

ASSESSMENT REPORT
GEOLOGICAL AND GEOCHEMICAL SURVEY

TARDIS CLAIMS
Atlin Mining Division
Trapper Lake Area, B. C.

N.T.S. 104K/Tulsequah Sheet

58°38'N
132°33'W

OWNER: CHEVRON CANADA LIMITED
OPERATOR: CHEVRON STANDARD LIMITED

Authors: Derek Brown
Ken Shannon

August, 1982

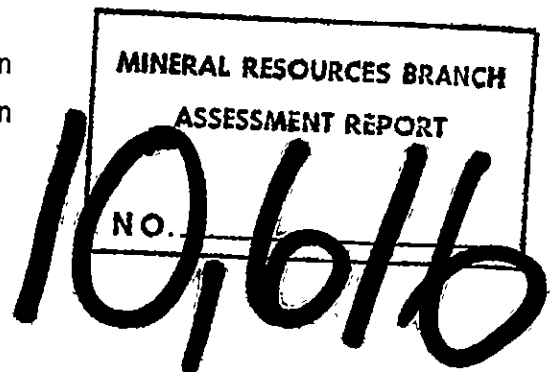


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INTRODUCTION

LOCATION AND ACCESS

The TARDIS claims are situated at 58°38'N and 132°33'W, approximately 20 kilometers north of Trapper Lake (Fig. 1). Access to the property was by helicopter from a base camp on Trapper Lake.

CLAIMS

The TARDIS claims were staked during July, 1981 as follows:

<u>Claim</u>	<u>Record Number</u>	<u>Record Date</u>	<u>Number of Units</u>
PETRO	1336	July 2, 1981	6
TARDIS	1337	July 2, 1981	20
TARDIS 2	1348	July 20, 1981	2
TARDIS 3	1349	July 20, 1981	4
TARDIS 4	1347	July 20, 1981	10

This claims cover previously unstaked ground.

REGIONAL GEOLOGY AND STRUCTURE

The TARDIS claims are astride the King Salmon Thrust Fault which strikes west-northwest and dips at approximately 45° to the northeast. Upper Triassic Sinwa Formation limestone is interpreted to have been thrust from the northeast over the Lower Jurassic Takwahoni Formation (Souther, 1971). Structurally conformable on the Sinwa Formation is the Jurassic Inklin Formation.

The Jurassic sedimentary rocks both above and below the thrust fault have a prominent northwest strike. A younger, post-Jurassic system of north to northeast fractures and small faults disrupts all units. Silicification,

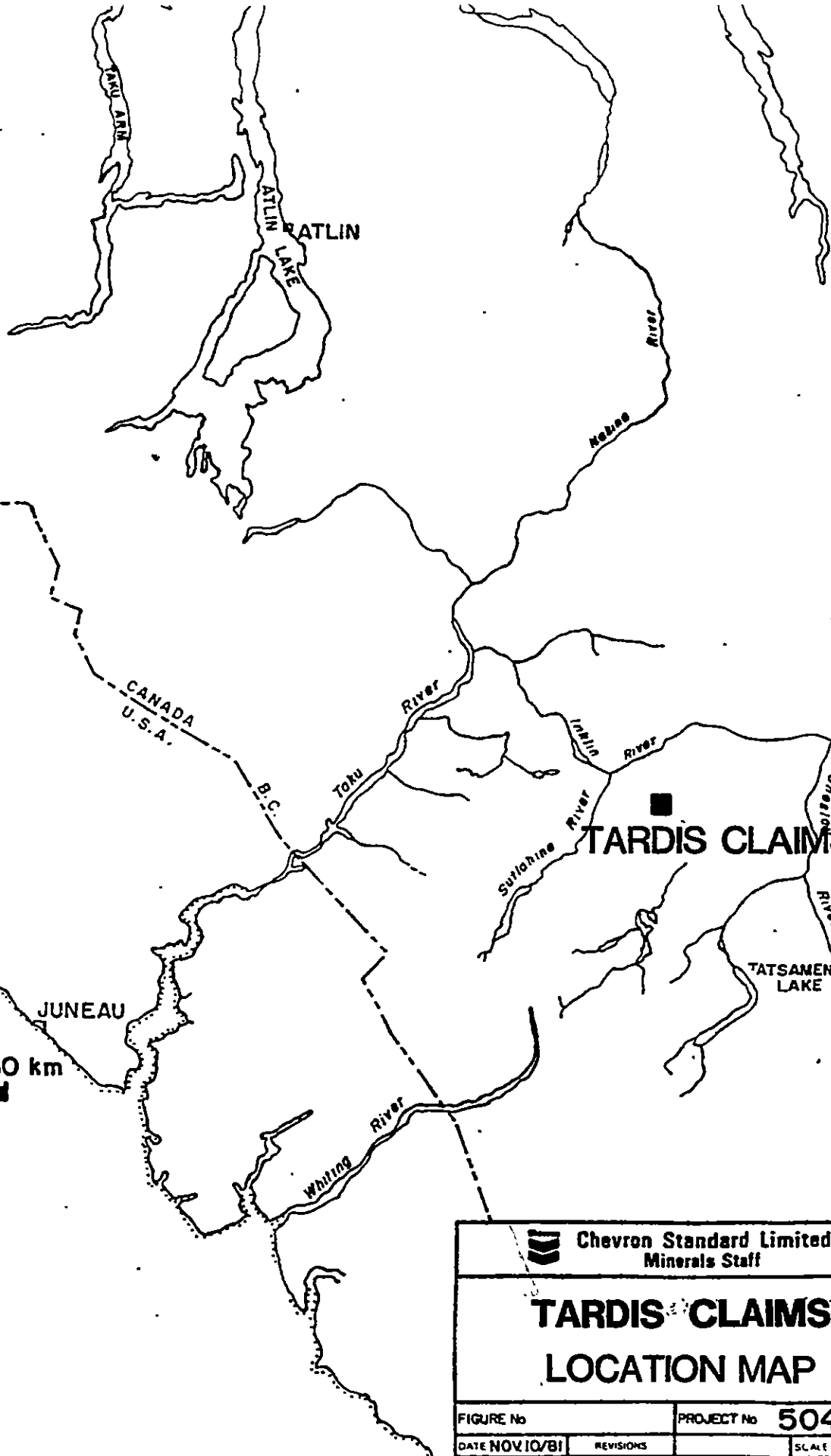


59°

CANADA
U.S.A.
B.C.

JUNEAU

0 30 km



**Chevron Standard Limited
Minerals Staff**

TARDIS CLAIMS LOCATION MAP

FIGURE No	PROJECT No		504
DATE NOV 10/81	REVISIONS	SCALE 1" = 16 M	
NTS No 104 K			
COMPILED BY			

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clay alteration, carbonatization and fluoritization are locally concentrated along the King Salmon Thrust Fault at intersections with the north to northeast structures.

GEOLOGICAL SURVEY OF CLAIMS

1) Takwahoni Formation:

The unmetamorphosed Lower Jurassic Takwahoni Formation is comprised of greywacke siltstone and mudstone covering the southern half of the claims (Fig. 2). Beds strike at 090° to 115° and dip from 25° to 75° southwest or northeast. Tight folds are rare.

The Takwahoni rocks are characterized by abundant fossil material including ammonites, coalified plant fragments and bivalve death-beds. Greywackes commonly exhibit cross-bedding and graded bedding which indicate that the beds are stratigraphically right-side up.

Clay alteration within the sediments is extensive adjacent to the King Salmon Thrust Fault. Associated with this alteration is quartz-carbonate veins up to 10 cm across which cross-cut the Takwahoni Formation.

2) Sinwa Formation:

The Sinwa Formation lies immediately above the King Salmon Thrust Fault. Limited rock exposure near the fault indicates that sedimentary beds of the Takwahoni Formation are truncated at a shallow angle by the thrust fault.

The Sinwa Formation is divided into two mappable units on the claim group. The lower unit is exposed as prominent knobs of limestone which outcrop across the center of the claims. The limestone is variably silicified and brecciated; fluorite veinlets are commonly associated with zones of most intense alteration. Colorless, honey, purple and blue varieties of fluorite are present.

An upper calcareous unit containing abundant fibrous white mineral of unknown identity lies above the limestone. This upper unit is thinly laminated with green, grey and white beds and often contains subrounded green clasts 2 - 5 mm in diameter. Abundant sinkholes on the property are found within this recessive unit. Good exposure on the sides of some of the sinkholes indicates that tight folding is common in the upper Sinwa unit.

3) Inklin Formation:

The Inklin Formation predominantly consists of siltstone and mudstone interbedded with green immature sandstone. An excellent marker bed of 3.5 metres of limestone conglomerate overlain with 0.5 metres of laminated limestone can be traced through the claims. The Inklin Formation lies structurally conformable on the Sinwa Formation. Alteration within the Inklin Formation appears minimal.

4) Tertiary? Dykes:

Dykes are rare on the claims however both basalt and rhyolite quartz-eye porphyry dykes about 1 metre wide are present. The basalt is fine-grained, dark green and usually exhibits abundant vesicles. The rhyolite

weathers buff and contains angular quartz phenocrysts in an aphanitic grey felsite groundmass. Both types of dykes have a northeast strike.

ALTERATION AND MINERALIZATION

Alteration is restricted mainly to the Lower Sinwa limestone unit and is found in some of the Takwahoni rocks adjacent to the King Salmon Thrust Fault. Silicification is the most common alteration with carbonatization and fluoritization being less abundant. Alteration appears localized along the thrust fault by crosscutting north to northeast faults. No sulphides other than a trace of pyrite were observed on the claims.

GEOCHEMICAL SURVEY OF THE CLAIMS

Geochemical sampling included 277 soil samples collected on a 100 metre grid. A 2500 metre east-west baseline was flagged and picketed every 100 metres. Soil lines ran 500 metres north and 600 metres south from the baseline. Samples were collected on the north-south lines at 100 m intervals. Soil samples were of B-horizon soil taken at depths from 5 - 25 cm with a mattock. In June, 1982, 39 rock samples were collected on the grid. Also included are 33 soil and 17 rock samples collected in July, 1981.

Soil samples were placed in kraft wet strength soil bags, air dried and shipped to Chemex Labs, North Vancouver, B. C. The samples were further dried and then sieved, with the -80 mesh portion being retained for analysis. Rock samples were crushed then ground to -80 mesh also. For Au determination, a fire assay - atomic absorption technique is used with the fire assay bead being dissolved in HCl and HNO₃ then analyzed by conventional atomic absorption techniques. For Ag, a mixture of HClO₄ and HNO₃ is used to digest the sample,

which is followed by atomic absorption spectrophotometry. The As analyses are done by standard colorometric techniques following an HClO_4 plus HNO_3 digestion. Antimony analyses were done by digesting the sample in HCl , then adding potassium iodide, extracting with TOP - MIBK and then analyzing by atomic absorption spectrophotometry.

Mercury analyses were done by digesting the sample in HNO_3 - HCl and following with a standard flameless absorption finish using stannous sulphate as a reductant. Fluorine was determined by sintering the sample with a 2:1 mixture of Na_2CO_3 and KNO_3 , leaching with H_2O , adjusting the pH with citric acid solution and directly measuring fluorine concentration with a specific ion electrode.

Location of samples and corresponding geochemical results can be seen on Figures 3 to 9a.

GEOCHEMICAL RESULTS

High values in As, Sb, Hg and F coincide with altered lower Sinwa Limestone along the King Salmon Thrust Fault. Areas with most intensive alteration produce the highest anomalies. No sulphides were visible in hand specimen to provide a source for the As, Sb and Hg anomalies. The fluorine anomaly is directly related to the presence of fluorite veins in the altered areas. Silver values were low to background over the entire claims, gold values were similar except for a few soil samples in the center of the claims.

CONCLUSIONS

The TARDIS claims have evidence of the presence of a large hydrothermal system at least 1500 m in length along the King Salmon Thrust Fault. There are some indications from soil geochemistry that gold may be associated with this hydrothermal system.

Further work should be carried out including detailed structural analysis of controls on alteration and petrological study of alteration mineralogy.

REFERENCES

Souther, J. G. (1971) Geology and Mineral Deposits of Tulsequah Map-Area,
British Columbia, Geological Survey of Canada, Memoir 362, 84 p.

1981, 1982 EXPLORATION PROGRAM

TARDIS CLAIMS
TRAPPER LAKE AREA, B.C.

PERIOD: July 27, 1981, June 23, 25, 26, 27, 29, 1982

COSTS:

1. LABOUR

<u>Name</u>	<u>Position</u>	<u>Field Days</u>	<u>Office Days</u>
Ken Shannon	Geologist	1.5	2.5
Derek Brown	"	5.0	2.0
Mike Thicke	"	0.5	
Doug Madsen	Sampler	2.0	
Mike Gray	"	3.0	
John Hawthorne	"	2.5	
Lorne Rowan	"	2.0	
Rob Lazenby	"	1.5	
Jim Armstrong	"	1.0	
Franz Wohlgemuth	"	1.0	
Pat Angly	"	<u>0.5</u>	
	Total days	20.5	4.5

Average cost per field man day = \$100.00 x 20.5 \$ 2,050.00

Average cost per office man day = 175.00 x 4.5 787.50

2. ANALYSES

Rocks (Au, As, Ag) 17 samples @\$13.90	236.30
Soils (Au, As, Ag, Sb) 33 samples @\$15.50	511.50
Rocks (Au, As, Ag, Sb, Hg, F) 39 samples @\$24.75	965.25
Soils (Au, As, Ag, Sb, Hg, F) 277 samples @\$22.75	6,301.75

3. CAMP COSTS

20.5 man days @\$79.50/man day 1,629.75

4. HELICOPTER

6.6 hours @\$510.00/hour incl. fuel 3,366.00

5. DRAFTING

5.0 man days @\$100.00/man day 500.00

6. SAMPLE SHIPPING

366 samples @\$0.60 each 219.60

ASSESSMENT WORK TOTAL \$16,567.65

STATEMENT OF QUALIFICATIONS

I, Ken Shannon, have worked as a geologist in B. C. on a seasonal basis since graduation from the University of British Columbia with a B.Sc. (Hons. Geology) in 1975. A M.Sc. degree was awarded from the Department of Geology at U.B.C. in May, 1982. I am employed as a geologist by Chevron Standard Limited of Vancouver, B. C. Work on the TARDIS Claim Group was done under my supervision.

A handwritten signature in cursive script that reads "Ken Shannon". The signature is written in black ink and is positioned to the right of the typed text.

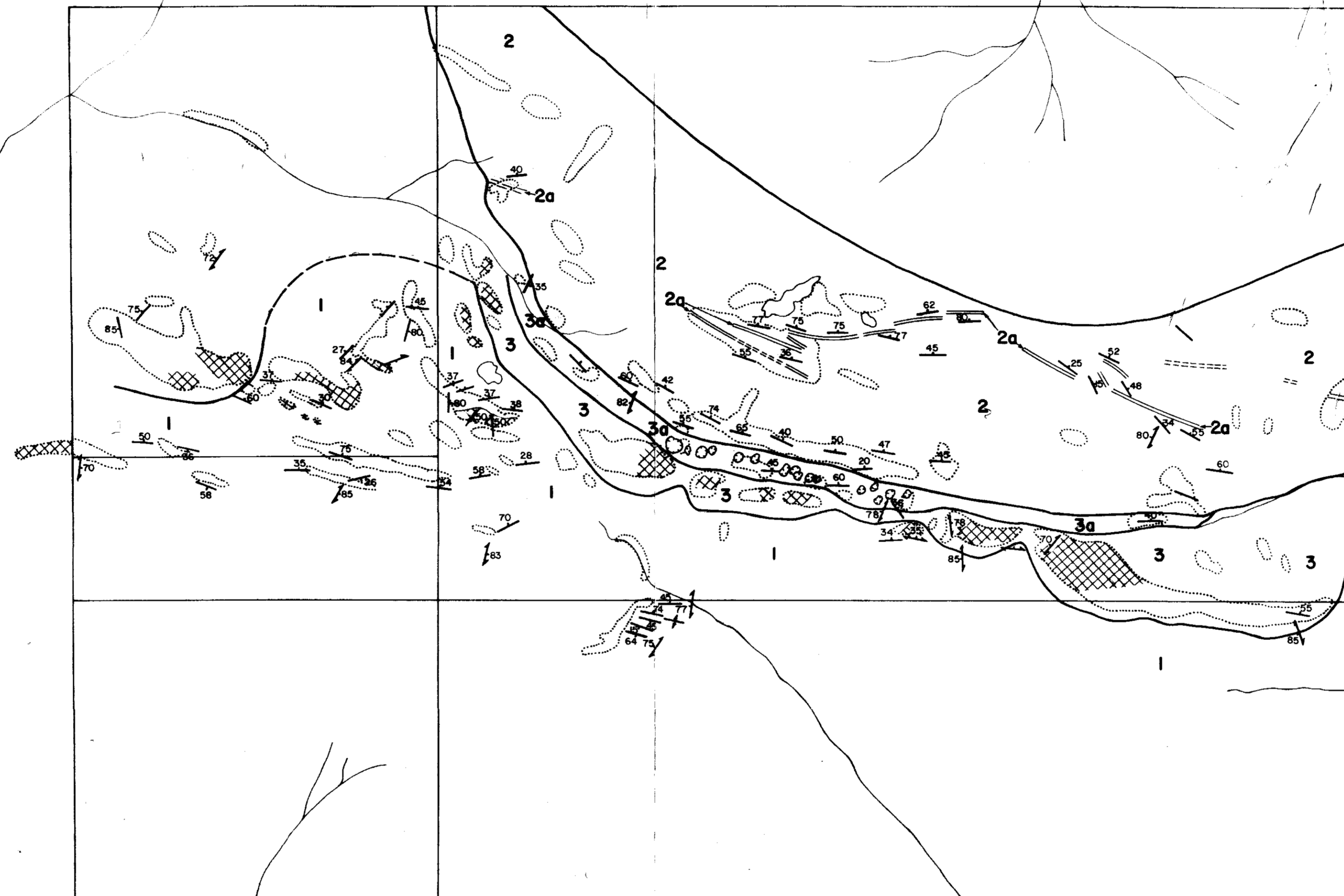
KEN SHANNON

STATEMENT OF QUALIFICATIONS

I, Derek Brown, graduated 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 Standard Limited of Vancouver, B. C.

Derek Brown

Derek Brown



LEGEND

JURASSIC

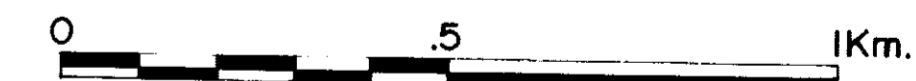
1 TAKWAHONI FORMATION
- Siliceous sandstone, greywacke, minor shale,
- mudstone conglomerate

2 INKLIN FORMATION
- Siltstone sandstone
- UNIT 2a - Limestone conglomerate

TRIASSIC

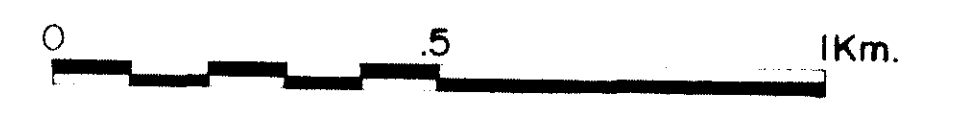
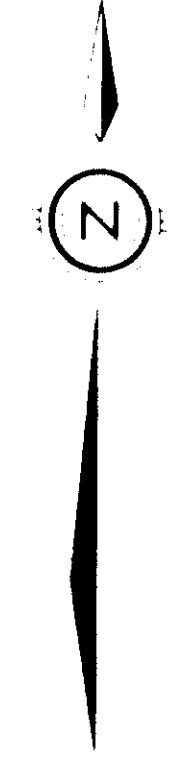
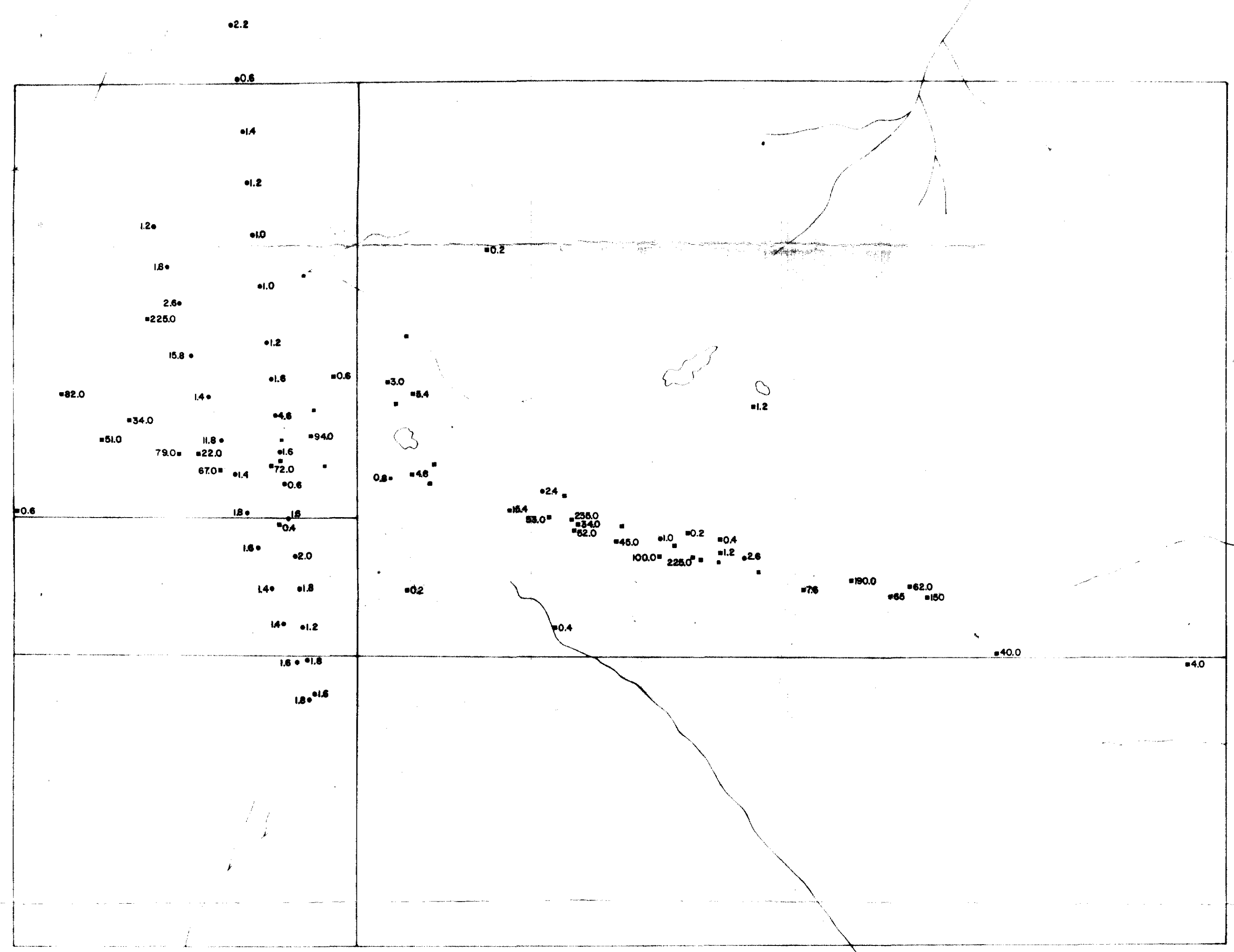
3 SINWA FORMATION
- Massive limestone, limestone breccia
- UNIT 3a - Layered calcareous unit with sinkholes

⊗ Altered zones - silicification, fluoritization, carbonatization
○ Sinkhole
/ Bedding, foliation



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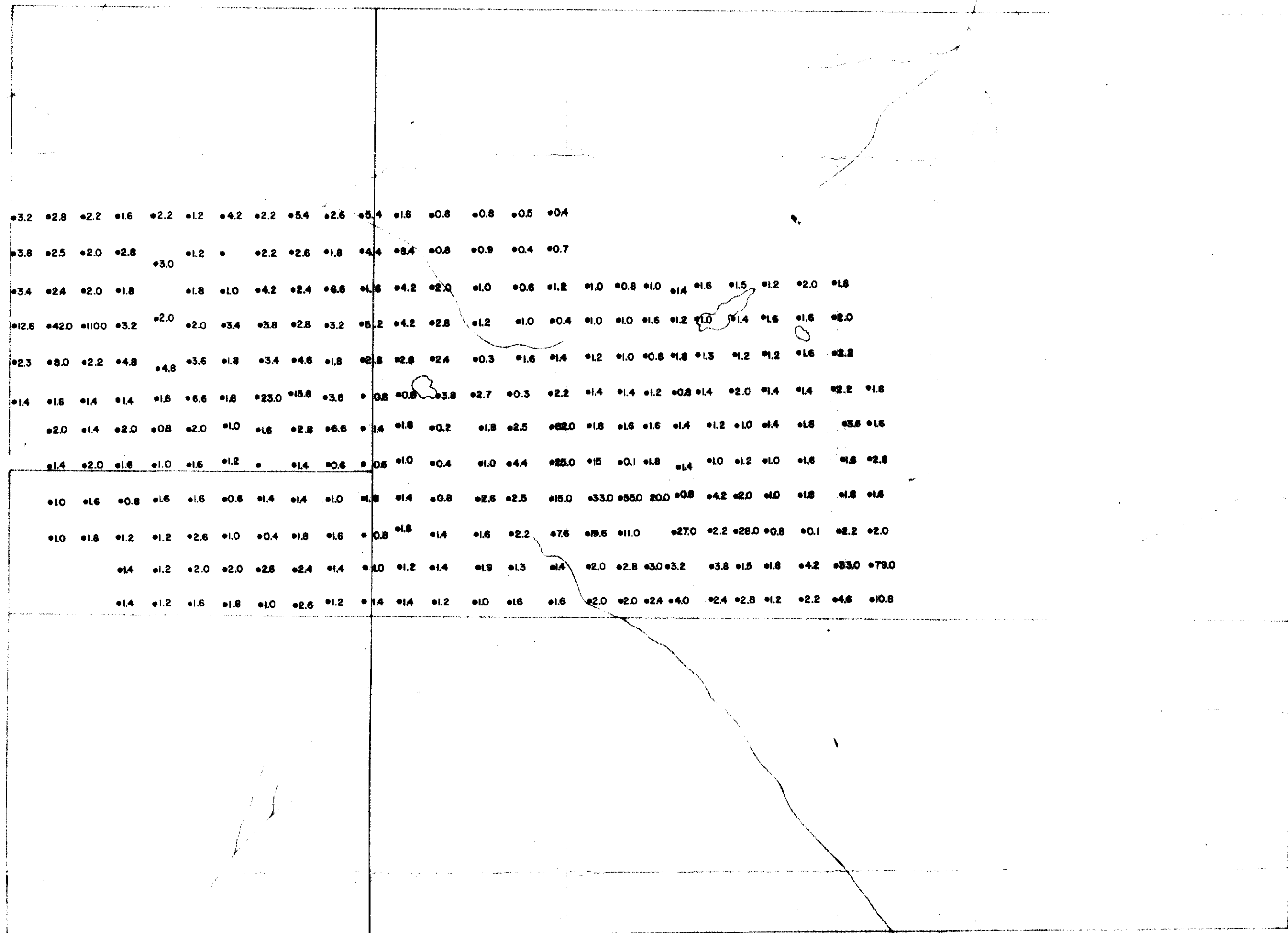
Chevron Standard Limited Minerals Staff			
TARDIS AND PETRO CLAIMS GEOLOGY			
FIGURE No	2	PROJECT No	M504
DATE	1982	REVISIONS	SCALE 1:10000
NTS No	104 K		FILE No.
COMPILED BY	KRS		



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LEGEND
□ ROCK
○ SOIL

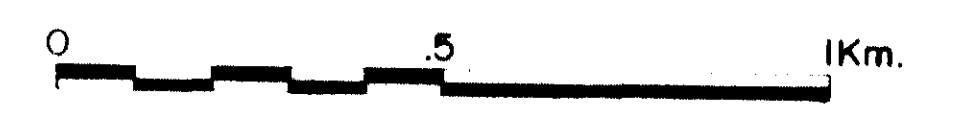
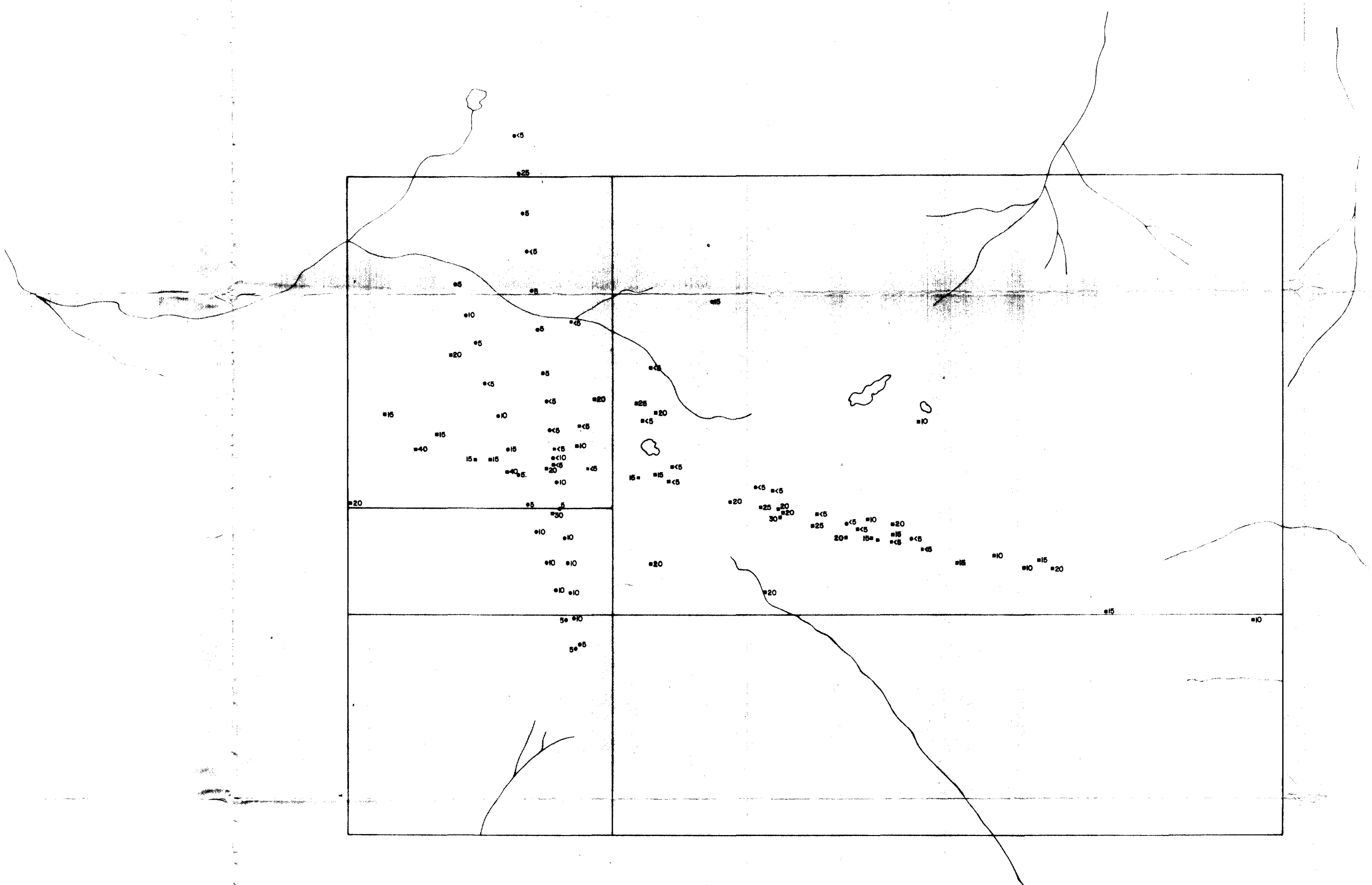
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TARDIS AND PETRO CLAIMS		
GOCHEMISTRY		
Sb-ppm		
FIGURE No. 7	PROJECT No. M504	
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MAP NO. 104 K		
APPROVED BY: KRS		



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TARDIS AND PETRO CLAIMS GRID SOIL SAMPLES GEOCHEMISTRY Sb-ppm		
FIGURE No 7a	PROJECT No M504	
1982	104K	10000

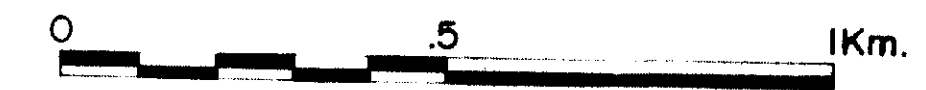
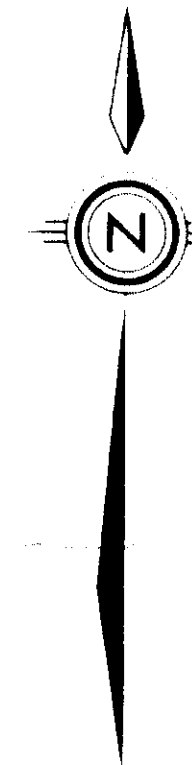
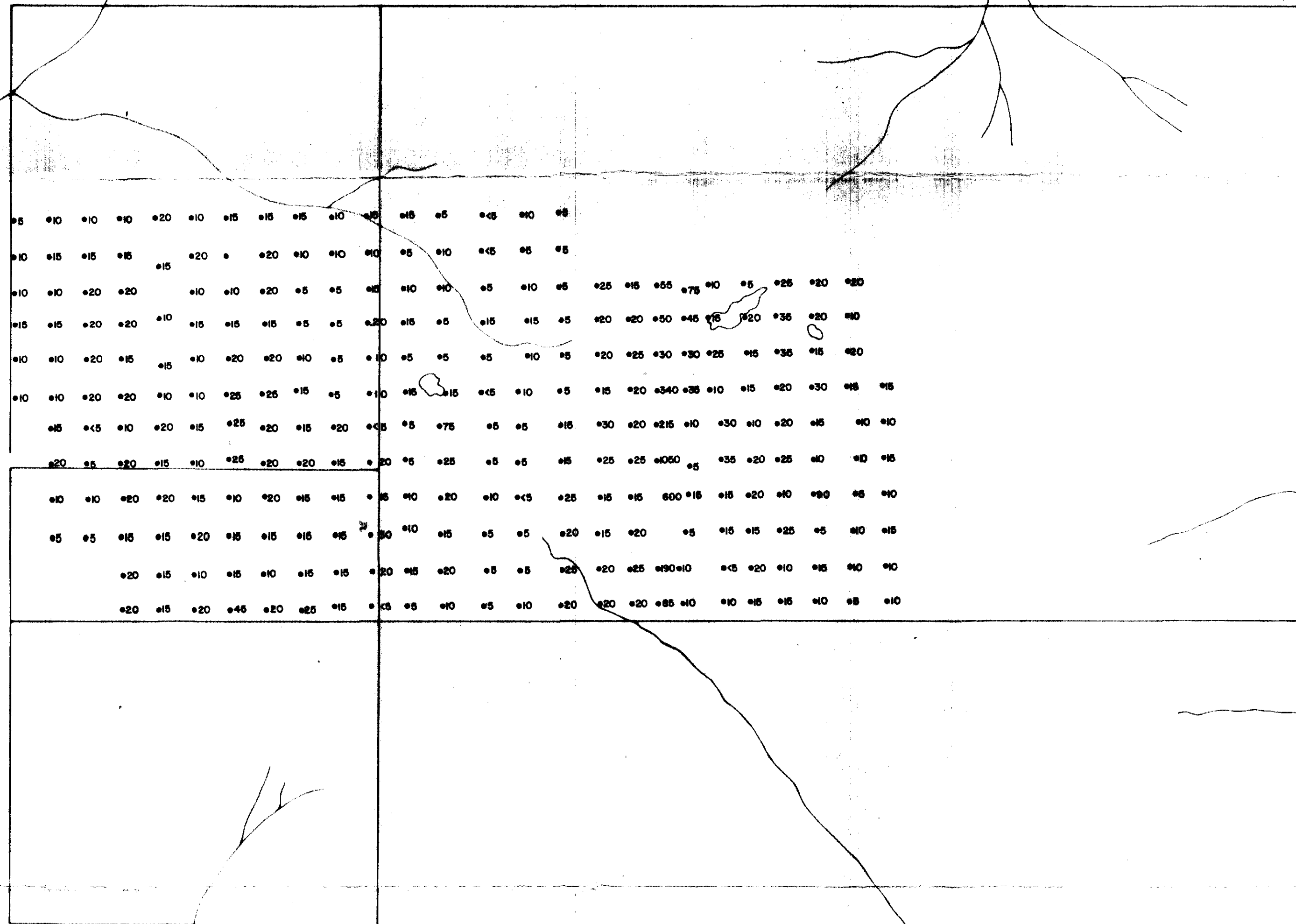


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- ROCK
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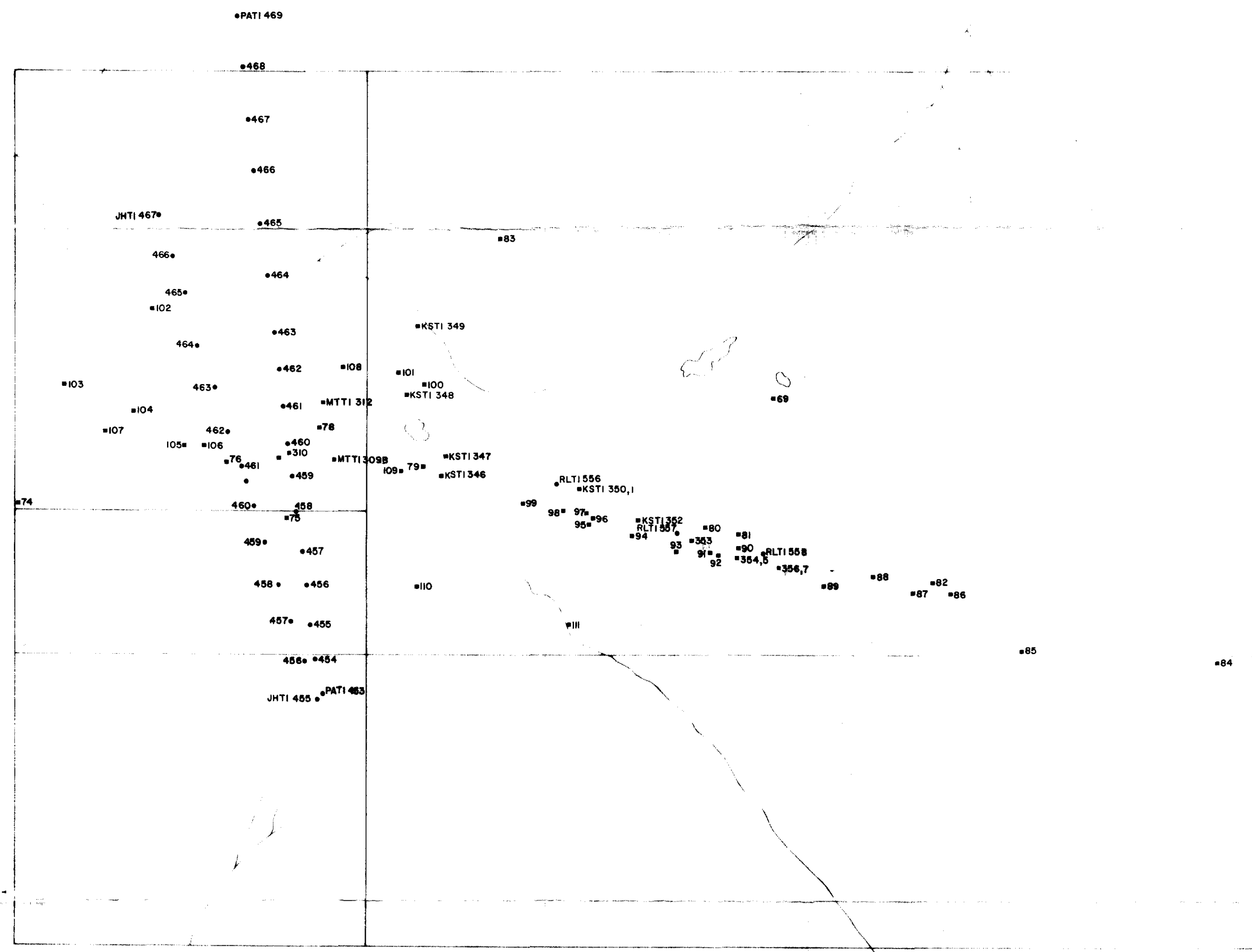
Chevron Standard Limited Minerals Staff	
TARDIS AND PETRO CLAIMS GEOCHEMISTRY Au-ppb	
FIGURE No 8	PROJECT No M504
DATE 1981/82	REVISIONS
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TARDIS AND PETRO CLAIMS GRID SOIL SAMPLES GEOCHEMISTRY Au-ppb		
FIGURE No 8a	PROJECT No M504	
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INTS No 104K		FILE No
COMPILED BY KRS		

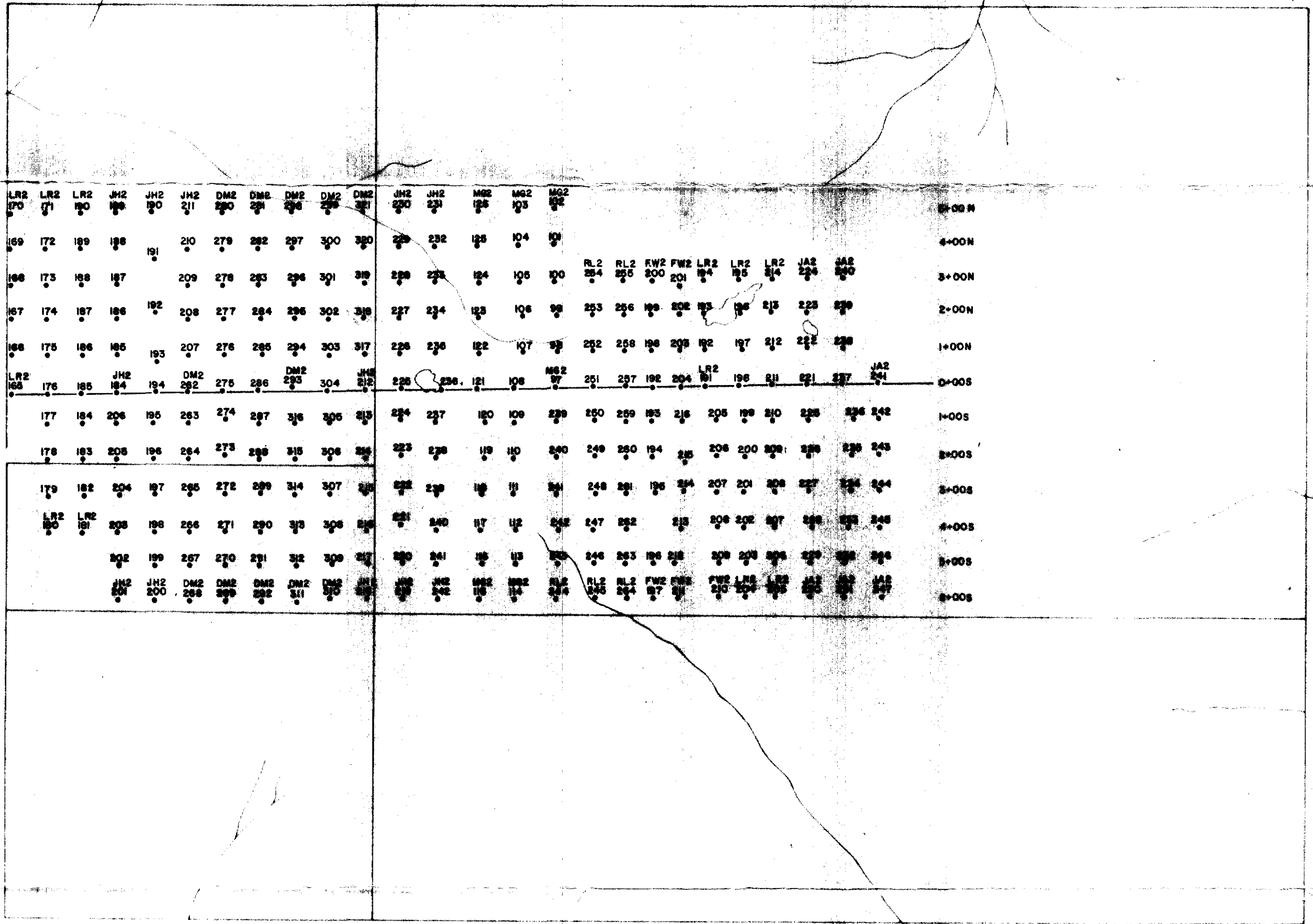


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- SOIL

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TARDIS AND PETRO CLAIMS SAMPLE LOCATIONS	
No. 1	Project No. M504
1981/82	



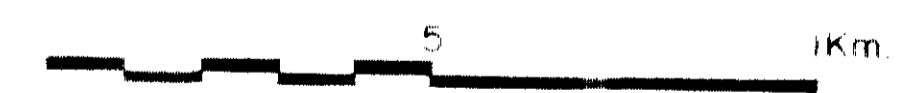
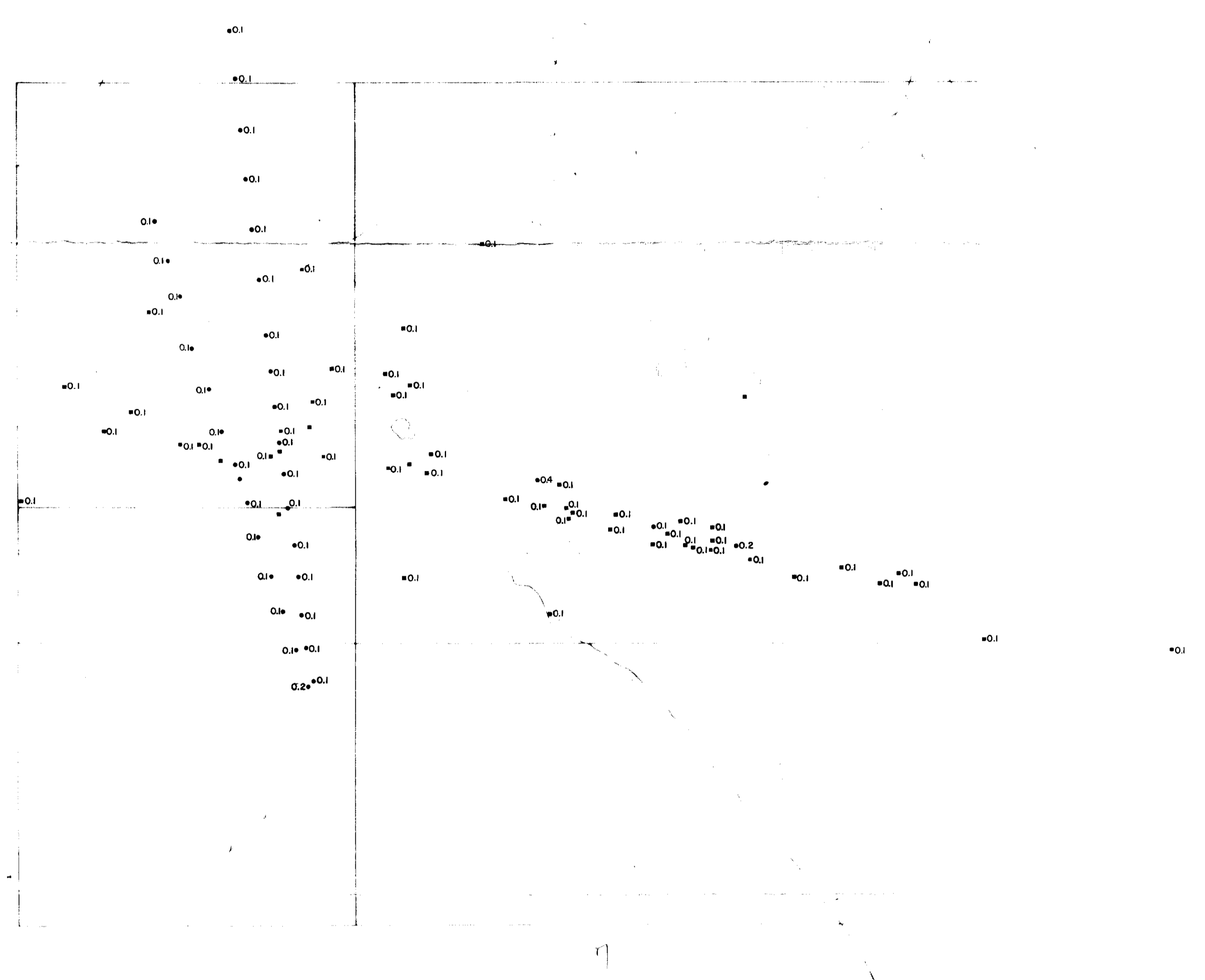
LEGAL REPRESENTATIVE
 ASSOCIATES
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 Minerals Staff

**TARDIS AND PETRO CLAIMS
 GRID SOIL SAMPLES
 SAMPLE LOCATIONS**

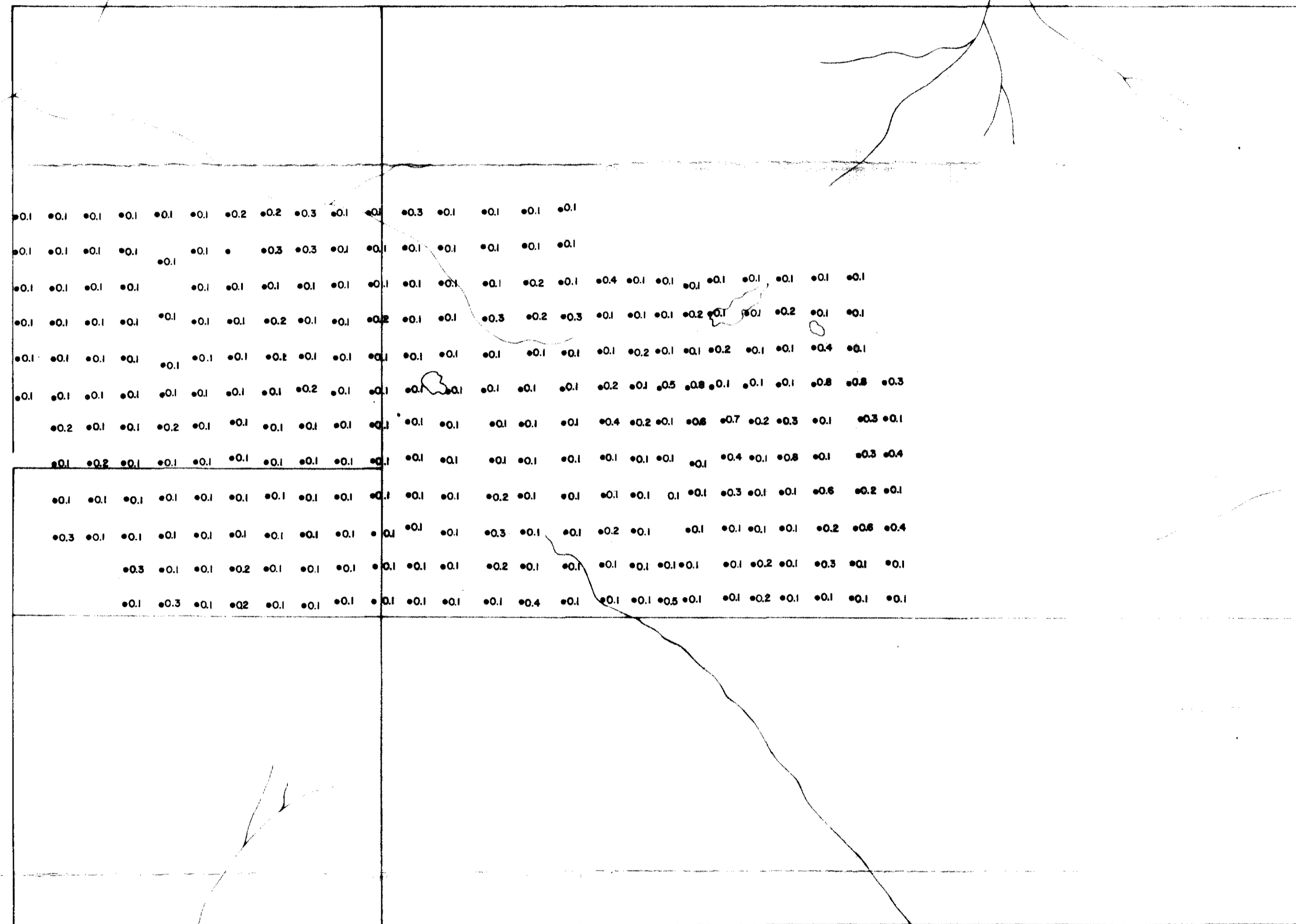
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LEGEND
 □ ROCK
 ○ SOIL

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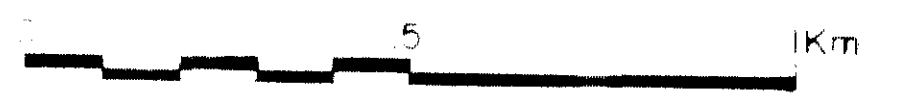
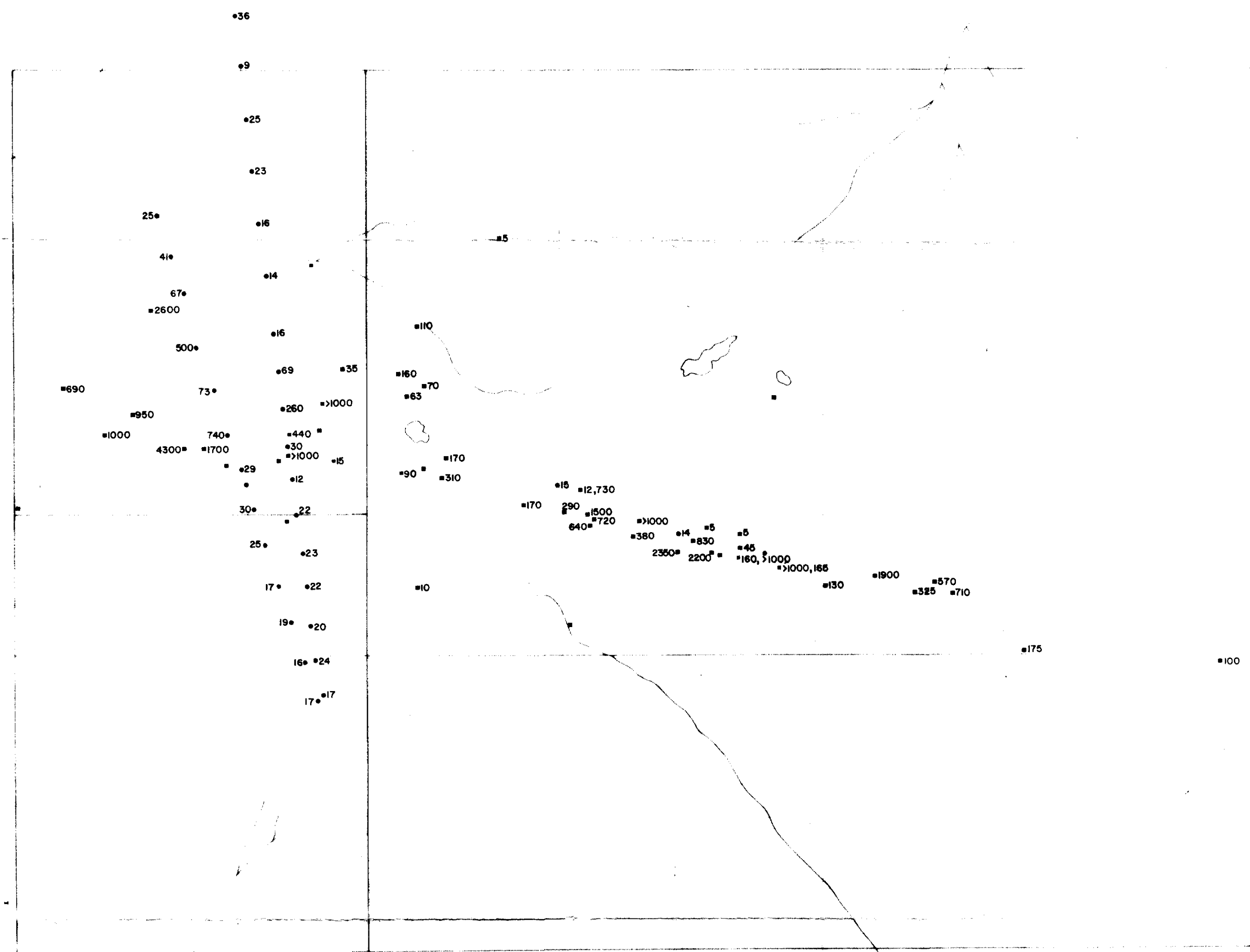
Chevron Standard Limited Minerals Staff	
TARDIS AND PETRO CLAIMS GEOCHEMISTRY	
Ag - ppm	
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TARDIS AND PETRO CLAIMS GRID SOIL SAMPLES GEOCHEMISTRY Ag ppm	
FIGURE No. 3a	PROJECT No. M504
DATE 1982	BY KRS
NO. 104K	BY KRS
APPROVED BY KRS	BY KRS

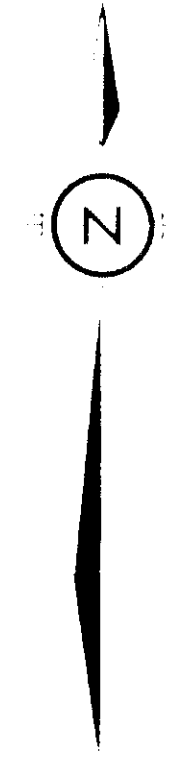
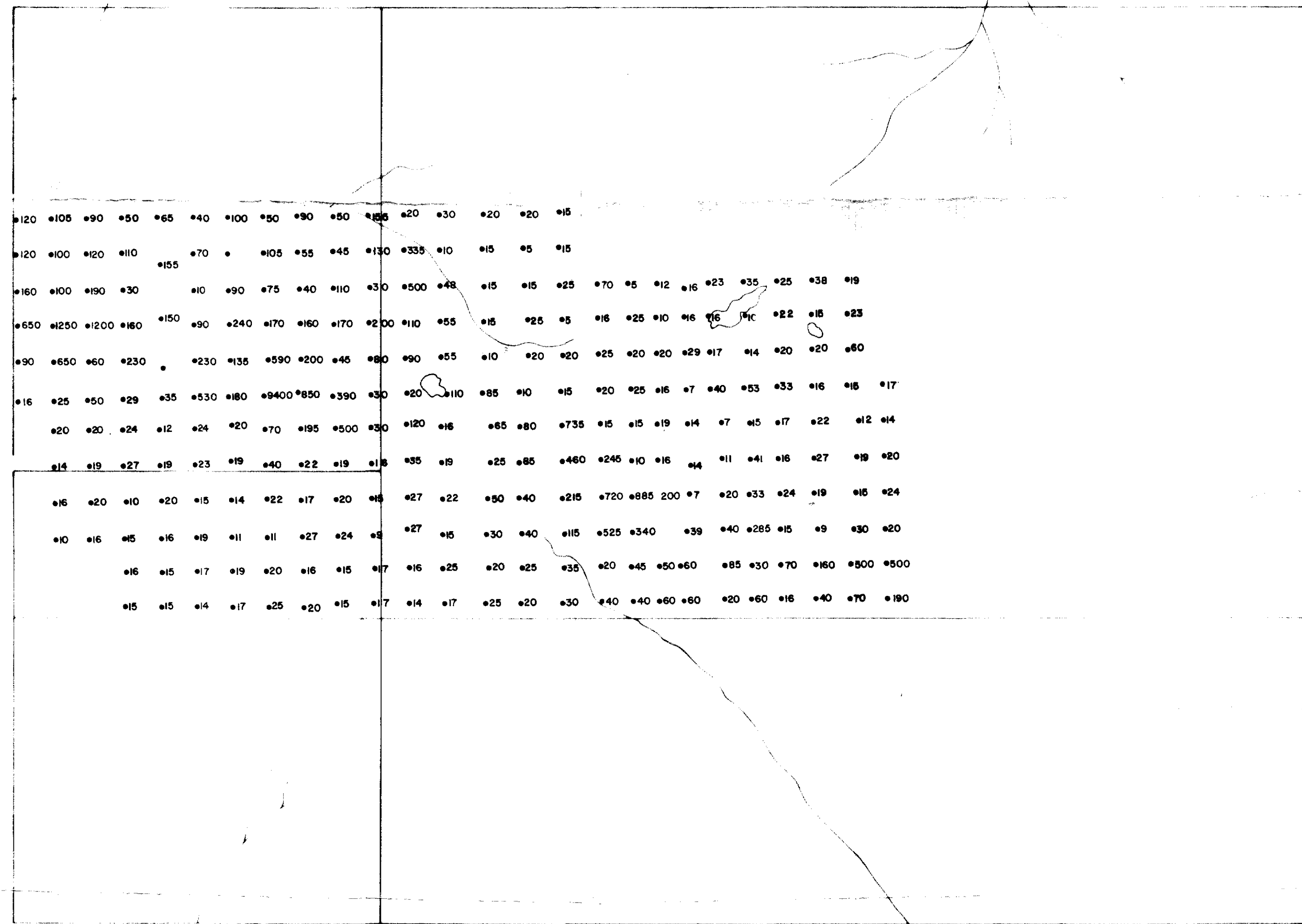


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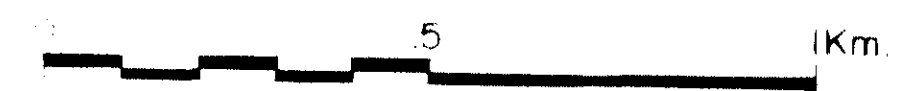
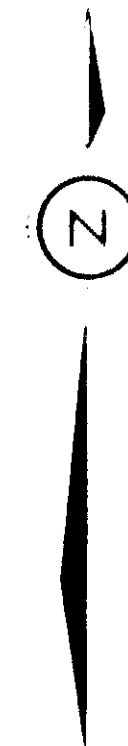
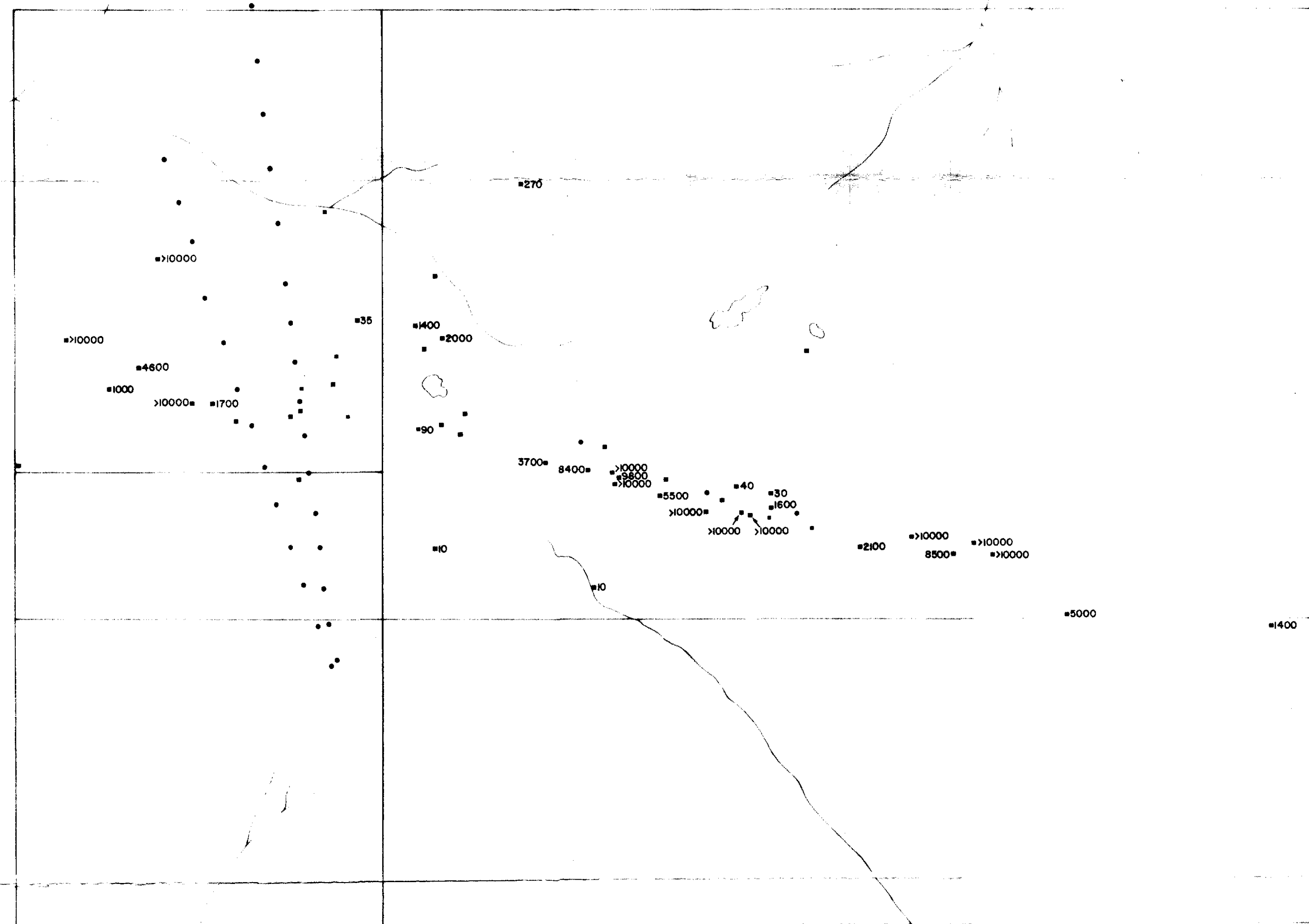
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TARDIS AND PETRO CLAIMS GEOCHEMISTRY As - ppm	
REPORT NO. 4	PROJECT NO. M504
DATE 1981/82	



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TARDIS AND PETRO CLAIMS GRID SOIL SAMPLES GEOCHEMISTRY As-ppm	
FIGURE No. 4a	PROJECT No. M504
DATE 1982	SCALE 1:10000
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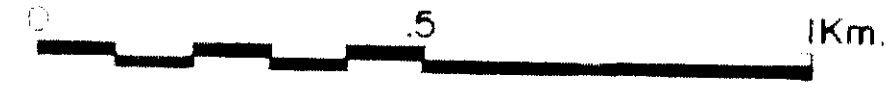
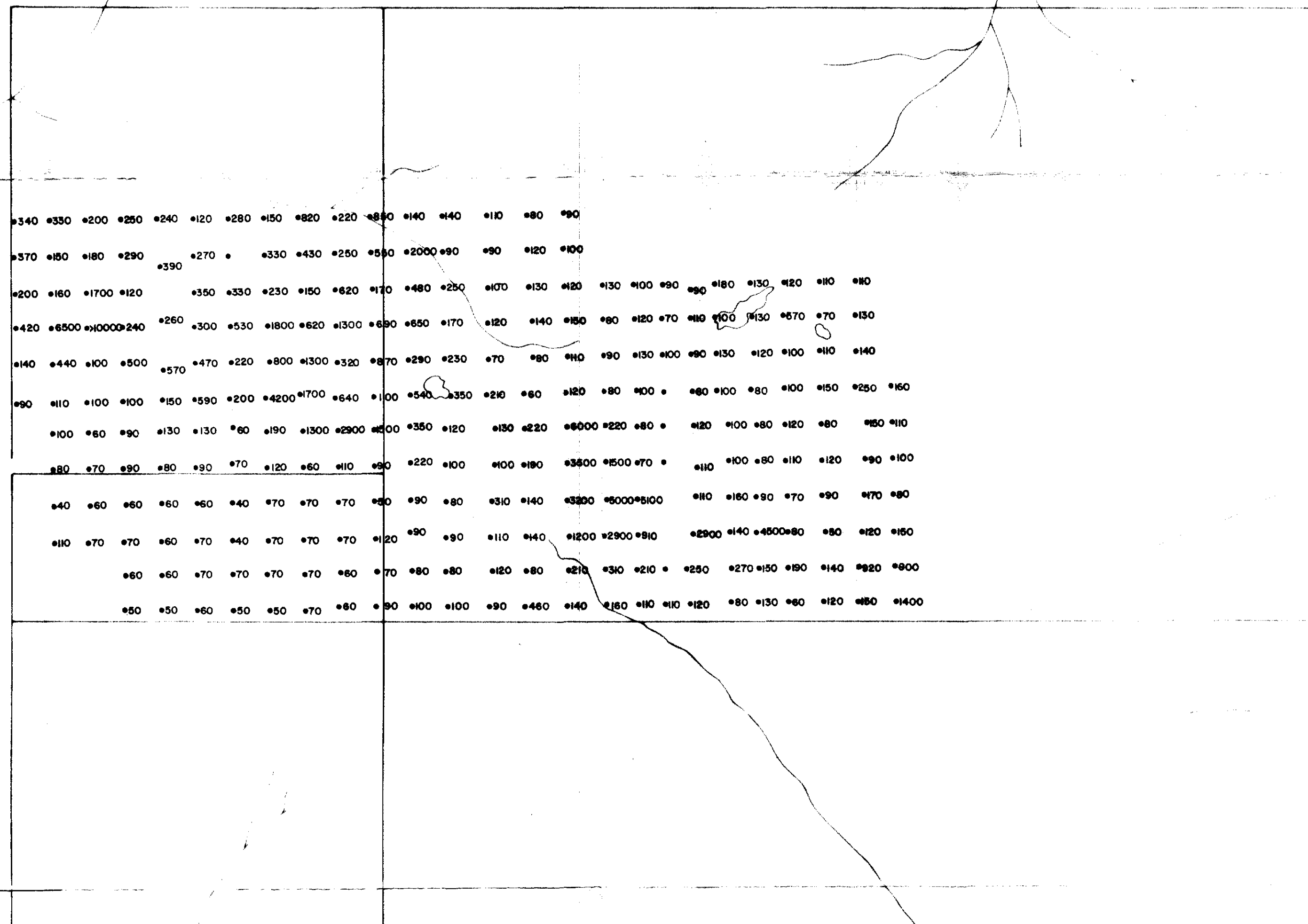


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LEGEND

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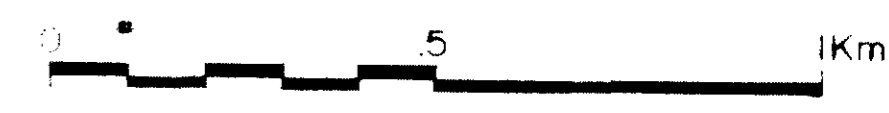
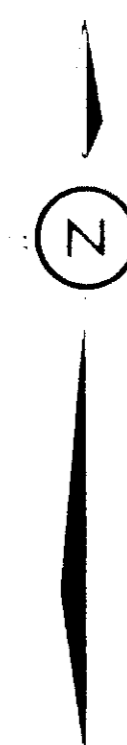
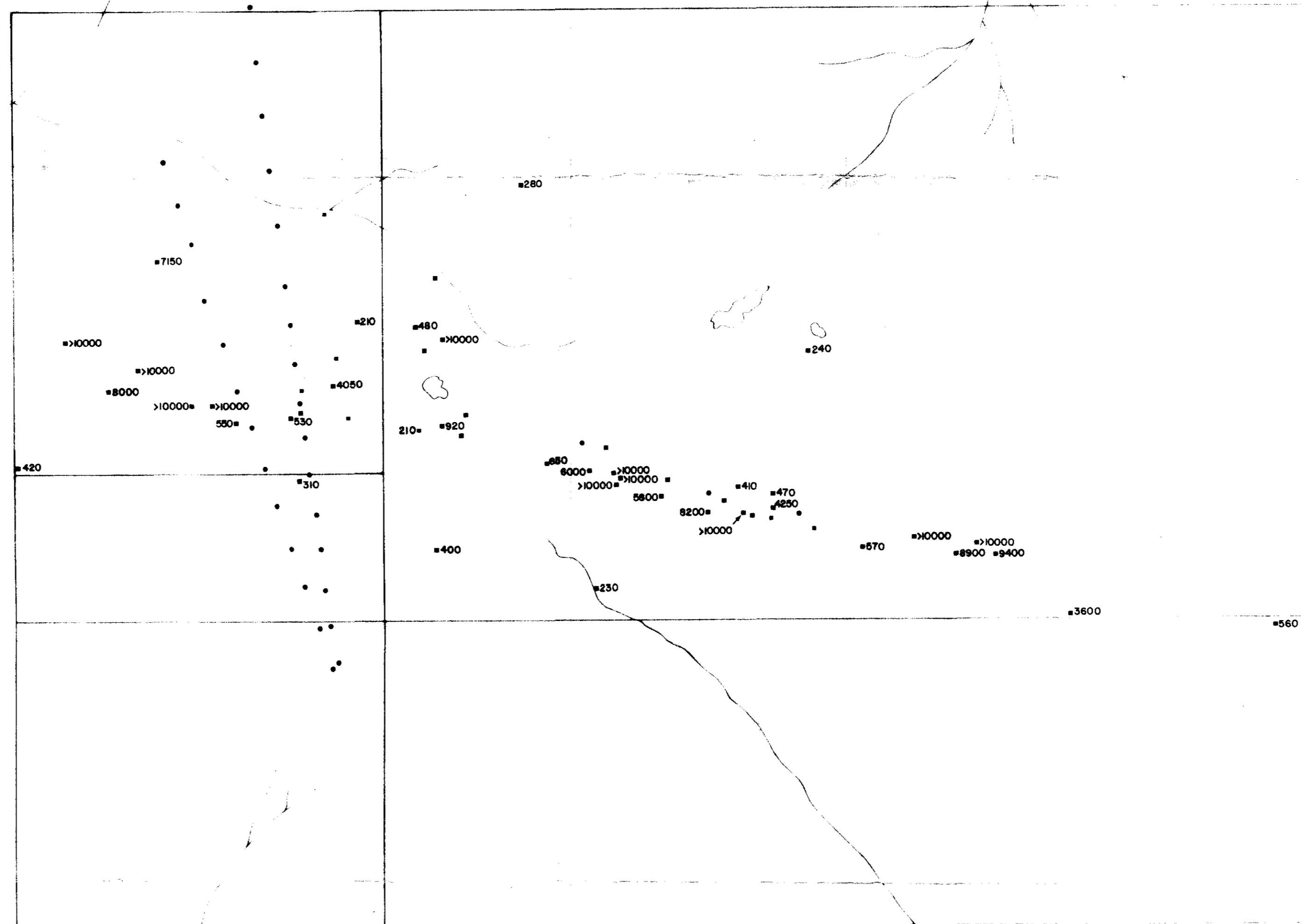
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TARDIS AND PETRO CLAIMS	
GEOCHEMISTRY	
Hg-ppm	
5	M504
1981/82	



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o Soil

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TARDIS AND PETRO CLAIMS GRID SOIL SAMPLES GEOCHEMISTRY Hg-ppm	
Figure No. 5a	PROJECT No. M504
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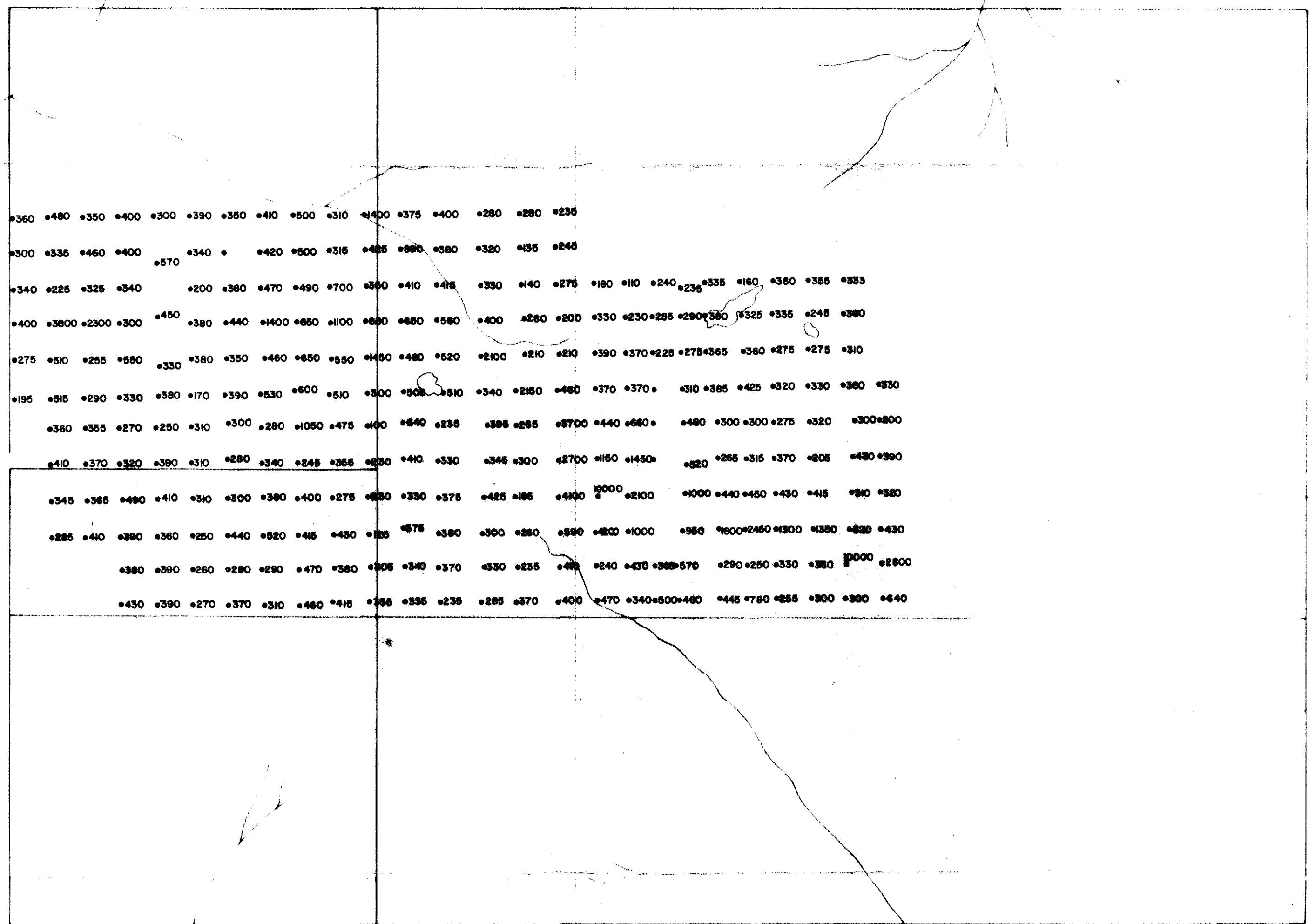
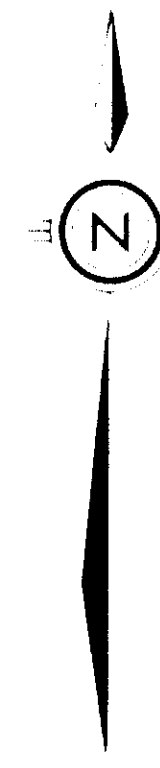


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TARDIS AND PETRO CLAIMS	
GEOCHEMISTRY	
F -ppm	
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1984	DATE
1985	DATE



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**TARDIS AND PETRO CLAIMS
GRID SOIL SAMPLES
GEOCHEMISTRY
F-ppm**

6a	M504
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