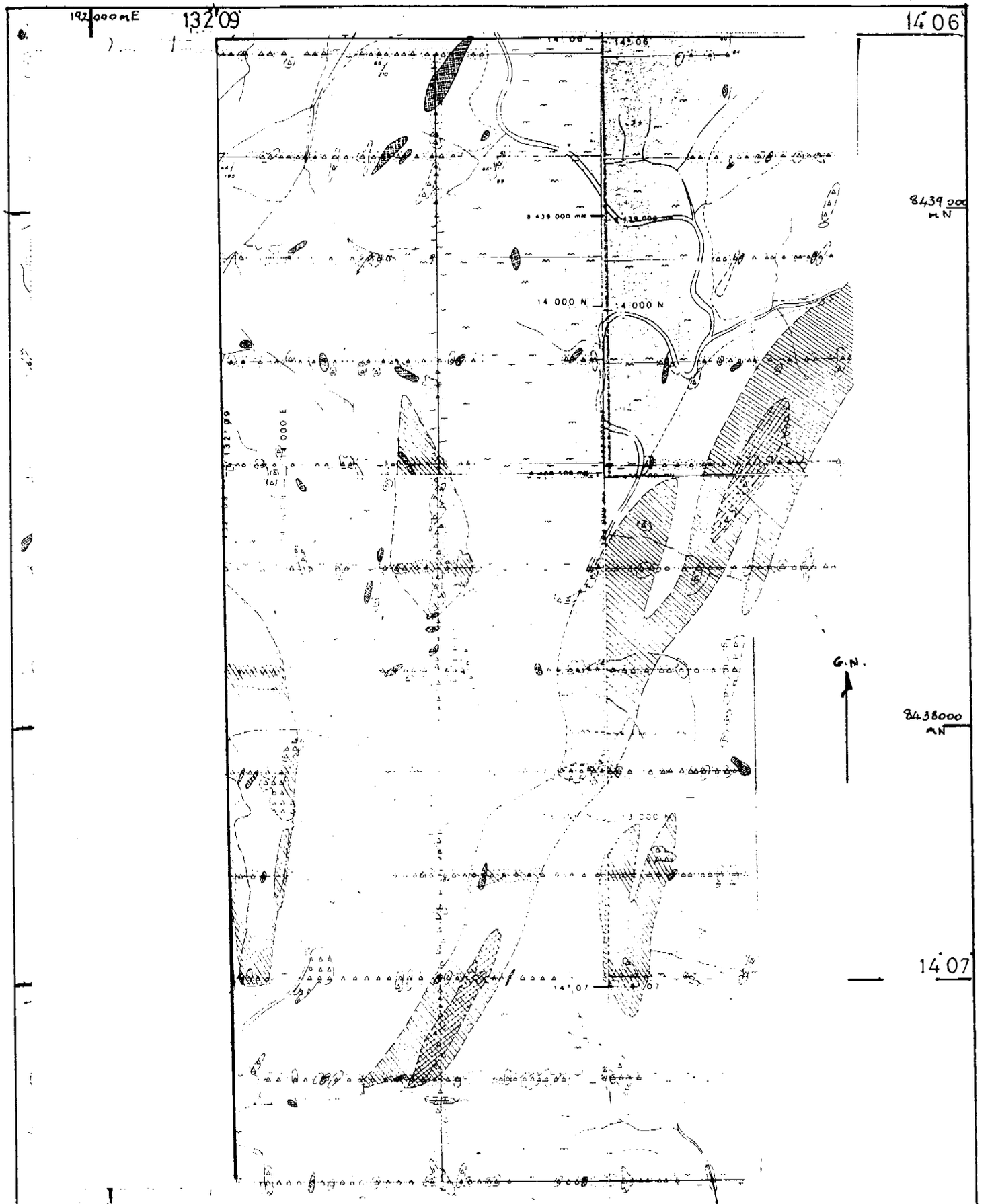
	Figure No 13



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Interpreted Geology	
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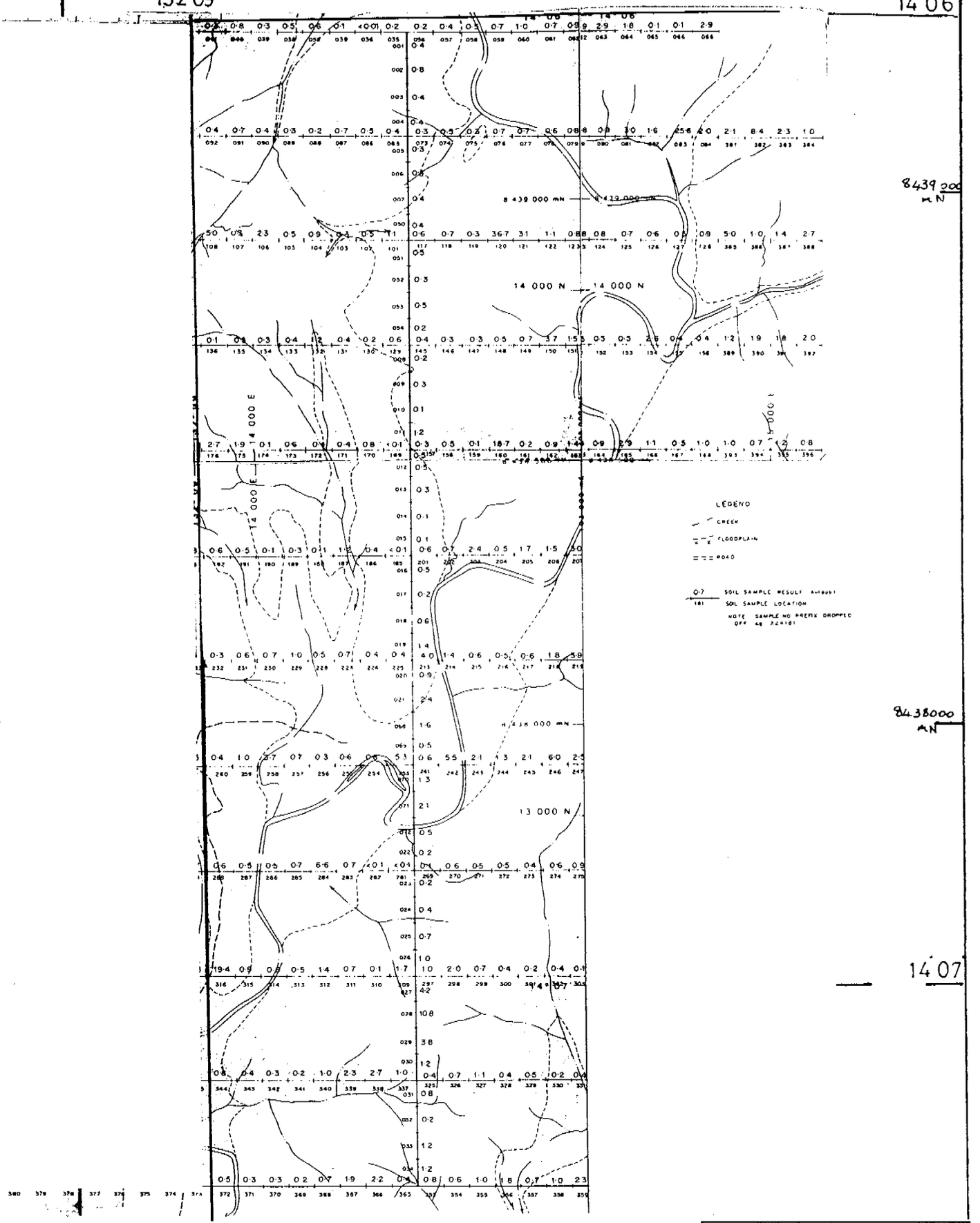
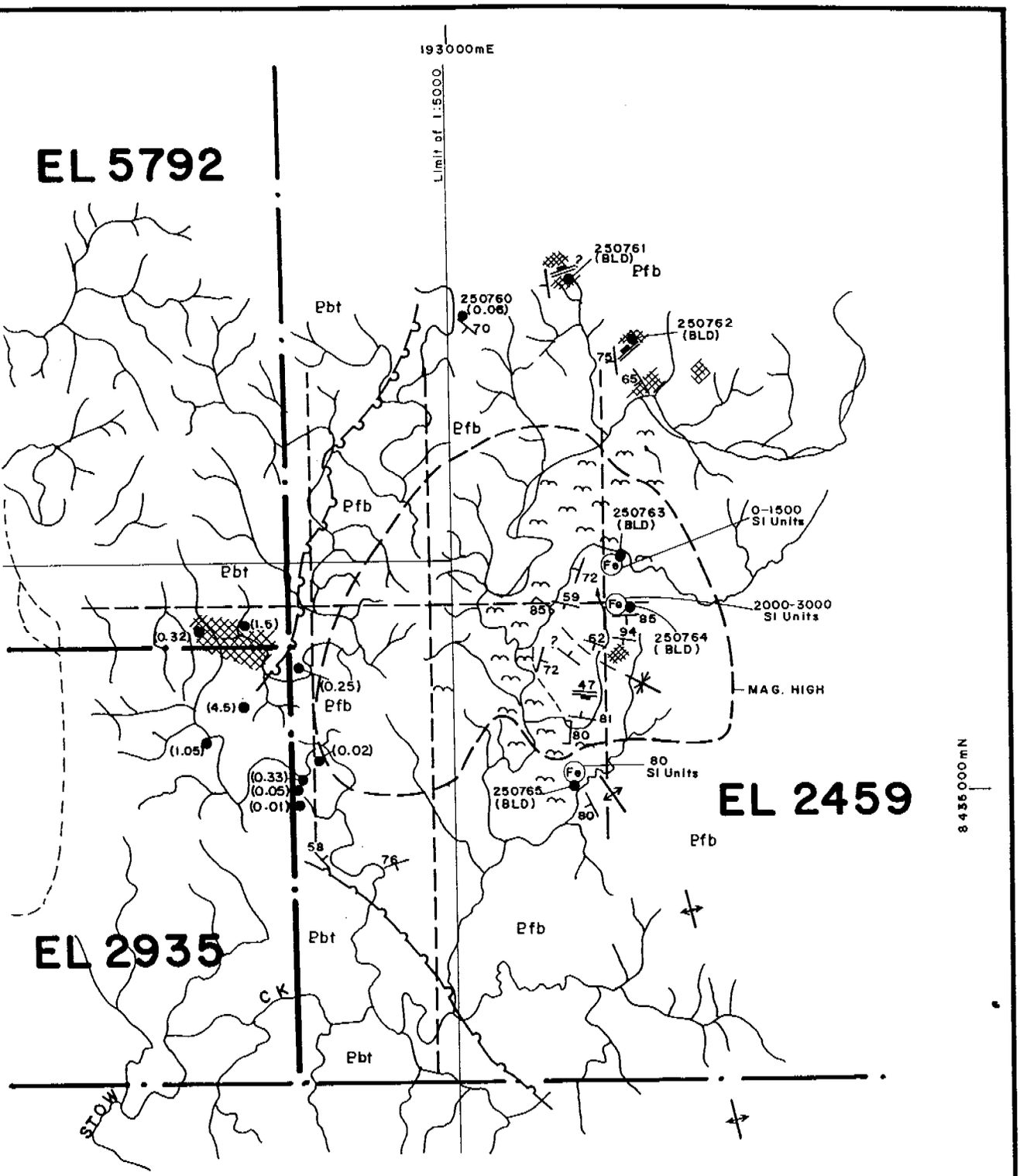


ZAPOPAN NL	
EL 2459 JOKER GRID	
Soil Sampling Results Au (ppb)	
Date 9/92	Scale 1:10 000
	Figure No 15



LEGEND:

- — — — GRID LINES
- Pbt — TOLLIS FORMATION
- Pfb — BURRELL CREEK FORMATION
- (Fe) — IRON-RICH BEDS SHOWING MAGNETIC SUSCEPTABILITY
- — UNCONFORMITY
- — DIP AND STRIKE OF CLEAVAGE
- — SYNCLINE
- — 250765 (BLD) ROCK CHIP SAMPLE (Au RESULT IN PPM)
- — AREA OF QUARTZ VEINING
- — ANTICLINE
- — ALLUVIUM
- — BEDDING ORIENTATION
- — QUARTZ VEIN ORIENTATION
- BLD — BELOW LIMIT DETECTION

Project	STOW CREEK EL 2459 NORTHERN TERRITORY
Title	GEOLOGY OF DICK GREYSON MAGNETIC ANOMALY EL 2459
Author P F P/FF Date 8/89	Scale 1:25 000
Drawn M S Office KATH	Revised Date
Drawing No.	Fig. No. 16

14°07'

143000mE

JOKER GRID

14°07'

8437000mN

132°09'

132°10'

12000 N

8437000

8436500

11500 N

193000

193500

15500 E

8436000mN

14°08'

14°08'

10500 N

8435500

10000 N

8435000

8435000mN

9500 N

8434500

8434000

9000 N

14°09'

ZAPOPAN NL	
EL 2459 DICK GREYSON GRID	
Soil Sampling Locations	
Date 9/92	Scale 1:10 000
	Figure No 17

14°07'

14°08'

14°09'

132°09'

132°10'

JOKER GRID

193000mE

8437000mN

8436000mN

8435000mN

12000 N

11500 N

11000 N

10500 N

10000 N

9500 N

9000 N

193000

193500

LEGEND:

— GRID LINE WITH 50m INTERVAL

42.0 - BCL Au RESULTS IN ppb 10M INTO 50m COMPOSITES.

ZAPOPAN NL	
EL 2459 DICK GREYSON GRID	
Soil Sampling Results Au (ppb)	
Date 9/92	Scale 1:10 000
	Figure No 18

14°07'

14°08'

14°09'

132°09'

132°10'

JOKER GRID

193000mE

8437000mN

8436000mN

8435000mN

12000 N

11500 N

11000 N

10500 N

10000 N

9500 N

9000 N

LEGEND :

GRID LINE WITH 50m INTERVAL

10 : Cu RESULT IN ppm 10m INTO 50m COMPOSITE

ZAPOPAN NL	
EL 2459 DICK GREYSON GRID	
Soil Sampling Results Cu (ppm)	
Date 9/92	Scale 1:10 000
	Figure No 19

14°07'

193000mE

14°07'

JOKER GRID

132°09'

132°10'

8437000mN

8436000mN

14°08'

14°08'

8435000mN

14°09'

LEGEND.

GRID LINE WITH 50m INTERVAL

18 : Pb RESULT IN ppm

ZAPOPAN NL	
EL 2459 DICK GREYSON GRID	
Soil Sampling Results Pb (ppm)	
Date 9/92	Scale 1:10 000
	Figure No 20

14°07'

14°08'

14°09'

132°09'

132°10'

JOKER GRID

193000mE

8437000mN

8436000mN

8435000mN

12000 N

11500 N

11000 N

10500 N

10000 N

9500 N

9000 N

193500

8435500

8434500

8434000

LEGEND

12 — Zn RESULT IN ppm

GRID LINE WITH 50m INTERVAL

ZAPOPAN NL	
EL 2459 DICK GREYSON GRID	
Soil Sampling Results Zn (ppm)	
Date 9/92	Scale 1:10 000
	Figure No 21

14°07'

JOKER GRID

132°09'

132°10'

14°08'

14°09'

8437000mN

8436000mN

8435000mN

193000mE

193500E

193600

8436000mN

8435500

8435000

8434500

8434000

10500 N

10000 N

9500 N

9000

LEGEND :

GRID LINE WITH 50m INTERVAL

As RESULT IN ppm

ZAPOPAN NL

EL 2459
DICK GREYSON GRID

Soil Sampling Results
As (ppm)

Date	Scale
9/92	1:10 000
	Figure No 22

14°07'

143000mE

14°07'

MT 2002
0.43

110101
0.05

JOKER GRID

MT 2008
BLD

MT 2007
BLD

MT 2006
BLD

8437000mN

132°09'

132°10'

250759
BLD

11500 N

250758
BLD

250757
BLD

8436000mN

14°08'

14°08'

11000 N

10500 N

8435000mN

250723
0.02

250722
0.38

250724
0.01

10000 N

9500 N

14°09'

ZAPOPAN NL	
EL 2459 DICK GREYSON GRID	
Rock Chip Results Au (ppm)	
Date 9/92	Scale 1:10 000
	Figure No 23

1407'

143000mE

JOKER GRID

1407'

132°00'

13210'

8437000mN

15, 10, 16, 240
17, 32, 23, 60
21, 110, 69, 200
9, 14, 15, 100

8436000mN

1408'

1408'

8435000mN

1409'

ZAPOPAN NL	
EL 2459 DICK GREYSON GRID	
Rock Chip Results Cu, Pb, Zn, As (ppm)	
Date 9/92	Scale 1:10 000
	Figure No 24