Mineral Resources Development Survey
of Anti Atlas Area, Kingdom of Morocco

Attached Maps

VII-1-A	Talate N'Souss	Geological Map of Main Area
VII-1-B	"	Geological Map of Northern East Area
VII-1-C	"	Geological Sketch of Trenches
VII-1-D	"	Drill log, No. 3 bis
VII-2-A	Amadouz	Geological Map
VII-2-B	"	Geological Column
VII-2-C	"	Idealized Geological Profile
VII-2-D	"	Map of Ore Blocks & Structure
VII-3-A-(1)	Tirzzit	Geological Map with Location of Drill Holes, Winzes and Drift
VII-3-A-(2)	"	Geological Sketch of Eastern Part
VII-3-A-(3)	"	Geological Sketch of Central Part
VII-3-A-(4)	"	Geological Sketch of Western Part
VII-3-B	"	Geological Sketch of The Drift
VII-3-C	"	Crosscut Sketch of Central Part
VII-3-D	"	Map of Ore Blocks and Structure of Ore Deposit
VII-4-A	Alouss	Geological Map (A Zone)
VII-4-B-(1)	"	Geological Sketch (A Zone)
VII-4-B-(2)	"	Geological Sketch (B Zone)
VII-5	Iminirfi	Sketch Map
VII-6	Talate N'Ouaman	Geological Outline Sketch & Local Geological Column
VII-7-A	Tizert	General Map
VII-7-B	"	Relation between Mineralization and Stratigraphy
VII-7-C-(1)	"	Sketch of Trench No. 5
VII-7-C-(2)	"	Sketch of Trench No. 9
VII-7-D	"	Geological Profiles
VII-7-E	"	Drill log
VII-8-A	Tiferki	Geological Map
VII-8-B	"	Drill Log
VII-9-A	Amane Tazert	Geological Map
VII-9-B	"	Drill Log, No. B-1
VII-11-A	Agoujgal	Geological Map
VII-12-A	Tasserirt	Geological Map
VII-12-B	"	Route Map and Profile of Mineralized Zone
VII-12-C	"	Geological Sketch of Drift

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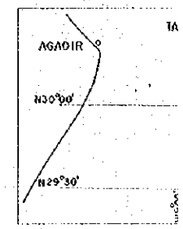
MINERAL RESOUR
OF ANTI ATLAS M

TALATE N
GEOLC

MA



OVERSEAS TECHNICAL
MI

M.N

SCALE
0 20 40 60 80 100m

B-1
B-2
B-3
B-4
B-5
B-6
T-5
T-4
T-3
T-2
T-1
T-0
P-1
P-2
P-3
P-4
P-5
P-6
A0233
A0232
A0205
Cu 3.08%
Y 46m
Cu 5.4%
16m
Cu 3.18%
depth 6.3m
Cu 1.08%
1.1m in limestone
0.7 x 10⁻² MR/H
chalcopyrite veinlet
B-3 bis
Direction: 10°
Inclination: -45°
Depth 75.37m.
quartz vein
quartz vein
1.75 x 10⁻² MR/H
1395
1400
1405
1410
1415

LEGEND

debris
Infra Cambrian Basal Series
limeston
fine grai
Pre Cambrian II
dacitic
andesit
copper
moin mi
strike
strike a

GEOLOGICAL RELATION TRENCHES AND PITS

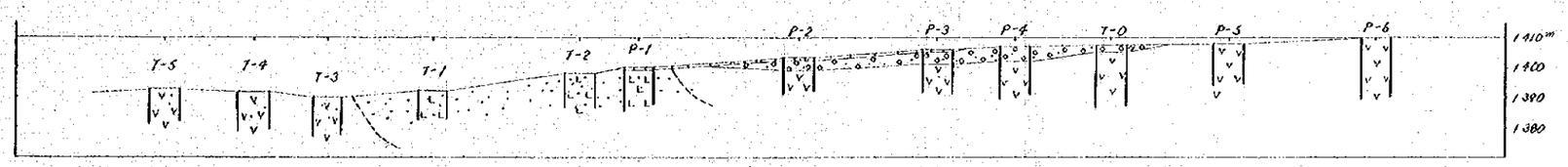
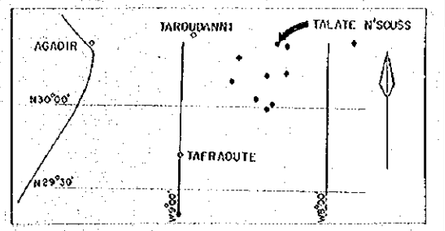


FIG. VII – 1 – A

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

TALATE N'SOUSS PROJECT
GEOLOGICAL MAP OF MAIN AREA



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M.N

SCALE
0 20 40 60 80 100m

B-1 T-5 T-4 T-3 T-2 T-1 T-0 P-1 P-2 P-3 P-4 P-5 P-6V

Cu 3.08% / 4.6m

Cu 5.1% / 10m

Cu 3.48% depth 5.3m

Cu 1.00% 1.1m in limestone

chalcopyrite vein 10cm

0.2×10⁻² mR/h

B-3 bis
Direction: 10°
Inclination: -45°
Depth 75.37m.

A0205

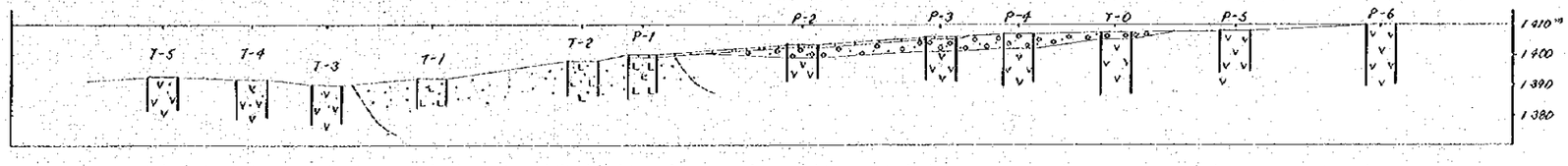
quartz vein

quartz vein

1.25×10⁻² mR/h

1395 1400 1405 1410 1415

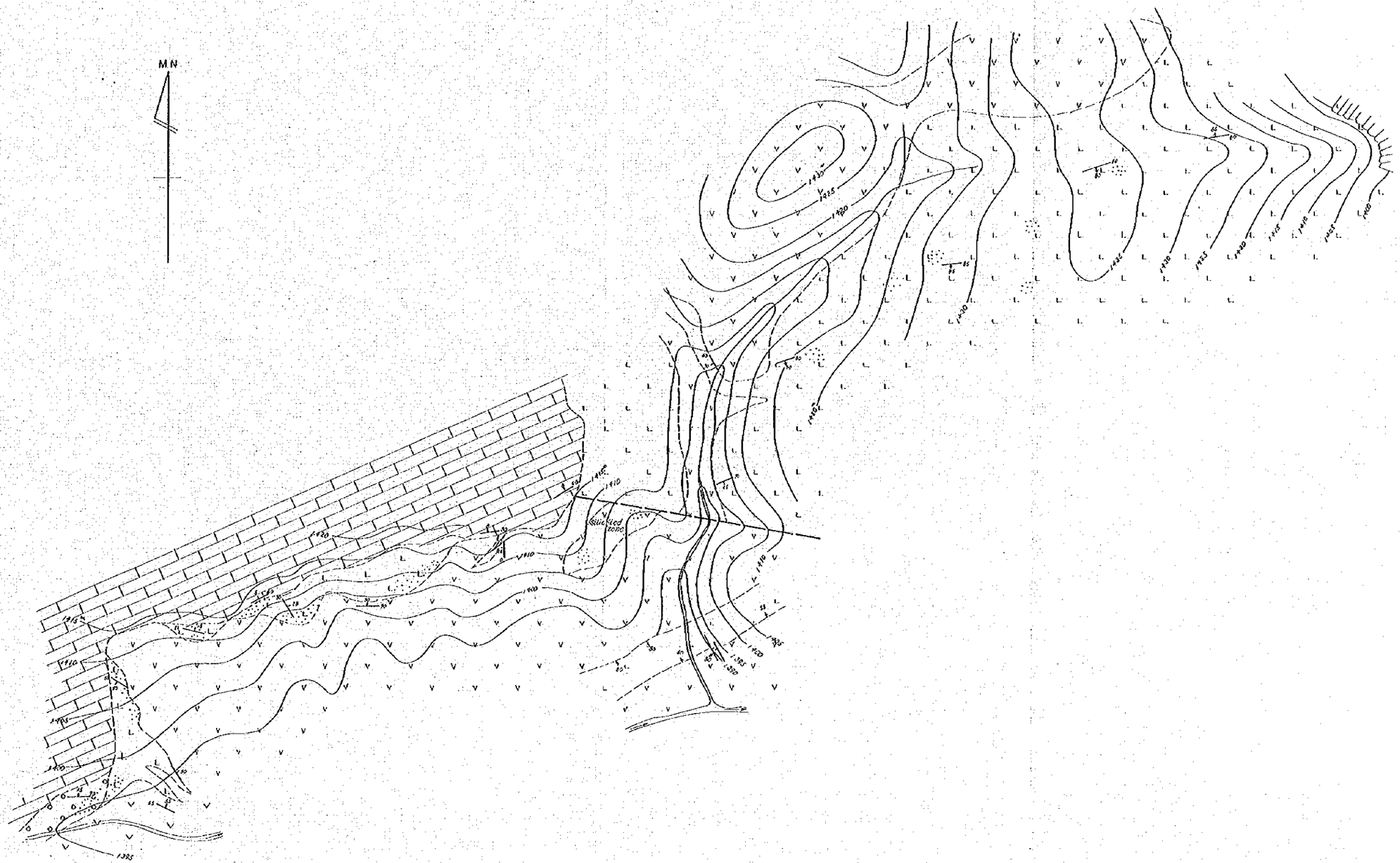
GEOLOGICAL RELATION TRENCHES AND PITS



LEGEND

- debris
- Infra Cambrian Basal Series
  - limestone (Petit Cotcoire)
  - fine-grained conglomerate, sandstone
- Pre Cambrian II
  - dacitic lava and tuff.
  - andesitic lava, tapilli tuff, and tuff.
- copper mineralization
- main mineralized area.
- strike and dip of bedding.
- strike and dip of fissure or joint.

MN



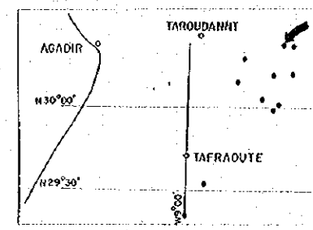
SCALE

0 40 0 120 160 200m

FI

MINERAL RESOURCES DEVELOPMENT
OF ANTI ATLAS AREA, KINGDOM OF

TALATE N'SOUSS PRO
GEOLOGICAL MAP
OF
NORTHERN EAST AF



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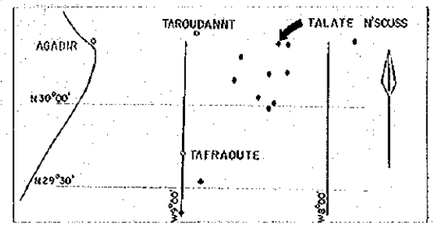
LEGEND

- debris
- Infra Cambrian Basal Series — limestone (Petit Calcaire)
- fine-grained conglomerate,s
- Pre Combrian III — dacitic lava and tuff.
- andesitic lava, lapilli tuf
- copper mineralization.
- main mineralized area.
- strike and dip of bedding
- strike and dip of fissure
- fault

FIG. VI – 1 – B

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

TALATE N'SOUSS PROJECT
GEOLOGICAL MAP OF NORTHERN EAST AREA



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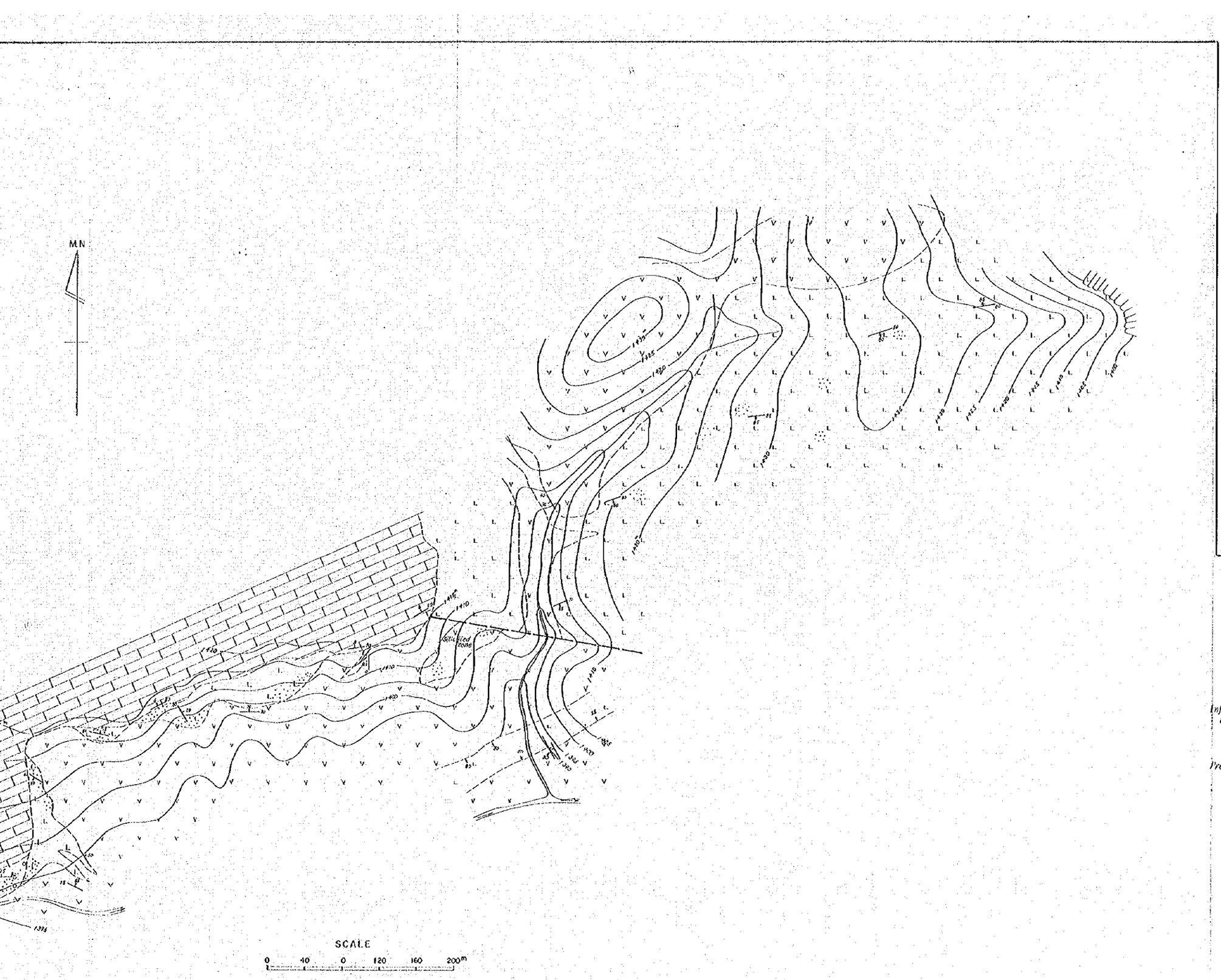
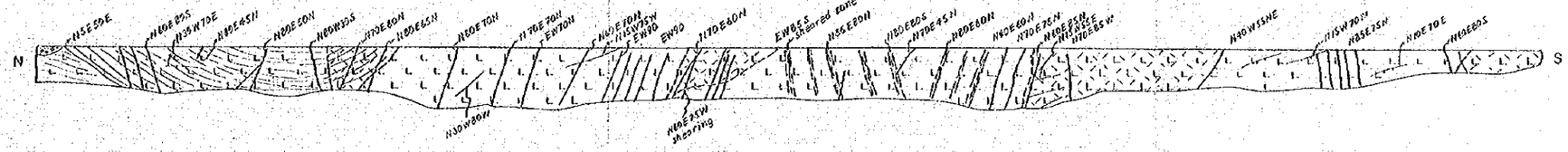


SCALE
0 40 0 120 160 200m

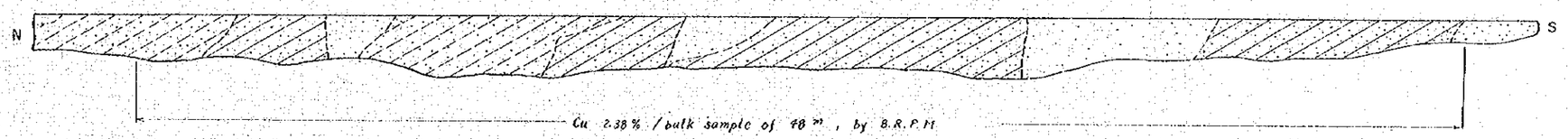
LEGEND

- debris
- Infra Cambrian Basal Series: limestone (Petit Calcaire)
- fine-grained conglomerate, sandstone.
- Pre Cambrian III: dacitic lava and tuff.
- andesitic lava, tapilli tuff, and tuff
- copper mineralization.
- main mineralized area.
- strike and dip of bedding.
- strike and dip of fissure or joint.
- fault

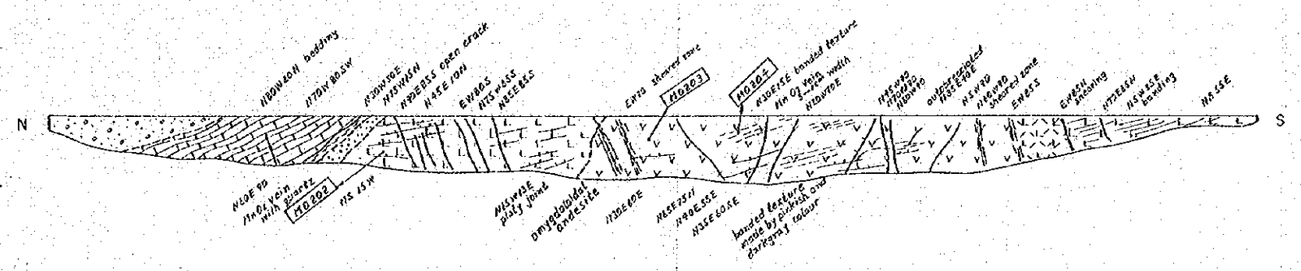
TRENCH NO.1 (GEOLOGY)



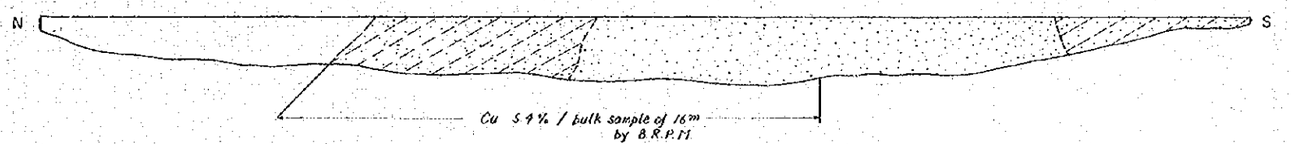
TRENCH NO.1 (MINERALIZATION)



TRENCH NO.2 (GEOLOGY)



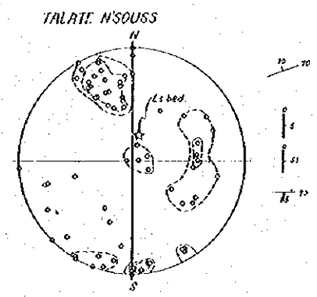
TRENCH NO.2 (MINERALIZATION)



SCALE

0 5 10m

STEREOGRAPHIC PROJECTION OF FISSURES AND JOINTS



LEGEND

- soil and gravel.
- lime stone.
- argilloceous zone.
- oxidized zone.
- docitic rock.
- andesitic rock.
- silicified zone as quartz ve
- dissemination of copper sulfi
- mineralization of copper
- mineralization of copper

FI

MINERAL RESOURCES DEVELOPMENT
OF ANTI ATLAS AREA, KINGDOM OF

TALATE N'SOUSS PRO

GEOLOGICAL SKET OF TRENCHES

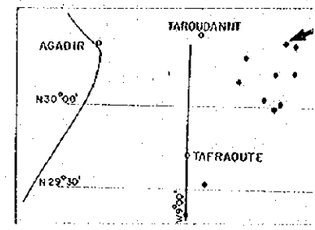


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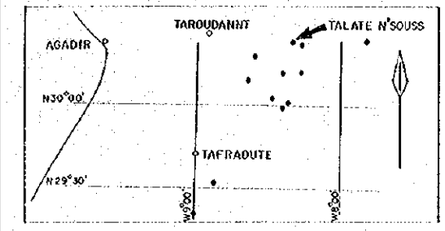
FIG. VII – 1 – C

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

TALATE N'SOUSS PROJECT

GEOLOGICAL SKETCH OF TRENCHES



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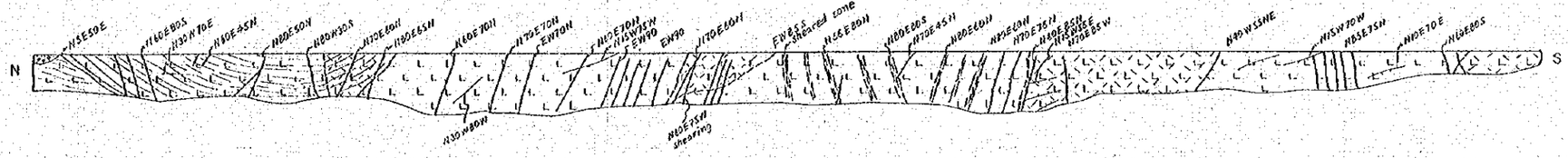
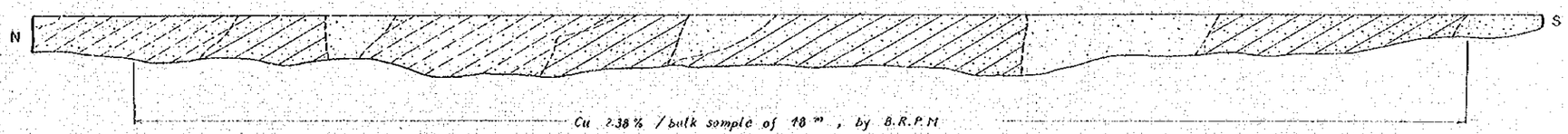
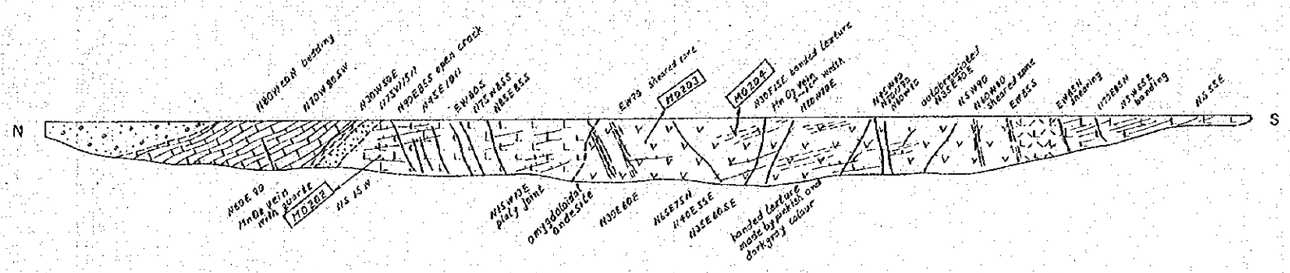
TRENCH NO.1 (GEOLOGY)



TRENCH NO.1 (MINERALIZATION)



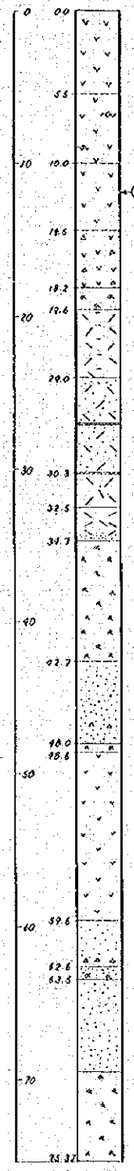
TRENCH NO.2 (GEOLOGY)


N
S
N30°W bedding
N30°W/35°W
N30°W/35°W
N60°E/70°N
N30°W/35°W
N60°E/70°N
EW/85°S sheared zone
N60°E/70°N
N30°W/35°W
N60°E/70°N
N30°W/35°W
N60°E/70°N
N30°W/35°W

DRILL LOG

TALATE N'SOUSS, NO.3 bis

Direction	10°
Inclination	−45°
Depth	75.37m



The andesite which shows reddish brown colour with gray tint, partial brecciation and weathering.

Reddish brown coloured amygdaloidal andesite.
Amygdule is filled by secondary quartz.
Quartz veinlet is common.

Ⓢ Reddish brown andesite. Weakly banded and brecciated. Ⓢ: Sample A2504
Quartz veinlet is common.

Brecciated lava.
Breccias of reddish brown andesite are enclosed by the matrix of redish coloured silt.

Reddish brown coloured andesitic lapilli tuff.
A matrix shows silty to sandy.

Greenish gray tuff. It's mainly composed by rhyolitic and andesitic fragments of 3mm in diameter with the fragments which is composed of reddish siltstone and others of about 5mm in diameter.
Fine-grained chalcocite is impregnated in a matrix.

Grayish brown coloured, compact, hard, siliceous, and weakly oriented tuff.
Quartz grain is common but no mafic minerals are observed.
Thin siltstone lens.

Reddish brown siltstone of 5cm in width.

Greenish gray coloured biotite rholitic tuff.

Brownish gray coloured biotite rholitic tuff. The fragment shows 1 to 5 mm in range and 3mm in average of diameter.
The lower part is sandy.

Brownish red coloured andesitic lapilli tuff.

Brownish red coloured, andesitic medium to coarse sandy tuff.
Partially andesitic breccias are enclosed.

Brownish red coloured andesitic lapilli tuff.

Reddish brown coloured andesite.

Reddish brown coloured, andesitic, coarse-grained sandstone.
Lower part has sandstone breccias.

Reddish coloured andesitic sandstone.

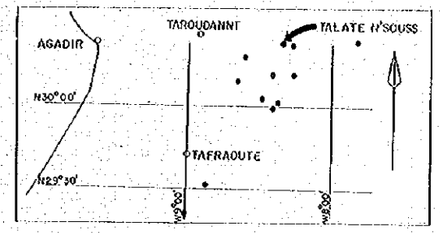
Reddish brown coloured andesitic lapilli tuff.

FIG. VI − 1 − 0

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

TALATE N'SOUSS PROJECT

DRILL LOG, NO.3 bis



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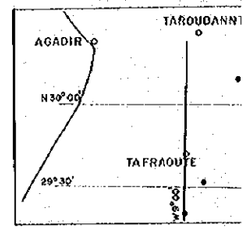
MARCH 1974

MINERAL RESOURCES DEVE
OF ANTI ATLAS AREA KI

AMADOUZ

GEOLOGICAL



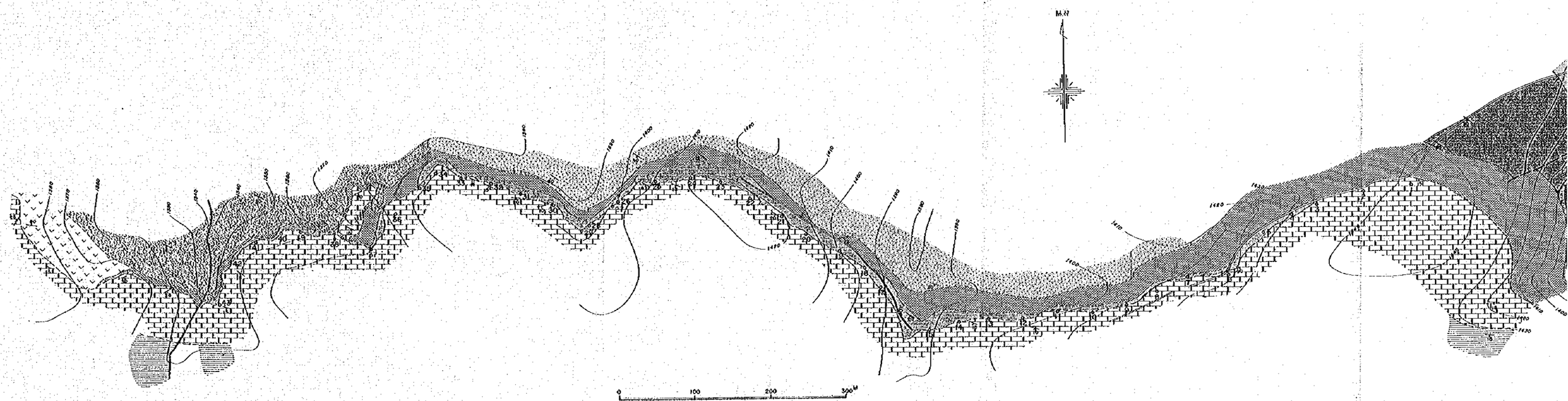
OVERSEAS TECHNICAL COOPERATI

MARCH

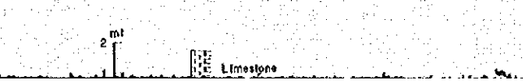
LEGEND

Pre combrion PIII
- Conglomerate
- Sandstone
- Fine conglomarate ~ Sandstone
- Andesitic sandy tuff
- Andesite

Basal series (Adoudounian)
- Redish brown conglomerate ~ Sandstone
- Greenish conglomerate
- Limestone (Petit Calcaire)
- Sand · Siltstone, schist alternation



PIT 41



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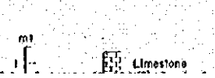

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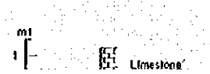

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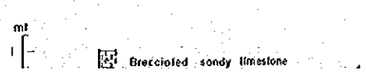


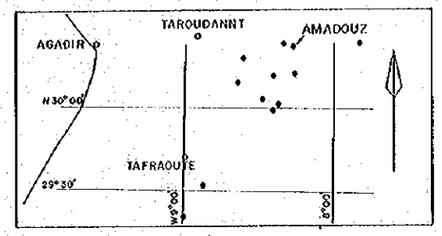
PIT 2

FIG. VII - 2 - A

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA KINGDOM OF MOROCCO

AMADOUZ PROJECT

GEOLOGICAL MAP



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MARCH 1974

LEGEND

Pre combrian PIII
- Conglomerate
- Sandstone
- Fine conglomerate ~ Sandstone
- Andesitic sandy tuff
- Andesite

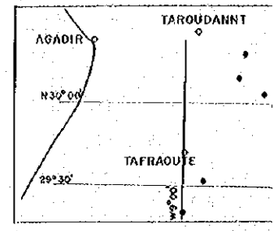
Basal series (Adoudounian)
- Redish brown conglomerate ~ Sandstone
- Greenish conglomerate
- Limestone (Petit Calcaire)
- Sand · Siltstone, schist alternation

PIT 33 PIT 25 PIT 12 PIT 2

MINERAL RESOURCES DEVELOP
OF ANTI ATLAS AREA KINGD

AMADOUZ F

GEOLOGICAL MA



OVERSEAS TECHNICAL COOPERATION

MARCH 1974

LEGEND

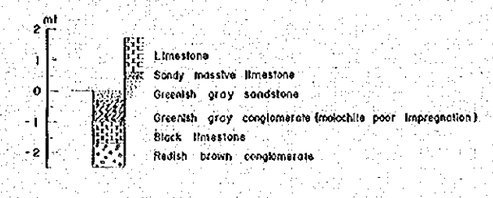
Pre cambrian P III
- Conglomerate
- Sandstone
- Fine conglomarate ~ Sandstone
- Andesitic sandy tuff
- Andesite

Basal series (Adoudounian)
- Redish brown conglomerate ~ Sandstone
- Greenish conglomerate
- Limestone (Petit Calcaire)
- Sand · Siltstone , schist alternation

M.N

0 100 200 300M

PIT 41



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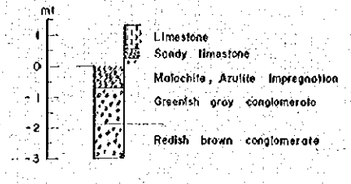

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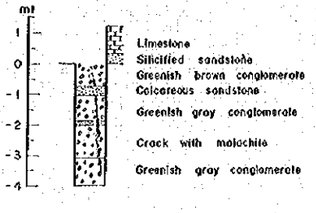

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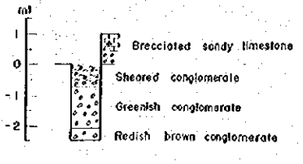
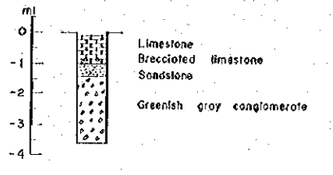


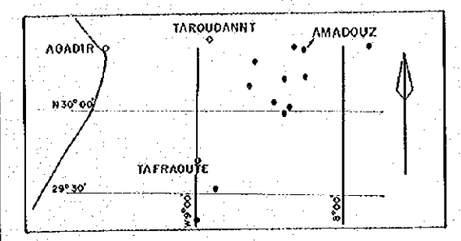
PIT 2



OF ANTI ATLAS AREA KINGDOM OF MOROCCO

AMADOUZ PROJECT

GEOLOGICAL MAP



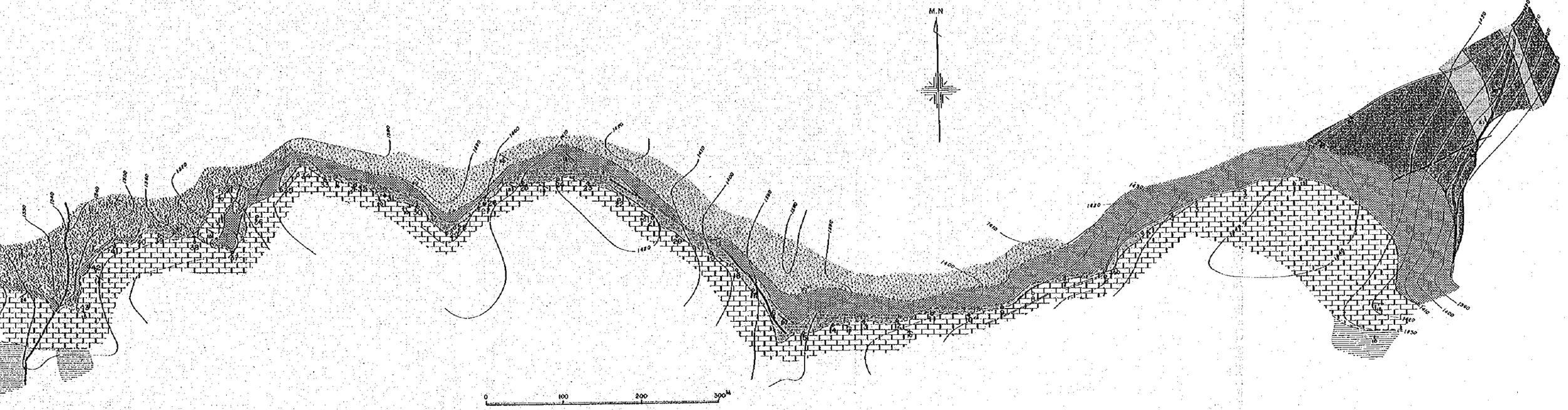
OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

MARCH 1974

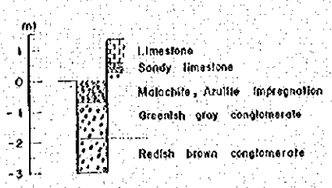
LEGEND

Pre cambrian P III
- Conglomerate
- Sandstone
- Fine conglomerate ~ Sandstone
- Andesitic sandy tuff
- Andesite

Basal series (Adoudounian)
- Redish brown conglomerate ~ Sandstone
- Greenish conglomerate
- Limestone (Petit Calcaire)
- Sand · Siltstone, schist alternation

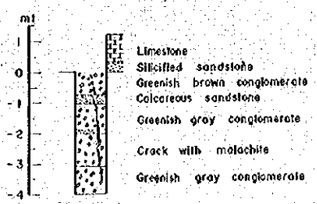


PIT 33



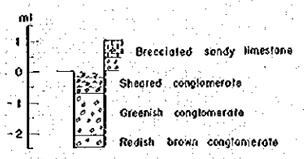
- Limestone
- Sandy limestone
- Malachite, Azurite impregnation
- Greenish gray conglomerate
- Redish brown conglomerate

PIT 25



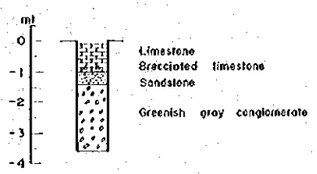
- Limestone
- Silicified sandstone
- Greenish brown conglomerate
- Calcareous sandstone
- Greenish gray conglomerate
- Crack with malachite
- Greenish gray conglomerate

PIT 12



- Brecciated sandy limestone
- Sheared conglomerate
- Greenish conglomerate
- Redish brown conglomerate

PIT 2



- Limestone
- Brecciated limestone
- Sandstone
- Greenish gray conglomerate

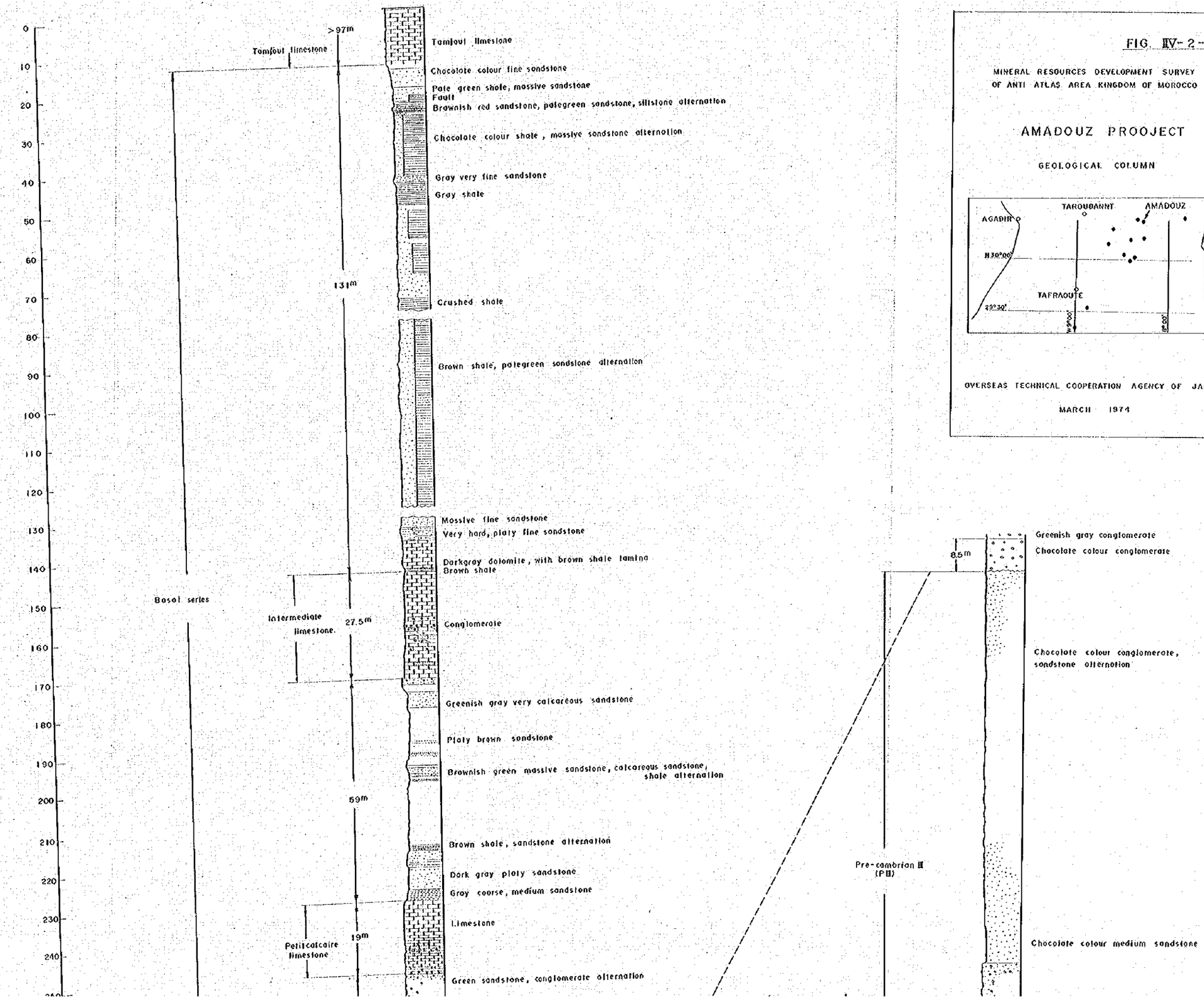
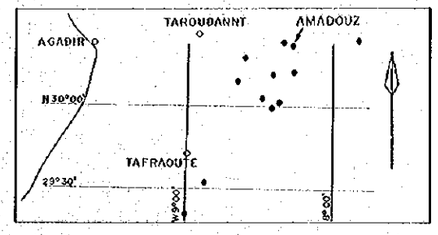


FIG. IV-2-B

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA KINGDOM OF MOROCCO

AMADOUZ PROOJECT

GEOLOGICAL COLUMN



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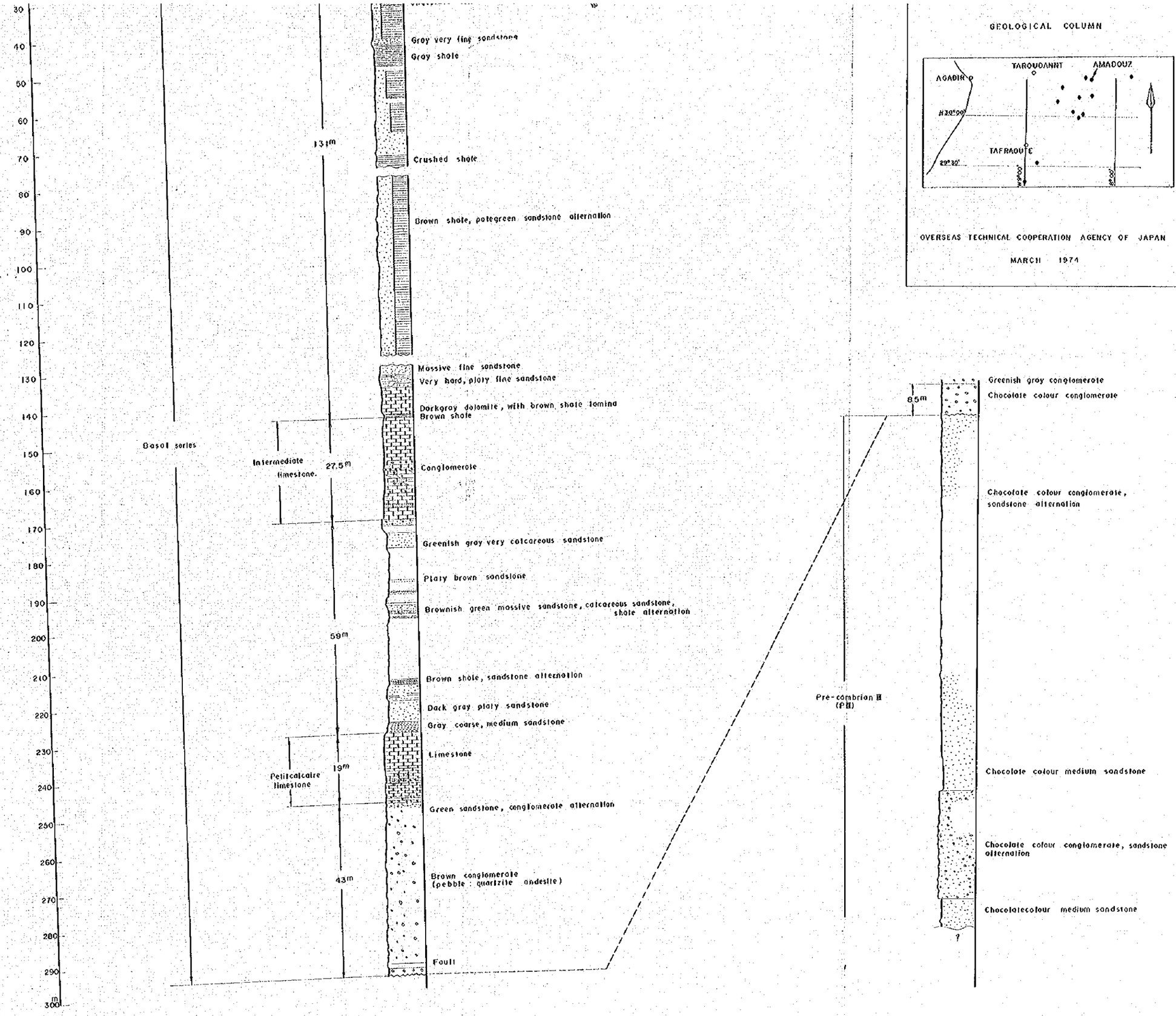
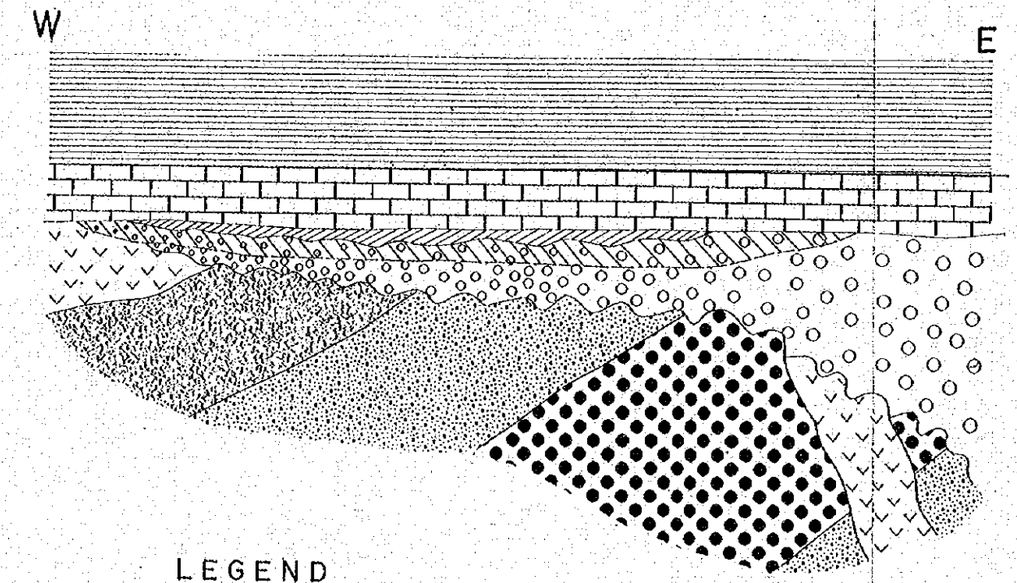
MARCH 1974

GEOLOGICAL COLUMN

OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

MARCH 1974





LEGEND

Basal series (Adoudounian)
- Silt, Sandstone (schist) alternation
- Limestone (Petit calcaire)
- Sandstone ~ Conglomerate

Pre-cambrian III (PIII)
- Andesite
- Andesitic tuffacious sandstone
- Sandstone Conglomerate alternation
- Conglomerate

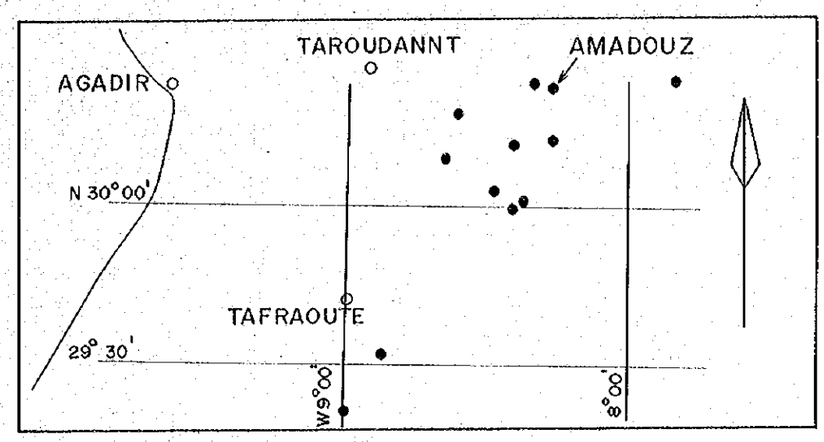
- Mineralized part
- Chlovitized part

FIG. VII - 2 - C

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA KINGDOM OF MOROCCO

AMADOUZ PROJECT

IDEALIZED GEOLOGICAL PROFILE



OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

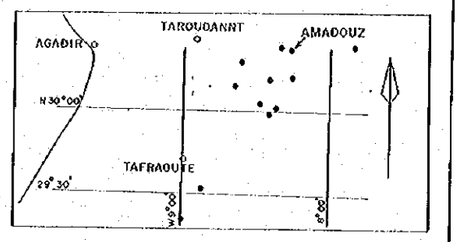
MARCH 1974

FIG. VII - 2 - D

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA KINGDOM OF MOROCCO

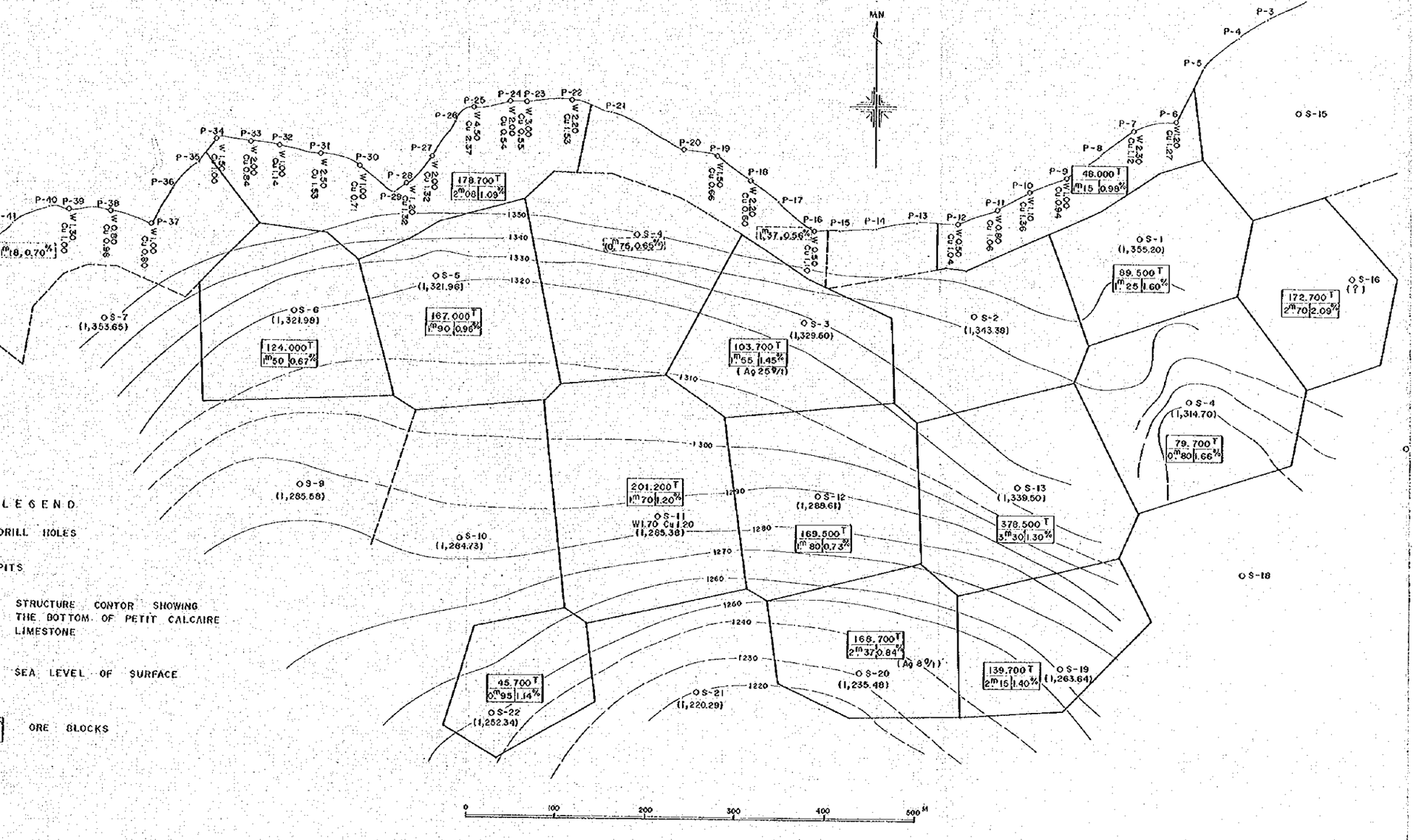
AMADOUZ PROJECT

MAP OF ORE BLOCKS AND STRUCTURE



OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

MARCH 1974



LEGEND

DRILL HOLES

PITS

STRUCTURE CONTOR SHOWING THE BOTTOM OF PETIT CALCAIRE LIMESTONE

SEA LEVEL OF SURFACE

ORE BLOCKS

APPROXIMATION OF ORE RESERVE

Block	Area m²	Wd m	Reserve Ton	Cu %	Cu Contton
P6~12	16.700	1.15	48.000	0.98	470.4
P22-34	34.400	2.08	178.700	1.09	1,947.8
S 1	28.700	1.25	89.500	1.60	1,432.0
3	26.800	1.55	103.700	1.45	1,503.6
5	35.200	1.90	167.000	0.96	1,603.2
6	33.100	1.50	124.000	0.67	830.8
11	45.500	1.77	201.200	1.20	2,414.4
12	37.700	1.80	169.500	0.73	1,237.3
13	45.900	3.30	378.600	1.30	4,920.5
14	39.900	0.80	79.700	1.66	1,323.0
16	25.600	2.70	172.700	2.09	3,609.4
19	26.000	2.15	139.700	1.40	1,955.8
20	28.500	2.37	168.700	0.84	1,417.0
22	19.300	0.95	45.700	1.14	520.9
Total	443.300	1.77	2,036.600	1.22	25,186.1

Note : Wd x Cu% > 1 (Cut off)

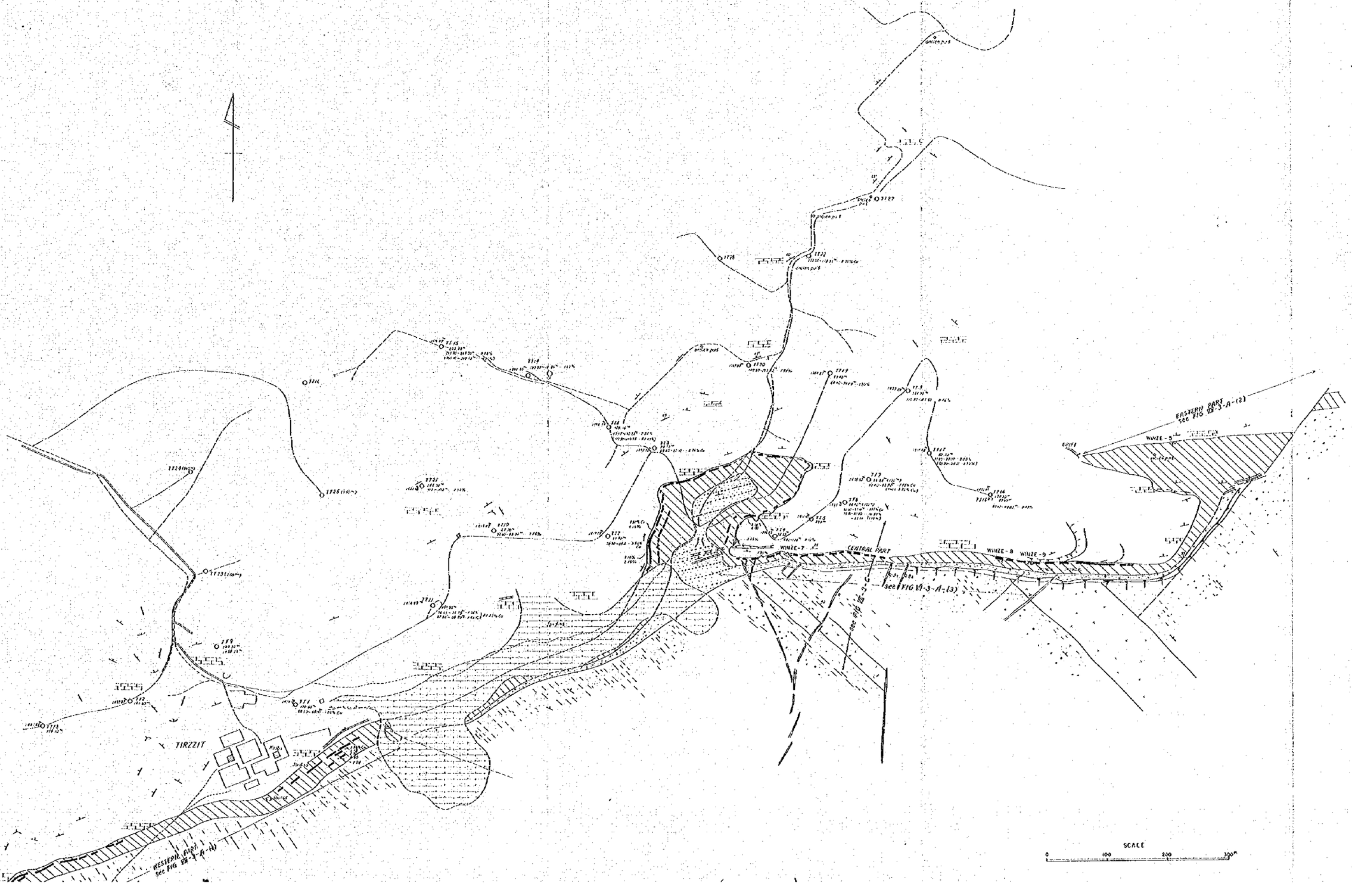
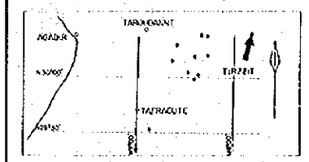

TIRZZIT
WESTERN PART
see FIG VI-3-A-(4)
EASTERN PART
see FIG VI-3-A-(2)
CENTRAL PART
see FIG VI-3-A-(3)
WINZE-5
WINZE-7
WINZE-8
WINZE-9
SCALE
0
100
200
300m

FIG. VII-3-A-(1)

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

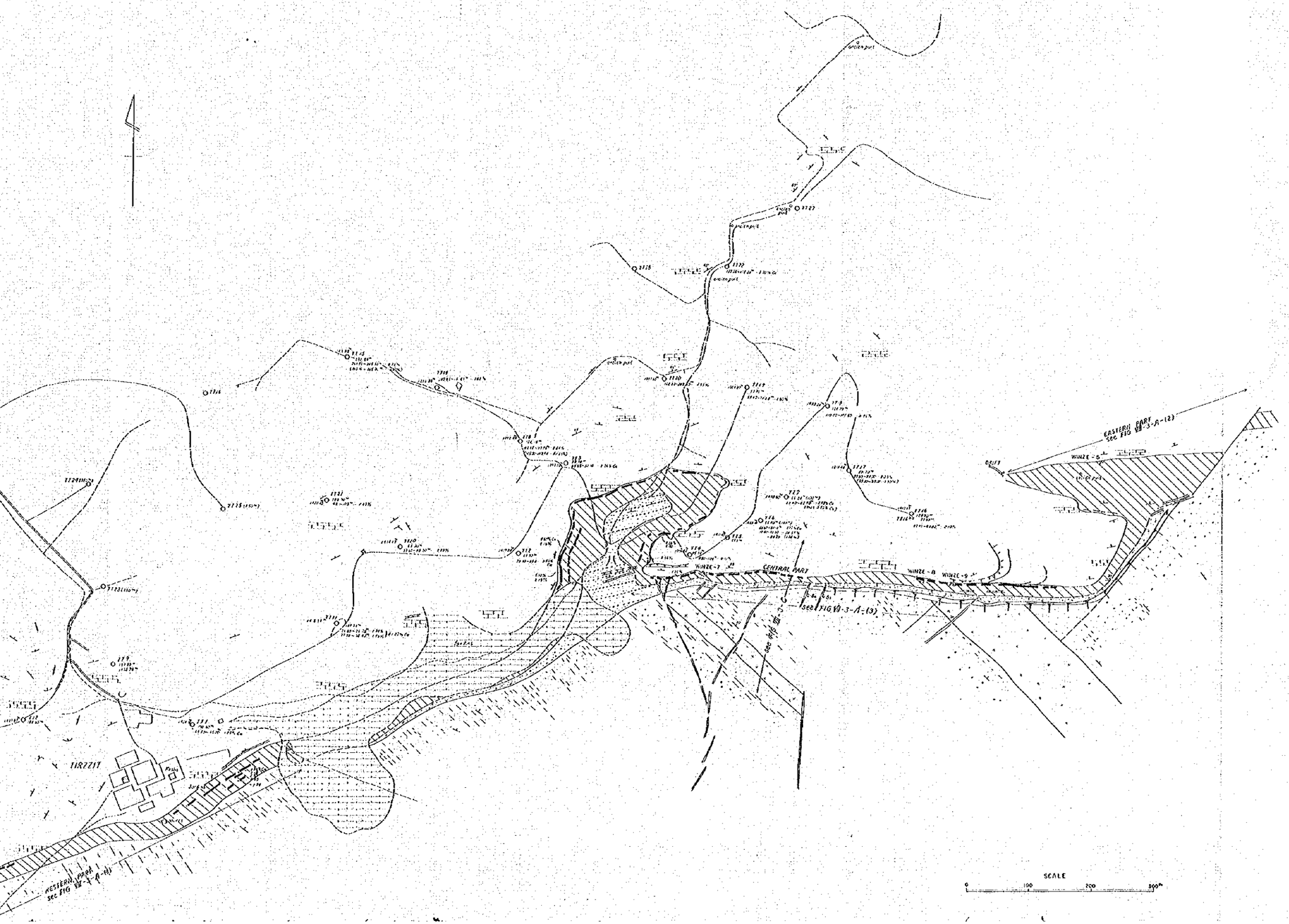
TIRZZIT PROJECT
GEOLOGICAL MAP
WITH
LOCATION OF DRILL HOLES, WINZES AND DRIFT



OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

MARCH 1970

BY J. SKACEL
(BUREAU DE RECHERCHES ET DE PARTICIPATIONS MINIERES)



LEGEND

- Drill hole
- Elevation
- Total length
- Ore depth
- Copper grade
- Quaternary — Travertine
- Paleozoic — Gabbro
- Infra Cambrian TAMLOUT — Limestone
- " " Basal Series — Siltstone, Sandstone
- " " " — Tetal carbonate, Lower bedded Limestone
- " " " — Conglomerate
- " " " — Line of outcrop

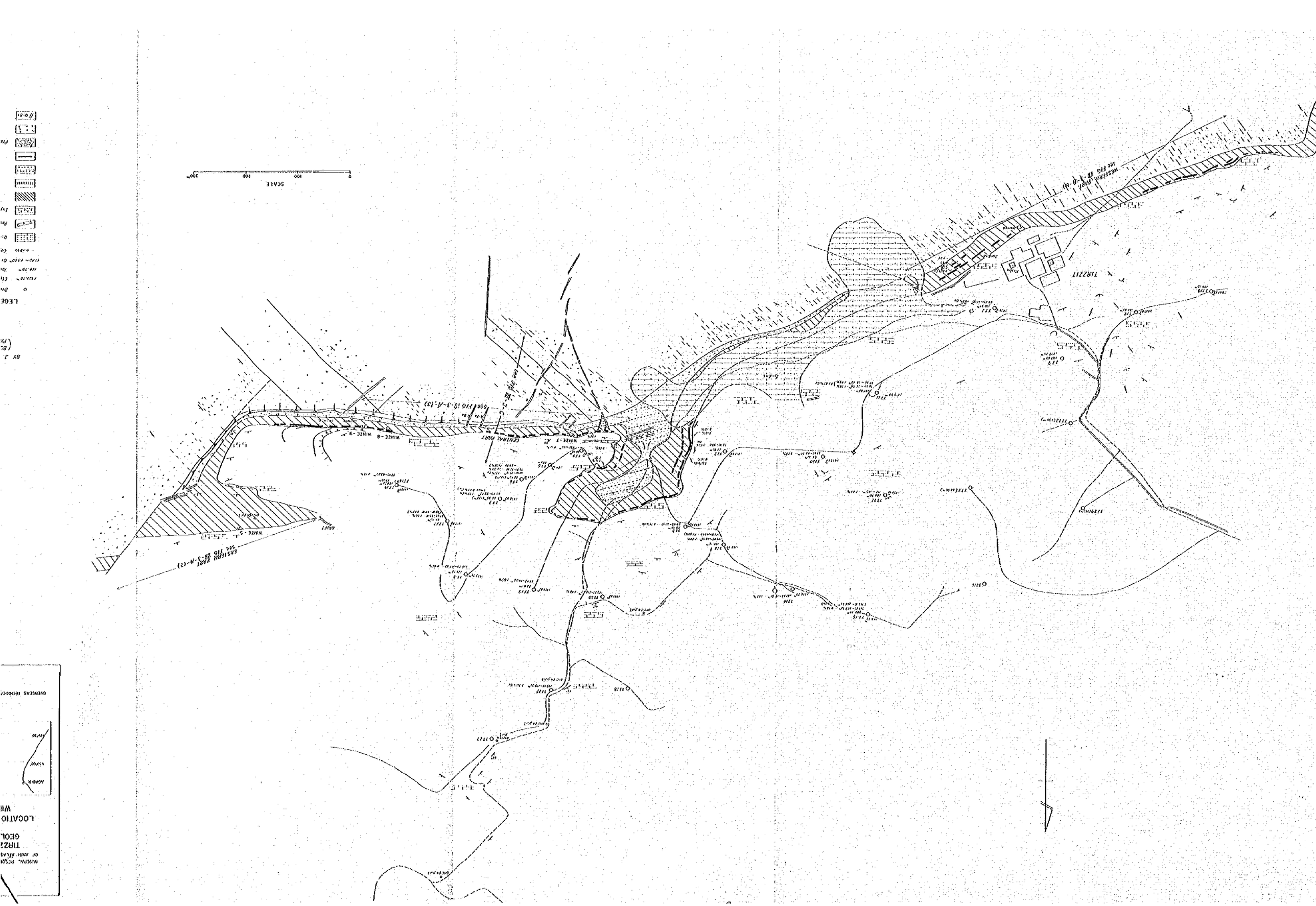
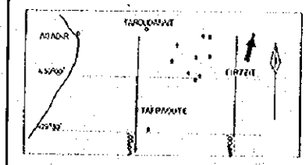

SCALE
0
100
200
300
WEST FORK
SEE FIG 10-3-A-(4)
CENTRAL PART
SEE FIG 10-3-A-(3)
EASTERN PART
SEE FIG 10-3-A-(2)
WORK-8
WORK-9
WORK-7
WORK-5
WORK-4
WORK-3
WORK-2
WORK-1
TUNNEL
TUNNEL
TUNNEL

FIG. VII-3-A-(1)

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

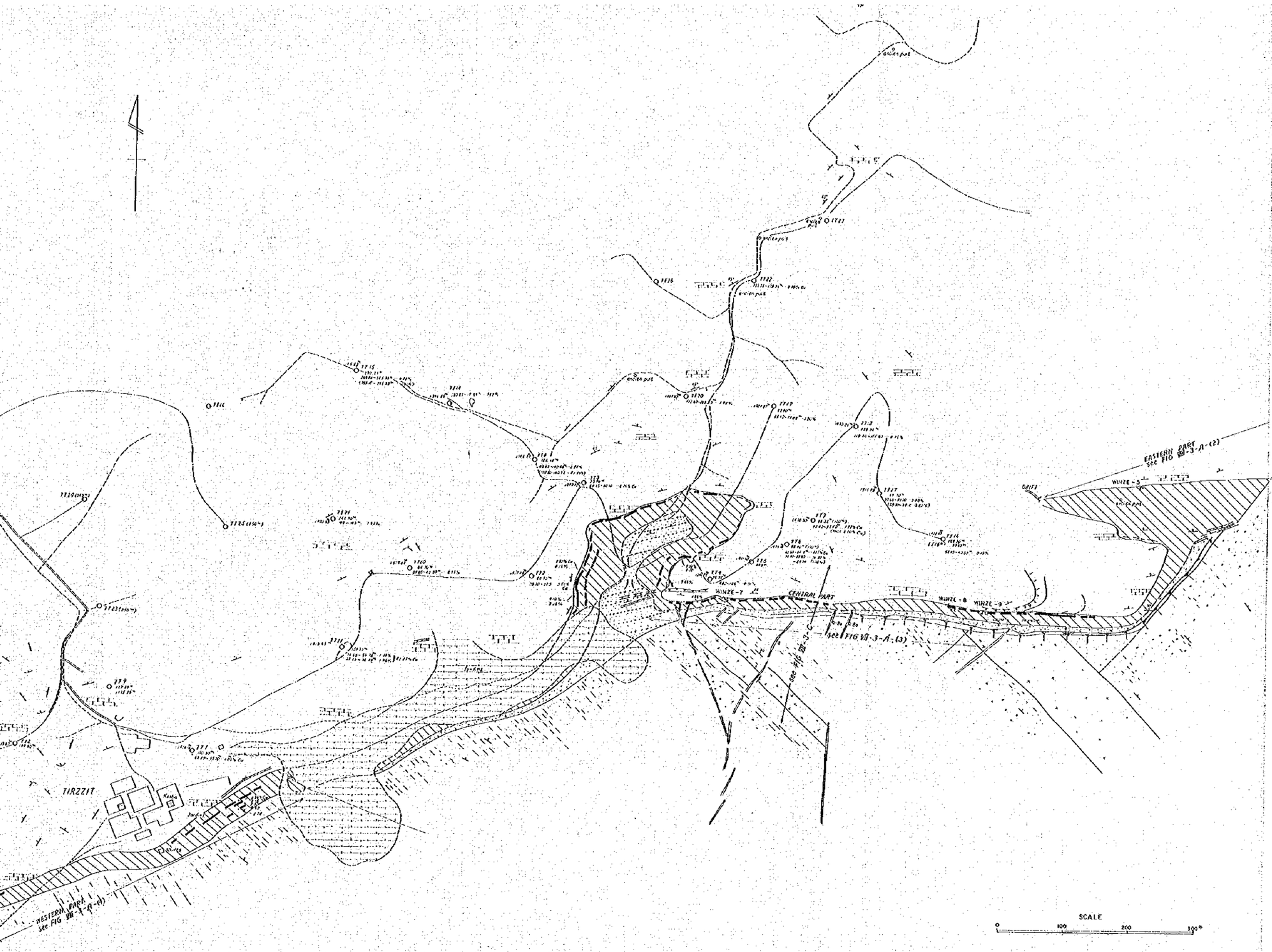
TIRZZIT PROJECT
GEOLOGICAL MAP
WITH
LOCATION OF DRILL HOLES, WINZES AND DRIFT



OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

MARCH 1974

BY S. SEKCEL
(BUREAU DE RECHERCHES ET DE PARTICIPATIONS MINIERES)



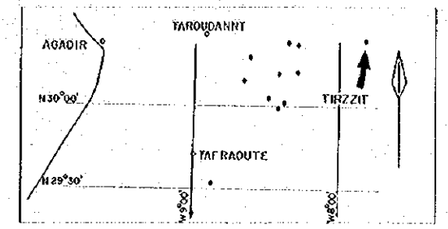
LEGEND

- Drill hole
- Elevation
- Total length
- Ore depth
- Copper grade
- Quaternary — Travertine
- Paleozoic — Gabbro
- Infra Cambrian TAMJOUT — Limestone
- " — Basal Series — Siltstone, Sandstone
- " — " — Petit Carcaire, Tuber bedded Limestone
- " — " — Conglomerate
- " — " — Line of outcrop
- Pre Cambrian X — Conglomerate, Sandstone
- " — Rhyolite
- Quartz vein

FIG. VII-3-A-(2)

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

TIRZZIT PROJECT
GEOLOGICAL SKETCH OF EASTERN PART



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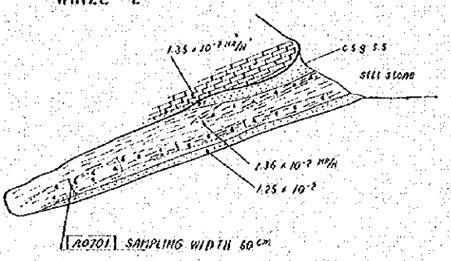
MARCH 1974

SCALE
0 5 10m

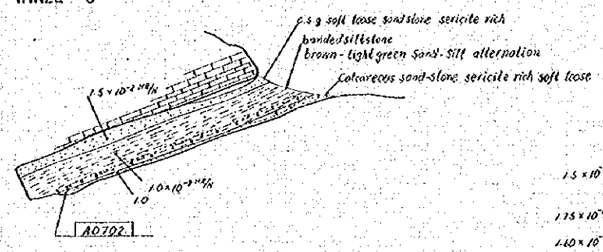
NO.2 INCLINED SHAFT N10E-20°

WINZE-2



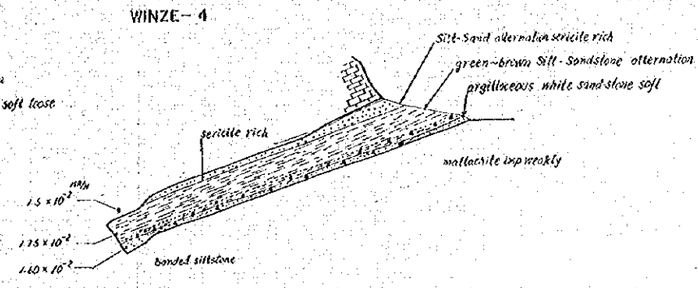
NO.3 INCLINED SHAFT N5E-20° (SKETCH POINT NO.6)

WINZE-3

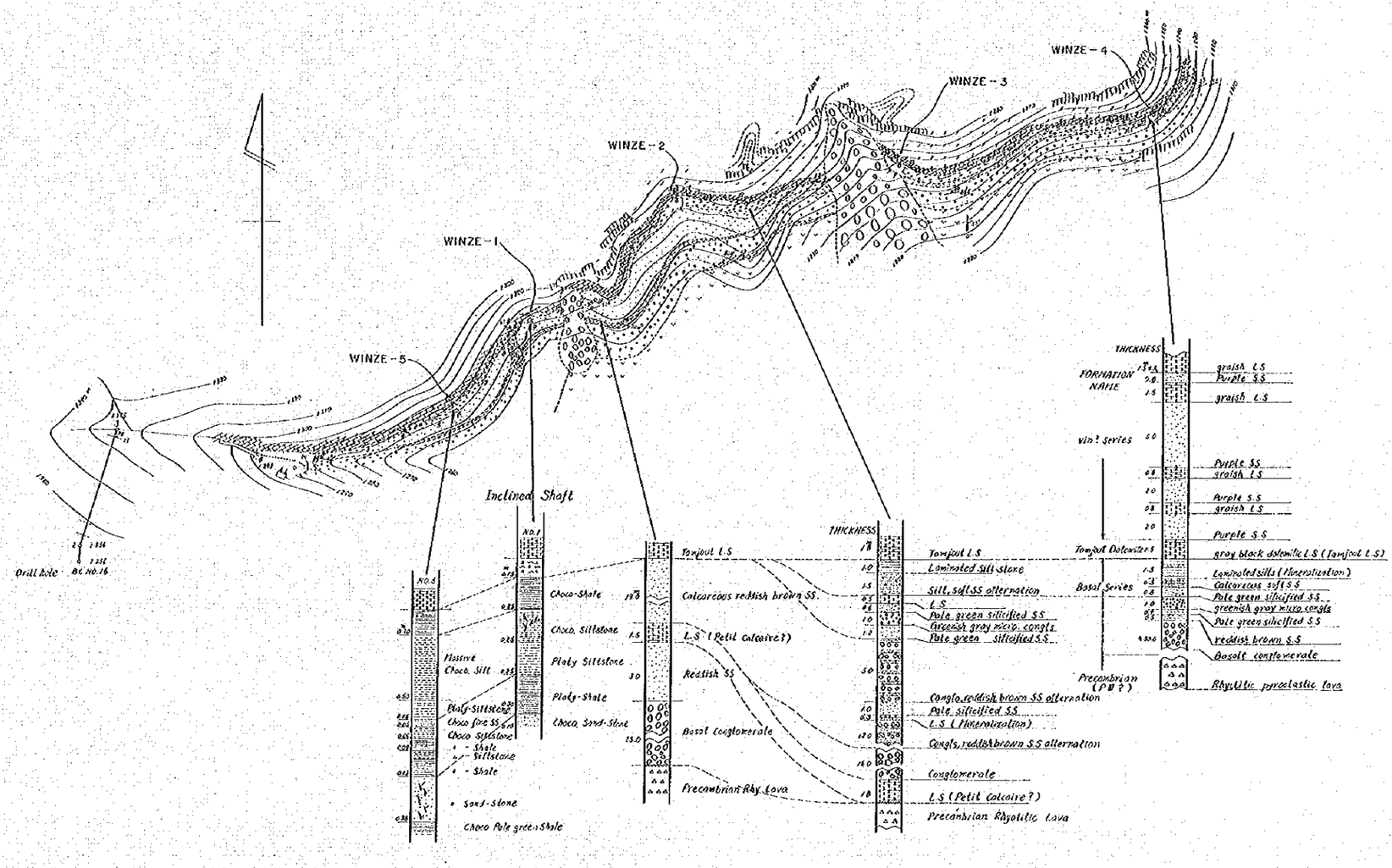


NO.4 INCLINED SHAFT N85E-25°

WINZE-4



SCALE
0 100 200m



ABBREVIATION

fine	:	fine grained
c.s.g.	:	coorse grained
imp.	:	impregnation
congls	:	conglomerate
choco.	:	chocorate coloured

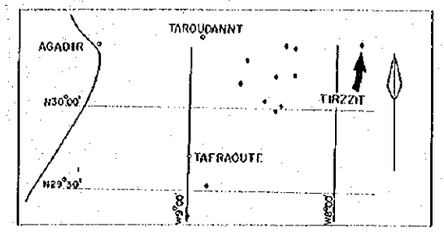
LEGEND

L.S	Limestone
S.S	Sandstone
Rhy	Rhyolite
	Alternation of Limestone & Sandstone
	Limestone
	Siltstone
	Sandstone
	Conglomerate
	Pyroclastic Lava
	Green Copper
	Travertine
1.75 x 10⁻²	Radiometric Reading by Scintillation Counter

FIG. VI-3-A-(3)

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

TIRZZIT PROJECT
GEOLOGICAL SKETCH
OF
CENTRAL PART



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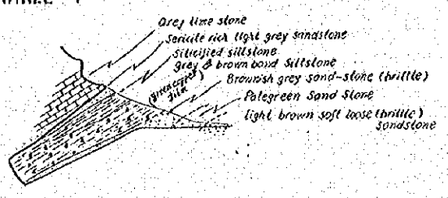
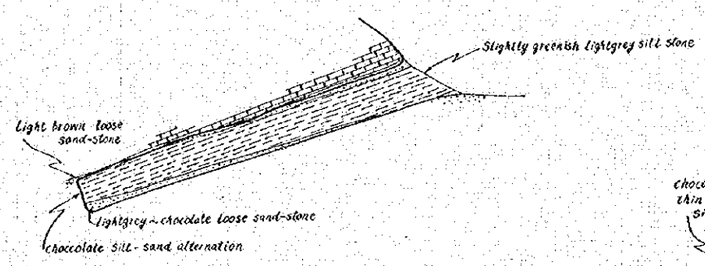
MARCH 1974

SCALE
0 5 10m

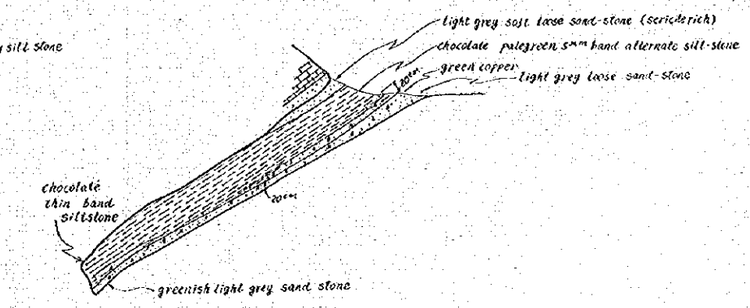
WINZE - 7



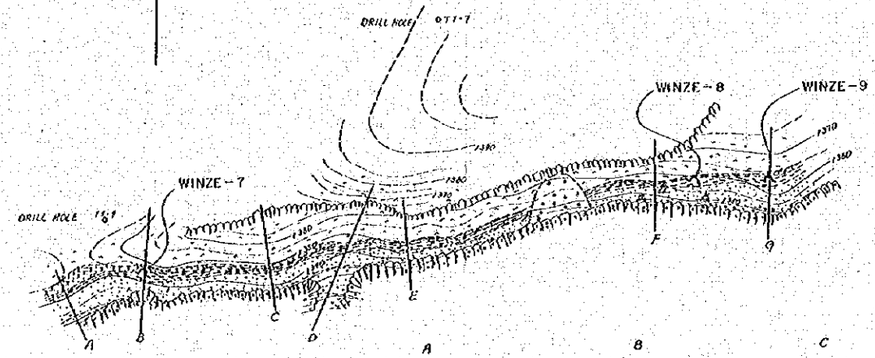
WINZE - 8

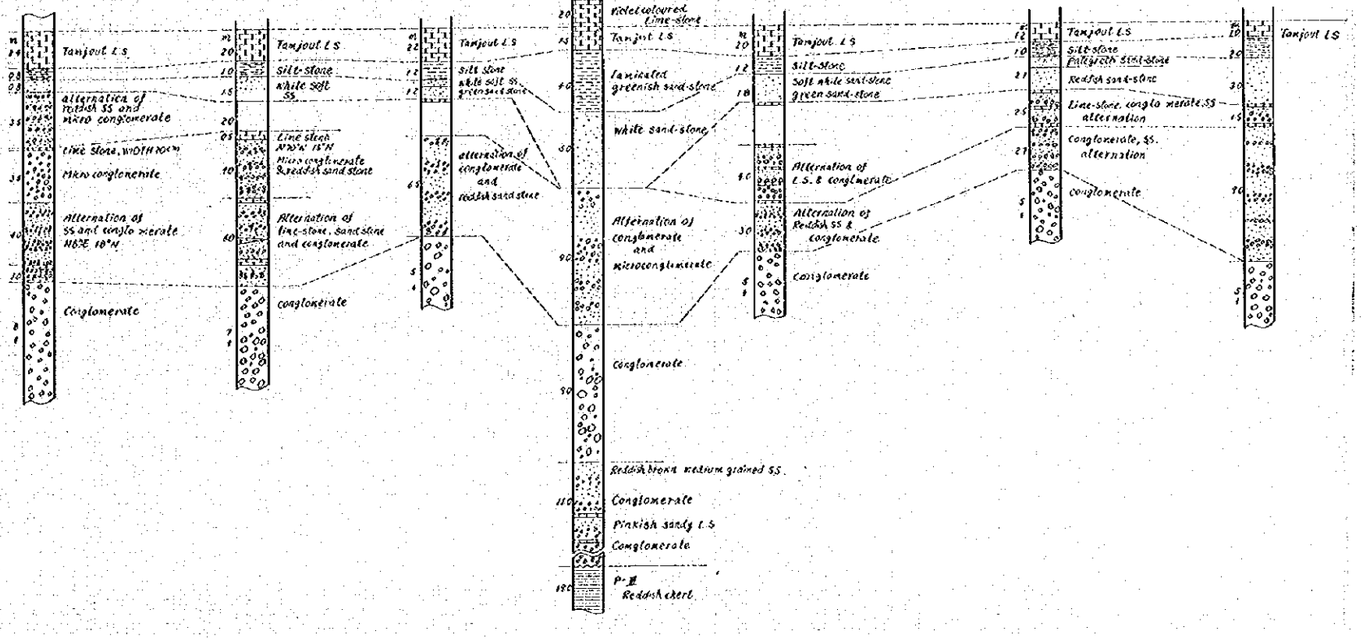


WINZE - 9



SCALE
0 100 200m





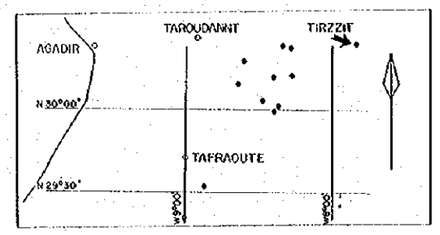
LEGEND

- L.S — Limestone
- S.S — Sandstone
- Rhy — Rhyolite
- Alternation of Limestone & Sandstone
- Limestone
- Siltstone
- Sandstone
- Conglomerate
- Pyroclastic Lava
- Green Copper

FIG. VII--3-A-(4)

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

TIRZZIT PROJECT
GEOLOGICAL SKETCH
OF
WESTERN PART



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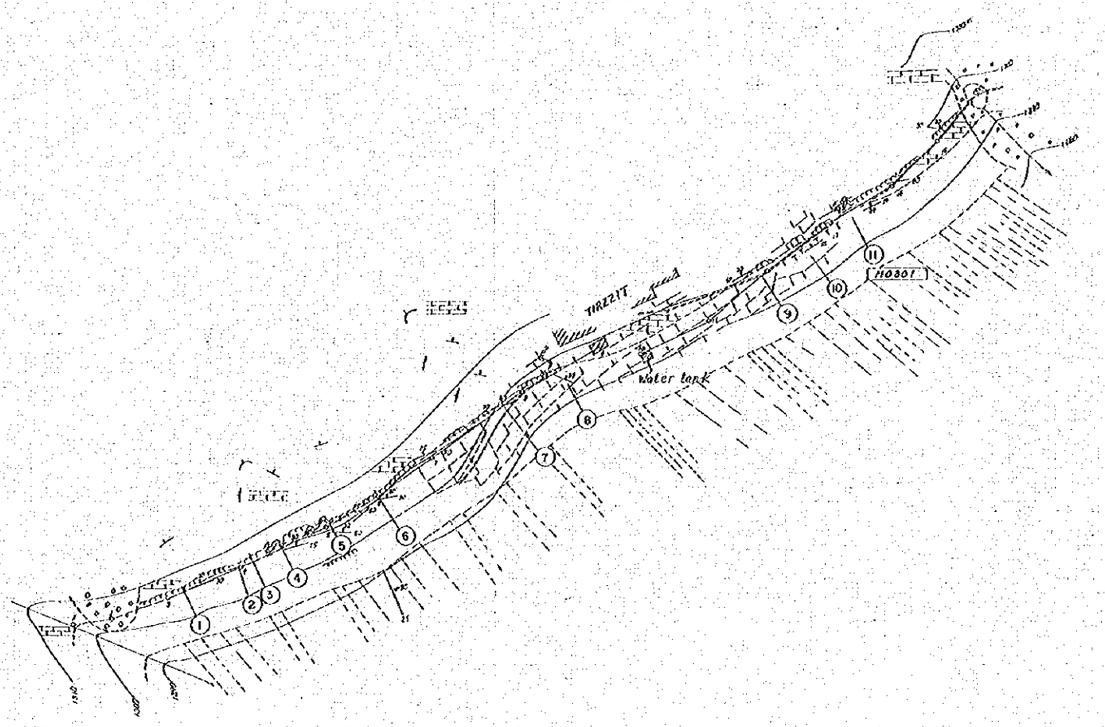
MARCH 1974



SCALE
0 100 200m

LEGEND

- Travertine
- Limestone
- Alternation of limestone, sandstone & siltstone
- Conglomerate
- Green copper

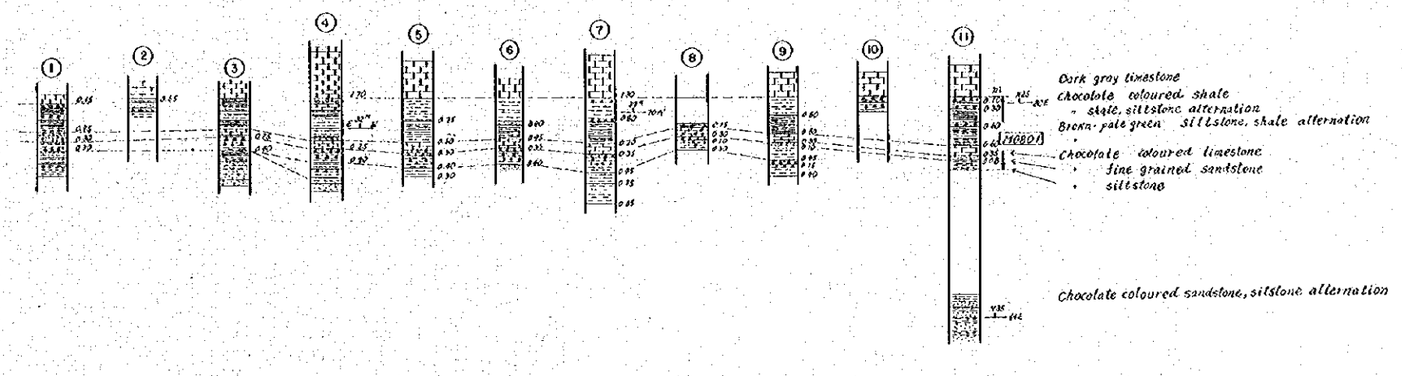
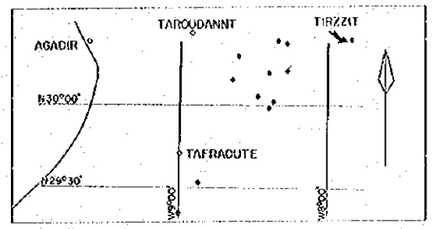


FIG. VII - 3 - B

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

TIRZZIT PROJECT
GEOLOGICAL SKETCH
OF
THE DRIFT



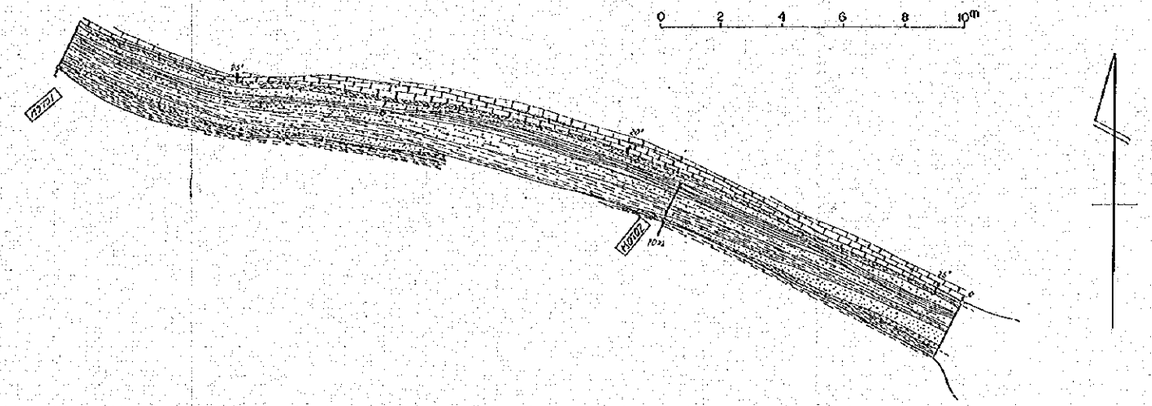
OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

MARCH 1974

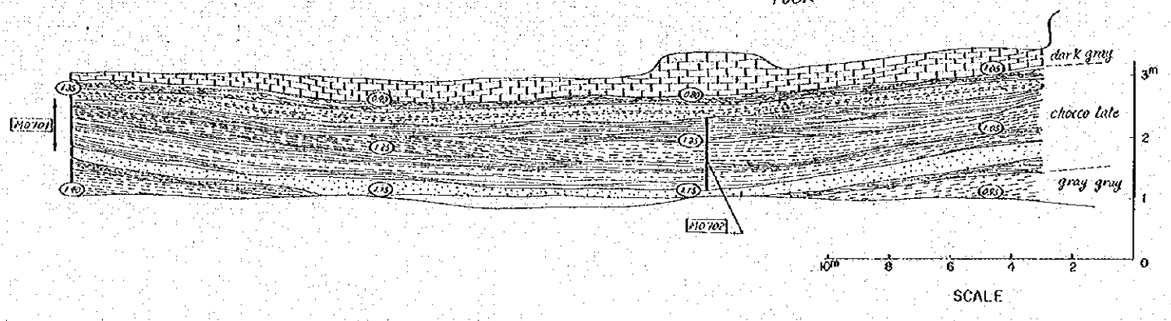
PLANE

SCALE

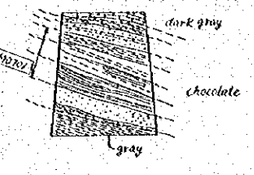
0 2 4 6 8 10m



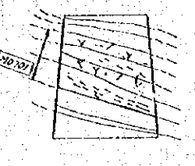
WALL

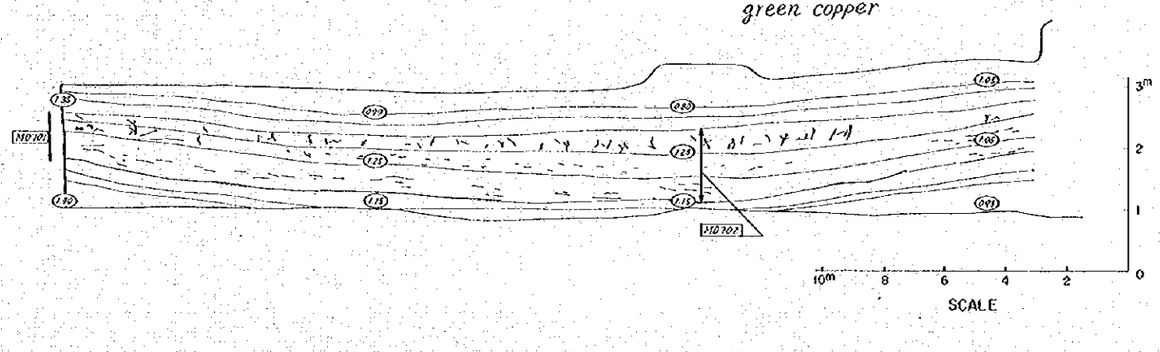


FACE



FACE





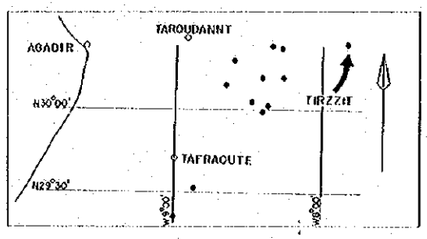
LEGEND

- Limestone
- Shale
- Siltstone
- Sandstone
- argillaceous zone
- (105) Radiometric reading by scintillation counter x 10^{-2} mR/HR
- Green copper occurrence

FIG. VII - 3 - C

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

TIRZZIT PROJECT
CROSSCUT SKETCH
OF
CENTRAL PART



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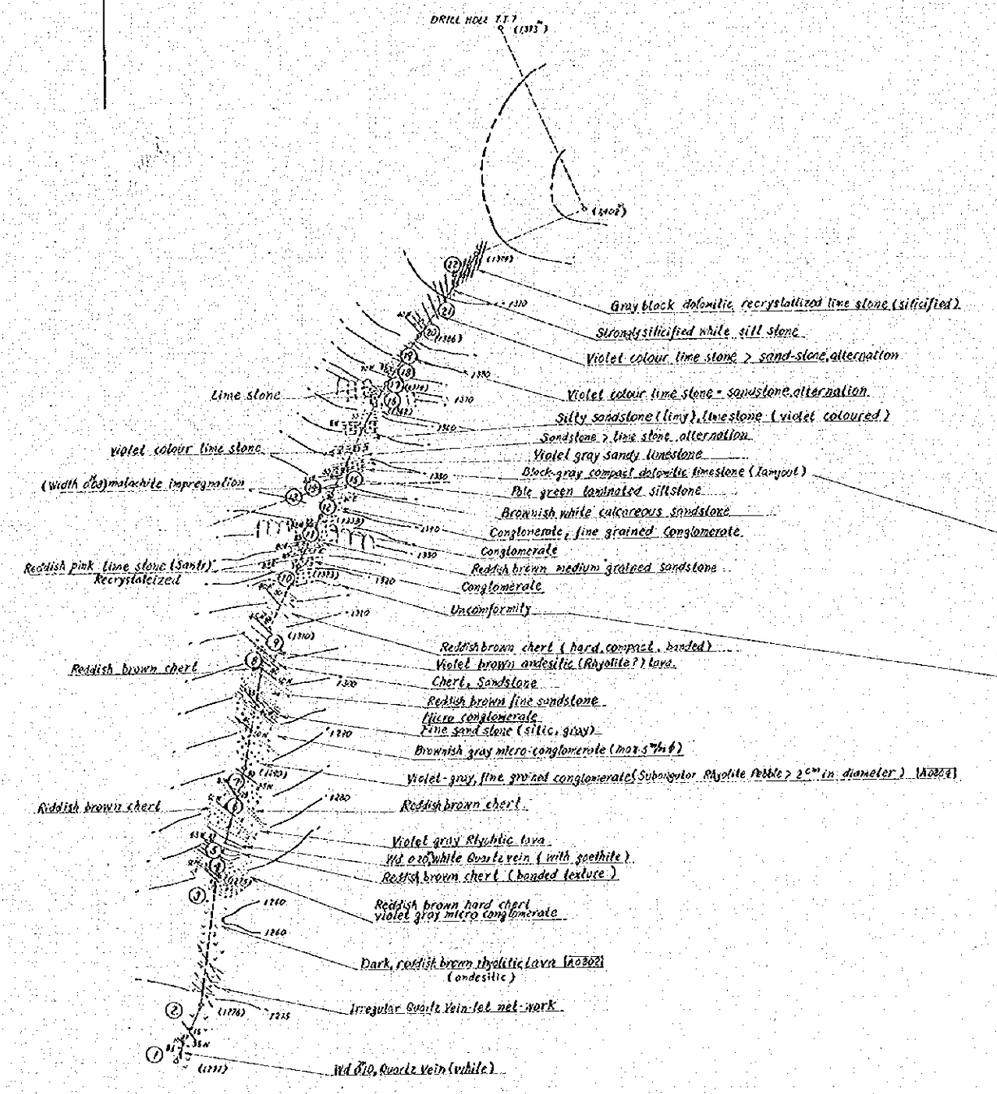
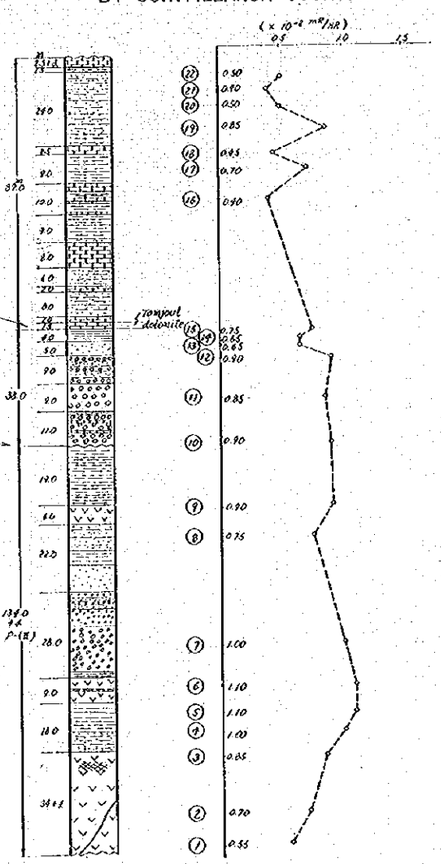
MARCH 1974

SCALE
0 50 100m



RADIOMETRIC READING
BY SCINTILLATION COUNTER



OUTCROP LINE

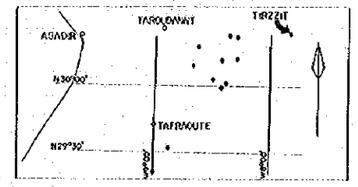
SCALE

0 100 200 300 400 500m

FIG. VII-3-D

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

TIRZZIT PROJECT
MAP OF ORE BLOCKS AND STRUCTURE OF ORE DEPOSIT



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BY BUREAU DE RECHERCHES
ET DE PARTICIPATIONS
MINIERES.

LEGEND

- S11 / 1.430 m — DRILL HOLE NUMBER / ELEVATION (METER)
- 26.305 t / 1.79 % 0.93 m — ORE RESERVED TONAGE / CU GRADE, WIDETH OF ORE DEPOSIT
- 1400 m — STRUCTURE CONTOURS OF ORE DEPOSIT

SCALE
0 100 200 300 400 500m

OUTCROP LINE

247600 247800 248000 248200 248400 248600 248800

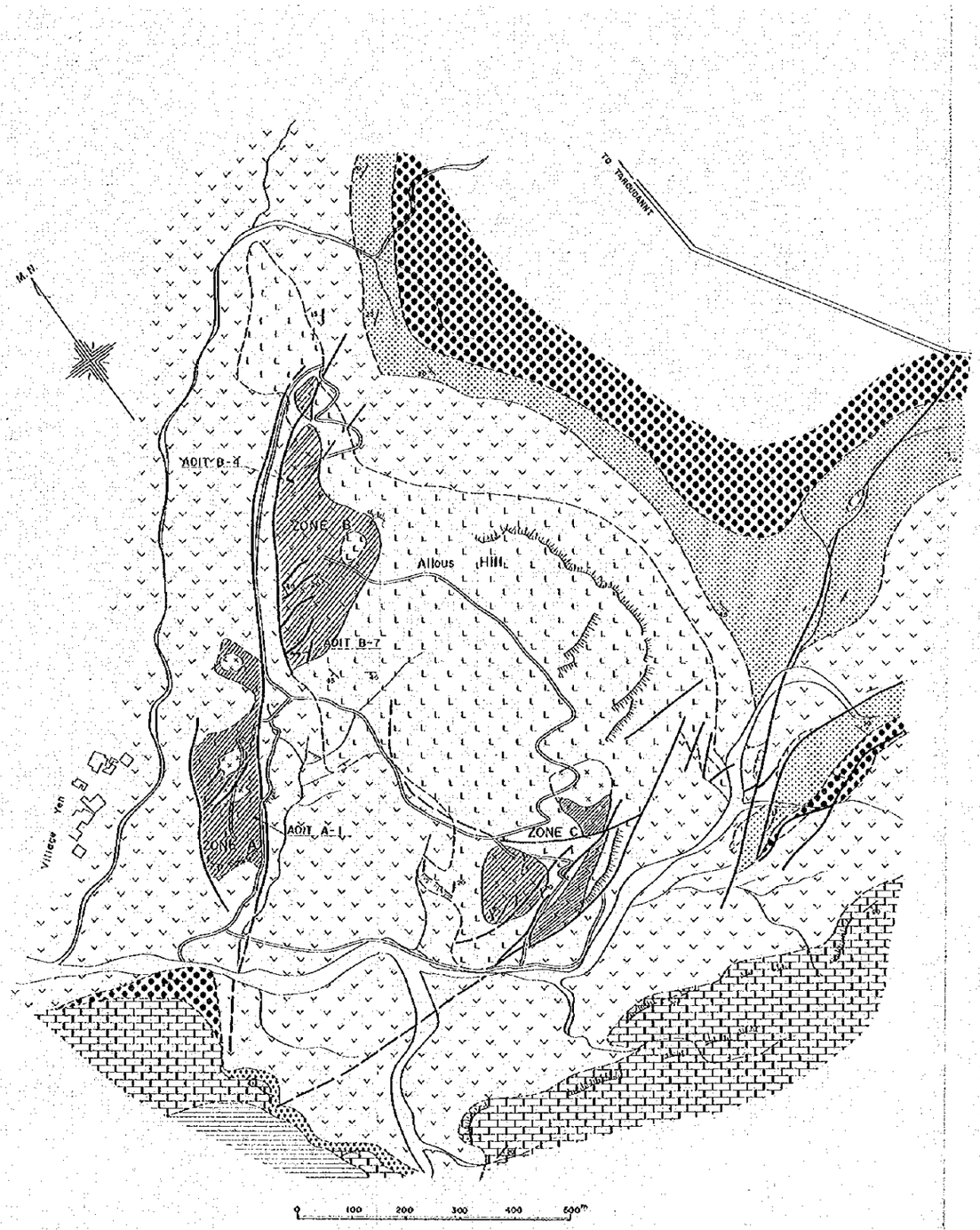
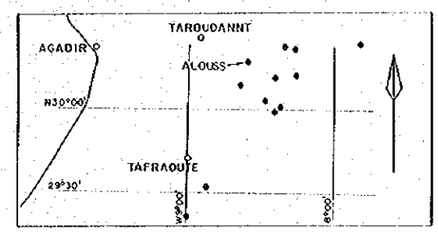


FIG. VII-4-A

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA KINGDOM OF MOROCCO

ALOUSS PROJECT

GEOLOGICAL MAP



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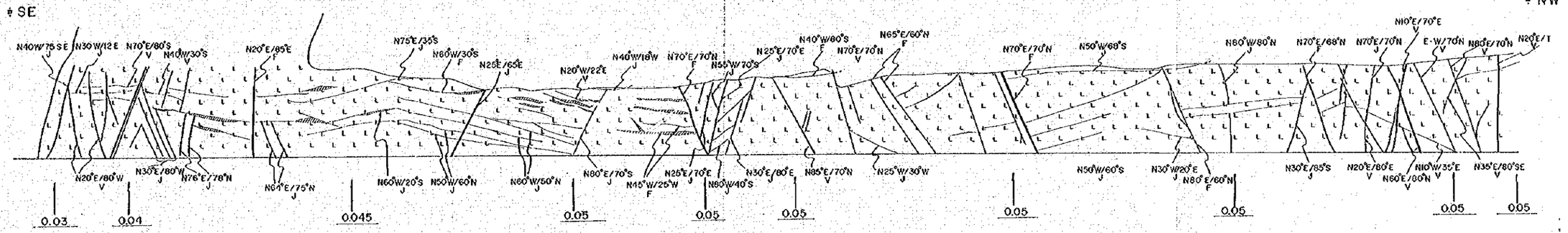
LEGEND

PRE-CAMBRIAN III (P III)	Red sandstones & conglomerates
	Dark red tuff & siltstone
	Green dark andesite
	Rhyolite group
	Rhyolite group with chlorite
BASAL SERIES (ADOUDOUNIAN)	Green & purple shale & conglomesates
	Limestone (Peri) calcalcaise)
	Sand & siltstone
	Copper mineralization (Impregnation)
	Copper mineralization (Stratiform)
	Fault
	Escarpment

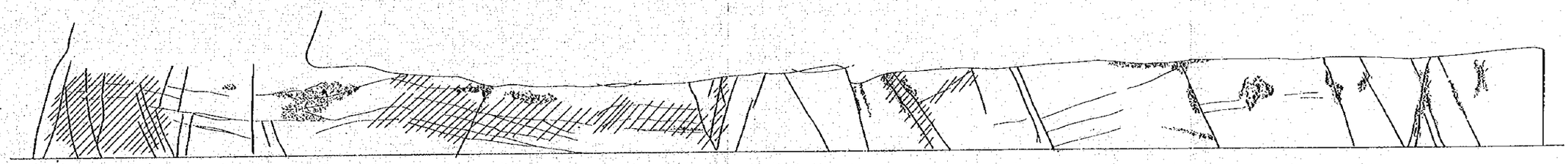
ROCK & FISSURES , JOINTS
(SIDE WALL IN THE DRIFT)



LEGENDE

- Rhyolite
- F : fissures , J : joint , V : veinlet of quartz
- Lenticular quartz
- No. Metrographic reading by scintillation counter (mR / Hr)

MAIN MINERALIZATION



0 1 2 3 4 5 10 M

LEGEND

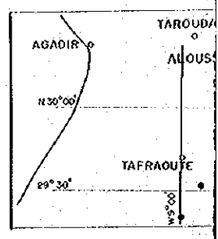
- Sulfide copper mineralization (chalcocite Bornite)
- Oxide copper mineralization
- Fissures with malachite film

STEREOGRAPHIC PROJECTION OF FISSURES AND JOINTS

MINERAL RESOURCES
OF ANTI ATLAS AREA,

ALOUSS

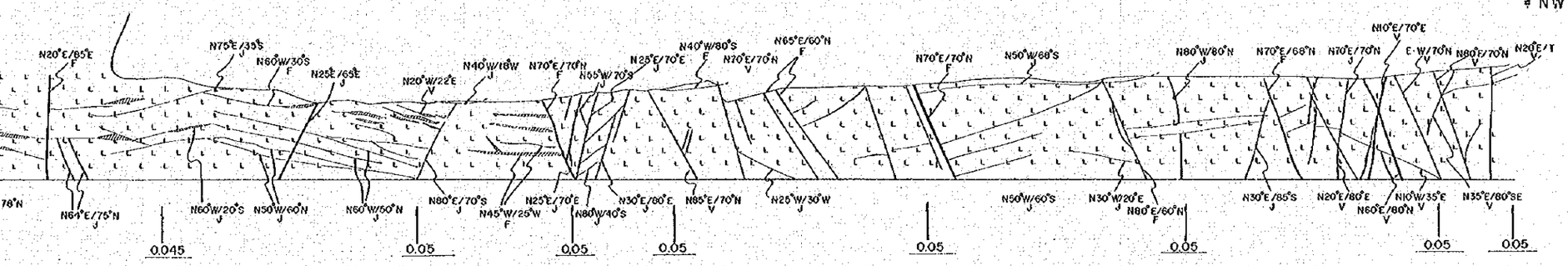
GEOLOGICAL SK



OVERSEAS TECHNICAL COOPE

MARCH

ROCK & FISSURES, JOINTS
(SIDE WALL IN THE DRIFT)



LEGENDE

- Rhyolite
- F : fissures , J : joint , V : veinlet of quartz
- Lenticular quartz
- No. Metrographic reading by scintillation counter (mR / Hr)

MAIN MINERALIZATION

0 1 2 3 4 5 10 M

LEGEND

- Sulfide copper mineralization (chalcocite Bornite)
- Oxide copper mineralization
- Fissures with malachite film

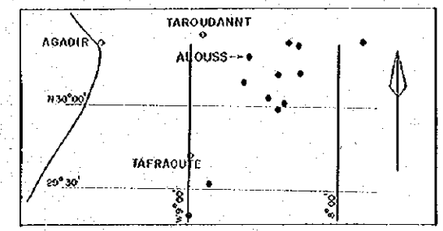
RAPHIC PROJECTION OF
FISSURES AND JOINTS

FIG. VII - 4 - B (1)

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

ALOUSS PROJECT

GEOLOGICAL SKETCH (A-ZONE)



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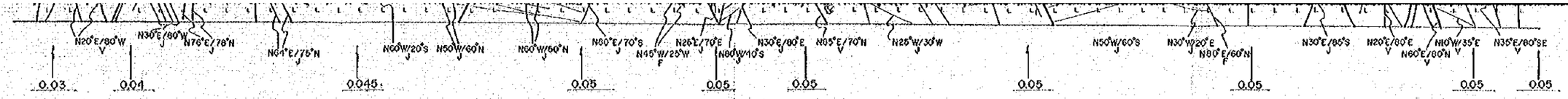
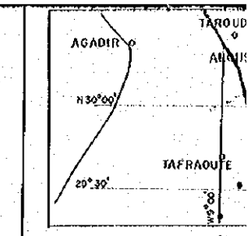


LEGENDE

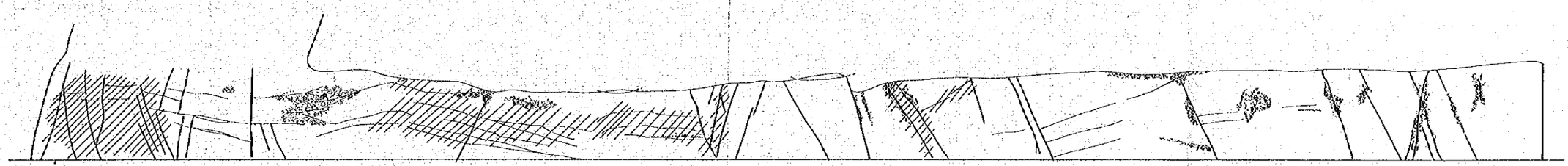
- Rhyolite
- F : fissures , J : joint , V : veinlet of quartz
- Lenticufor quartz
- No. Metrographic reading by scintillation counter (mR / Hr)

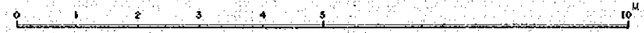


OVERSEAS TECHNICAL COOPE

MARCH

MAIN MINERALIZATION

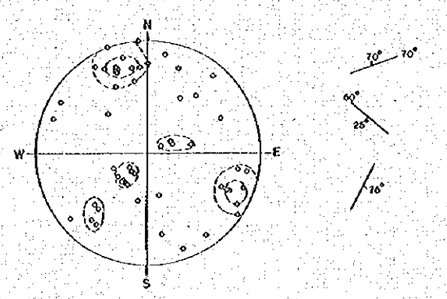


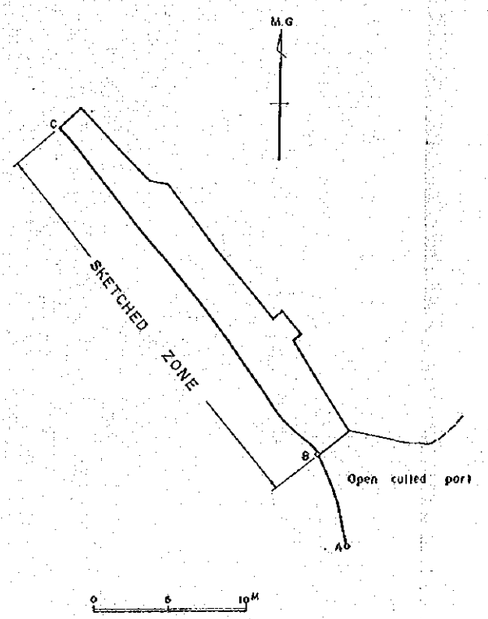


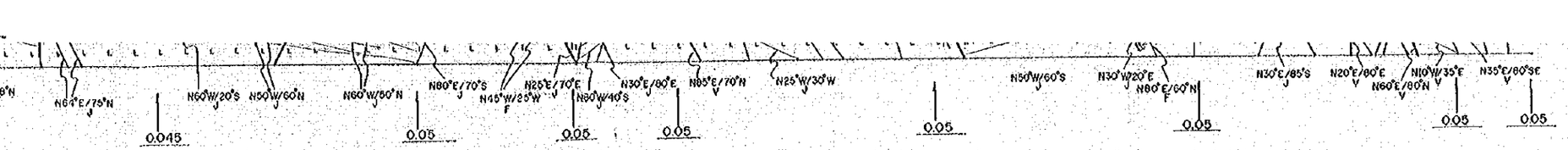
LEGEND

- Sulfide copper mineralization (chalcocite Bornite)
- Oxide copper mineralization
- Fissures with malachite film

STEREOGRAPHIC PROJECTION OF FISSURES AND JOINTS

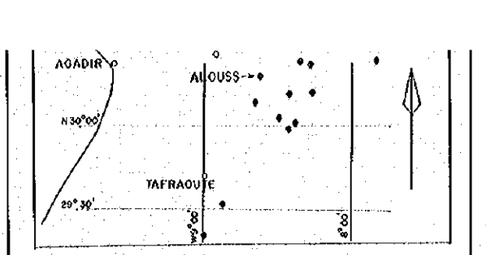






LEGENDE

- Rhyolite
- F: fissures, J: joint, V: velinlet of quartz
- Lenticular quartz
- No. Metrographic reading by scintillation counter (mR / Hr)



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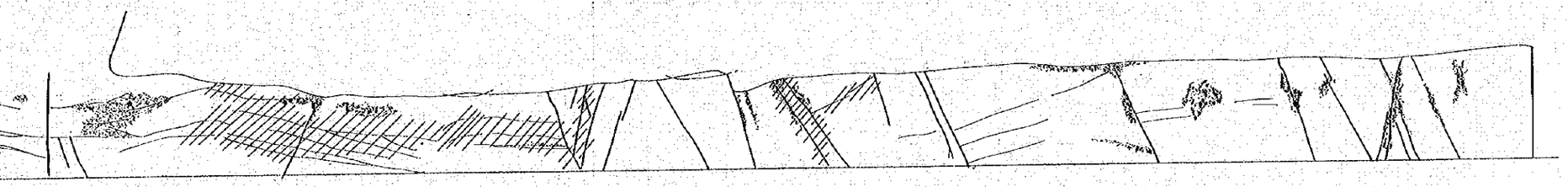
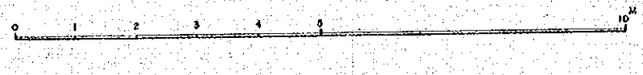
MARCH 1974

MAIN MINERALIZATION

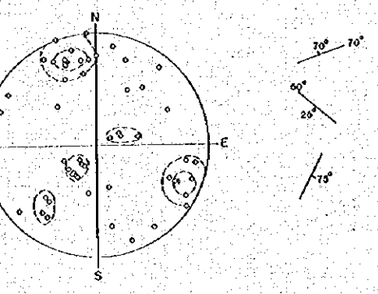


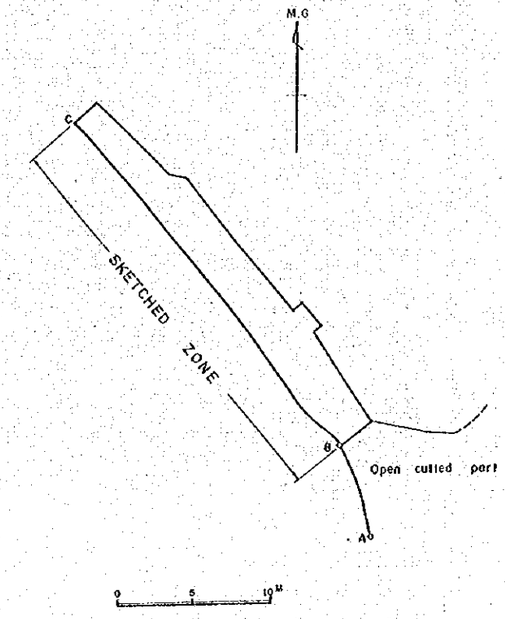


LEGEND

- Sulfide copper mineralization (chalcocite Bornite)
- Oxide copper mineralization
- Fissures with malachite film

RAPHIC PROJECTION OF
FISSURES AND JOINTS





EXPLICATION

1. (Plane) Rock & main structures

- Rhyolite
- Faults with clay
- Faults or cracks
- Joints
- Sheared parts

2. (Plane) Oxide copper mineralization

- Fracture with malachite
- Malachite veinlet with quartz
- Malachite impregnation

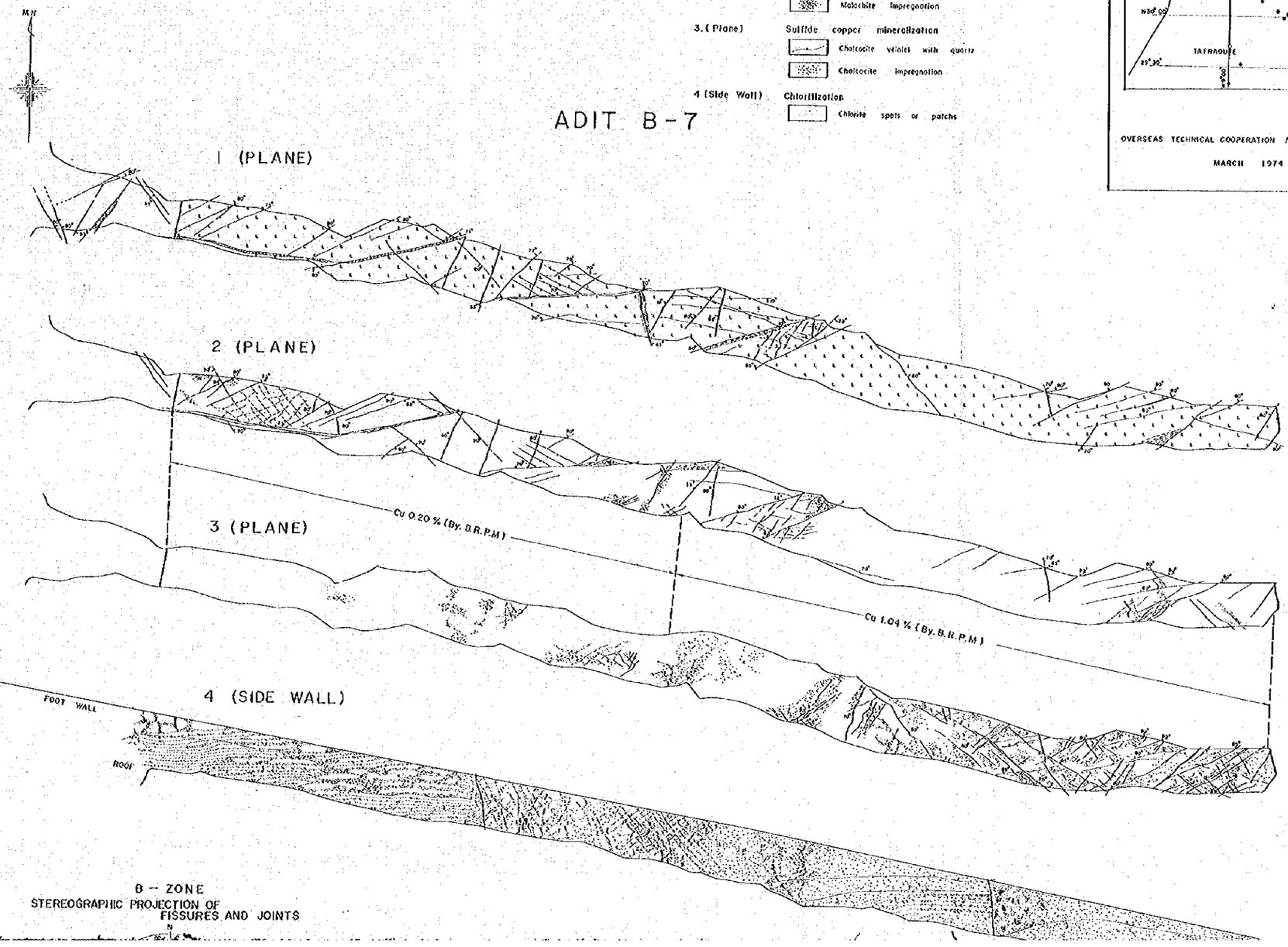
3. (Plane) Sulfide copper mineralization

- Chalcocite veinlet with quartz
- Chalcocite impregnation

4 (Side Wall) Chloritization

- Chlorite spots or patchs

ADIT B-7



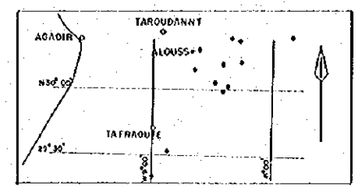
B - ZONE
STEREOGRAPHIC PROJECTION OF
FISSURES AND JOINTS

FIG. VII - 4 - B-(2)

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA KINGDOM OF MOROCCO

ALOUSS PROJECT

GEOLOGICAL SKETCH (B - ZONE)



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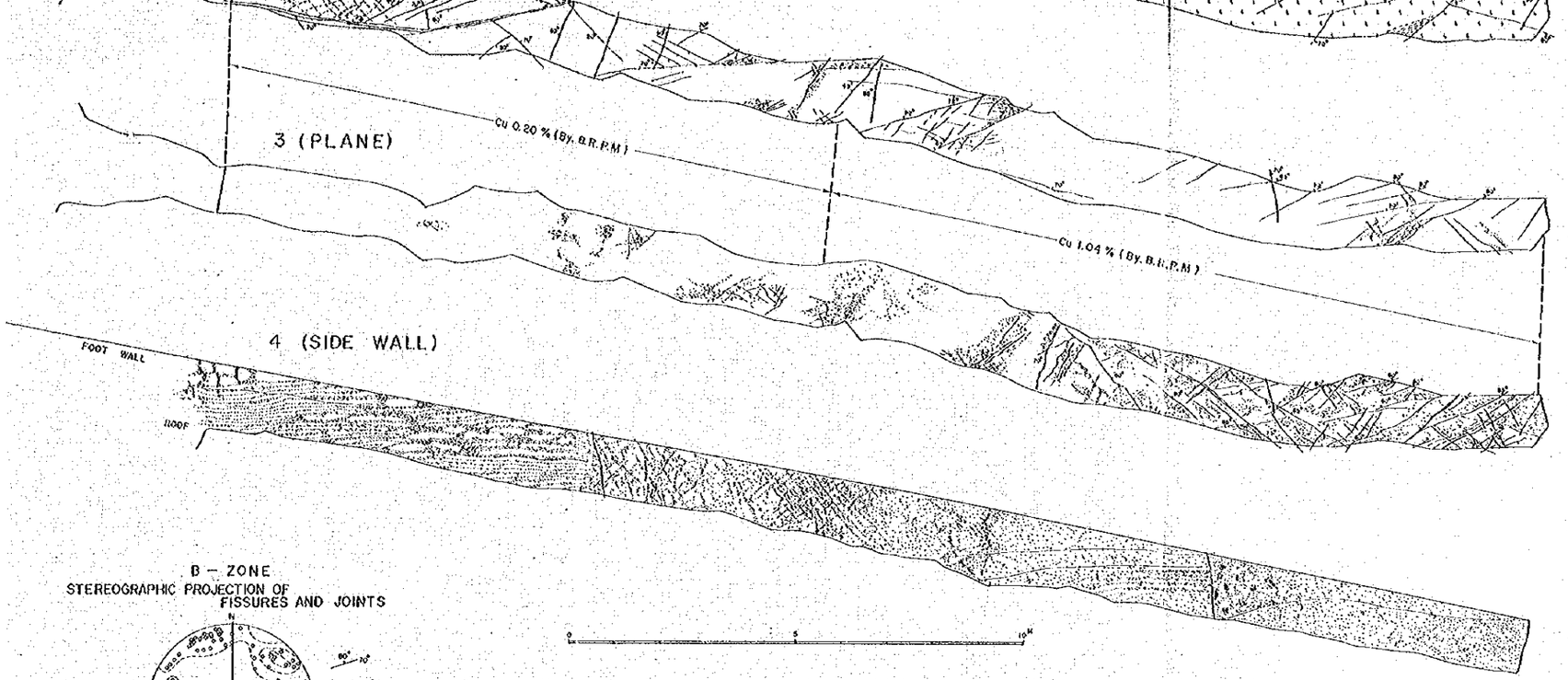
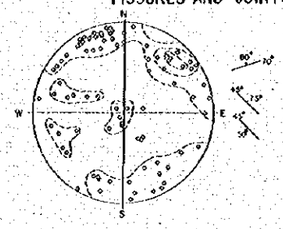
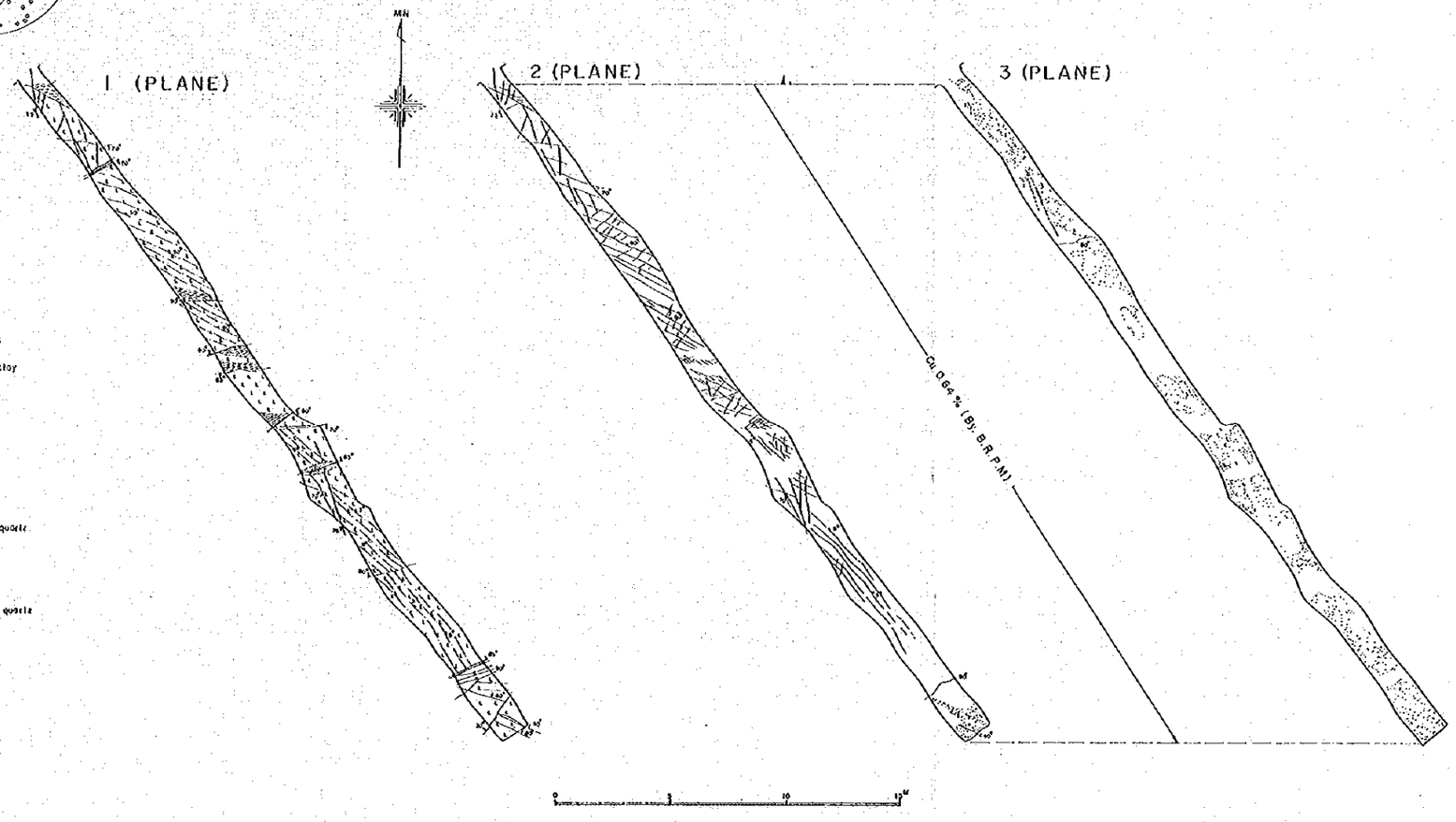


B – ZONE
STEREOGRAPHIC PROJECTION OF
FISSURES AND JOINTS



ADIT B – 4



EXPLANATION

1 Rock & main structures
- Pyrite with cobalt spots
- Faults with smoothed clay
- Faults & crack
- Joints
- Sheared parts

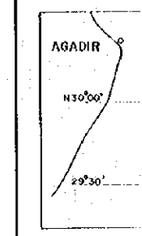
2 Oxide copper mineralization
- Fracture with malachite
- Malachite veinlet with quartz
- Malachite impregnation

3 Sulfide mineralization
- Chalcocite veinlet with quartz
- Chalcocite impregnation

MINERAL
OF ANTI

IMI

S



OVERSEAS TECH

10.600
10.400
10.200
10.000
9.800

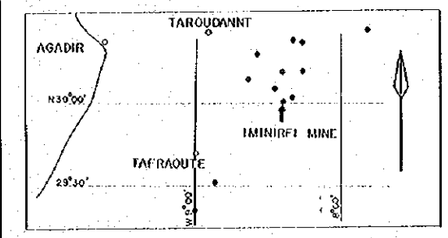
Poi
Sta
Son
Son
Des
Jal
Ent
Tro

FIG. VII — 5

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

IMINIRFI MINE

SKETCH MAP



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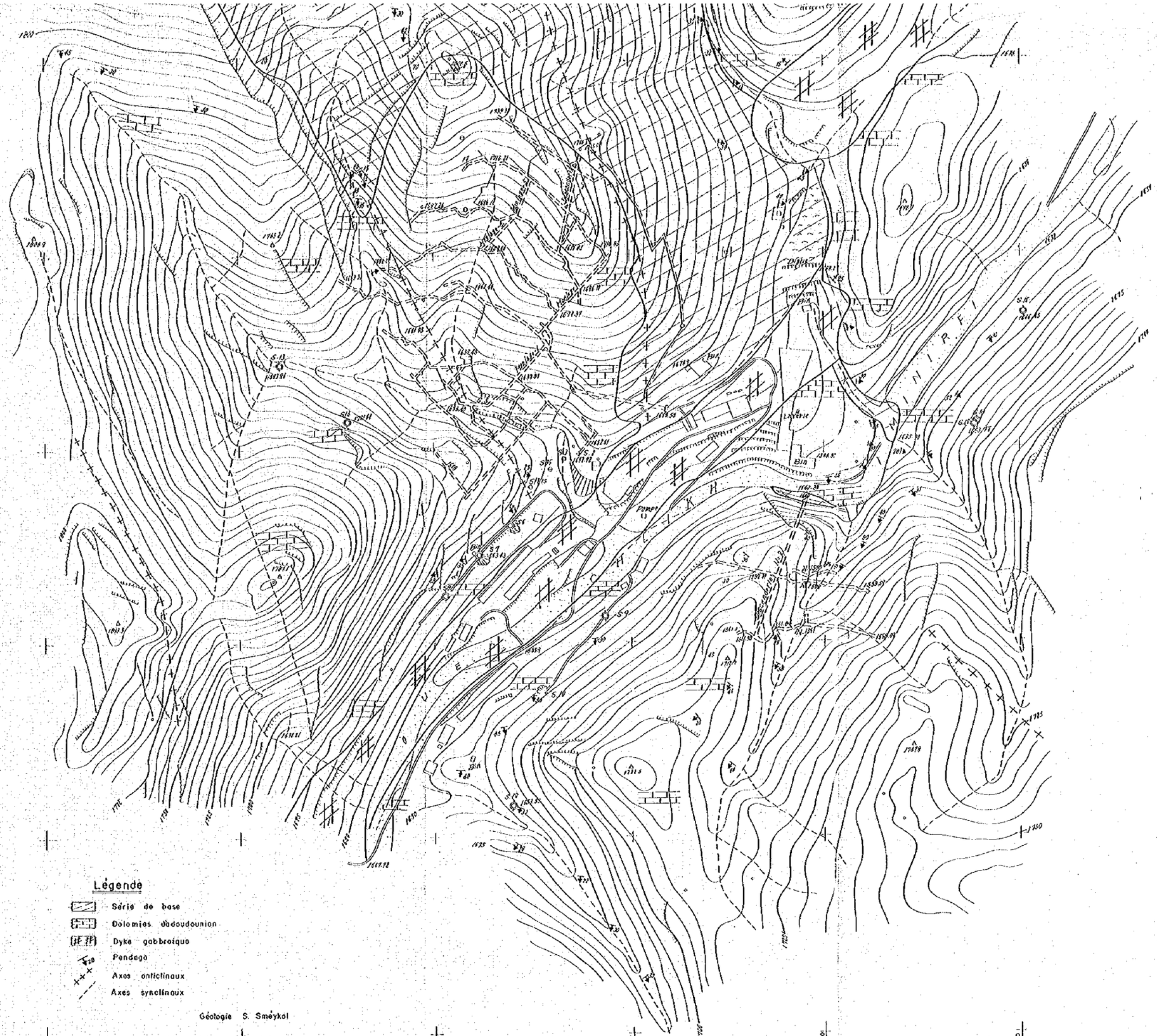
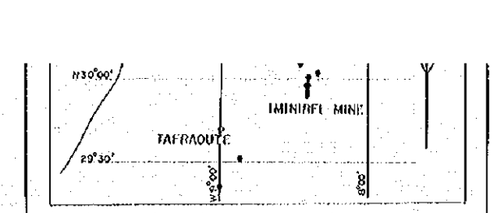
MARCH 1974

10.600
10.400
10.200
10.000
9800

Legende

- Point de triangulations locale
- Station topographique
- Sondage
- Sentier
- Descenderie
- Jetée de pierres
- Entrée du travers bancs
- Travaux miniers


Légende
Série de base
Dolomies dadoudounion
Dyke gabbroique
Pendage
Axes anticlinaux
Axes synclinaux
Géologie S. Smeykal
Echelle
0 40 60 120 160 200
OVERSEAS TEC



OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

MARCH 1971

Legende

- Point de triangulations locale
- Station topographique
- Sondage
- Sentier
- Descenderie
- Jetée de pierres
- Entrée du travers bancs
- Travaux miniéres

Echelle

0 40 80 120 160 200 m

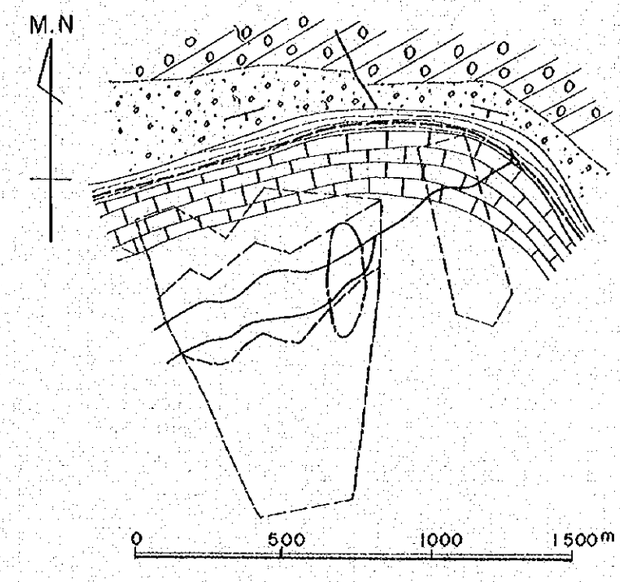
Légende

- Série de base
- Dolomies dadoudounien
- Dyke gabbroique
- Pendage
- Axes anticlinaux
- Axes synclinaux

Géologie S. Smaykal

Levé par Abbarh et Riouch 66

GEOLOGICAL OUTLINE SKETCH



LEGEND

- Tamjout limestone zone
- Basal series { Siltstone zone / Conglomerate sandstone zone
- Pre-cambrian (PIII) conglomerate
- Out crop line
- Proved ore block (B.R.P.M)
- Probable ore block (B.R.P.M)
- Block of the upper ore bed (B.R.P.M)
- Drift

Local geological column of mneralized holizon

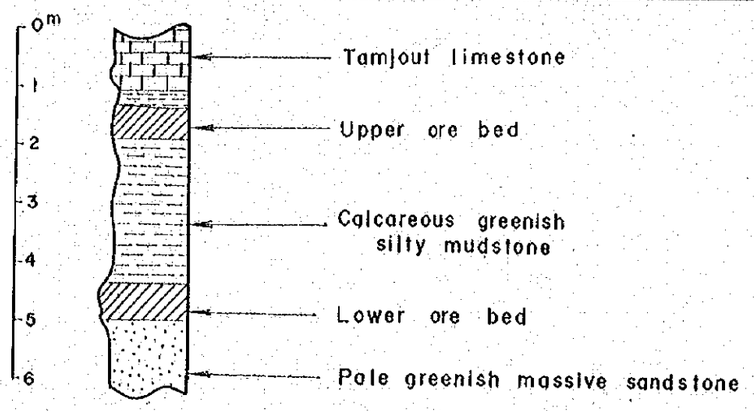
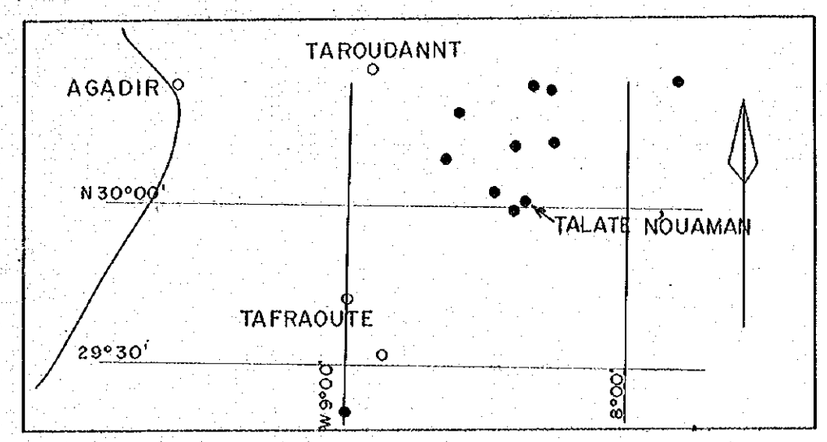


FIG. VII-6

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA KINGDOM OF MOROCCO

TALATE N'OUAMAN MINE

GEOLOGICAL OUTLINE SKETCH
&
LOCAL GEOLOGICAL COLUMN



OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

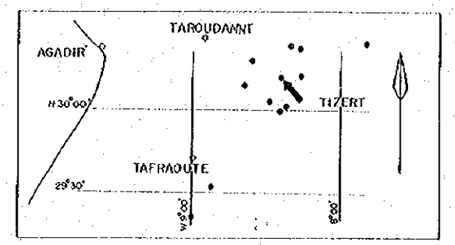
MARCH 1974

FIG VII-7-A

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

TIZERT PROJECT

GENERAL MAP



OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

MARCH 1974

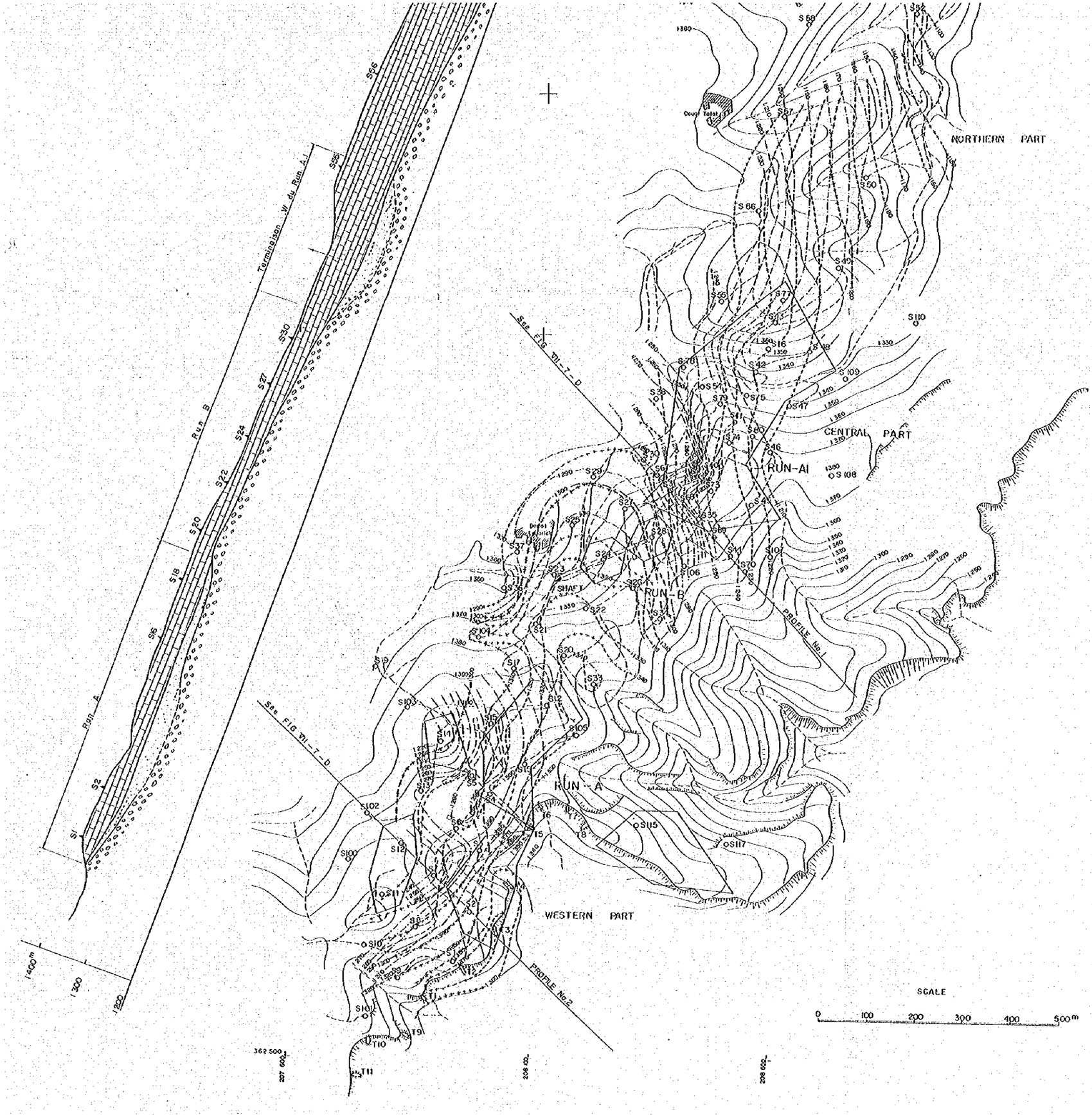
AFTER
BEREAU DE RECHERCHES ET DE PARTICIPATION MINIERES

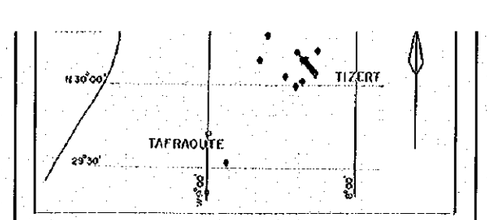
COMPILED BY
OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

NORTHERN PART
CENTRAL PART
RUN-A1
RUN-B
RUN-A
SHAFT
PROFILE No.1
See FIG VII-7-D
See FIG VII-7-D
Termination W. du Run A1
Run B
Run A

LEGEND

- TAMJOUT LIMESTONE
- BASAL SERIES CONGLOMERATE SILTSTONE
- PRECAMBRIAN III CONGLOMERATE
- STRUCTURE CONTOURS
- +++ BOTTOM OF TAMJOUT LIMESTONE
- ------ TOP OF PRECAMBRIAN CONGLOMERATE
- DRIFT
- T3 TRENCH
- S.12 BORE HOLE





OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

MARCH 1974

AFTER

BEREAU DE RECHERCHES ET DE PARTICIPATION MINIERES

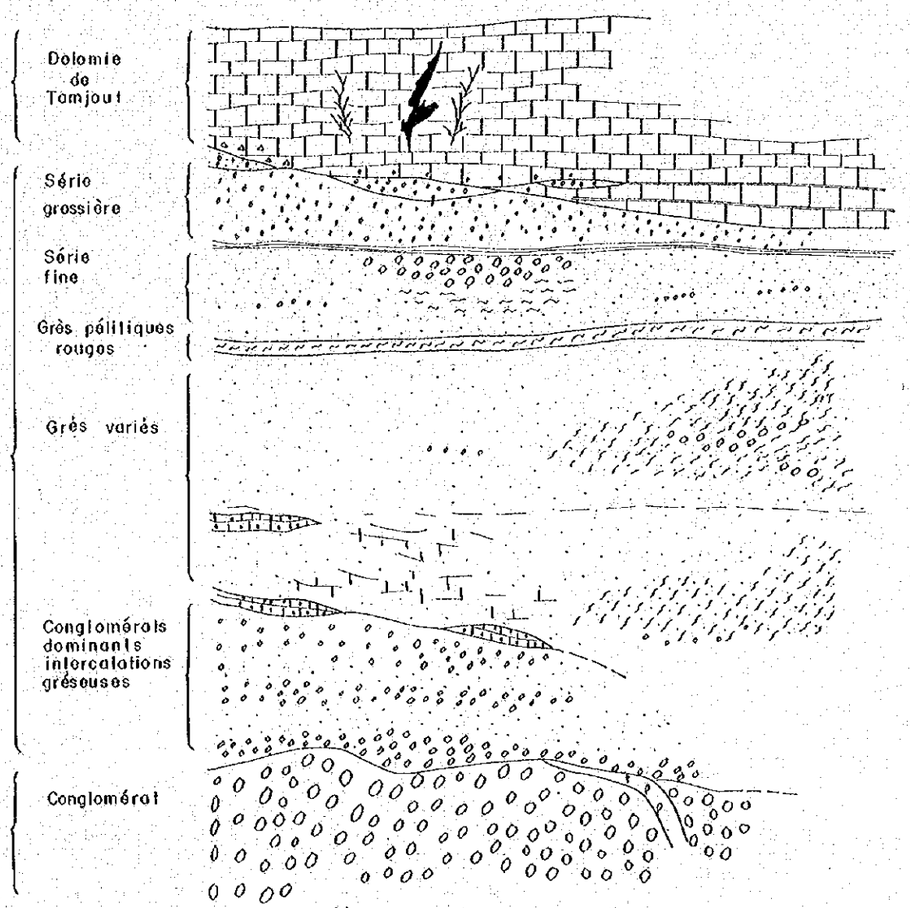
COMPILED BY

OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

LEGEND

- TAHJOUT LIMESTONE
- BASAL SERIES CONGLOMERATE SILTSTONE
- PRECAMBRIAN DI CONGLOMERATE
- STRUCTURE CONTOURS
- BOTTOM OF TAHJOUT LIMESTONE
- TOP OF PRECAMBRIAN CONGLOMERATE
- DRIFT
- T.3 TRENCH
- S.12 DRILL HOLE
- ESTIMATED AREA OF ORE DEPOSIT

BY BUREAU DE RECHERCHES
ET DE PARTICIPATIONS
MINIERES.



Chalcocite, Malachite, (Azurite), (Ténorite)

Chalcocite ±bornite, Malachite (Chalcopyrite) (Azurite)

Chalcocite bornite, (Chalcopyrite) (Malachite)
Bornite chalcopyrite
Chalcopyrite (Pyrite)

Bornite et
Chalcopyrite
disséminées

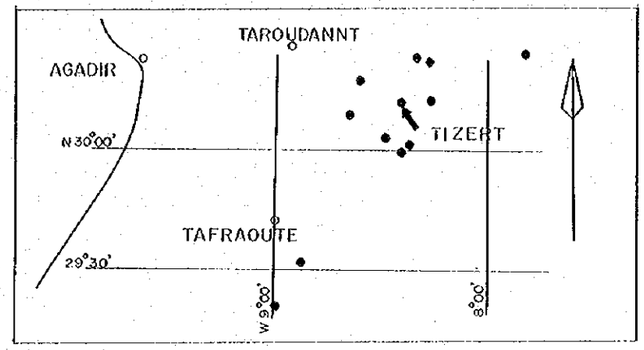
Chalcocite, (Bornite) (Chalcopyrite)
(Argent natif)

FIG VII-7-B

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

TIZERT PROJECT

RELATION BETWEEN MINERALIZATION
AND STRATIGRAPHY



OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

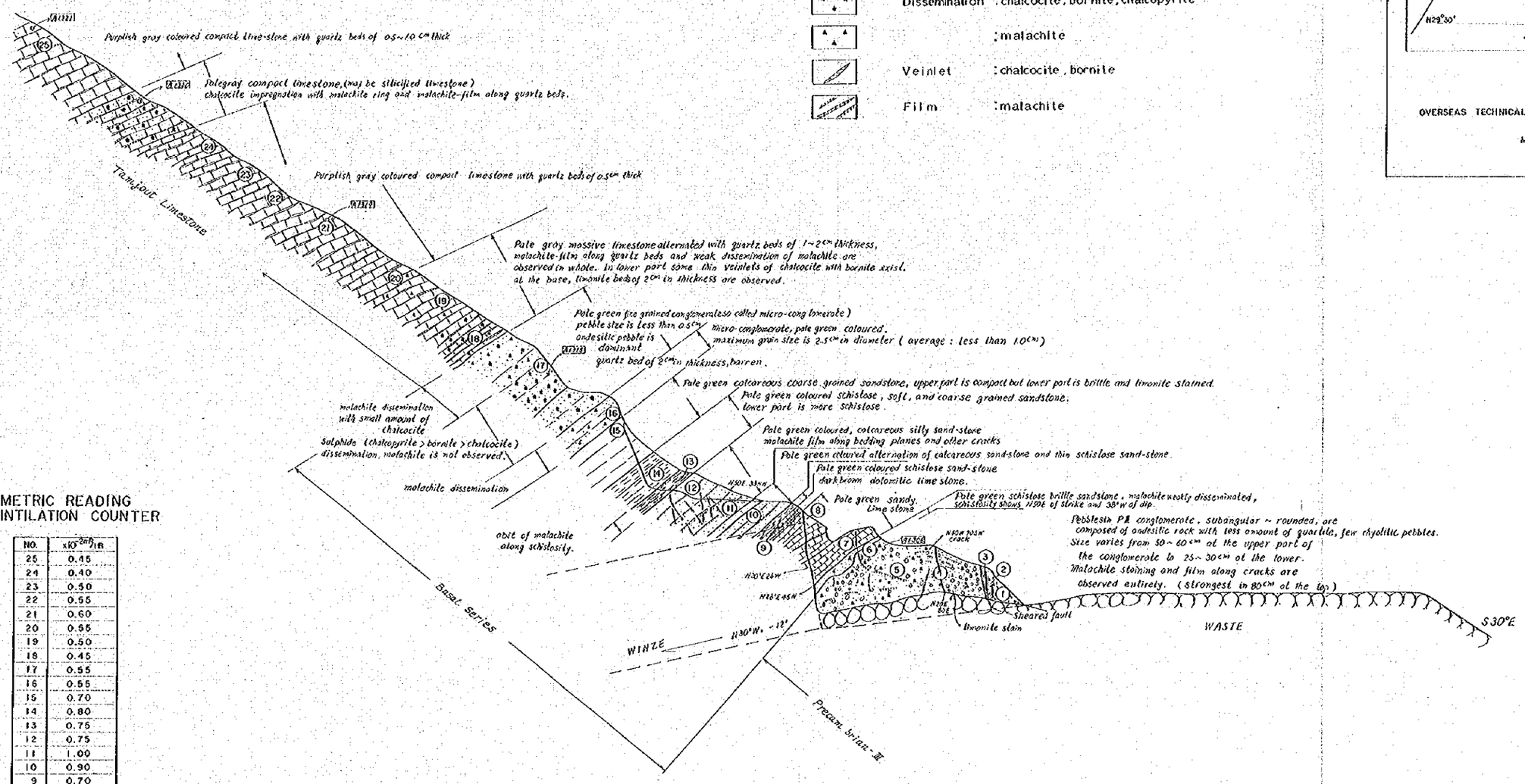
MARCH 1974

SKETCH OF TRENCH NO.-5 (MOUTH OF WINZE IN CENTRAL DEPOSIT)

SCALE

0 5 m

N 30°W



L E G E N D

Dissemination	: chalcocite, bornite, chalcopyrite
	: malachite
Veinlet	: chalcocite, bornite
Film	: malachite

RADIOMETRIC READING BY SCINTILATION COUNTER

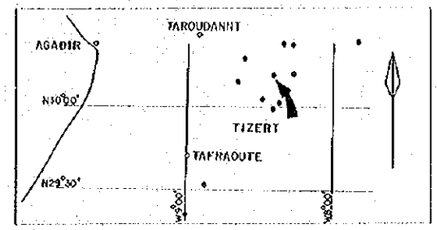
NO.	$\times 10^{-2}$ mR/H
25	0.45
24	0.40
23	0.50
22	0.55
21	0.60
20	0.55
19	0.50
18	0.45
17	0.55
16	0.55
15	0.70
14	0.80
13	0.75
12	0.75
11	1.00
10	0.90
9	0.70
8	0.55
7	0.60
6	0.60
5	0.60
4	0.75
3	0.70
2	0.70
1	0.60

FIG. Ⅵ-7-C-(1)

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

TIZERT PROJECT

SKETCH OF TRENCH NO.-5



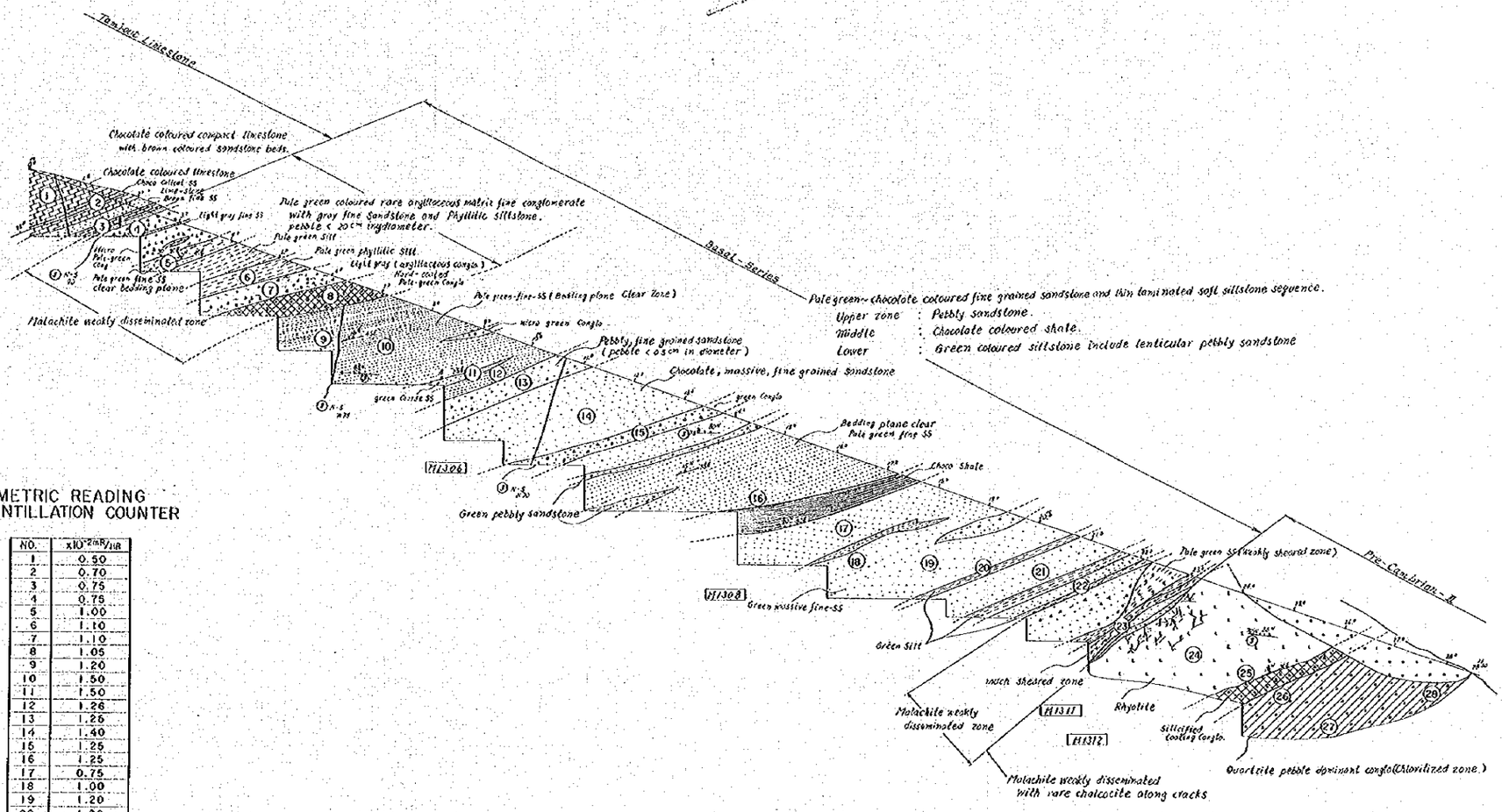
OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

MARCH 1974

SKETCH OF TRENCH NO.-9 (MOUTH OF WINZE IN WEST DEPOSIT)

SCALE

0 5m



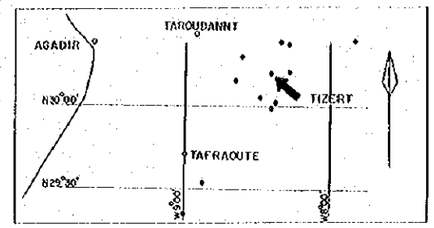
RADIOMETRIC READING
BY SCINTILLATION COUNTER

NO.	x10⁻²m R/HR
1	0.50
2	0.70
3	0.75
4	0.75
5	1.00
6	1.10
7	1.10
8	1.05
9	1.20
10	1.50
11	1.50
12	1.26
13	1.26
14	1.40
15	1.25
16	1.25
17	0.75
18	1.00
19	1.20
20	1.22
21	1.20
22	1.22
23	1.25
24	1.25
25	1.25
26	0.90
27	0.75
28	0.56

FIG. VI-7-C-(2)

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

TIZERT PROJECT
SKETCH OF TRENCH NO.-9



OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

MARCH 1974

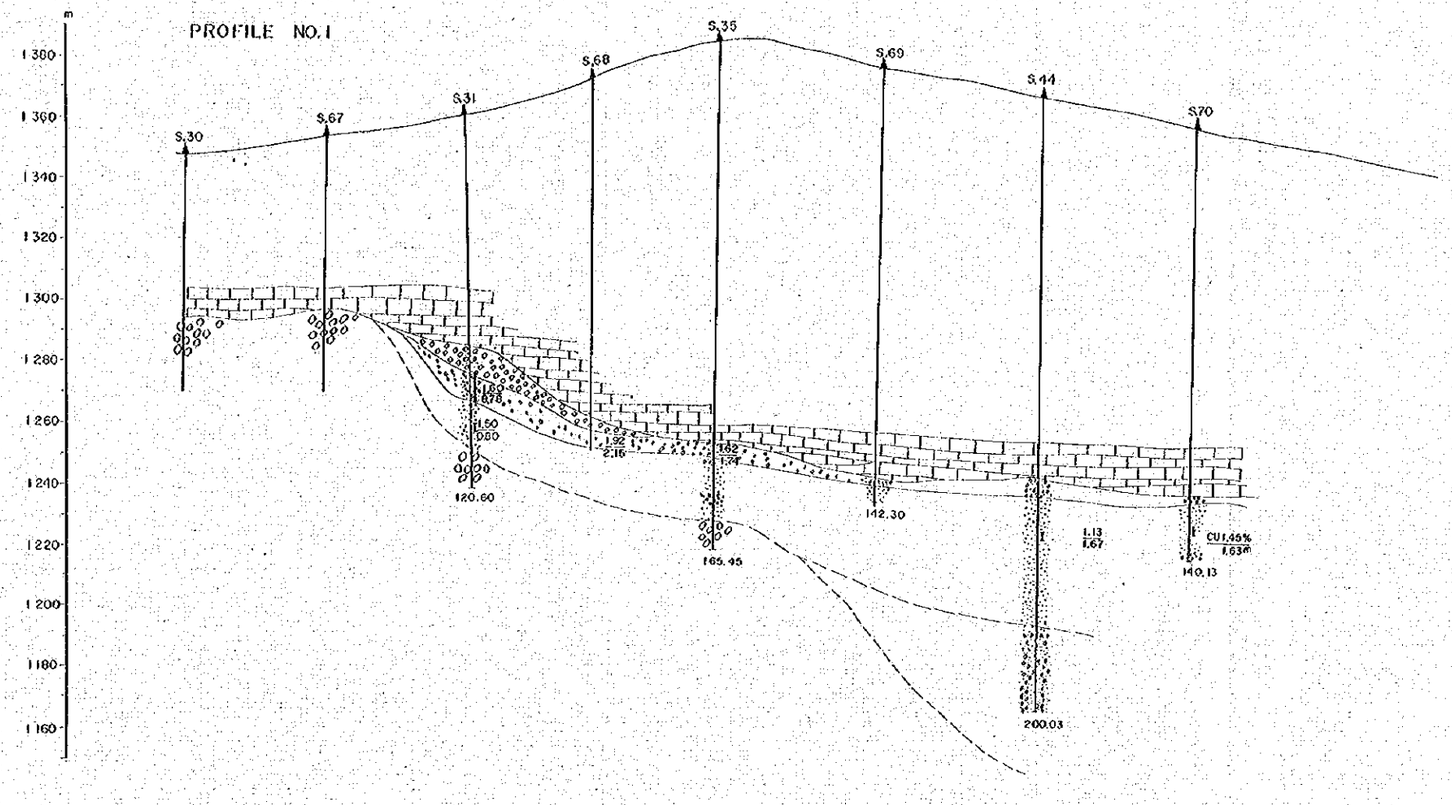
LEGEND

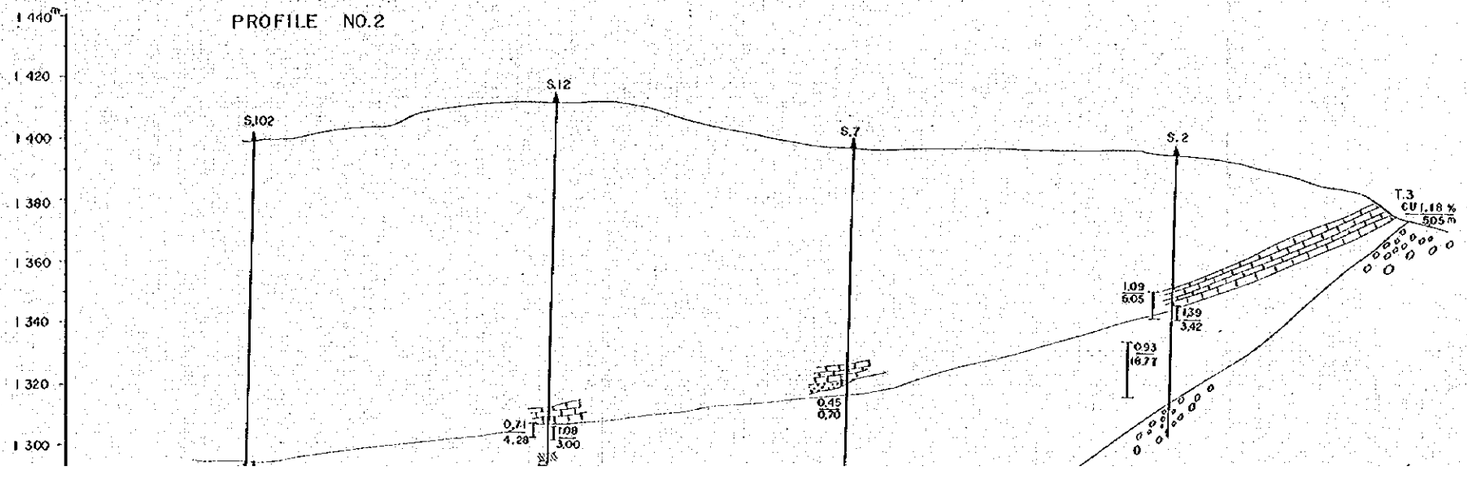
Green copper, dissemination and film

Chalcocite in Rhyolite

ABBREVIATION

choco : chocolate coloured
coarse : coarse grained
congl : conglomerate
fine : fine grained
micro : micro grained
silt : siltstone
ss : sandstone
(J) : Joint
(28) : Radiometric reading point





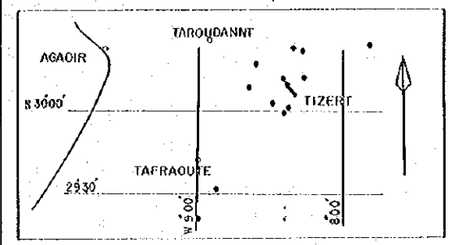
LEGEND

FIG VII - 7 - D

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

TIZERT PROJECT

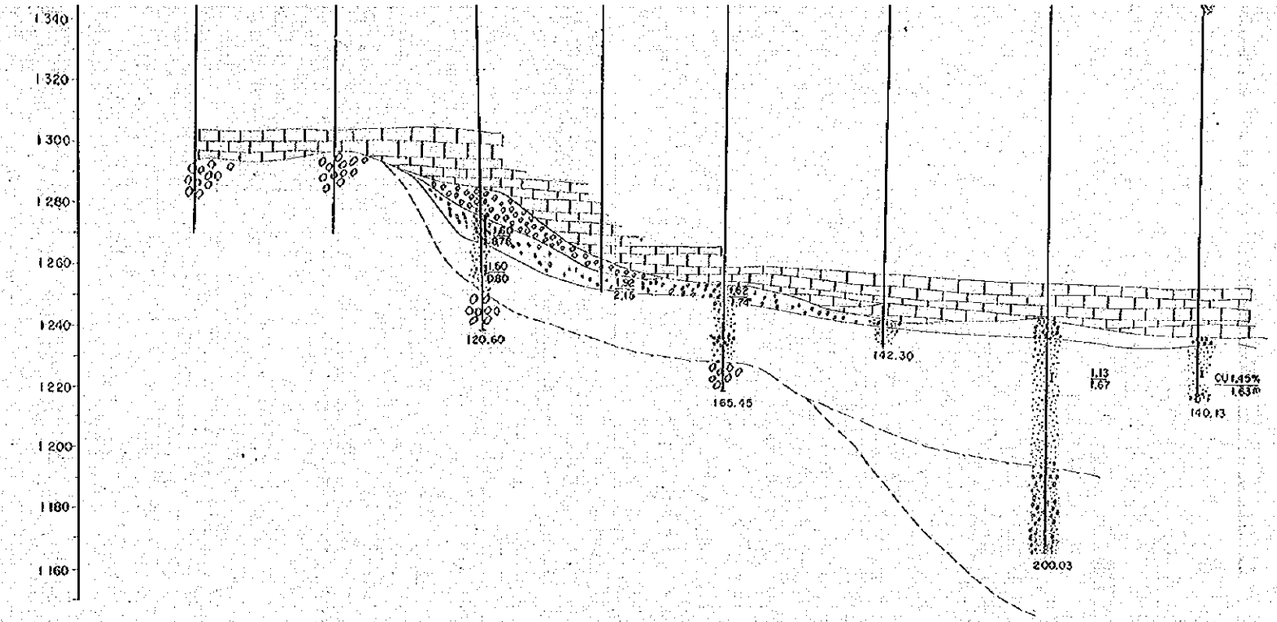
GEOLOGICAL PROFILES



OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

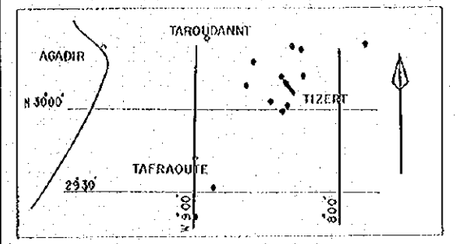
MARCH 1974

BY BUREAU DE RECHERCHES
ET DE PARTICIPATIONS
MINIERES



TIZERT PROJECT

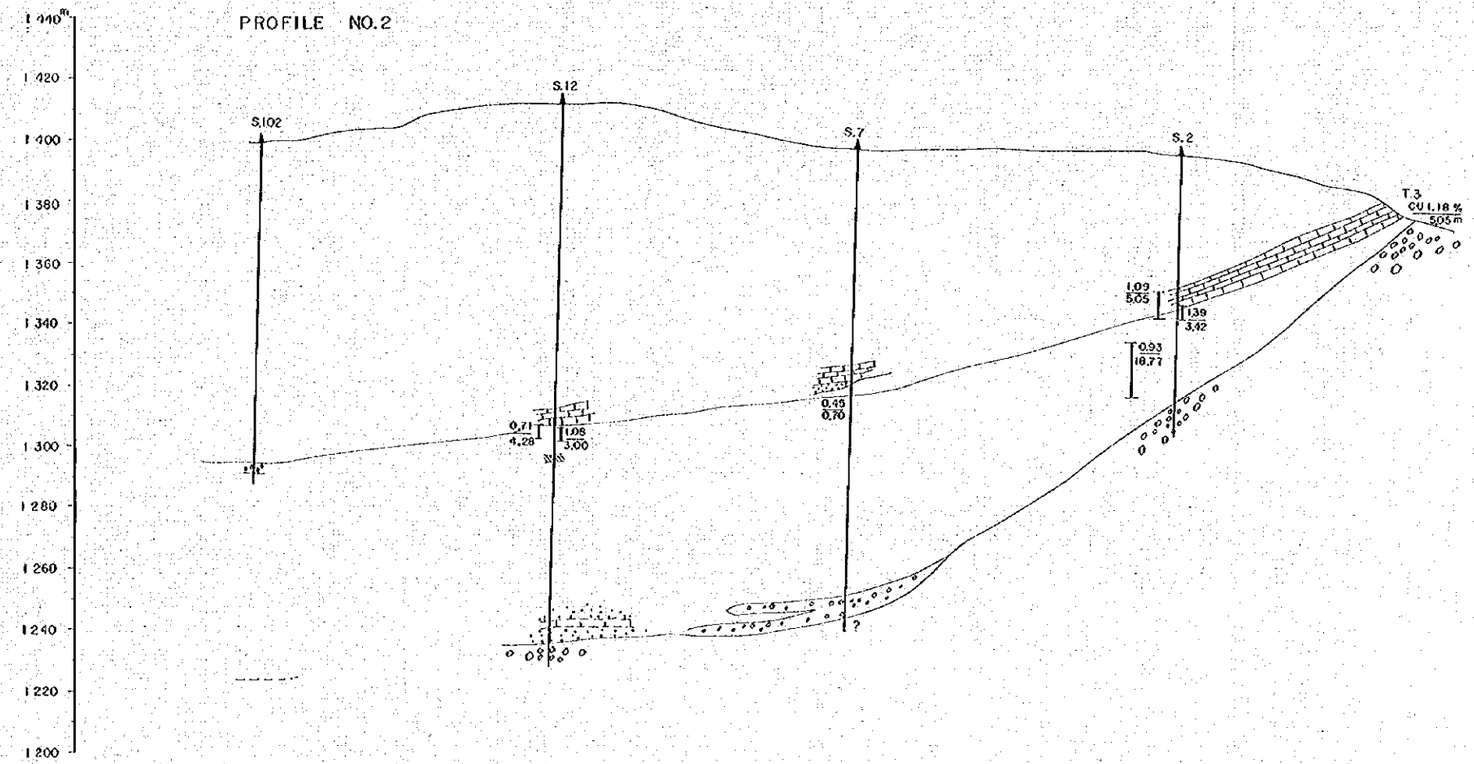
GEOLOGICAL PROFILES



OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

MARCH 1971

BY BUREAU DE RECHERCHES
ET DE PARTICIPATIONS
MINIERES



LEGEND

TAMJOUT LIMESTONE

BASAL SERIES SANDSTONE SILTSTONE CONGLOMERATE

PRECAMBRIAN III CONGLOMERATE

B. R. P. M

SECTEUR ANTI ATLAS

CHANTIER : TIZERT

APPAREIL : ZIL 300
DIAMETRE : BXL
COMMENCE LE : 20-6-70
TERMINE LE : 26-6-70
COUPE PAR : ELHARSI
Echantillonnage : SMEYKAL - AZMY
Vérification : CLAVEL 18-01-73

SONDAGE NO. 2
CARTE TALIOUINE 5-6
COORDONNEES : X = Y = Z =
INCLINAISON Vert. DIRECTION

Pendage / Exfoliation	Terrains traversés	Prof. Echelle 1/100	Coupe	Minéralisation	Résultats d'analyse Carottes Récup. pér.	Carottes Teneur Cu	Carottes Cu*	Cuttings Poids	Cuttings Teneurs Ag
		0		FVn°					
	Dolomie de Tamjout	28		80162		0.02			
		30							
				31.56					
		32.56		80163		0.03			
				80164 traces malachite		0.01			
		34.40							
		35		80165		0.04			
		36.10							
				80166		0.05			
		40							
		40.33		80167		0.04			
		41.98		80168		0.06			
		43.58		80169		0.10			
		45							
		45.68		80170		0.38			
	Dolomie gréseuse	46.25		80171 malachite et traces de chalcocite		0.93	9		
		47.29		80172		0.34	7		
		48.48		malachite & chalcocite	10 %			609 / 605 / 149	
				80173		1.36	17		1.44
		50							2.82
		49.83		80174		1.52	25		21g
		51.30							
	Grès grossiers à passées microconglomératiques.	51.70		80175 chalcocite et bornite disséminée		0.95	12		
		52.32							
	Grès fins rubannés silteux	53.17		80176	100%	0.79	6	139	
								3.42	
				80177		1.68	18	139g	1.76
	microconglomérat	55		80178		1.66	13		1.95
		55.46							15g
	Grès grossiers à éléments anguleux et roulés - roses violacés.			80179		0.03			
		56.52		80180		0.02			
		57.90							
				80181		0.02			
	Grès grossiers roses violacés	59.00							
		60		80182		0.03			
		60.10							
		60.83		80183 chalcocite et		0.03			
	Grès verdâtres à litage centimétrique.	61.50		80184 traces bornite		0.14			
		61.50		80185		0.55	6		
		62.23							
				80186		1.00	9		
		63.85			100%			137	
				80187		1.26	10	364	
		64.71						99	
		65		80188		1.97	8		
		65.60							
		65.67		80189		0.18			
	Grès et conglomérats roses	66.90							
				80190		0.48			
		68		chalcocite et tr.					
		67.99		80191 chalcopyrite	95 %	0.71	9		
		70							
		69.80		80192		1.42	14		

B. R. P. M

SECTEUR ANTI ATLAS

CHANTIER TIZERT

APPAREIL : CRAELIUS
DIAMETRE : T-A-X
COMMENCE LE : 4-4-71
TERMINE LE : 20-4-71
COUPE PAR : EL HARSI
Complete par BELKASMI

SONDAGE NO. 31
CARTE TALIOUINE 5-6
COORDONNEES X = Y = Z =
INCLINAISON Vertical DIRECTION

Pendage / Exfoliation	Terrains traversés	Prof. Echelle	Coupe	Minéralisation	Résultats d'analyse Carottes Récup. pér.	Carottes Teneurs	Cuttings Poids	Cuttings Teneurs
		60						
	Dolomie grisatre avec des passages fracturés	65						
		70						
		75						
		75.20						
		75.53		092516				
		76.38		092517				
		77.23		092518				
		78.08		092519				
		78.93		092520				
		79.78		092521				
	Conglomérats à petits éléments	80						
		80.63		092522 imprégnation faible de malachite et chalcosine	100%			
		81.48		092523				
		82.33		092524				
		83.18		092525				
		84.03		092526				
		84.65		092527 imprégnation fine de chalcosine	100%			
		85						
		85.46		092528				
		86.27		092529				
		87.08						
		87.89		092530	100%			
				092531				
		88.70		092532				
		88.51		092533 imprégnation fine de chalcosine	100%			
		90						
		90.36		092534				
		91.16		092535				
		91.95		092536 imprégnation faible de chalcosine				
		92.76						
		95						
		98.08		092537				
	Grès à éléments très fins brunâtres	98.84		092538				
		99.00		092539				
		100		100.36		092540		
				101.82				

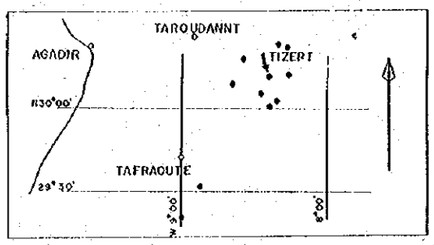
Cu	Cu*	Ag
0.04		
0.10		
0.11		
0.16		
0.12		
0.13		
0.11		< 0.67 %
0.14		Sur 17.56
0.14		
0.86		
1.12		
1.18		
0.89		
2.67		
2.50	1.60	3.02
3.07	8.78	2.43
2.94		
3.32		2.33
3.32		4.09
0.01		
2.55		
2.47		
0.65		
1.07		
1.07		
0.48		
0.04		
0.02		
0.01		
0.01		

FIG. VII - 7 - E

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

TIZERT PROJECT

DRILL LOG



OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

MARCH 1974

BY BUREAU DE RECHERCHES ET DE PARTICIPATIONS MINIERES

BY BUREAU DE RECHERCHES ET DE PARTICIPATIONS MINIERES

Dolomie gréseuse

Grès grossiers à possées microconglomératiques.

Grès fins rubannés silteux

microconglomérat

Grès grossiers à éléments anguleux et roulés - roses violacés.

Grès grossiers roses violacés

Grès verdâtres à litage centimétrique.

Grès et conglomérats roses

Grès brunâtre très fin

Grès hétérogènes grain fin à grossier.

Conglomérat pst

Fin du sondage 88.75 m

malachite et traces de chalcocite

malachite à chalcocite

chalcocite et bornite disséminée

chalcocite et traces bornite

chalcocite et tr. 80198 chalcopyrite

chalcocite

traces chalcocite

filonnet de malachite et un peu de chalcocite

Conglomérats à petits éléments

Grès à éléments très fins brunâtres

Conglomérats à petits éléments

Grès à éléments très fins

Conglomérats du pst à éléments moyens

Fin du sondage : 120, 60 m

imprégnation faible de malachite et chalcosine

imprégnation fine de chalcosine

imprégnation fine de chalcosine

imprégnation faible de chalcosine

chalcosine fine

faible imprégnation de chalcosine

traces de chalcosine

Cu % | Ag

0.87 % Sur 17.56

Observations

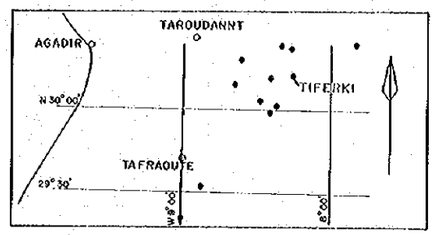
5 Passées minéralisées : dans la dolomie 1% sur 5m 10 ou, vers la base, 1,35 % sur 2 m87 du contact + 0,95% sur 5m41 ou, à partir de 1m87 sous le contact, 1.79 % sur 1m85- + 3 passées dans la série de base : 1,24 % / 4m04 depuis 62.23 et 1,34%/3m28 depuis 69.80 et 1.09/4m09 ou 1,67/1m58 depuis 78.32 Teneurs qu'il faudrait encadrer.

FIG. VII- 8 - A

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

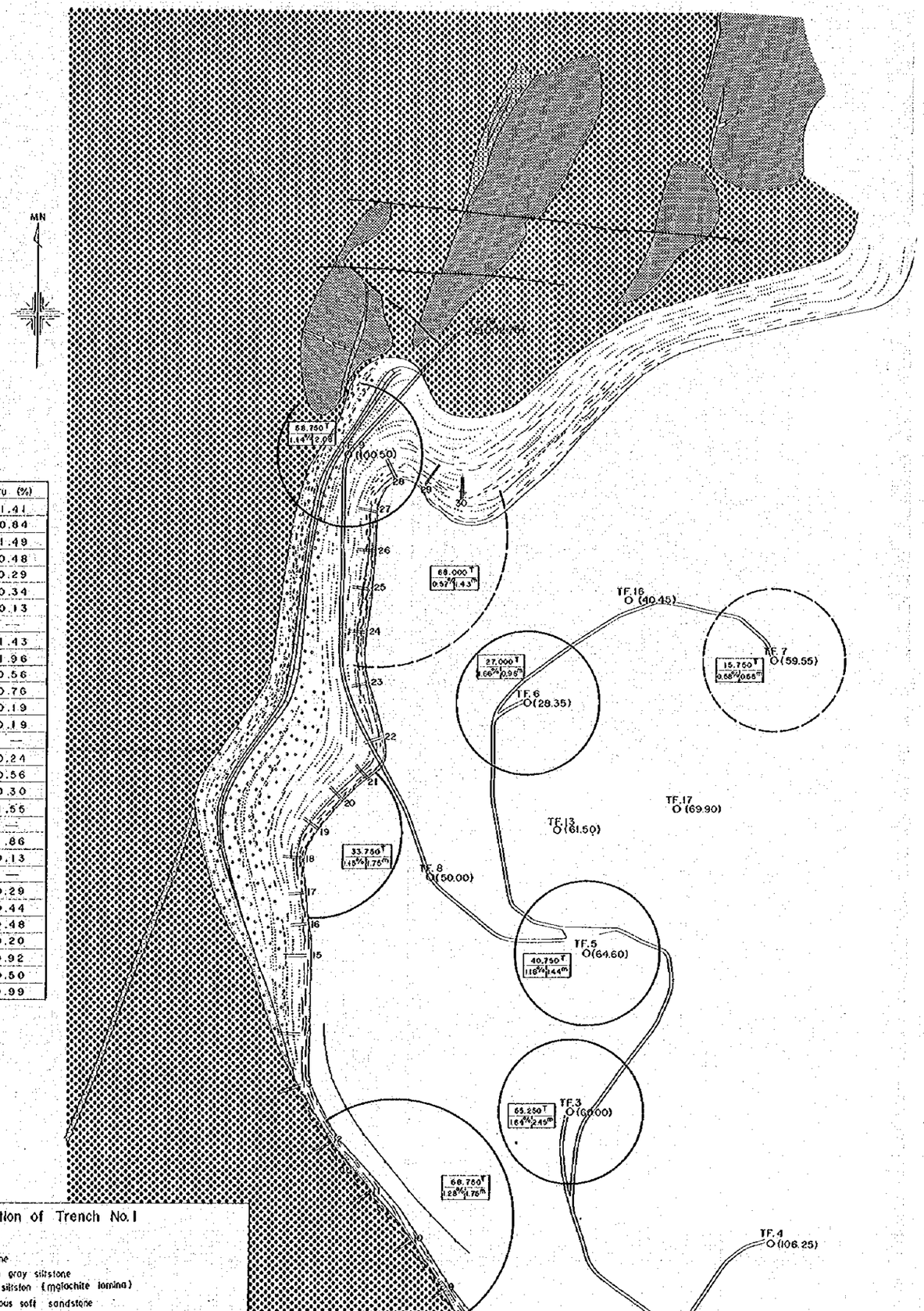
TIFERKI PROJECT

GEOLOGICAL MAP



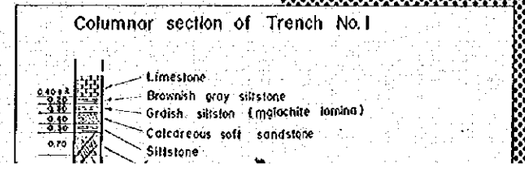
OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

MARCH 1974



TRENCH No	Wd (m)	Cu (%)
1	5	1.41
2	1	0.84
3	3	1.49
4	1	0.48
5	1	0.29
6	3	0.34
7	1	0.13
8	—	—
9	4	1.43
10	1	1.96
11	1	0.56
12	1	0.76
13	1	0.19
14	1	0.19
15	—	—
16	1	0.24
17	1	0.56
18	1	0.30
19	3	1.55
20	—	—
21	2	1.86
22	1	0.13
23	—	—
24	3	0.29
25	1	0.44
26	1	0.48
27	1	0.20
28	1	0.92
29	1	0.50
30	2	0.99

Columnar section of Trench No. 1

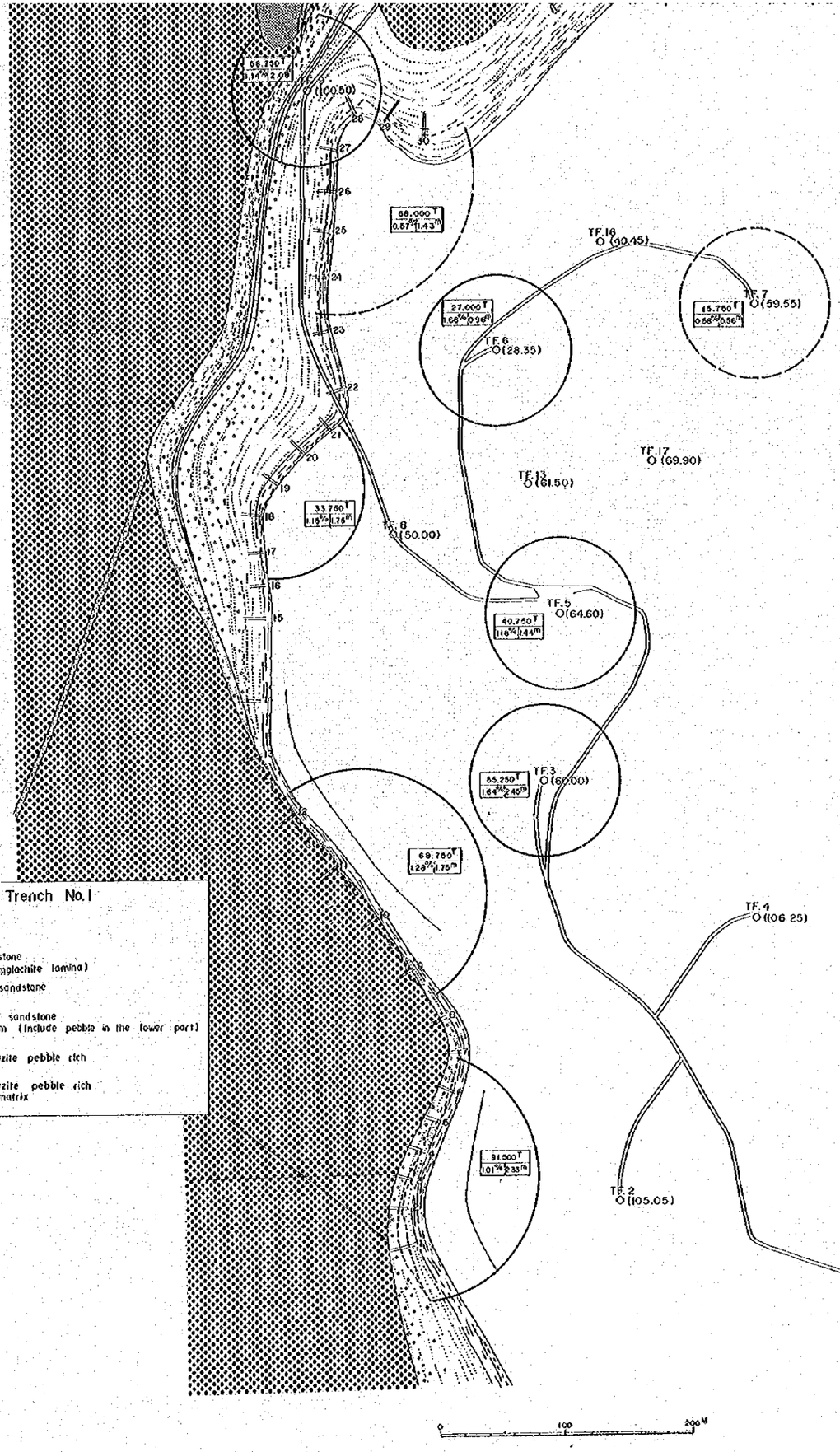


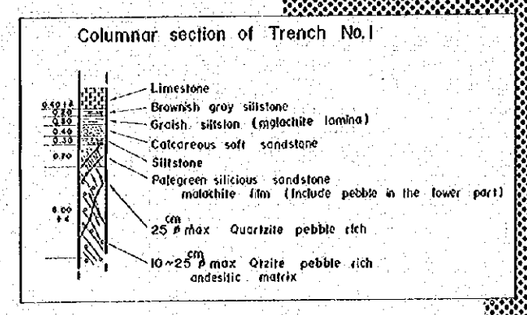
LEGENDE

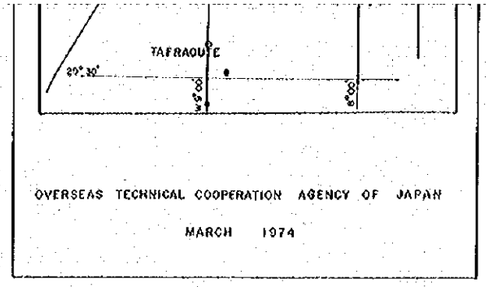
- Dolomite
- Siltstone
- Sandstone — Bosal series
- Conglomerate
- Petit calcaire limestone
- Pre-cambrian PIII conglomerate
- Rhyolite
- Andesite
- Pre-cambrian PII Quartzite
- Copper Mineralization
- Faults
- TF O — Drill Holes (Level)
- Trenches
- Approxmation of ore blocks Wd x Cu% > 1
- Approxmation of ore blocks Wd x Cu% < 1

RESERVE TON / GRADE / WIDTH

TRENCH No	Wd (m)	Cu (%)
1	5	1.41
2	1	0.84
3	3	1.49
4	1	0.48
5	1	0.29
6	3	0.34
7	1	0.13
8	—	—
9	4	1.43
10	1	1.96
11	1	0.56
12	1	0.76
13	1	0.19
14	1	0.19
15	—	—
16	1	0.24
17	1	0.56
18	1	0.30
19	3	1.55
20	—	—
21	2	1.86
22	1	0.13
23	—	—
24	3	0.29
25	1	0.44
26	1	0.48
27	1	0.20
28	1	0.92
29	1	0.50
30	2	0.99







LEGENDE

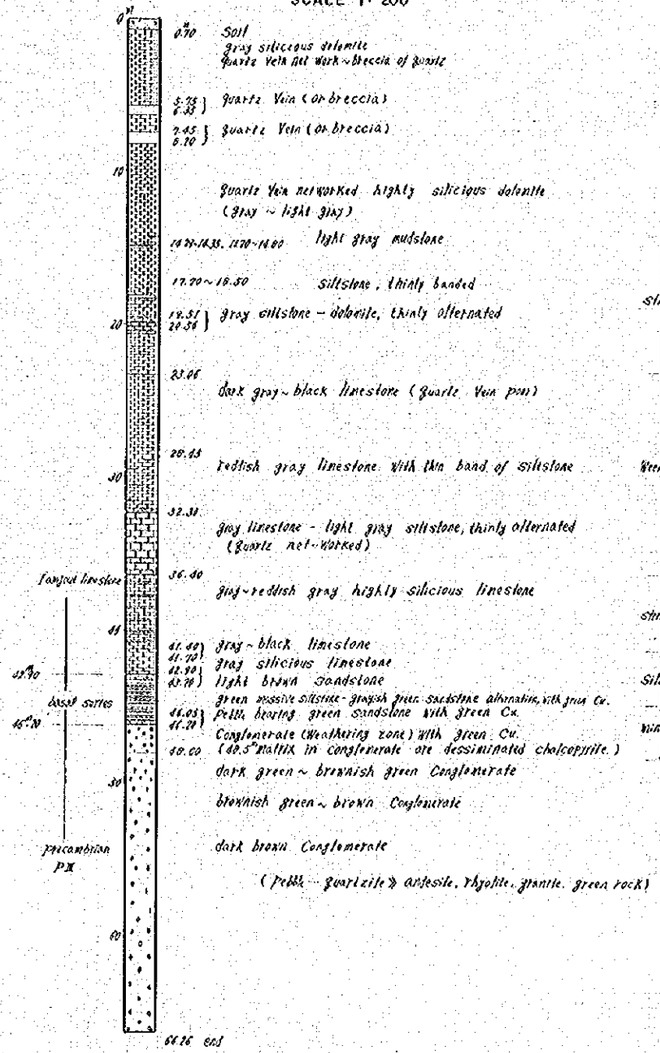
- Dolomite
- Siltstone
- Sandstone — Basal series
- Conglomerate
- Petit calcaeS limestone
- Pre-cambrian PII conglomerate
- Rhyolite
- Andesite
- Pre-cambrian P II Quartzite
- Copper Mineralization
- Faults
- TF / O Drill Holes (Level)
- Trenches
- Approxmation of ore blocks Wd x Cu% > 1
- Approxmation of ore blocks Wd x Cu% < 1
- RESERVE TON / GRADE / WIDTH

After Bureau de Recherchles et de Participations Minieres

Revised by Overseas Technicol Cooperation Agency of Japan

NO.11 DRILL LOG

SCALE 1: 200



NO.2 DRILL LOG

SCALE 1:400

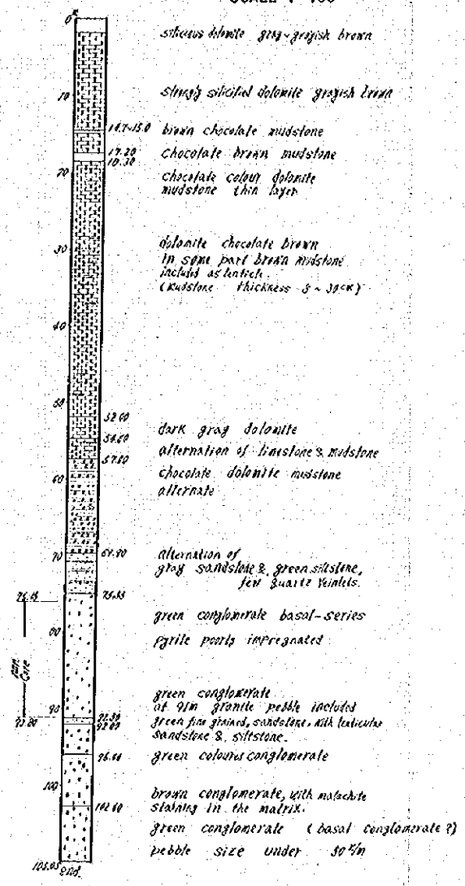
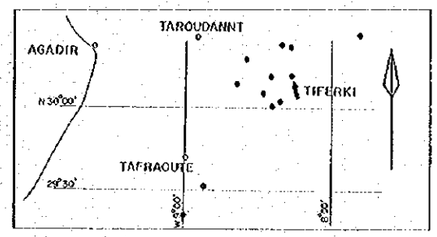


FIG. VII – 8 – B

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

TIFERKI PROJECT

DRILL LOG



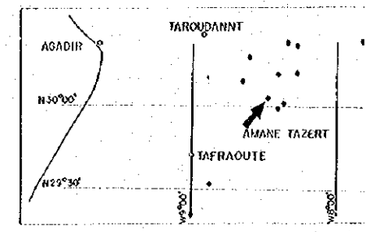
OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

MARCH 1974

FIG. VII

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

AMANE TAZERT PROJECT
GEOLOGICAL MAP



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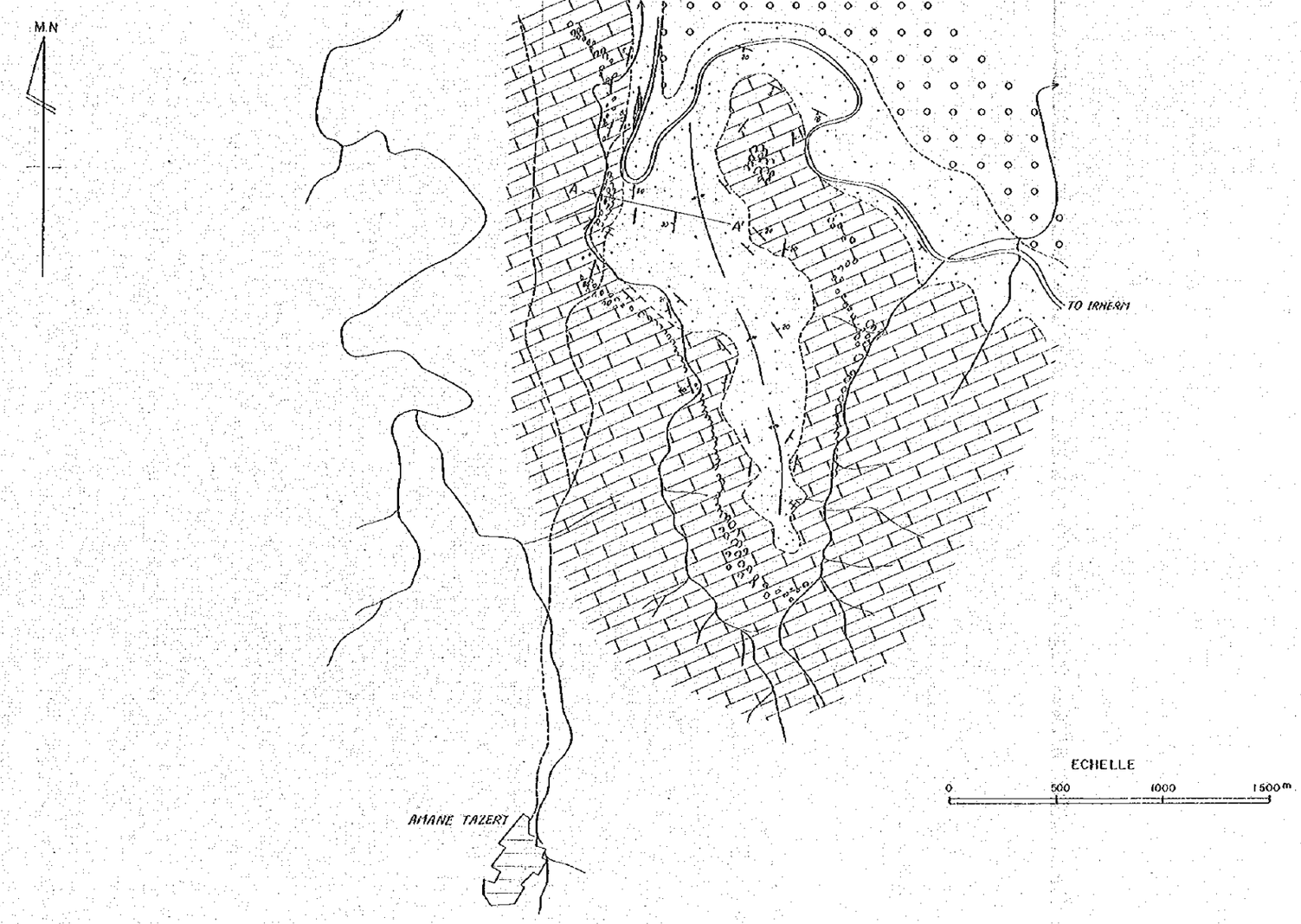
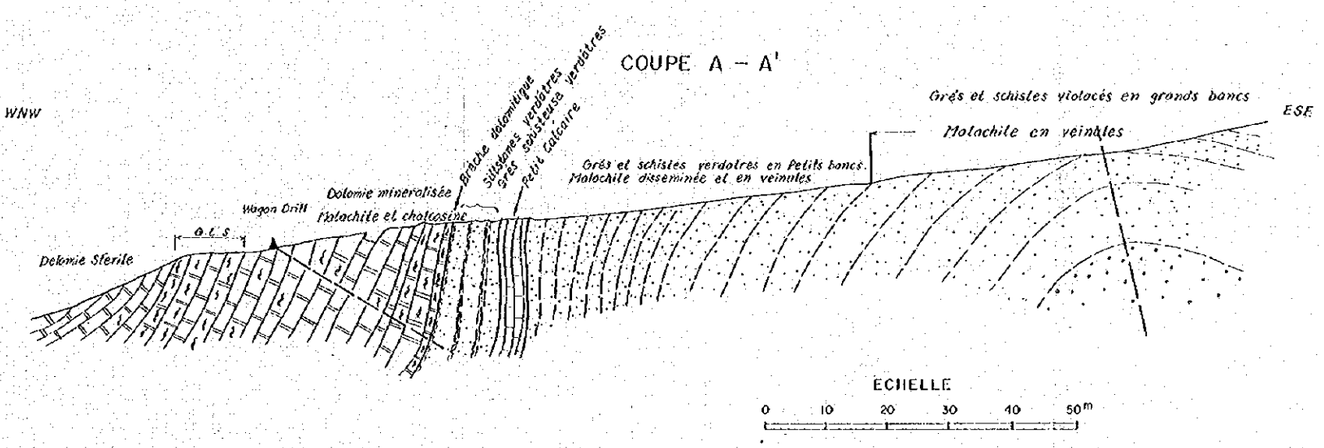




LEGENDE

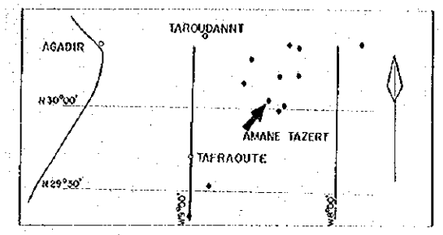
Infra Cambrian		Dolomie de Tadoudounian
		Grandes lentilles de silice (G.L.S)
		Serie de base siltstone et gres
		Serie de base Petit Calcaire
Pre Cambrian		Pre Cambrian III conglomerate
		Mineralisation cuprifere.
		L'axe du Brachy anticlinal

AFTER BUREAU DE RECHERCHES
ET DE PARTICIPATIONS MINIERES.

FIG. VI – 9 – A

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

AMANE TAZERT PROJECT
GEOLOGICAL MAP



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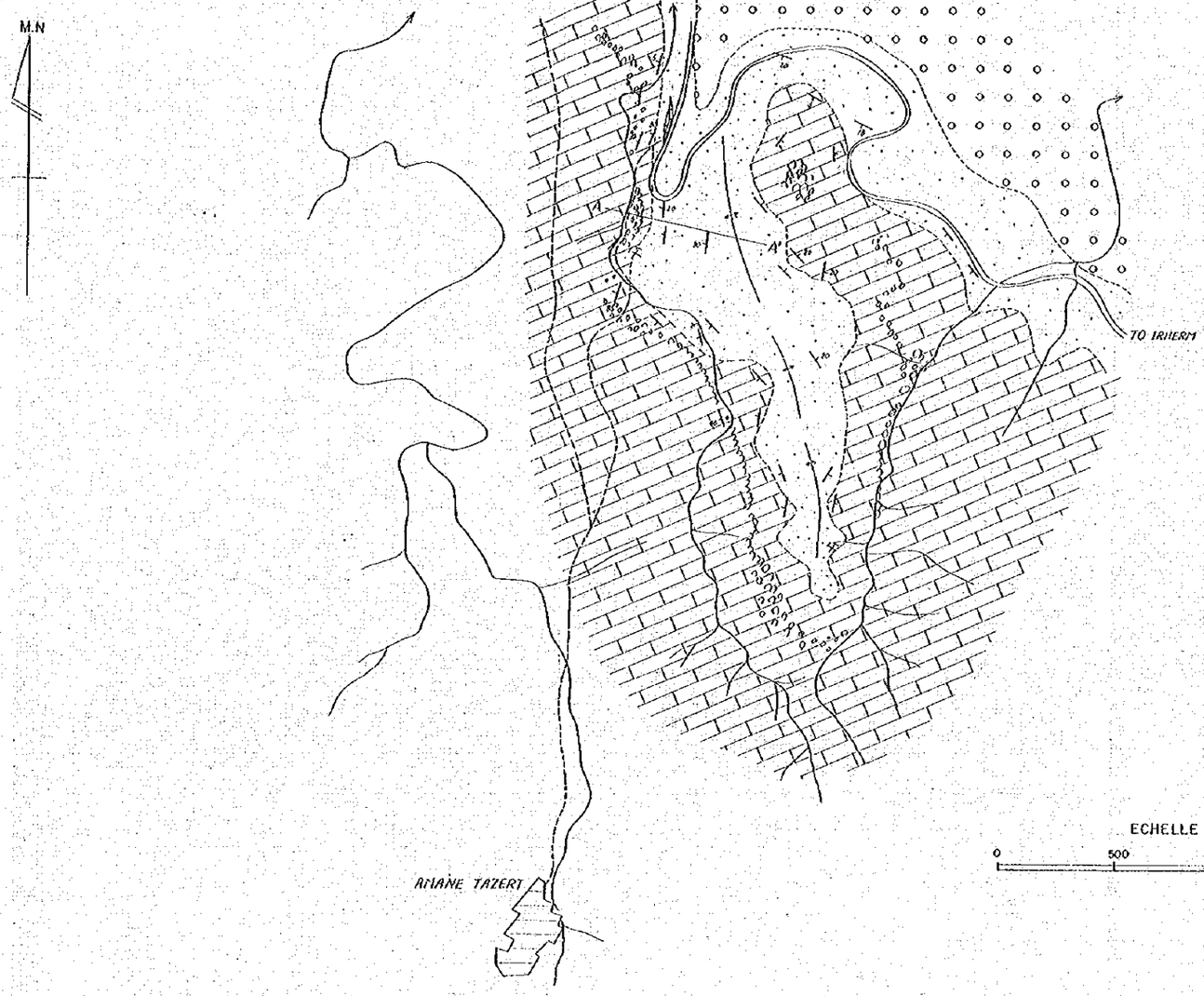
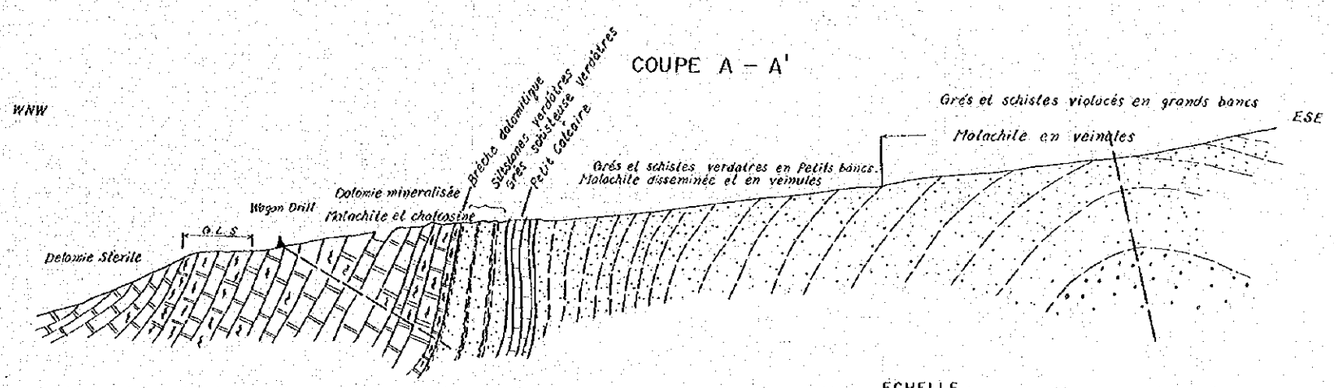


ECHELLE
0 500 1000 1500 m

COUPE A – A'



ECHELLE
0 10 20 30 40 50 m

LEGENDE

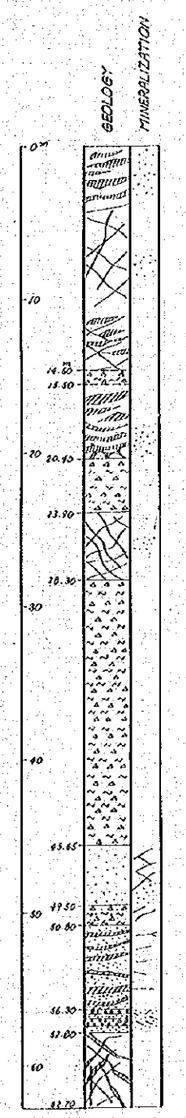
- Infra Cambrian
  - Dolomie de Tadoudounion
  - Grandes lentilles de silice (G.L.S)
  - Serie de base siltstone et gres
  - Serie de base Petit Calcaire
- Pre Cambrian
  - Pre Cambrian VII conglomerate
- Mineralisation cuprifere.
- L'axe du Brachy anticlinal

AFTER BUREAU DE RECHERCHES
ET DE PARTICIPATIONS MINIERES.

DRILL LOG

AMANE TAZERT NO. B – 1

Inclination	Vertical
Depth	62.70m



Limestone which is reddish brown coloured and silicified, has a lot of lenticular quartz bands.
In some place chalcocite dissemination with malachite is observed.

Network of quartz veinlets with limonite stain.

Irregular quartz lenses and quartz veinlets.

Fractured zone.

G.L.S

Limestone with lenticular quartz bands
Dissemination of chalcocite which is partly altered to malachite.

Sandy limestone. Fractuation whith feruginous stain is common.

Limestone which is brownish gray coloured, compact, and has network of quartz veinlets.
Chalcocite dissemination which is mostly altered to malachite.

Limestone which is dorkgray coloured, strongly silicified, and sheared.

Limy siltstone which is brownish gray coloured, strongly silicified.
Malachite film and chalcocite dissemination which is mostly altered to malachite.

Fractured zone.

Limy siltstone with quartz bands which show rough orientation of 10~20° dip.
Film and dissemination of malachite.

Alternation of fine conglomeate and fine sandstone. Pebble is mainly composed by silicified siltstone.
Copper mineralization as malachite film and as fine-grained malachite dissemi nation is relatively strong.

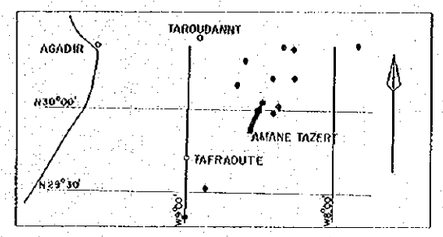
Limestone which is brownish gray coloured and silicified by irregular shaped, pale gray colored quartz veinlets.

FIG. VI - 9 – B

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

AMANE TAZERT PROJECT

DRILL LOG, NO. B – 1



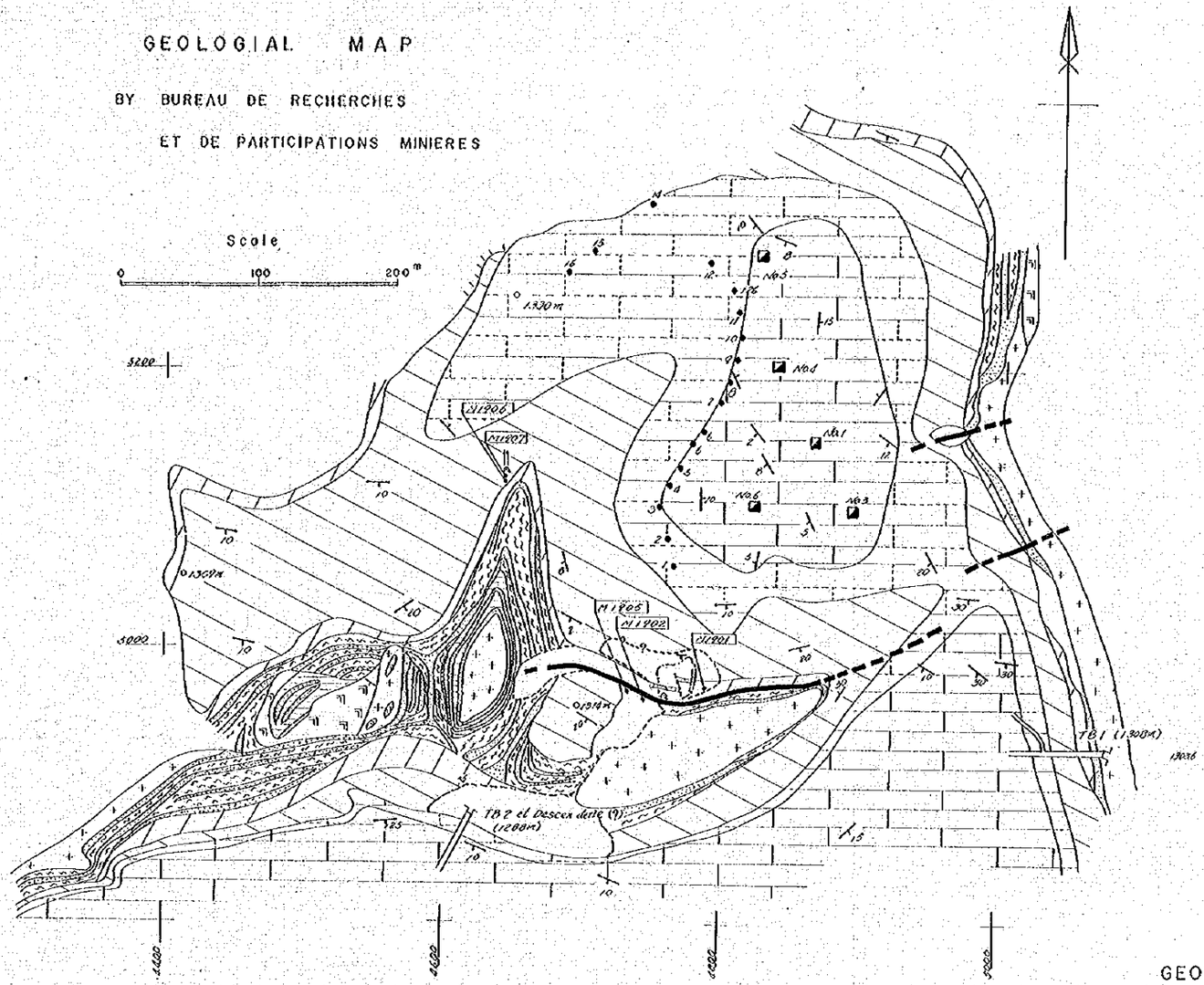
OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

MARCH 1974

GEOLOGIAL MAP

BY BUREAU DE RECHERCHES

ET DE PARTICIPATIONS MINIERES



LEGEND

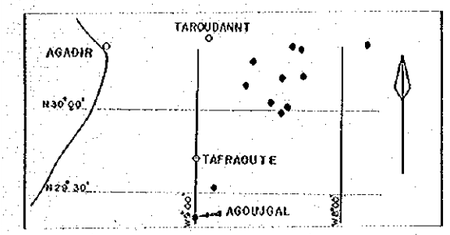
INFRA CAMBRIAN	Dolomite (Superior)	Pit B.R.P.M.
	Dolomite (Sandy)	Drill hole
	Dolomite (principal)	Fault
	Dolomite (Ribbon)	Sheared zone
	Sandstone	Ancient drift
	Blue schist	Drift B.R.P.M.
	Alternation of sandstone and limestone	Goaf
PRE CAMBRIAN	Dolerite Basalt	Radioactive zone
	Granite	

FIG. VII - 11 - A

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA, KINGDOM OF MOROCCO

AGOUJGAL PROJECT

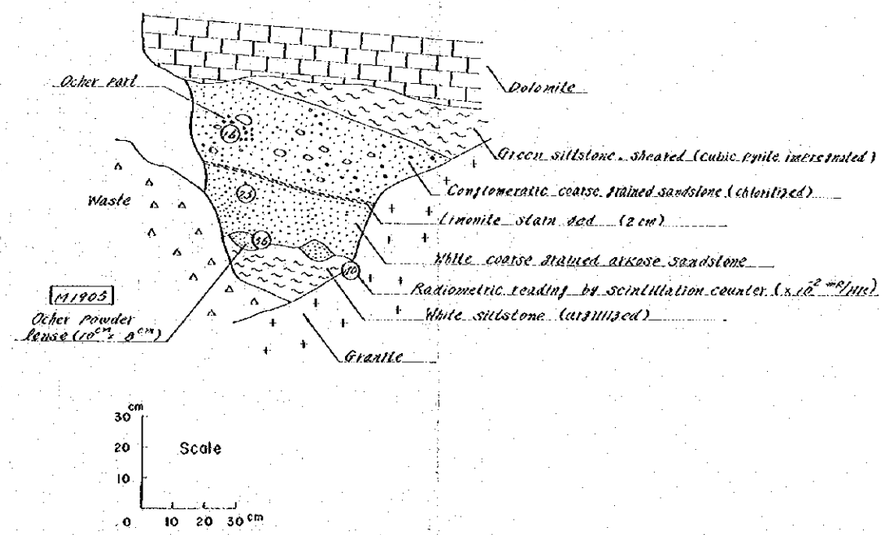
GEOLOGICAL MAP



OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

MARCH 1974

GEOLOGICAL SKETCH AT THE SAMPLING SPOT OF M 1905



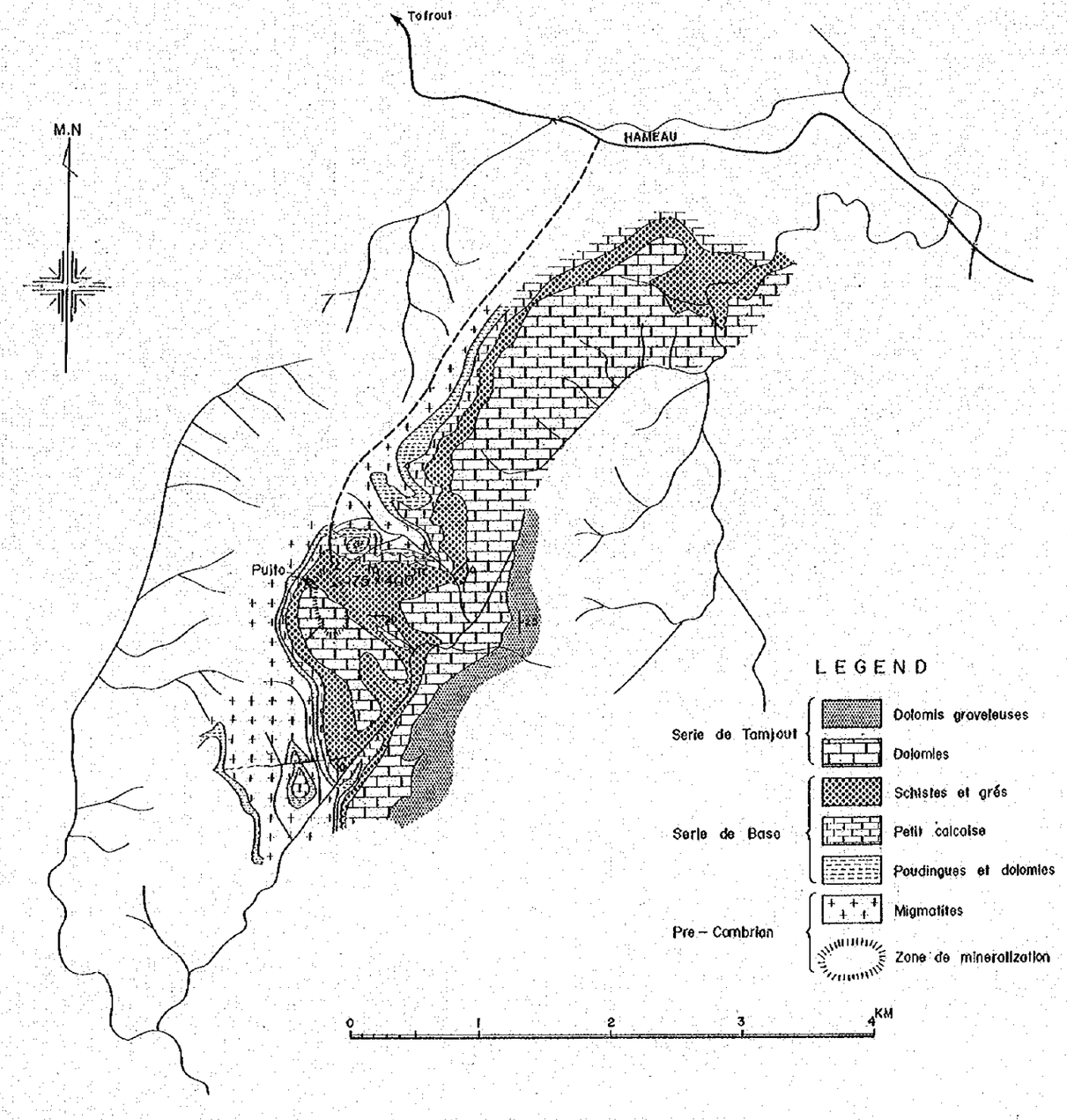
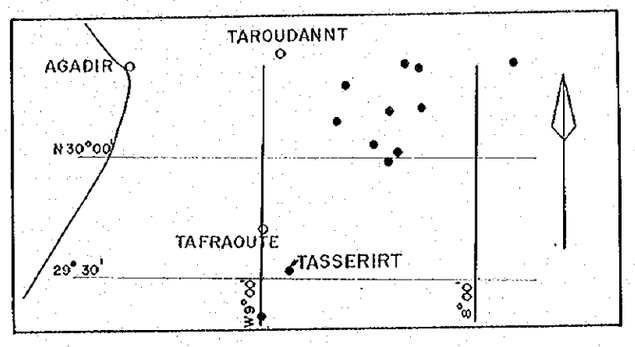


FIG. VII-12-A

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA /KINGDOM OF MOROCCO

TASSERIRT PROJECT

GEOLOGICAL MAP



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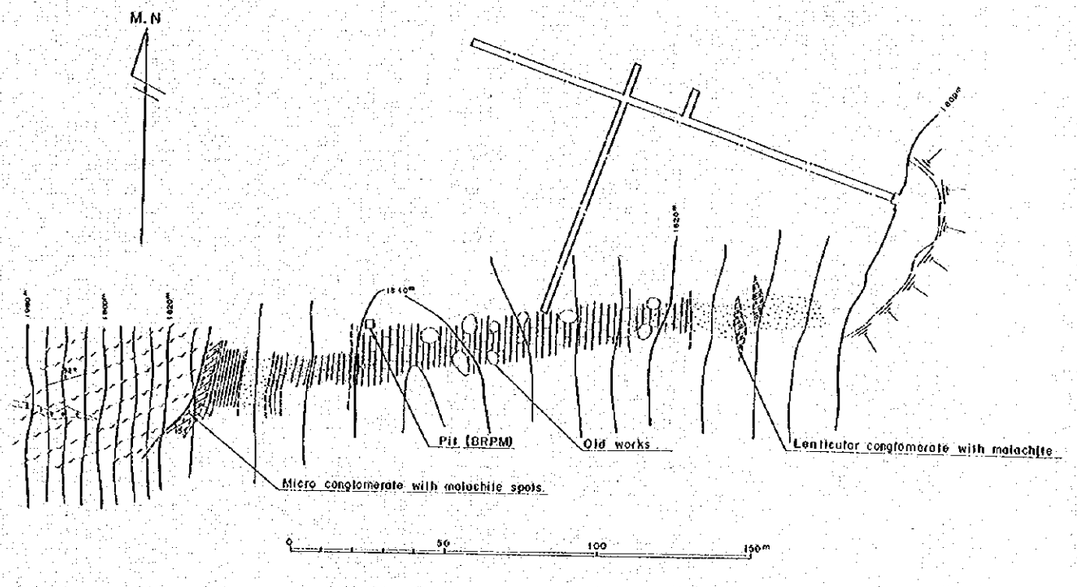
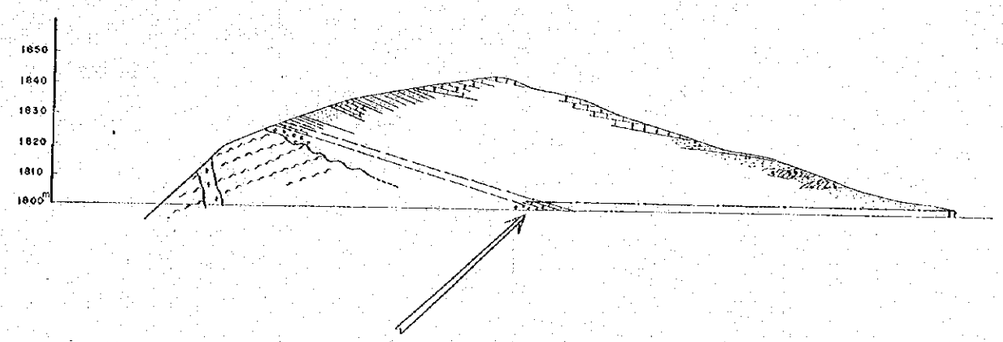
MARCH 1974

BY BUREAU DE RECHERCHES ET
DE PARTICIPATIONS MINIERES

PLAN



PROFILE



Geological sketch of the cross cut end

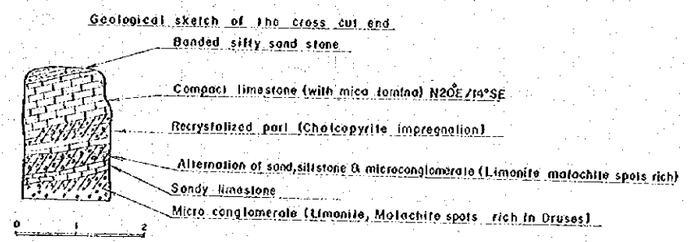
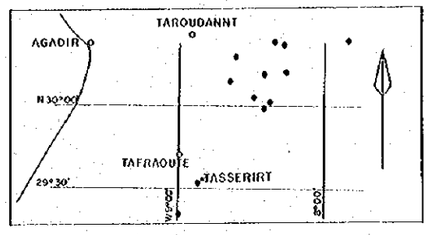


FIG. VII-12-B

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA KINGDOM OF MOROCCO

TASSERIRT PROJECT

ROUTE MAP AND PROFILE
OF MINERALIZED ZONE



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MARCH 1974

LEGEND

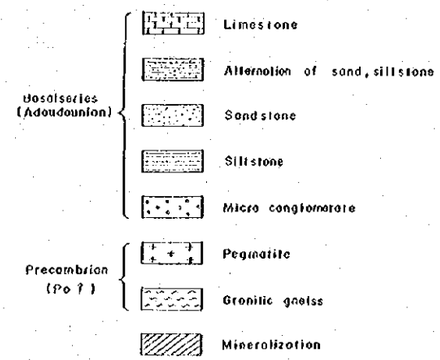
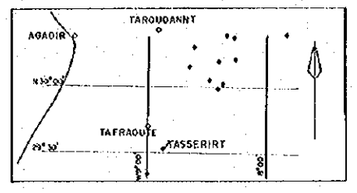


FIG. VII - 12 - C

MINERAL RESOURCES DEVELOPMENT SURVEY
OF ANTI ATLAS AREA KINGDOM OF MOROCCO

TASSERIRT PROJECT

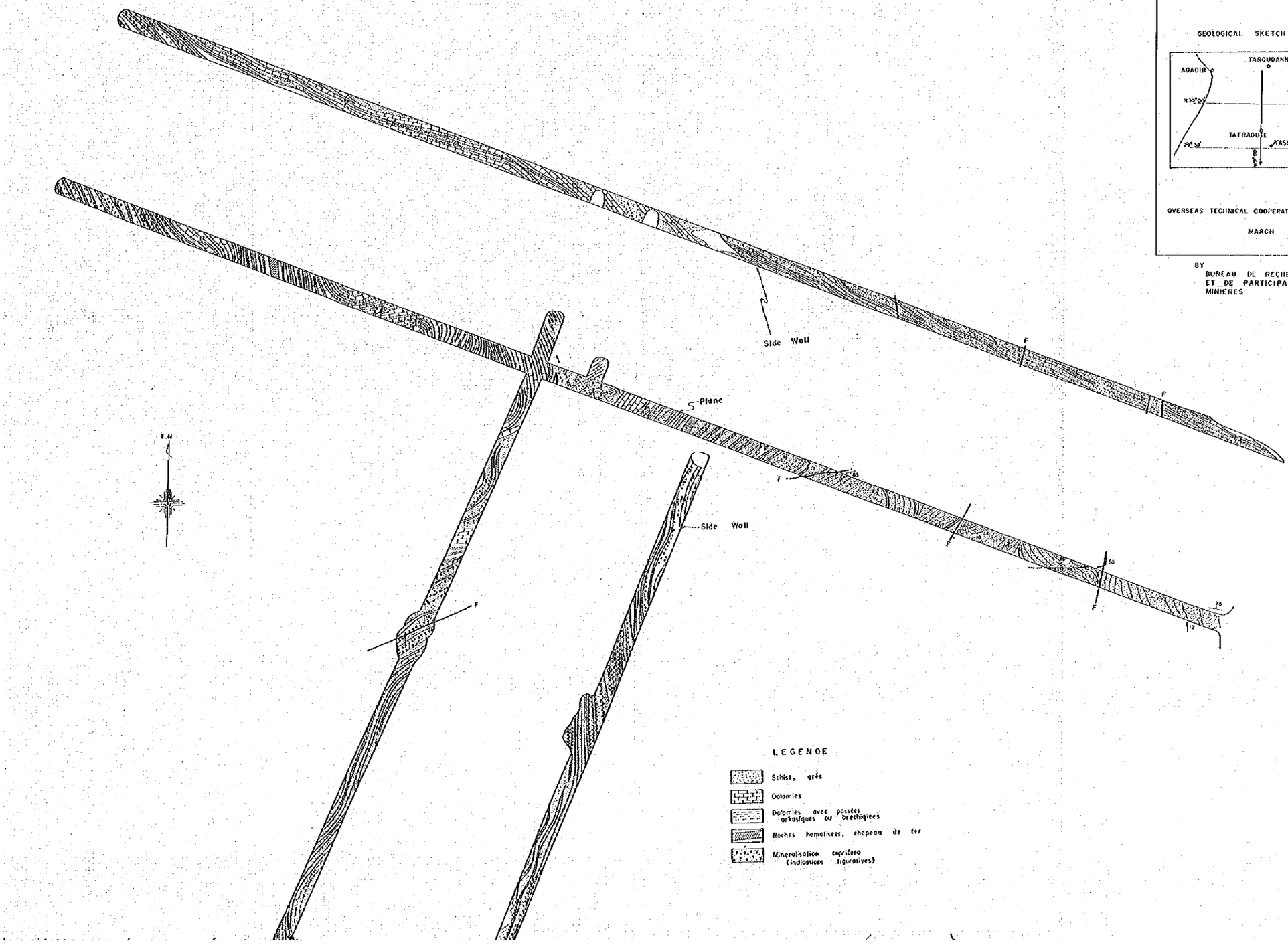
GEOLOGICAL SKETCH OF DRIFT



OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

MARCH 1974

BY
BUREAU DE RECHERCHES
ET DE PARTICIPATIONS
MINIERES



W

Side Wall

F

F

Plane

F.N

Side Wall

F

F

F

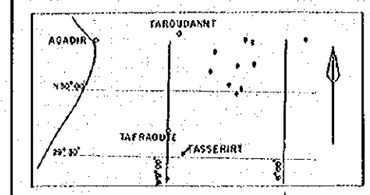
60

70

10

12

GEOLOGICAL SKETCH OF DRIFT



OVERSEAS TECHNICAL COOPERATION AGENCY OF JAPAN

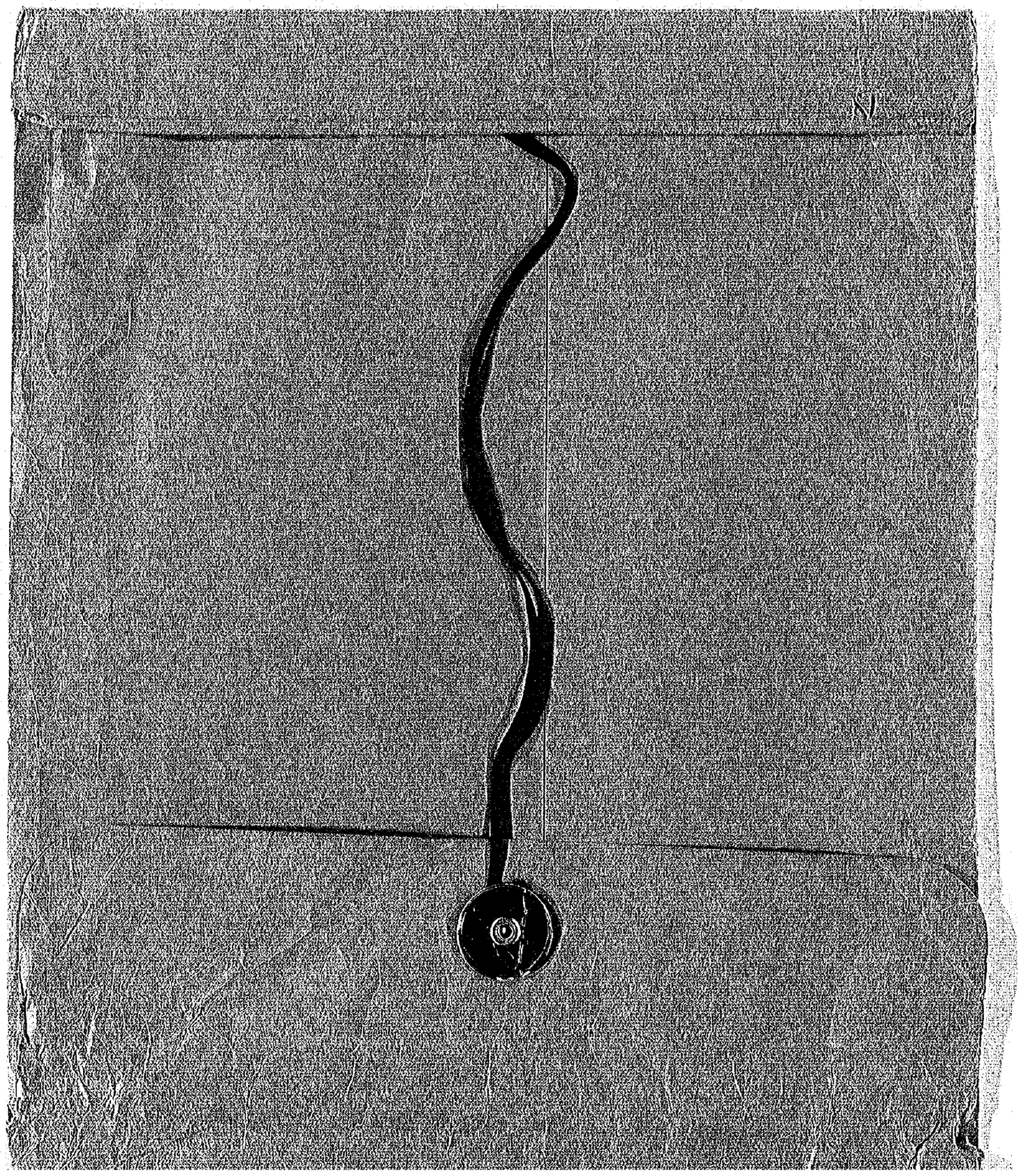
MARCH 1974

BY
BUREAU DE RECHERCHES
ET DE PARTICIPATIONS
MINIERES

LEGENDE

- Schist, grés
- Dolomies
- Dolomies avec passées arkosiques ou bréchiquées
- Roches hématisées, chapeau de fer
- Minéralisation cuprifère (indications figuratives)

0 10 20 30 40 50M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