CHAPTER 5 COMPREHENSIVE DISCUSSION

5 -1. Drilling

Since the conditions such as labor, rocks and supply in the explored areas are different from each other direct comparison is difficult. However, it was realized that a penetration rate of more than 20 metres could be achieved regardless of drilling depth, if the conditions were favorable. The average efficiencies were 7.91, 10.27 and 9.88 metres a shift (day) for the A3, C2 and E1 areas, respectively. More than 14 metres a day was achieved where the rock conditions were favorable.

In the A3 area, the fine open fractures, having been formed within basalt in the shallow depths, were negative to the efficiency of the drilling. Technical discussions and measures taken were insufficient until the completion of all the holes.

The common conditions in the E1 area were the deep oxidation zone and seriously fractured rocks. The casing operation and occasional cementing were unable to decrease the frequency of pulling the rods.

About parts and consumables should be mentioned since they effect to the supply conditions. The problems like short supply of imported goods caused by insufficient foreign currencies, superannuation of rigs, rods and batteries, shortage of parts such as diamond bits, coreprings and bearings and shortage of consumables such as cement and bentonite together with poor administration, resulted in decrease of the penetration rate.

5 -2. Geology

Area A3

It has been found that this area is underlain by basalt lava, dolerite, mafic tuff, basaltic lapillistone, basaltic lava, pelitic-felsic tuff alternations, basaltic lava in apparent ascending order, although the drill cores presented poor evidence on the stratigraphic succession . The sequences strike approximately east to west and dip south with an angle changing from 90 to 60 degrees. Intrusive rocks include biotite granite, plagioclase (quartz) porphyry and quartz porphyry, and the former two have emplaced concordant with the structure of the greenstone. The quartz porphyry seems to stretch north to south because it is limited to the deep part of the hole A3-2. (Fig.II-5-4 5)

Area C2

Dolerite, believed to be a facies of the basalt, occurs in holes and trenches and the relation between the two is intergradational. The inferred trend of the greenstone is NS strike and dip to the west at 50, approximately. The quartz porphyry dyke runs with a strike of N 60 to 70 E and a dip of 80 degrees to the NW. (Fig. II-5-5)

Area E1

The area drilled is underlain by andesite, green dacite with intercalated thin layer of BIF, andesite, green dacite, felsic tuff and alternations of andesite and green dacite. Identification of this sequence was based on eight drilling profiles including 12 holes.

The mineralization, identified by the surface investigation and encountered in the holes, is restricted to the upper part of the andesite formation, which forms the lowermost horizon of the sequences. The general strike and dip of these formations are N 50 E and 70 SE, respectively. However, the dip reverses locally to 80 NW. (Fig.II-5-6～8)

5 -3. Mineralization

Area A3

The mineralization of this area characterizes an assemblage of sulphide of pyrrhotite, arsenopyrite, marcasite instead of pyrite. The pyrrhotite was identified as a primary mineral under the microscope.

Au mineralization is sporadic. The quartz and silicified zone of 23.56 to 23.76 metres depth in the Hole A3-7 contained the maximum amount of gold, 41.21 g/t. Ag content varies from 1.5 to 6.5 g/t, regardless of the Au values. The arsenopyrite and low Ag contents are conformable with that of the As geochemical anomaly zone occurs directly below the south of the Au-anomaly zone. The weak Ag-anomaly zone has been and formed separate to that of Au. The projected maximum gold yield on the surface is coincides with the maximum value of 1.02 g/t of gold in the soil. (Fig.II-5-4～5)

Area C2

Ag- and As-anomalies are separated spatially from the Au-anomaly. The only mineralization intersected was a 3 cm wide quartz vein with pyrite and chalcopyrite. It gave an anomalous value of 1.87 g/t of Au. A sample from a quartz veinlet in the trench contained 1.59 g/t of Au. (Fig.II-5-5)

Area E1

The assay, resulted from the samples of gossan in the largest Au-anomaly zone C, gave the maximum 0.56 g/t of Au with an average of 0.2 g/t. No other geochemical anomalies were occurred in the zone. The network pyrite mineralization, encountered in the drill holes, gave mostly less than 0.10 g/t. Two samples from E1-8 and E1-9 were the only ones with more than 1 g/t of Au.

Three samples of gossan from Zone B gave high gold values. The drilling encountered a subsurface mineralization with the highest contents of Au and Ag, 53.37 g/t and 63.16 g/t, respectively. In the Zone B, the Au anomaly overlaps with those of As and Ag. Assay values of more than 1 g/t of Au came from the two holes E1-3 and E1-4, located in the east end of the zone.

No arsenopyrite was identified in the polished sections of core samples under the microscope and therefore, the source of As geochemical anomaly could not be identified.

Ag content varies with the Au content when the former is

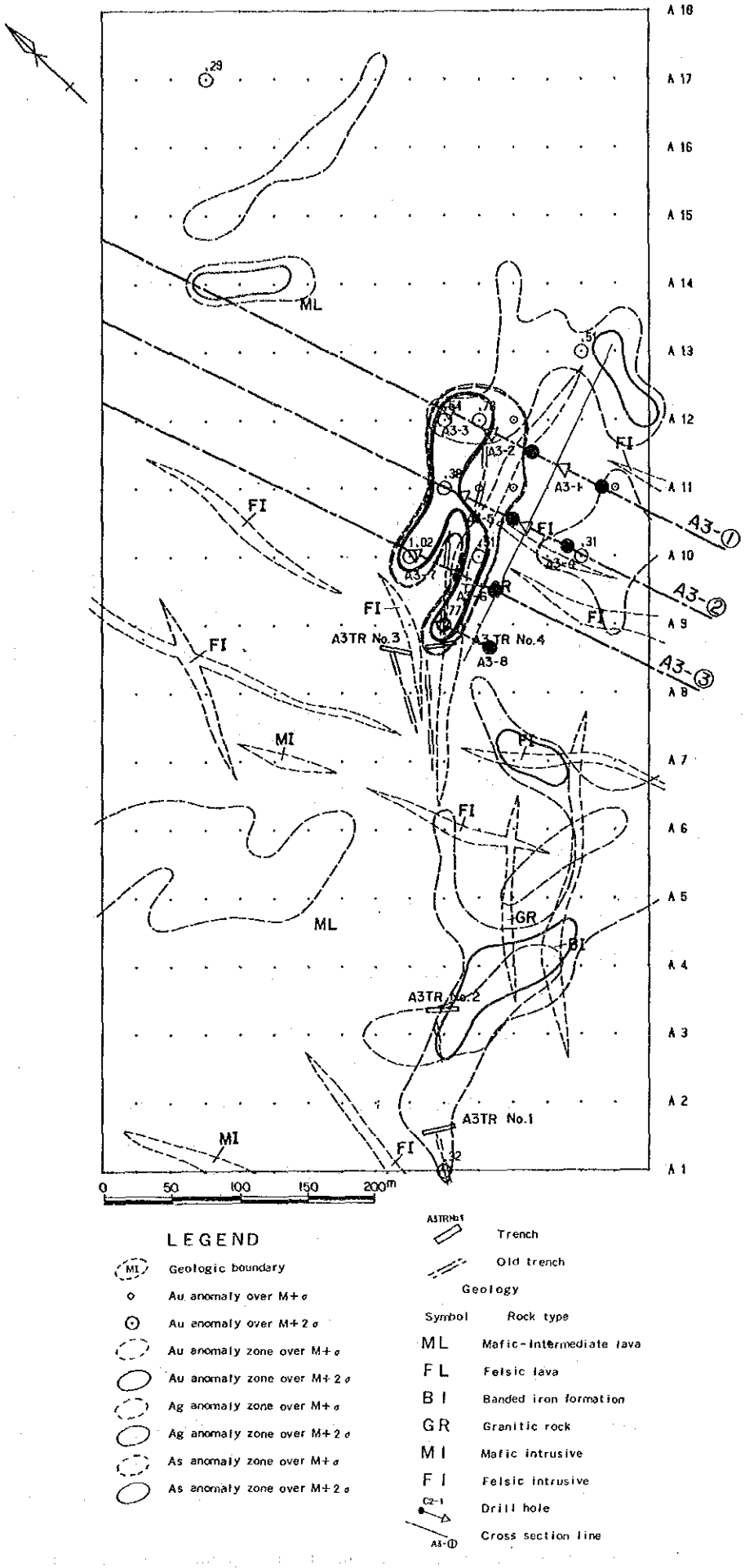


Fig. II-5-1 Location of Drill Hole and Cross Section of Geochemical Anomalies in Area A3

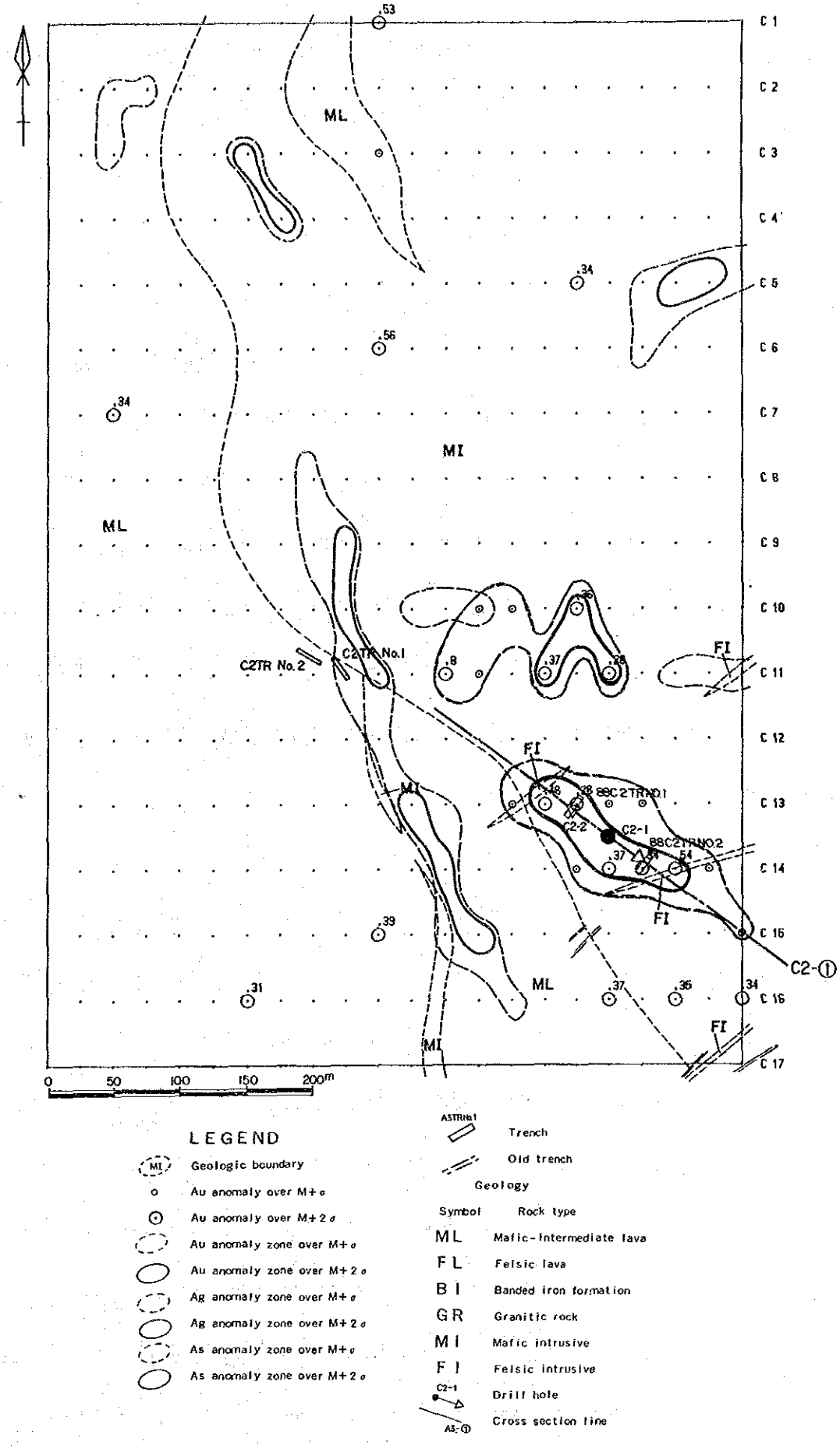
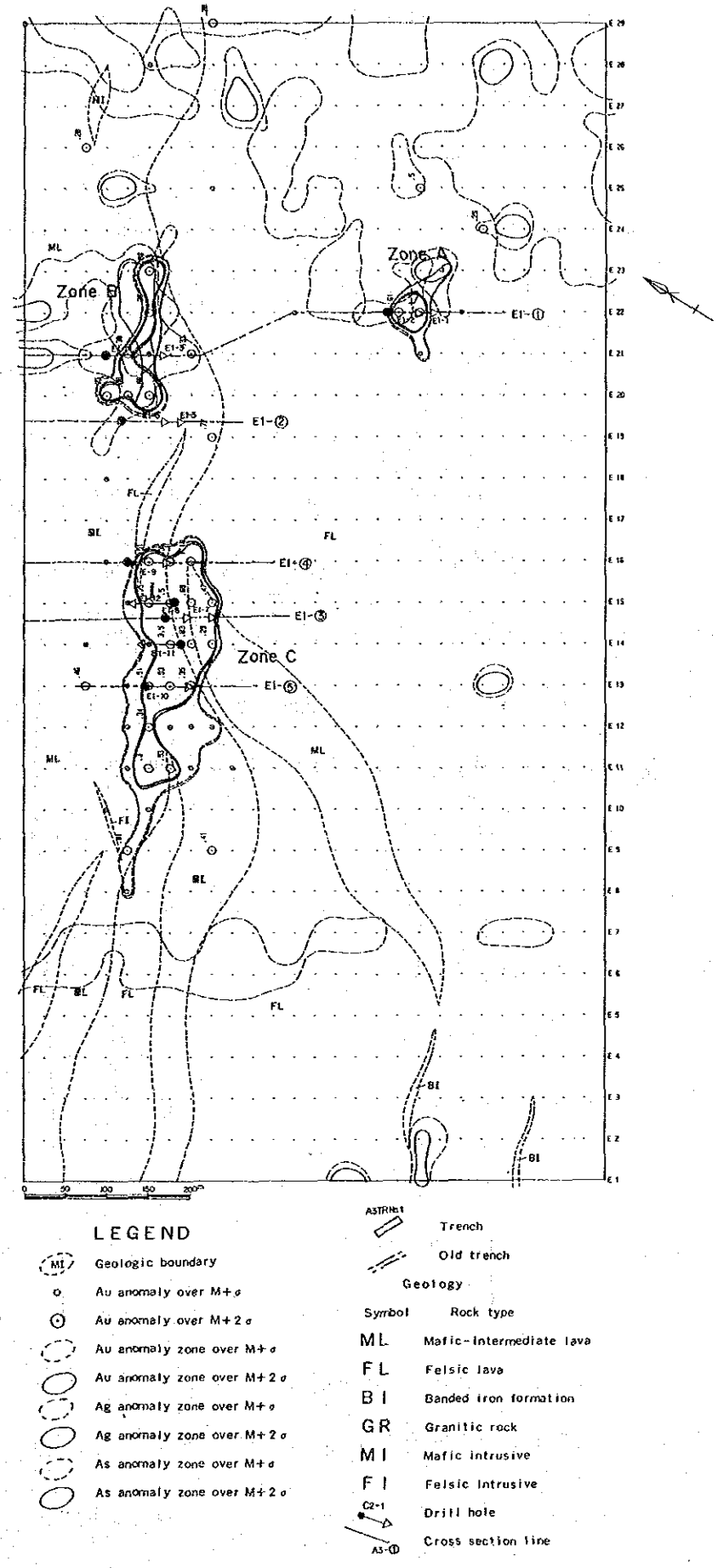


Fig. II-5-2 Location of Drill Hole and Cross Section of Geochemical Anomalies in Area C2



LEGEND

- Geologic boundary
- Au anomaly over M+σ
- Au anomaly over M+2σ
- Au anomaly zone over M+σ
- Au anomaly zone over M+2σ
- Ag anomaly zone over M+σ
- Ag anomaly zone over M+2σ
- As anomaly zone over M+σ
- As anomaly zone over M+2σ
- Trench
- Old trench

Geology

Symbol	Rock type
ML	Mafic-intermediate lava
FL	Felsic lava
BI	Banded iron formation
GR	Granitic rock
MI	Mafic intrusive
FI	Felsic intrusive

- Drill hole
- Cross section line

Fig. II-5-3 Location of Drill Hole and Cross Section of Geochemical Anomalies in Area E1

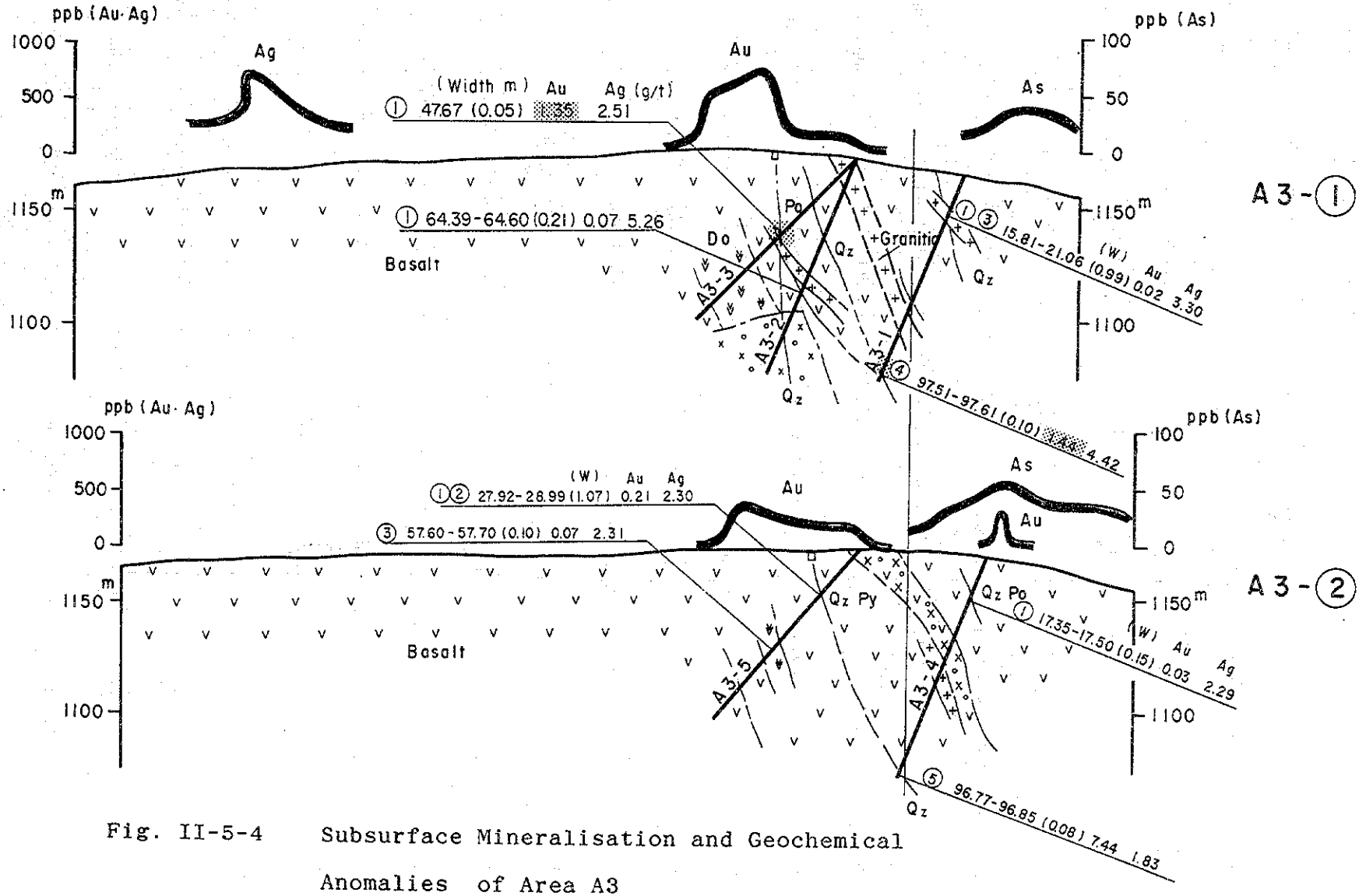


Fig. II-5-4 Subsurface Mineralisation and Geochemical Anomalies of Area A3

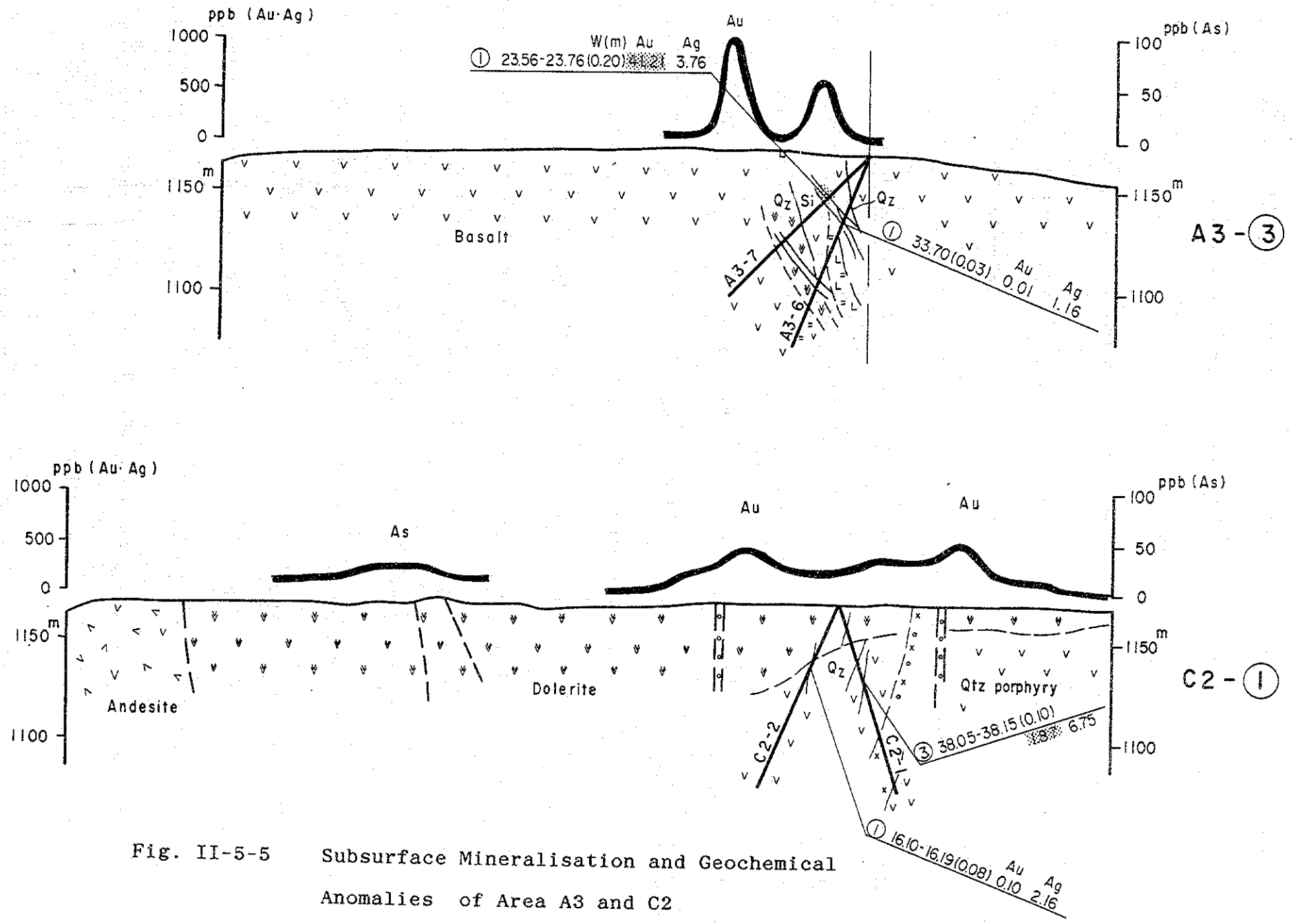


Fig. II-5-5 Subsurface Mineralisation and Geochemical Anomalies of Area A3 and C2

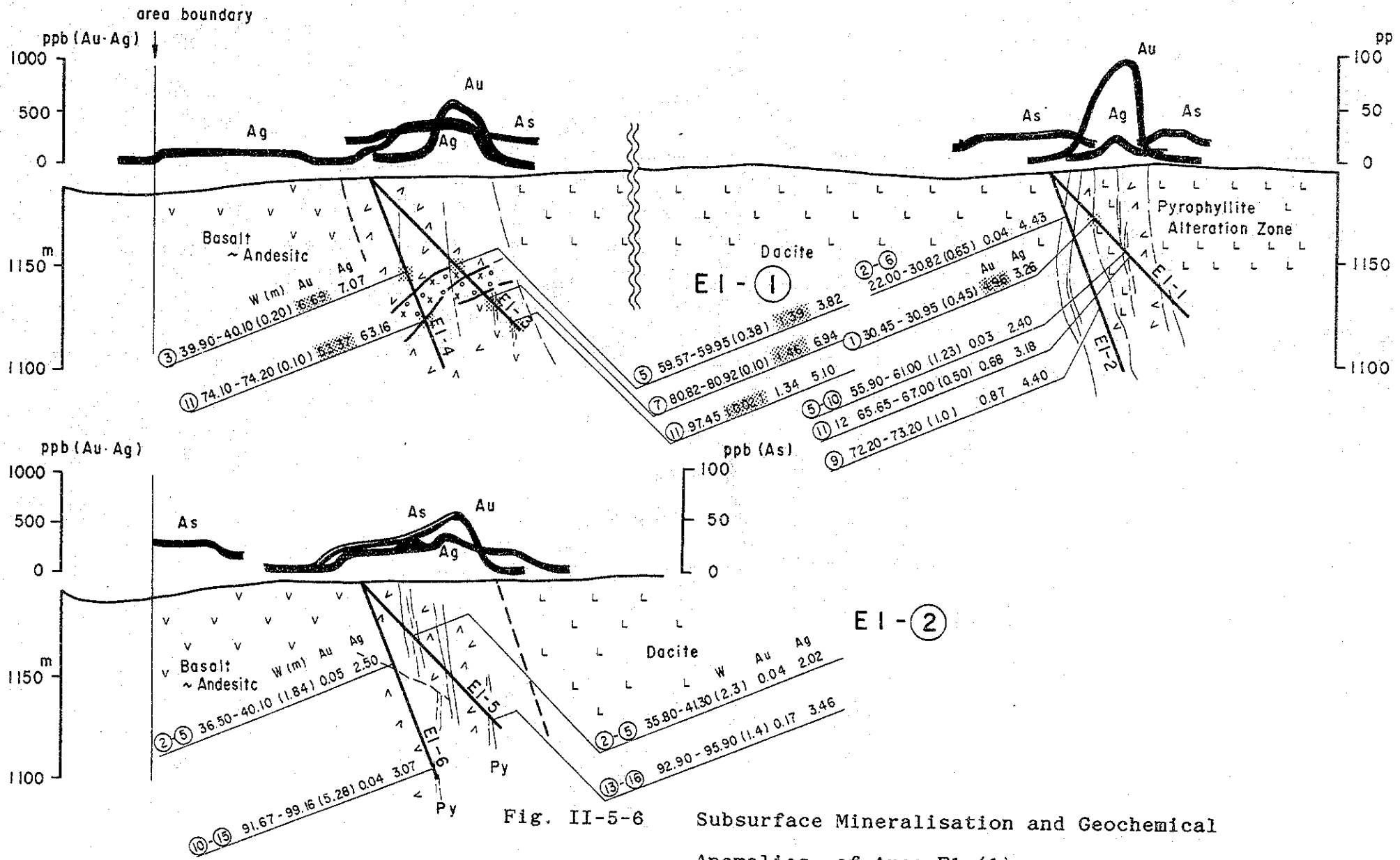


Fig. II-5-6 Subsurface Mineralisation and Geochemical Anomalies of Area E1 (1)

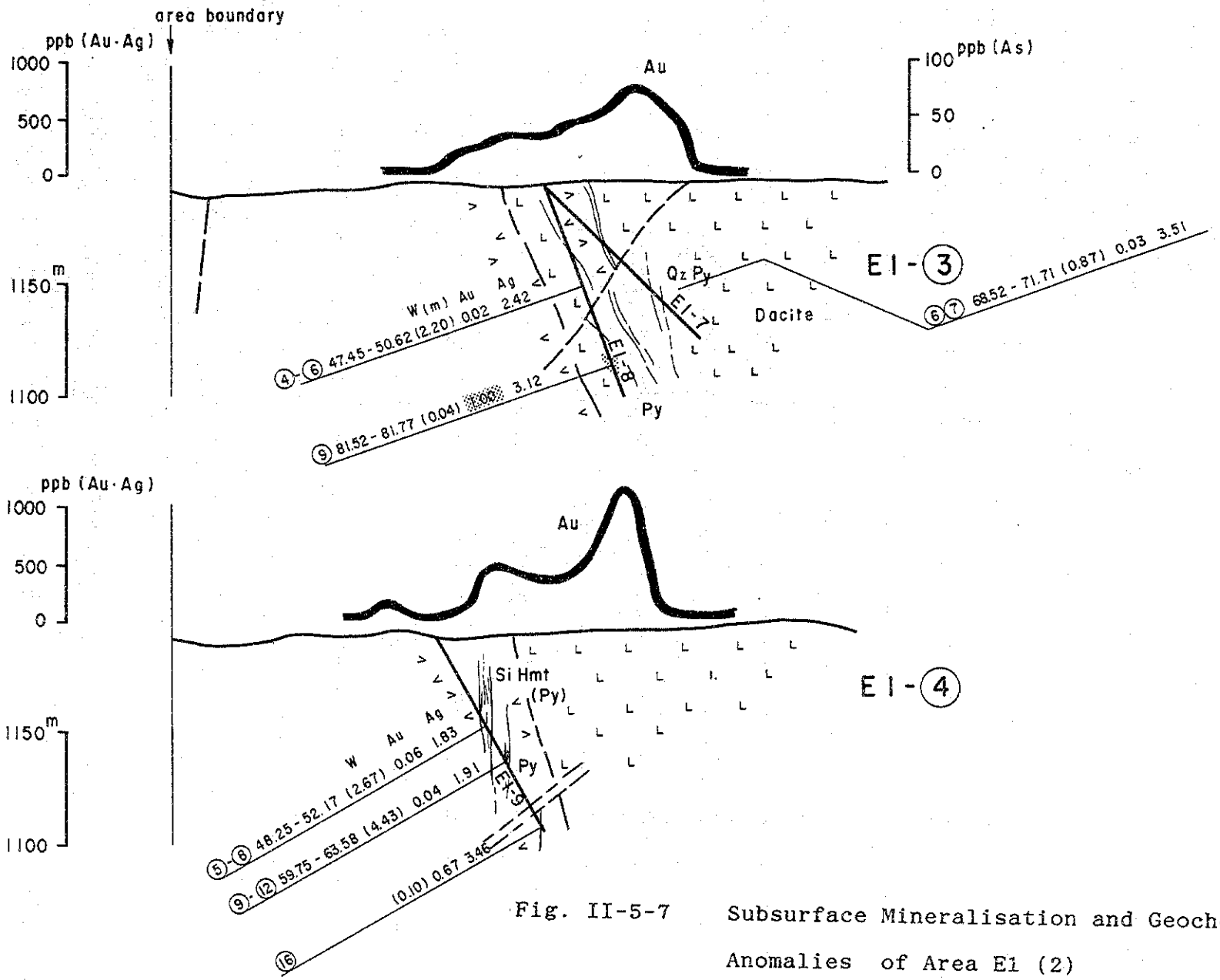


Fig. II-5-7 Subsurface Mineralisation and Geochemical Anomalies of Area E1 (2)

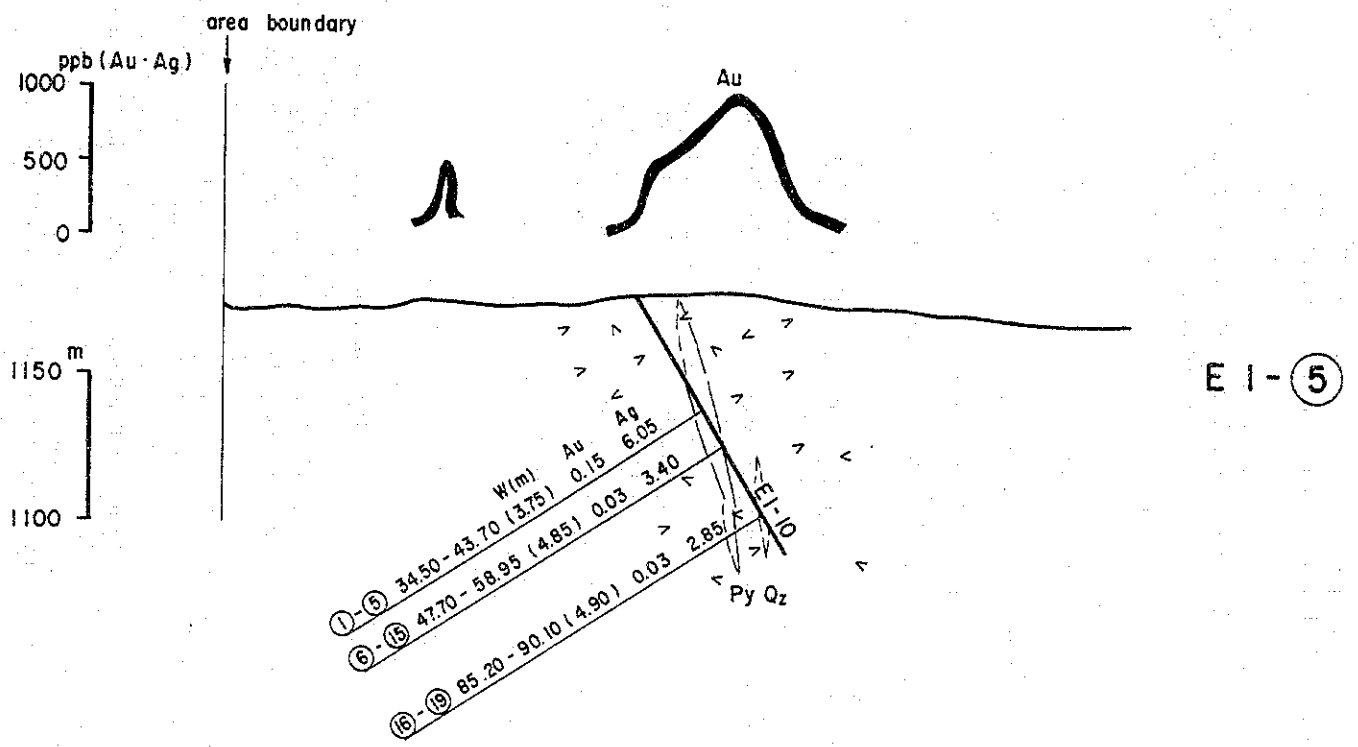


Fig. II-5-8 Subsurface Mineralisation and Geochemical Anomalies of Area E1 (3)

high.

Geochemical environment of the Zone A is similar to that of the Zone B. Zone A is small but the anomalies of three indicative elements overlap each other. No mineralized outcrops were mapped there. However, a core sample over 45 centimetres thick contained 4.96 g/t of Au. As a result, it was realized that the soil geochemical exploration is effective for the type of Au deposits which exist in the E1 area and the coincidence of anomalies of the indicative elements other than the Au is a favorable criteria for exploratory drilling. (Fig. II-5-6~8)

Table II-5-1 Gold Mineralisation Intersected by Drill Holes

Hole No.	Depth(m)	Type of Mineralisation	Assay Values(g/t) Au	Ag
A3-2	97.51-97.61	Chl+Py,Po	1.44	4.42
A3-3	47.67-47.72	Qz,Cal+Po	1.35	2.51
A3-4	96.77-96.85	Qz+Py	7.44	1.83
A3-7	23.56-23.76	Qz+Si	41.21	3.70
C2-1	38.05-38.15	Qz+Py,Cp	1.87	6.75
E1-1	30.45-30.95	Hmt,Py	4.96	3.26
E1-3	59.57-59.95	Hmt	1.39	3.82
E1-3	97.45-97.47	Cal+Py	1.34	5.10
E1-4	39.90-40.10	Qz+Hmt	6.69	7.07
E1-4	74.10-74.20	Si+Py	53.37	63.16
E1-8	81.52-81.77	Py	1.00	3.12
E1-9	20.07	Si+Qz	1.28	4.25

5 -4. Homogenization Temperature of Fluid Inclusions

The homogenization temperatures of fluid inclusions contained in quartz and calcite from the drill core. Twenty seven polished samples were prepared out of twenty four core samples and forteen of which, were available for temperature measurement. No fluid inclusios were found in the rest.

Appendix 6 shows the results of the measurement and Figure II-5-9 and 10 illustrate histogram of the temperatures. The histograms indicates comparatively low temperatures; not exceeding 200° C. Even in the case of small number of measurement the histograms show normal distribution.

The average temperature of Area A3, C2 and E1 is 155° C, 134°C and 138°C respectively. These are much lower than those of Dalny and Globe & Phoenix mine which gave the temperatures ranging from 210° to 300°C. The samples of the Rise Up mine lying on the extension of Area A3 gave 194°C in the laboratory test of Phase I.

The homogenization temperatures of the mineralization zones encountered in the drill holes are lower than those of the known ore deposits.

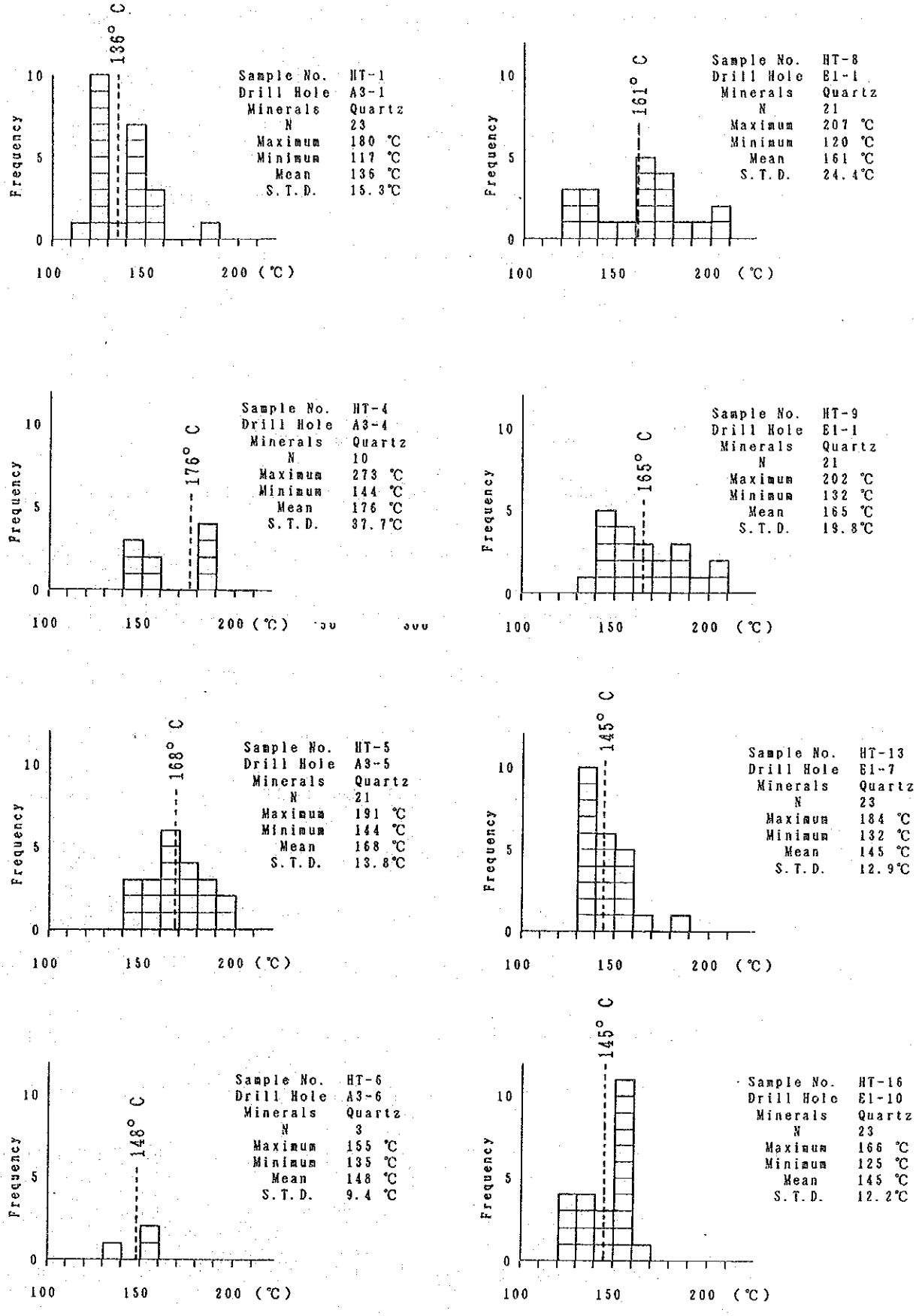


Fig. II-5-9 Histogram of Homogenization Temperatures of Fluid Inclusions (1)

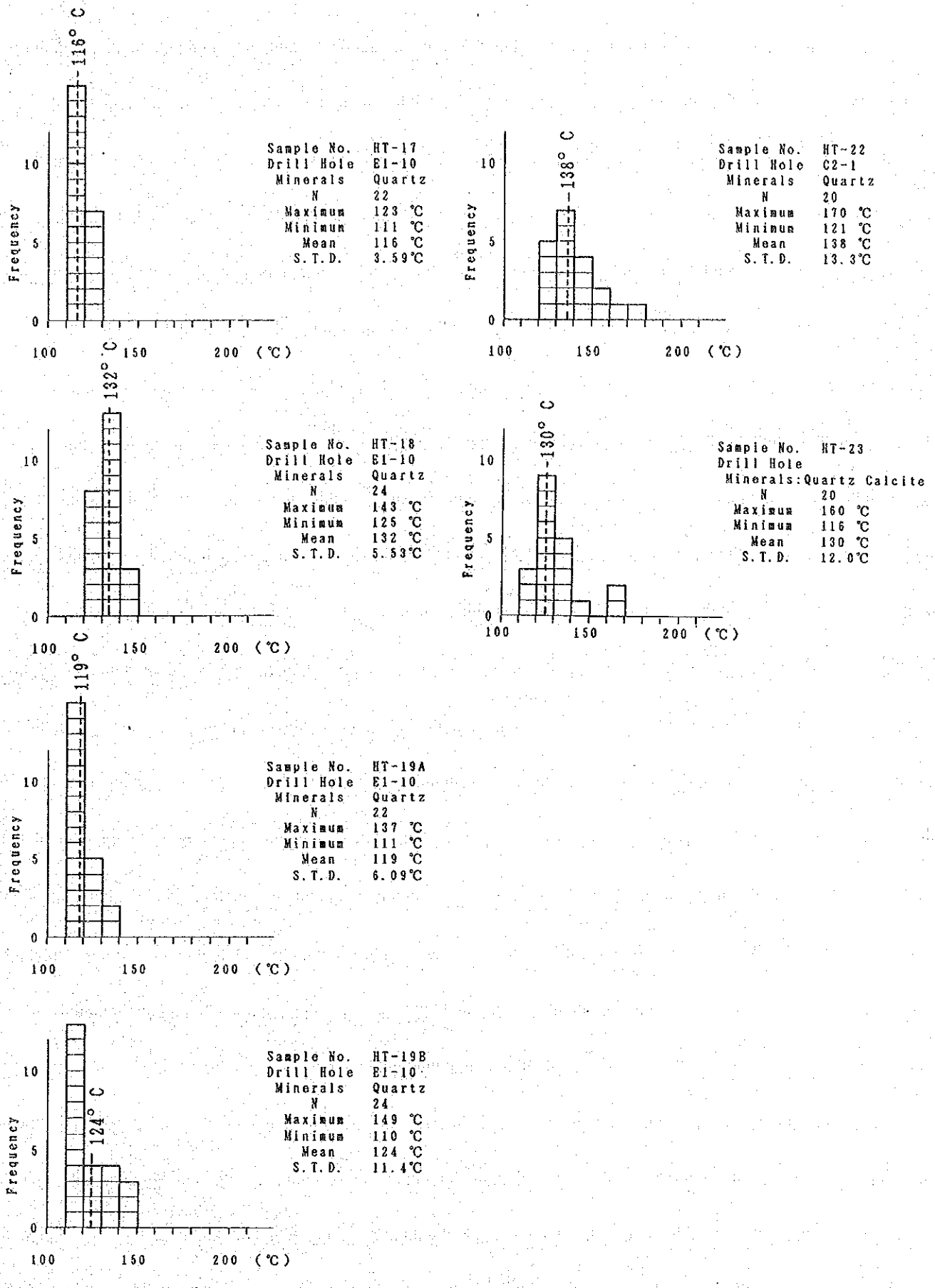
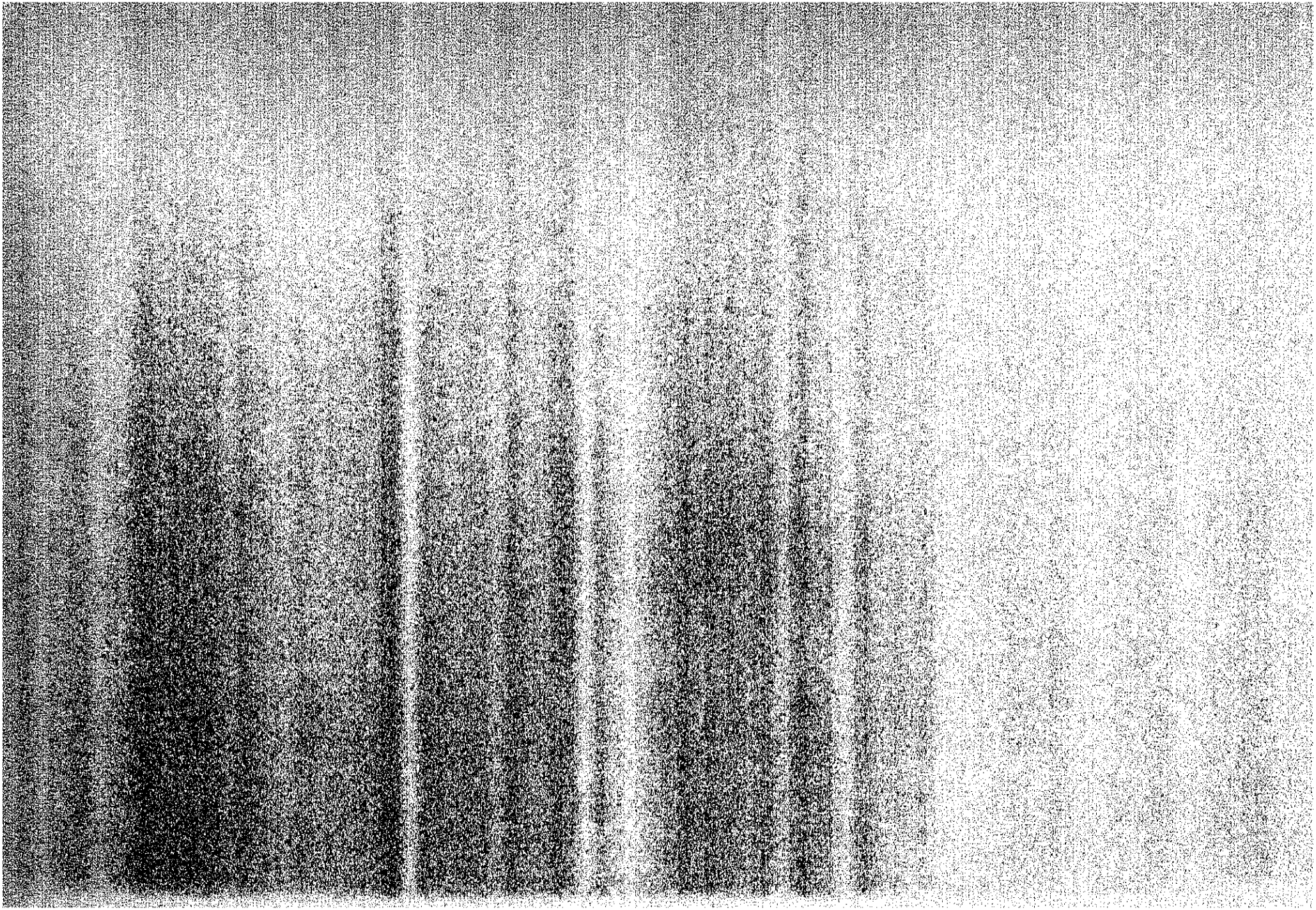


Fig. II-5-10 Histogram of Homogenization Temperatures of Fluid Inclusions (2)

PART III

CONCLUSIONS AND RECOMMENDATIONS



PART III CONCLUSIONS AND RECOMMENDATIONS

CHAPTER 1 CONCLUSIONS

The exploration programme of this year included trenching and drilling in the three areas selected on the basis of the geochemical prospecting programme of the second year. The aim of this survey was to test the mineral potential of the areas which dominated in vein or disseminated type gold ore. The results obtained from the programme are as follows. The drilling of 22 holes of totally 2,202.9 metres intersected gold bearing quartz veins in the A3 Area and gold bearing pyrite network mineralization in the E1 Area.

In Area A3 the quartz and silicified zones of the holes A3-7 and A3-4 contained 41.21 g/t and 7.44 g/t of Au, respectively. Microscopic examinations revealed the mineral assemblage, including arsenopyrite, and the relation between the soil geochemical anomalies of indicative elements and the subsurface mineralization.

Economic mineral potential was not evaluated to be very high because the encountered mineralized sections were as thin as 20 centimeters.

In Area E1 the network mineralization with moderate amount of sulphide, or hematite occurred in the oxidation zone, The maximum assay value was 53.37 g/t of Au. Fundamental statistics for the 176 samples, except for the maximum value, are as follows.

		Au of g/t	Ag of g/t
Arithmetic Mean	:M	0.176	2.872
Standard Deviation	:	0.659	1.889
M +		0.834	4.761
M + 2		1.493	6.651
Geometric Mean	:M	0.044	2.592
Standard Deviation	:	0.562	0.175
M +		0.161	3.874
M + 2		0.588	5.791

Only eight statistically anomalous values of more than 0.834 g/t Au, (M +), were found in the samples. Economic mineral potential of this area is still low because the low average grade. However, the survey indicated that the gold bearing mineralization was closely related to Au soil geochemical anomalies overlapped with Ag and As anomalies.

CHAPTER 2 RECOMMENDATIONS FOR FUTURE WORK

Based upon the results of the this year's investigation and the conclusions derived through discussions, the following guidelines are recommended for gold exploration in the future.

Soil geochemical exploration method for gold is effective and should be conducted jointly with outcrop mapping and in-situ panning. Selection of indicative elements is usually accompanies the technical problems such as analytical accuracy. However, gold, antimony, arsenic and mercury are believed to be good pathfinders in geochemical prospecting for gold.

The problem of geochemical anomalies with multiple overlapping should be discussed during the area evaluation, prior to drillig.

A deeper drill hole to Area A3 and E1 will assist in the better establishment of the criteria for area selectin when the Au assay values and homogenization temperature from the deep, are collected.

ABBREVIATION

st	structure
Cal	calcite
Qz	quartz
v	vein
vl	veinlet
spd	sulphide
irg	irregular
Py	pyrite
imp	impregnation
diss	dissemination
ntw	network
wht	white
grn	green
gry	gray
blk	black
brn	brown
argil	argillization
Pyr	pyrophyllite
Lim	limonite
gsn	gossan
amyg	amygdal
sed	sediment
intercal	intercalation
Ser	sericite
car	carbonitization
Si	silicification
seg	segregation
w=	width
calc	calcareous
alt	alternation
Pl	plagioclase
Po	pyrrhotite
Chl	chlorite
brc	breccia
pheno	phenocryst
ppl	purple
fin	fine
comp	compact
msv	massive
homog	homogeneous
hetr	hetrogeneous
vert	vertical
fract	fracture
drk	dark
Mus	muscovite

Ap	aplite
Ad	andesite
Bs	basalt
Af	acid tuff
BIF	banded iron formation
Bt	basic tuff
Dc	dacite
Gr	granite
Qp	quartz porphyry
P	porphyrite
Ch	chert
Sch	pelitic sediment
Do	dolerite
La	laterite

AREA KADOMA Drill No. A3-1

AREA KADOMA Drill No. A3-2

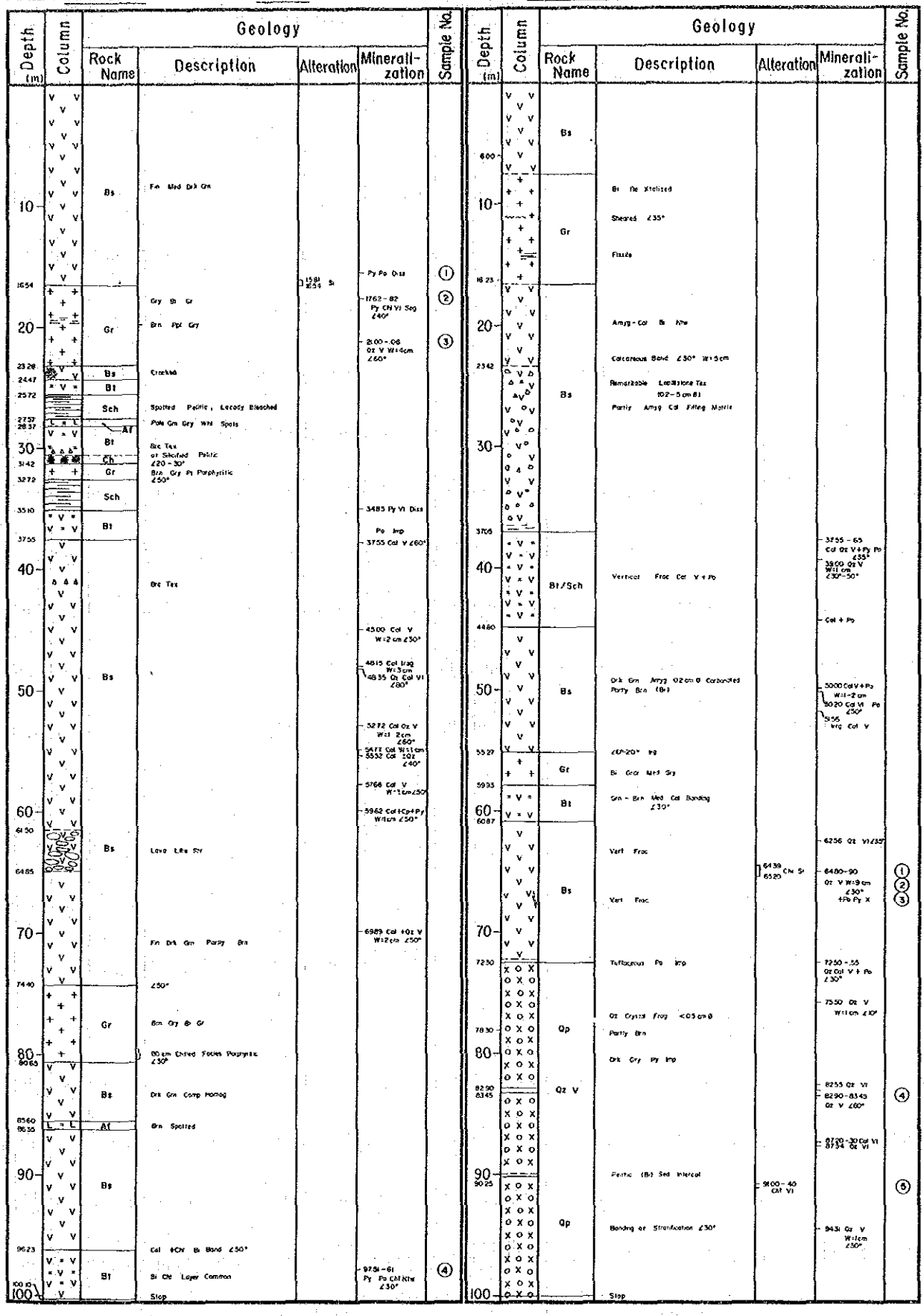


Fig. II-2-7 Drilling Log of Area A3 (1) A3-1, A3-2

AREA KADOMA Drill No. A3-3

AREA KADOMA Drill No. A3-4

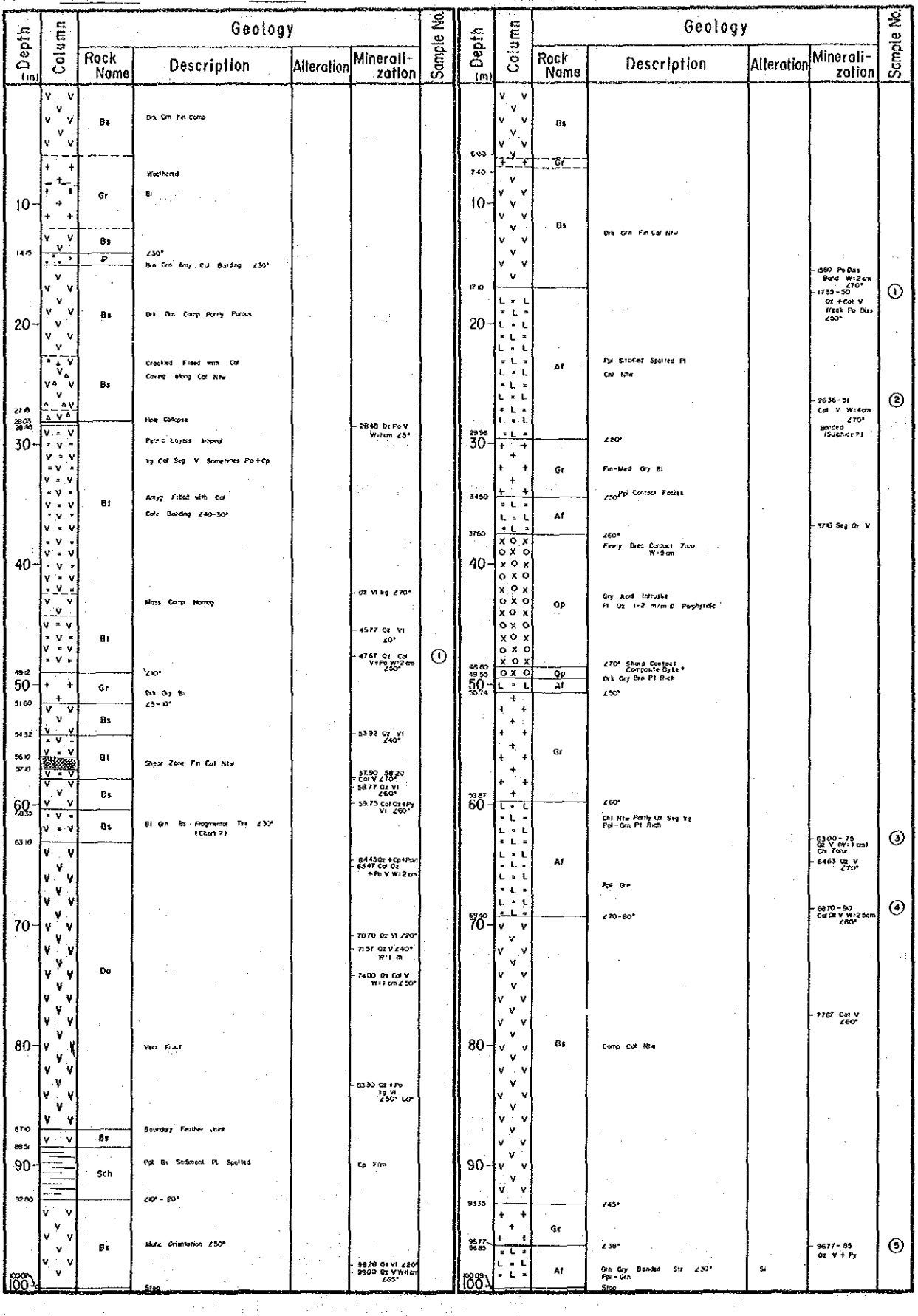


Fig. II-2-8 Drilling Log of Area A3 (2) A3-3, A3-4

AREA KADOMA Drill No. A3-5

AREA KADOMA Drill No. A3-6

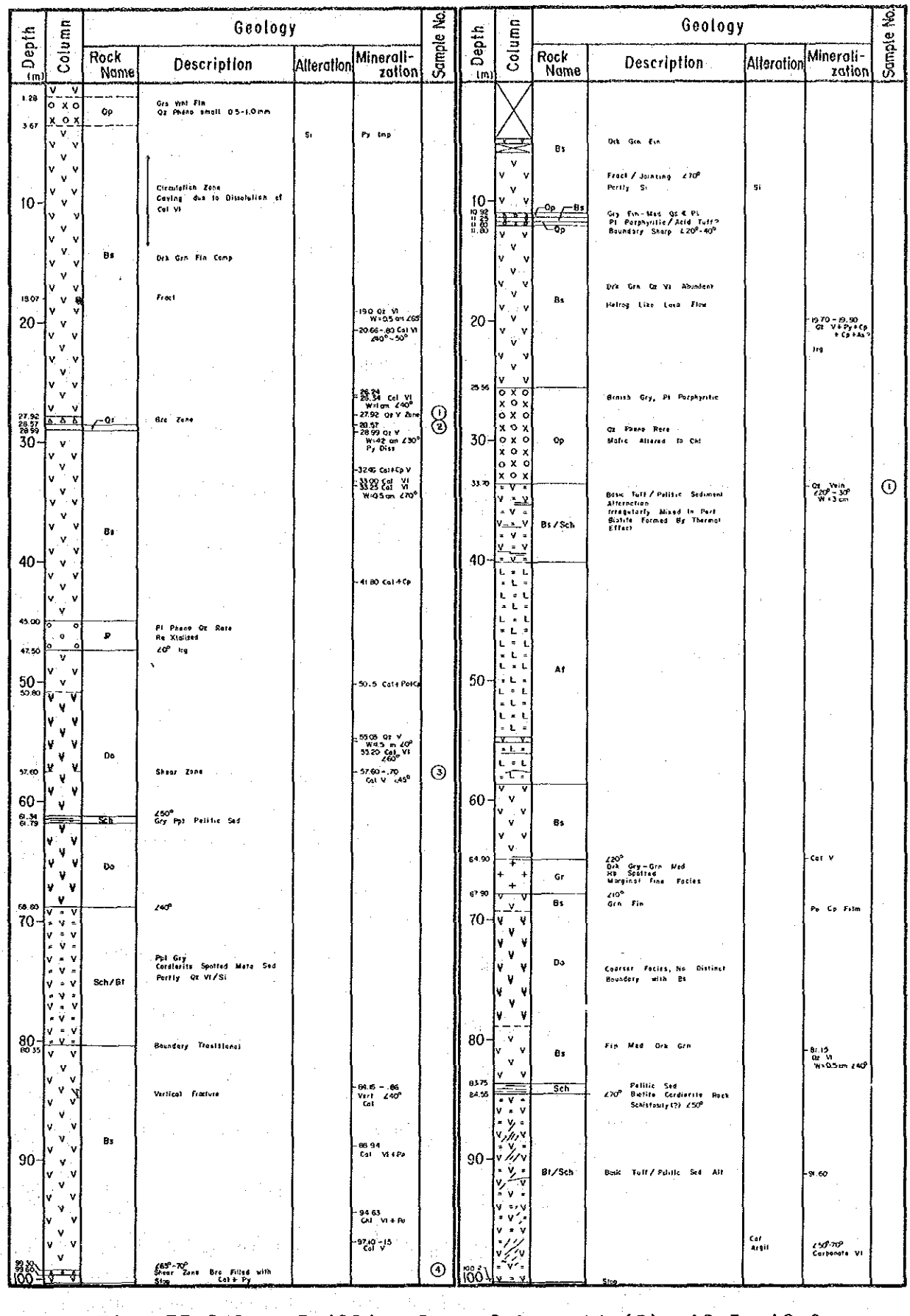


Fig. II-2-9 Drilling Log of Area A3 (3) A3-5, A3-6

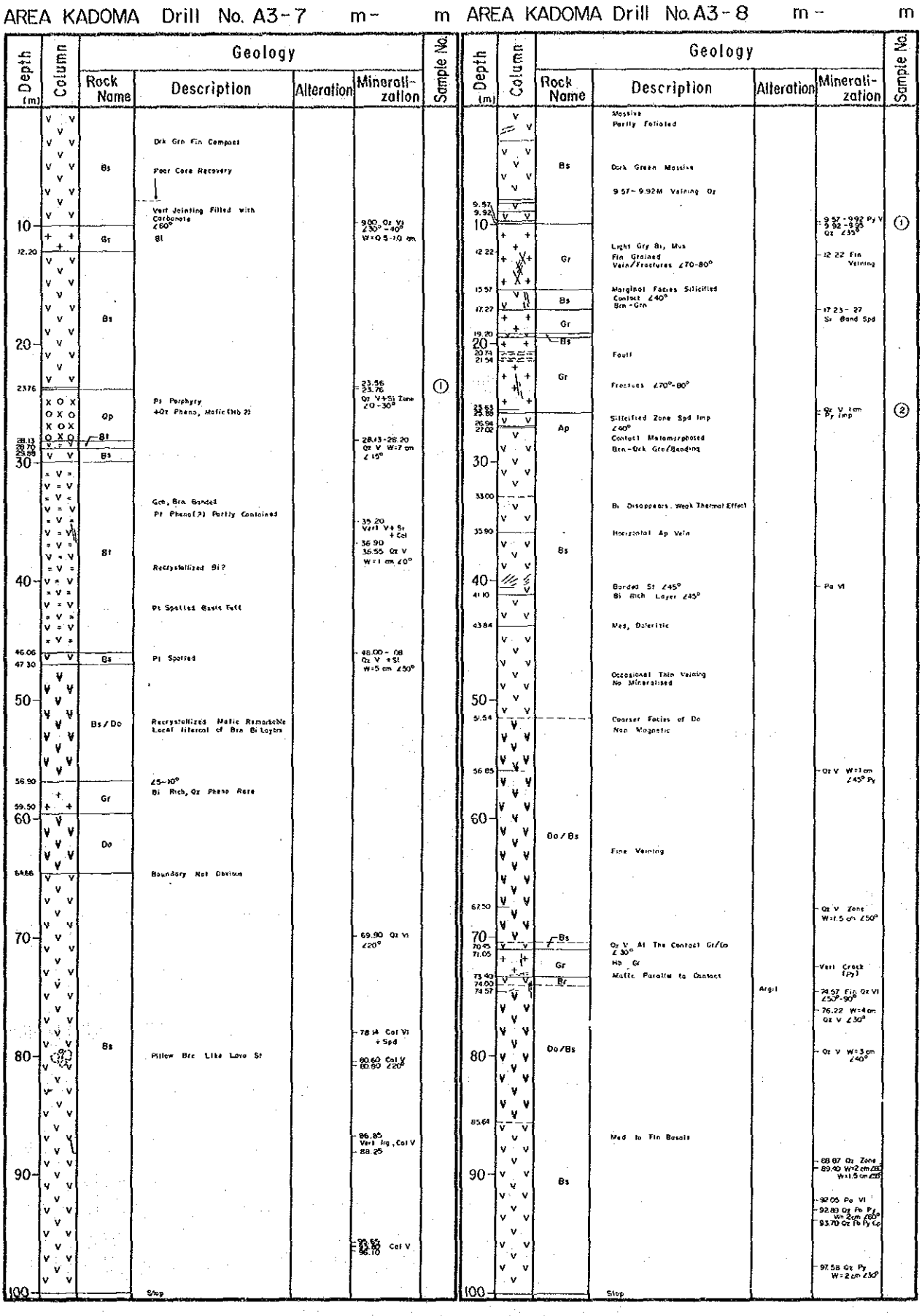


Fig. II-2-10 Drilling Log of Area A3 (4) A3-7, A3-8

AREA KADOMA Drill No. C2-1

AREA KADOMA Drill No. C2-2

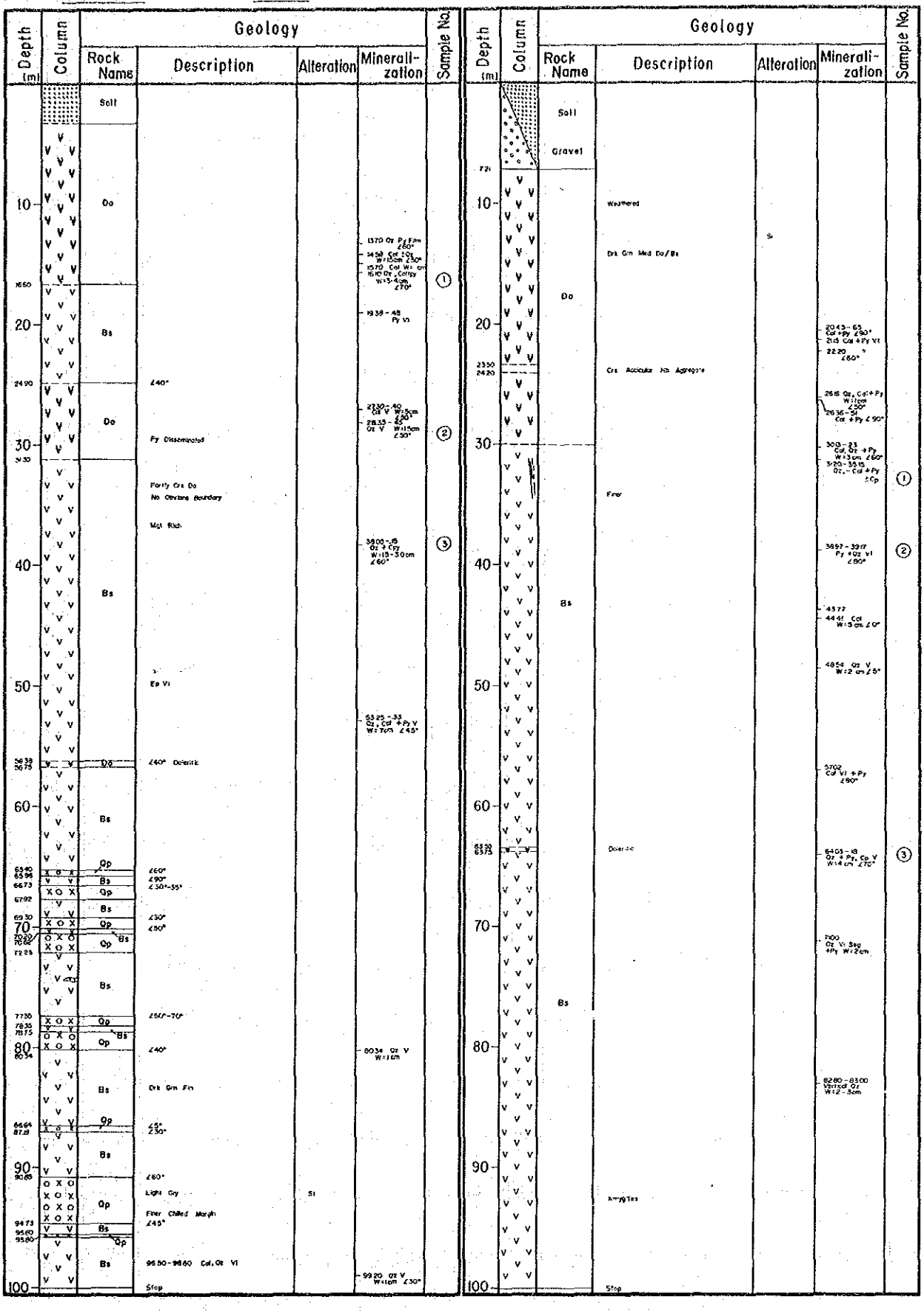


Fig. II-3-2 Drilling Log of Area C2 C2-1, C2-2

AREA KADOMA Drill No. E1-1

AREA KADOMA Drill No. E1-2

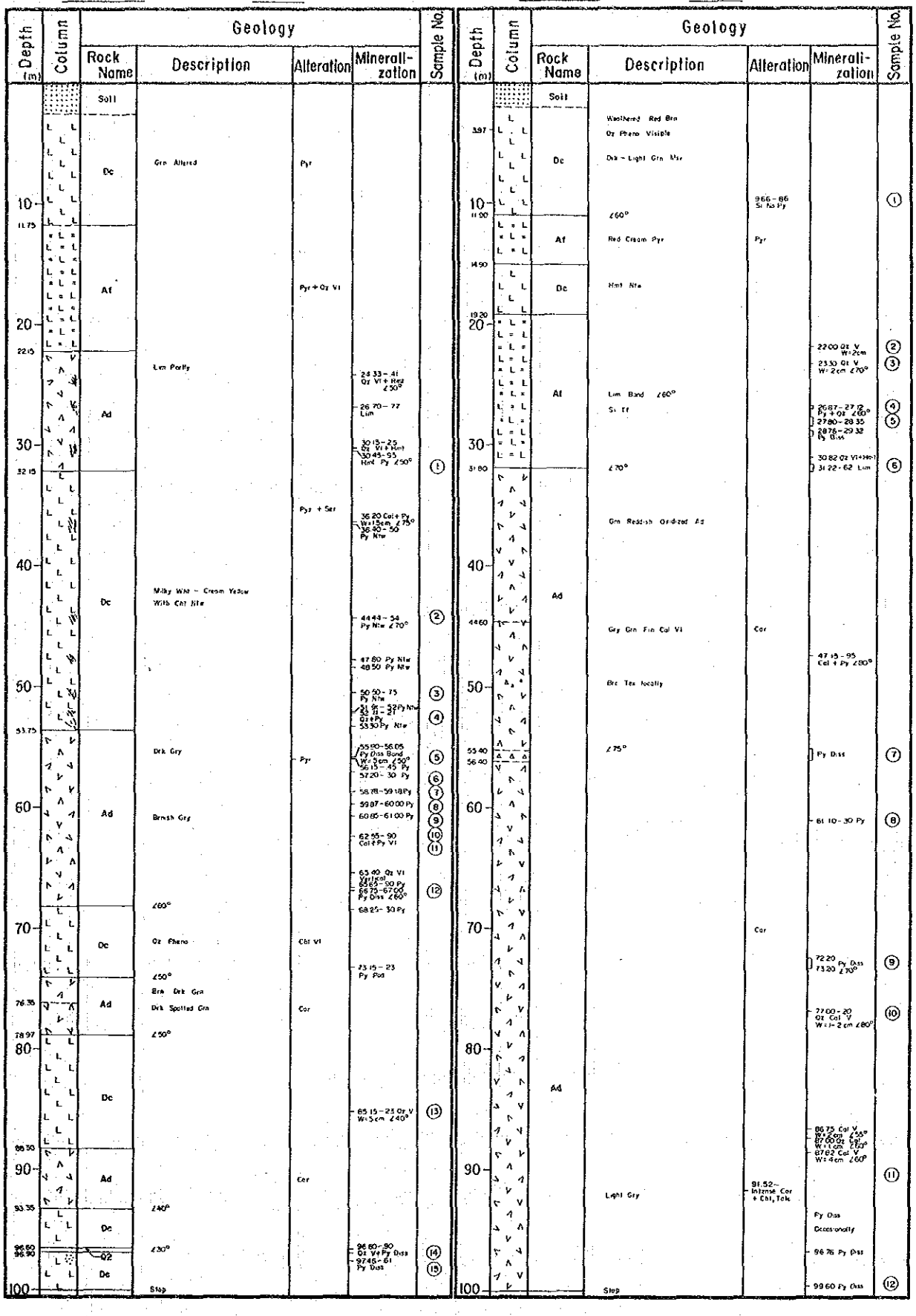


Fig. II-4-11 Drilling Log of Area E1 (1) E1-1, E1-2

AREA KADOMA Drill No. E1-3

AREA KADOMA Drill No. E1-4

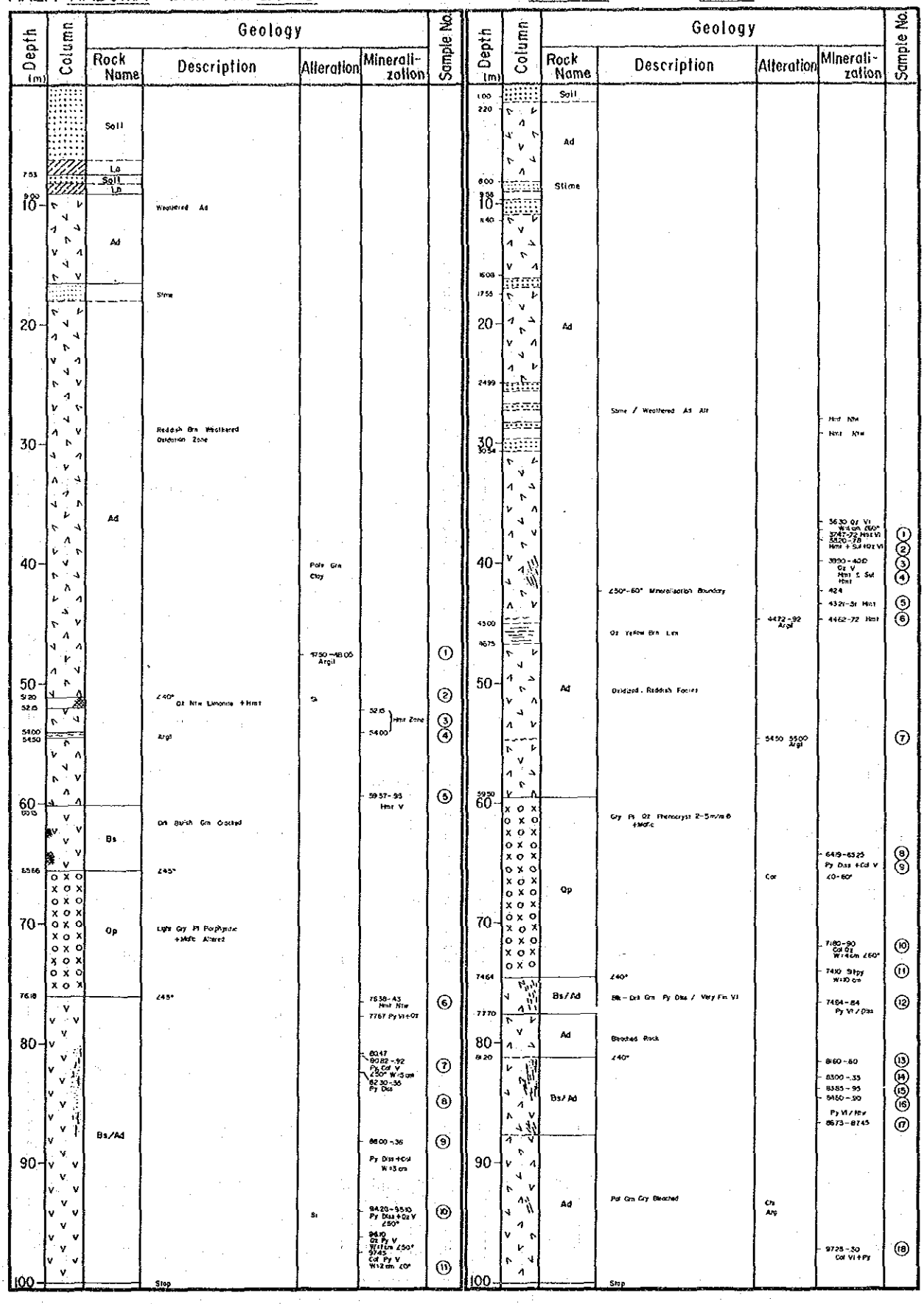


Fig. II-4-12 Drilling Log of Area E1 (2) E1-3, E1-4

AREA KADOMA Drill No. E1-5

AREA KADOMA Drill No. E1-6

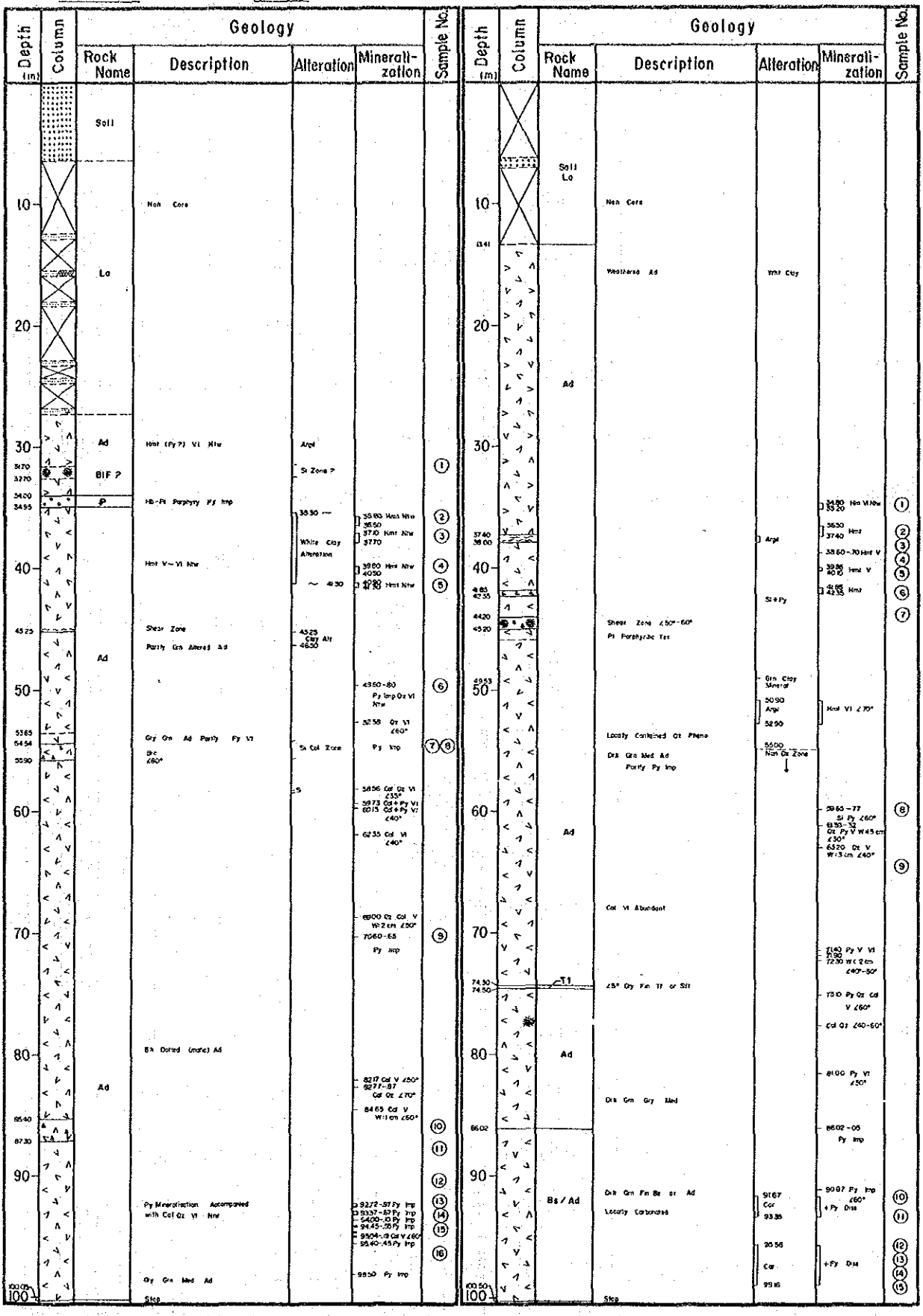


Fig. II-4-13 Drilling Log of Area E1 (3) E1-5, E1-6

AREA KADOMA Drill No. E1-7

AREA KADOMA Drill No. E1-8

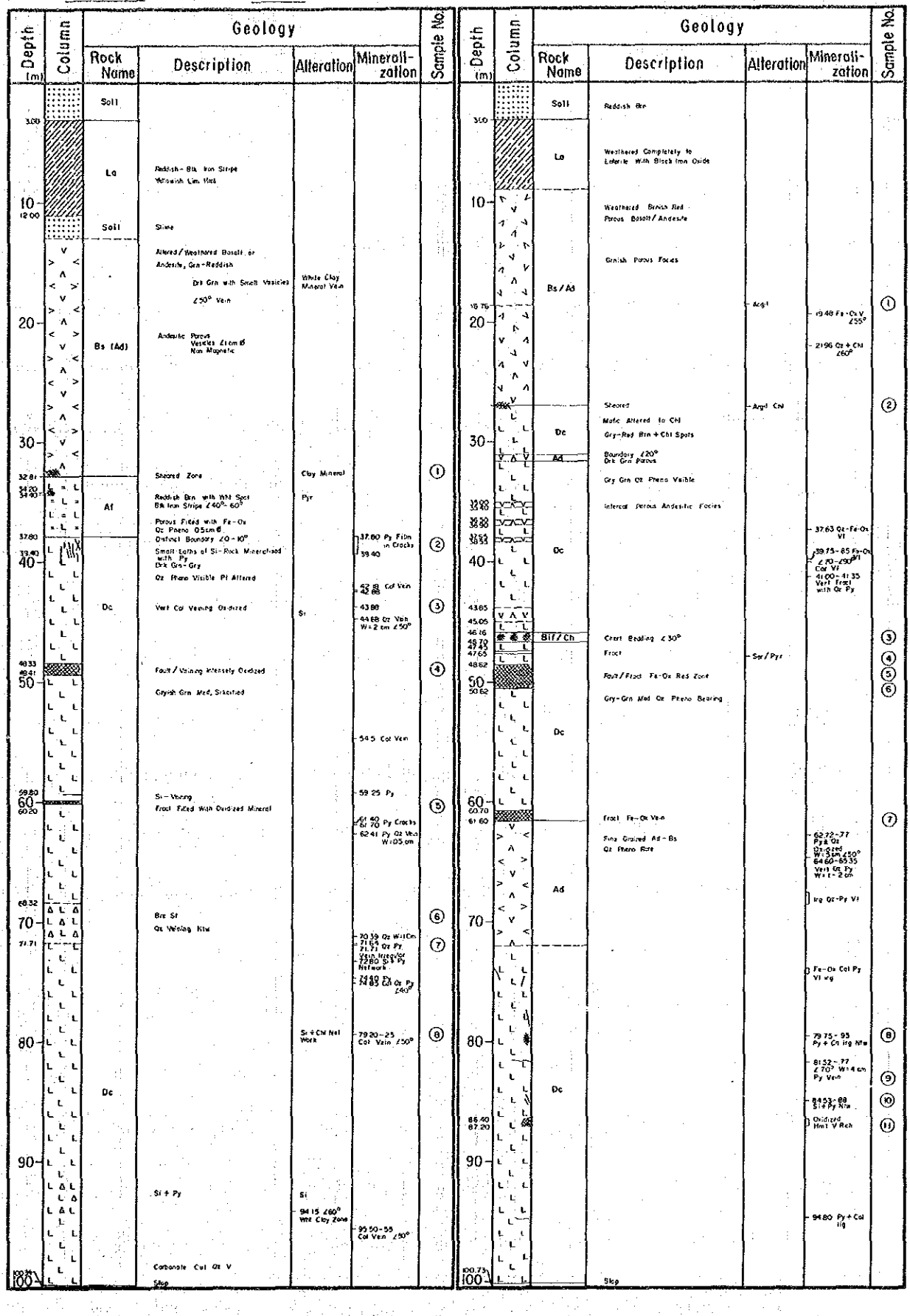


Fig. II-4-14 Drilling Log of Area E1 (4) E1-7, E1-8

AREA KADOMA Drill No. E1-9

AREA KADOMA Drill No. E1-10

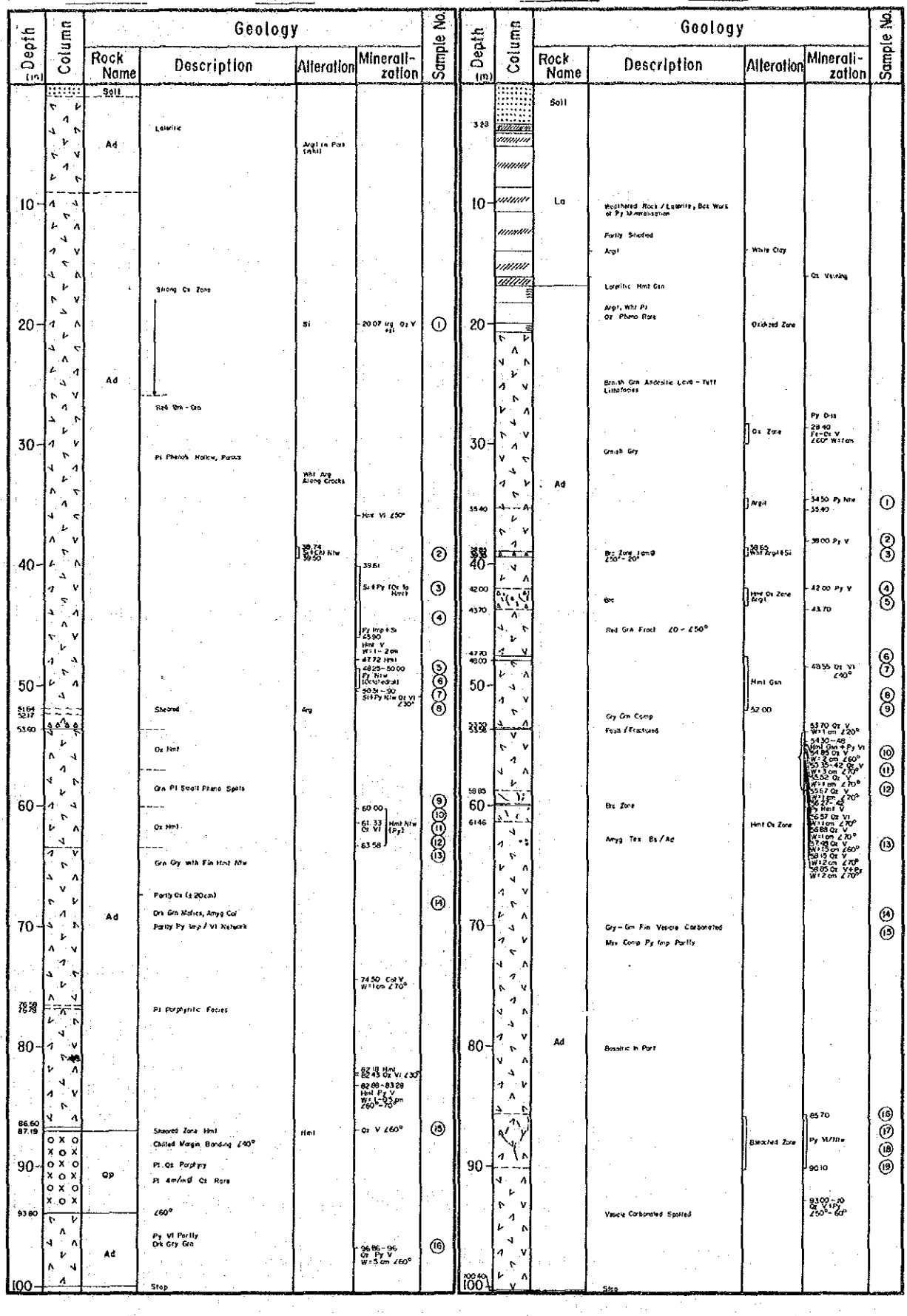


Fig. II-4-15 Drilling Log of Area E1 (5) E1-9, E1-10

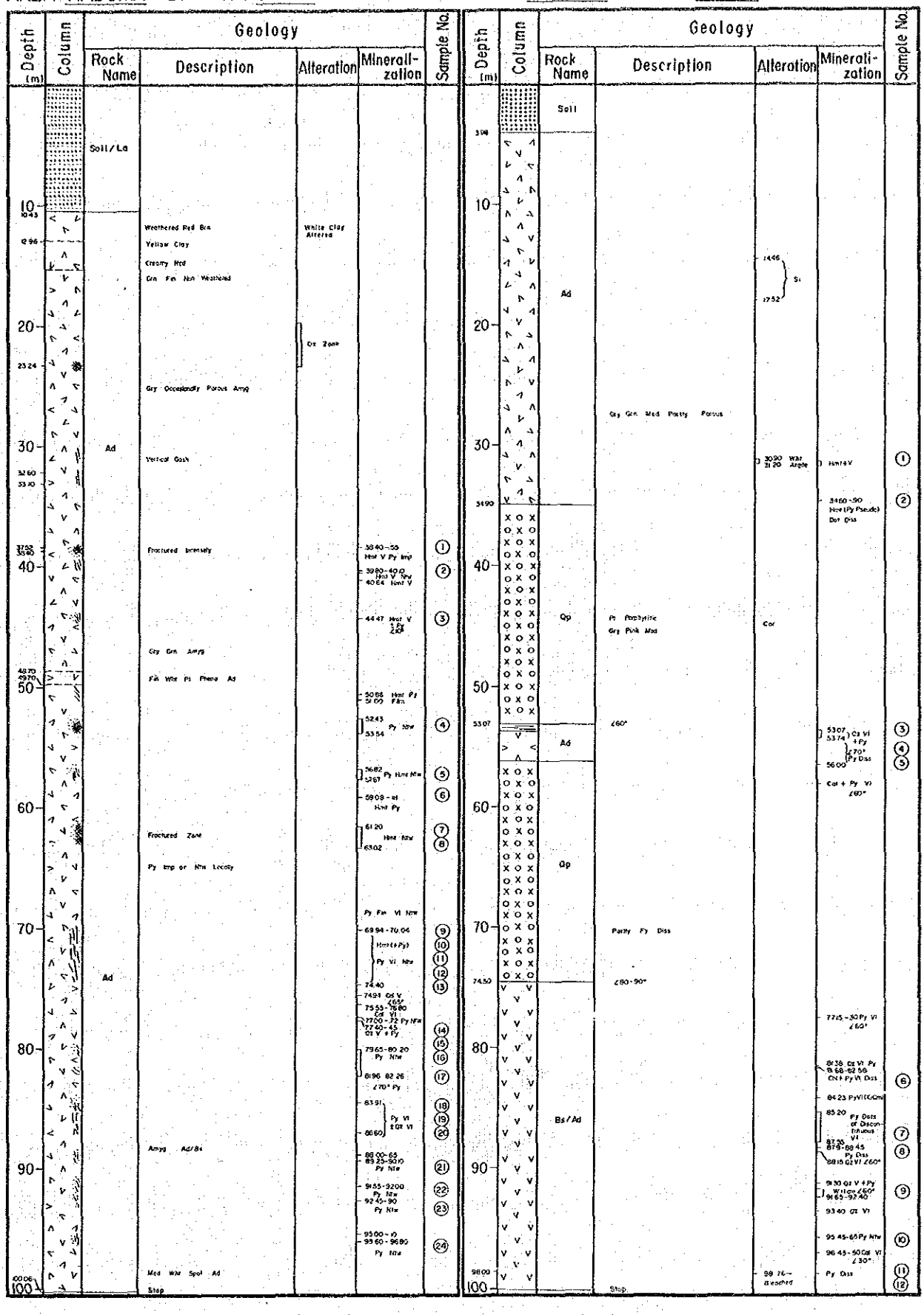


Fig. II-4-16 Drilling Log of Area E1 (6) E1-11, E1-12

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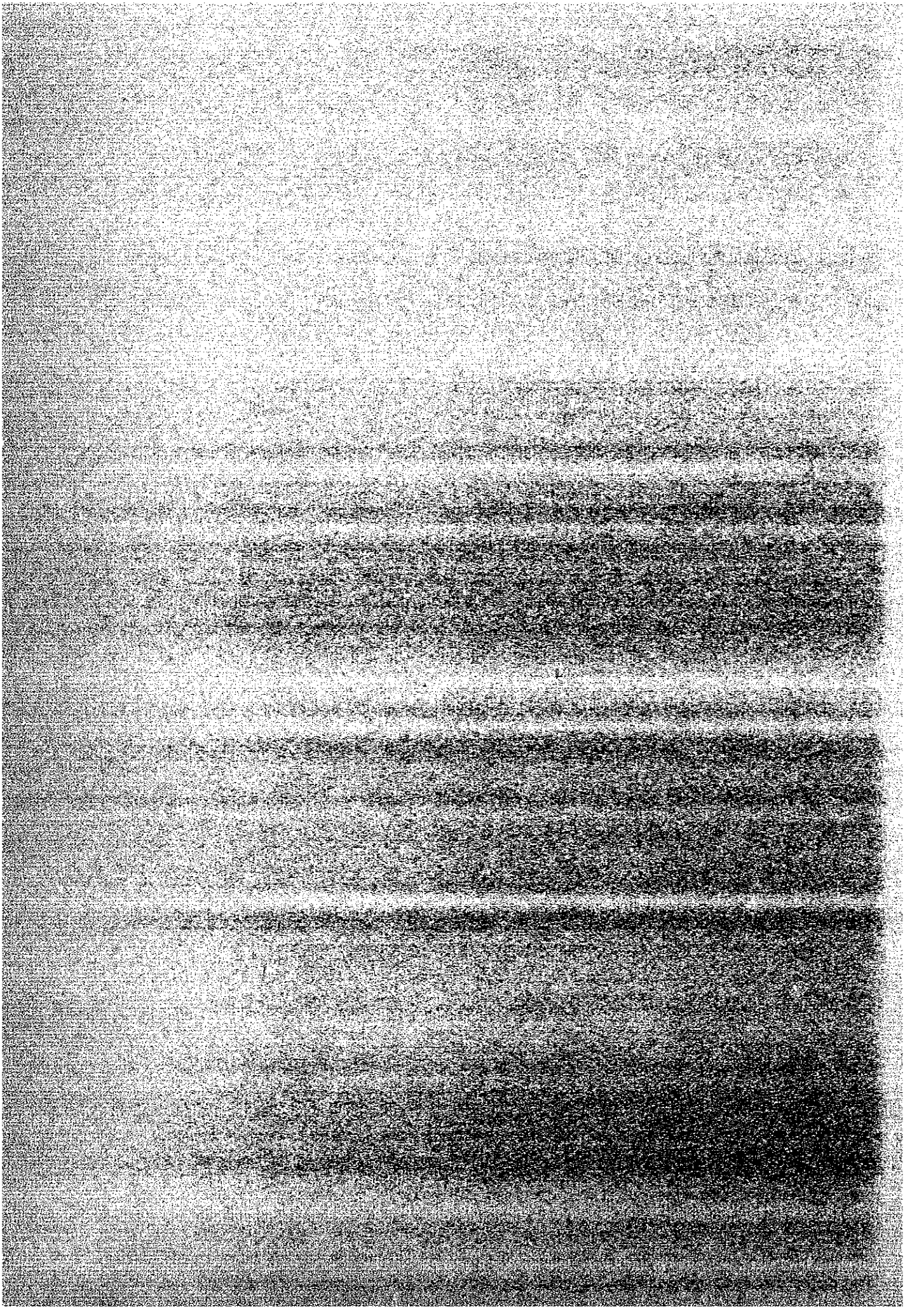

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