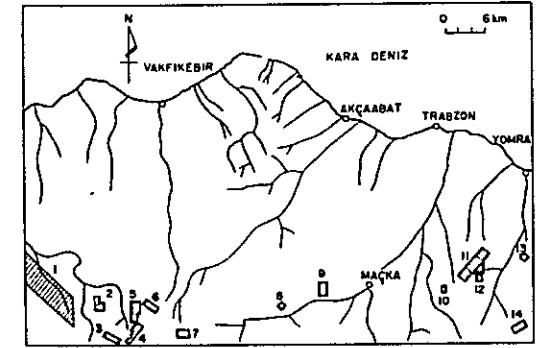


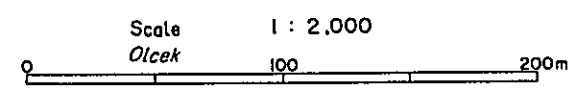
MINERAL RESEARCH AND EXPLORATION INSTITUTE  
 GEOLOGICAL SURVEY  
 OF  
 TRABZON AREA, NORTHEASTERN TURKEY

PHASE III  
 GEOLOGICAL MAP WITH GEOLOGICAL PROFILE,  
 COLUMNAR SECTION AND FUTURE RECOMENDATION  
 OF KIZILAĞAÇ ÇAĞLIHANLARI AREA  
 KIZILAĞAÇ ÇAĞLIHANLARI SAHASININ  
 JEOLojİ HARİTASI JEOLojİ KESİTOLERİ SÜTUN  
 KESİTİ VE ÖNERİLER

INDEX MAP

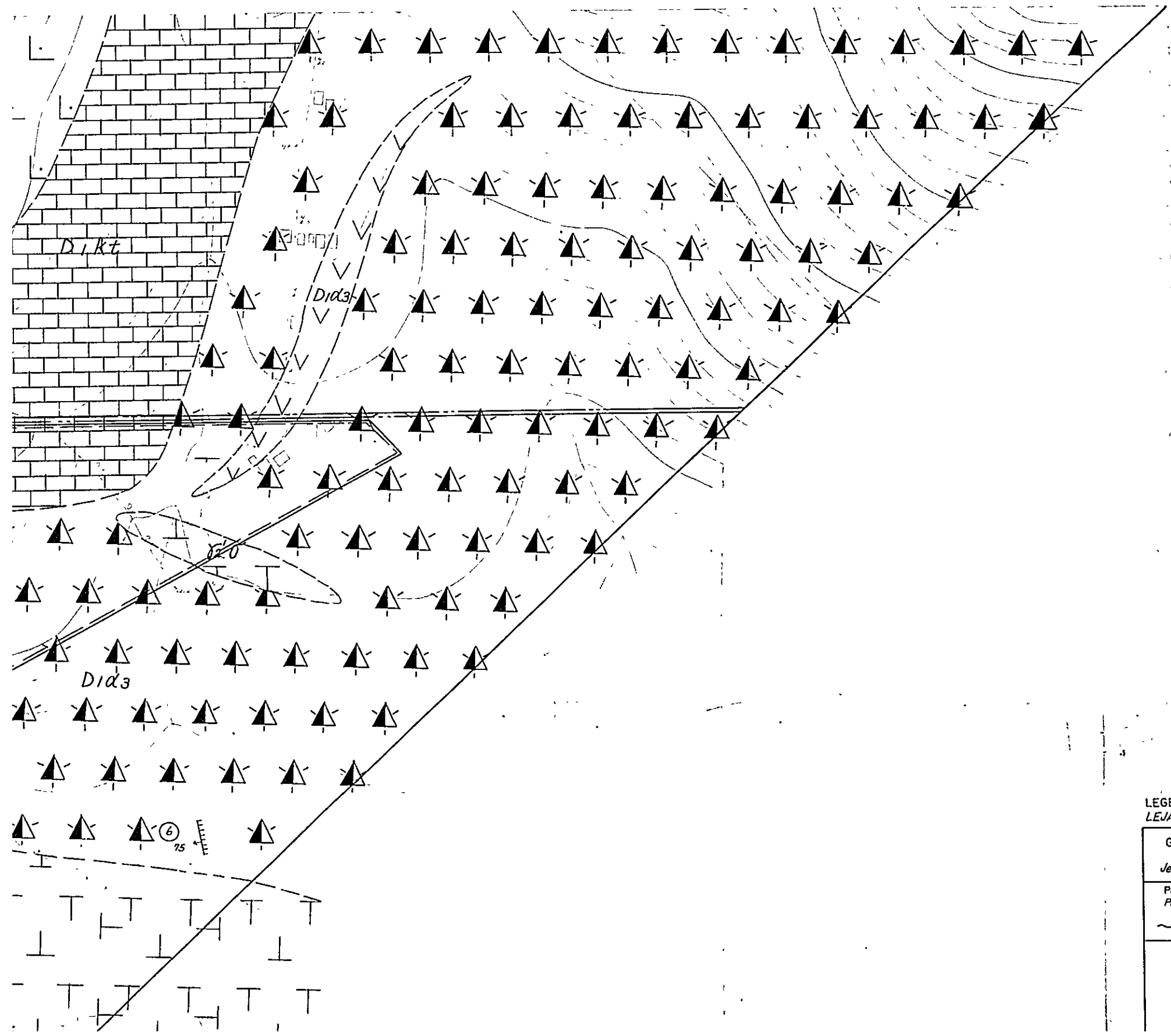


- 1 Kahraman Dere
- 2 Aaçadağ
- 3 Çeşel Dere
- 4 Göllüalan
- 5 Ken mine
- 6 Ken Dere, Fol Dere
- 7 Akise Yayla
- 8 Yeni Mahalle
- 9 Salanâ
- 10 Kanlı Tepe
- 11 Kızılağaç-Çağlıhanlar
- 12 Tuzlak Mezraası
- 13 Ocak
- 14 Uzunlu



METAL MINING AGENCY OF JAPAN  
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 FEBRUARY 1977

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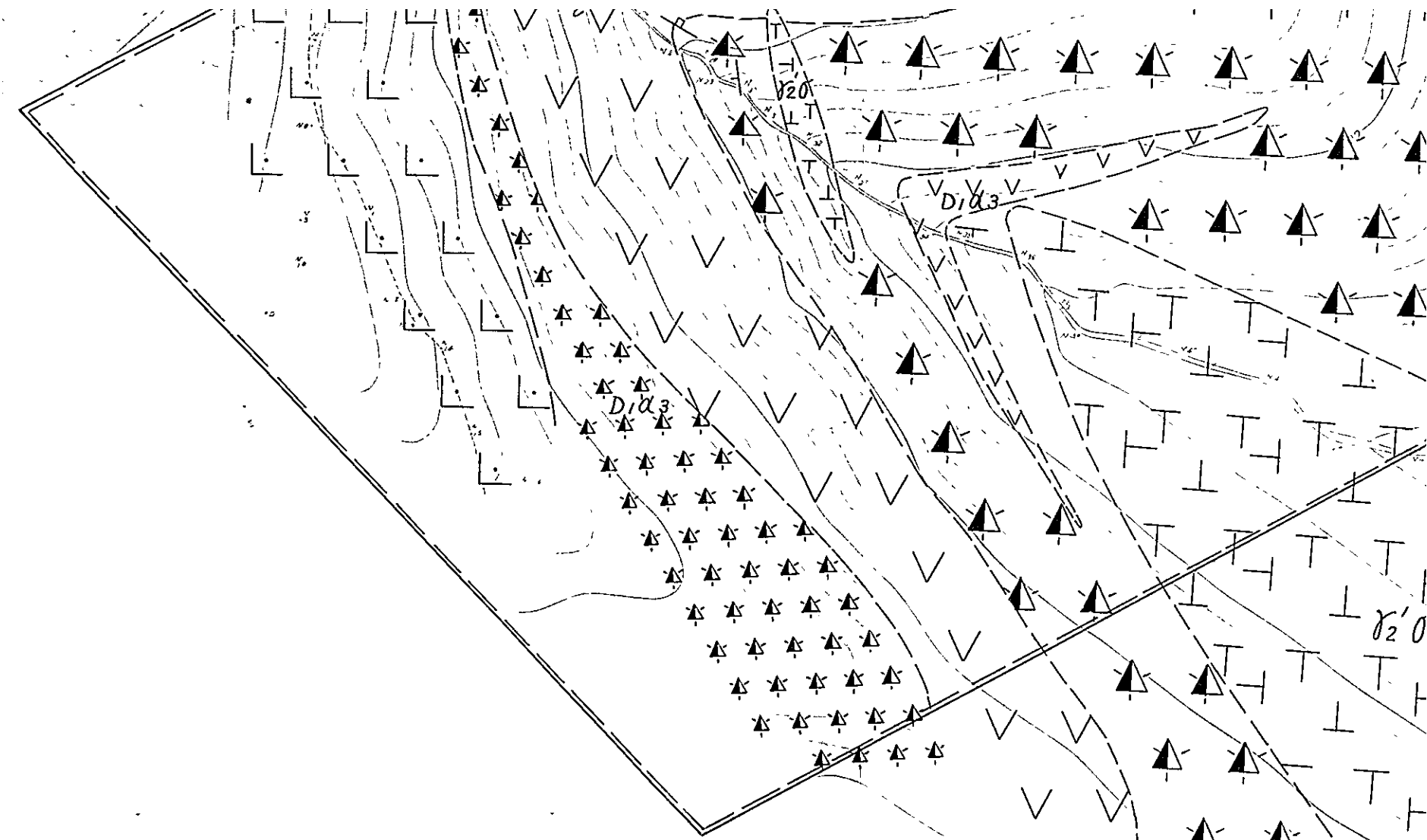


LEGEND  
 LEJAND

Geological age Jeolojik yaş	Formation Formasyon	Stratigraphical Stratigrafik		Lithology Litoloji
		Marks Isaretiler	Symbol Sembol	
Paleogene Paleosen Neogene Miyasen	A3		A3d	Andesite lava Andezit lavı
	A2		A2d	Andesite pyroclastics Andezitik Piroklastikler
			D1λ4	Dacite lava Dasit lavı
				Dacite pyroclastics Dasit Piroklastikler Eros. tuff & calcareous mudstone

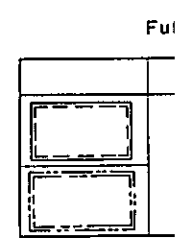
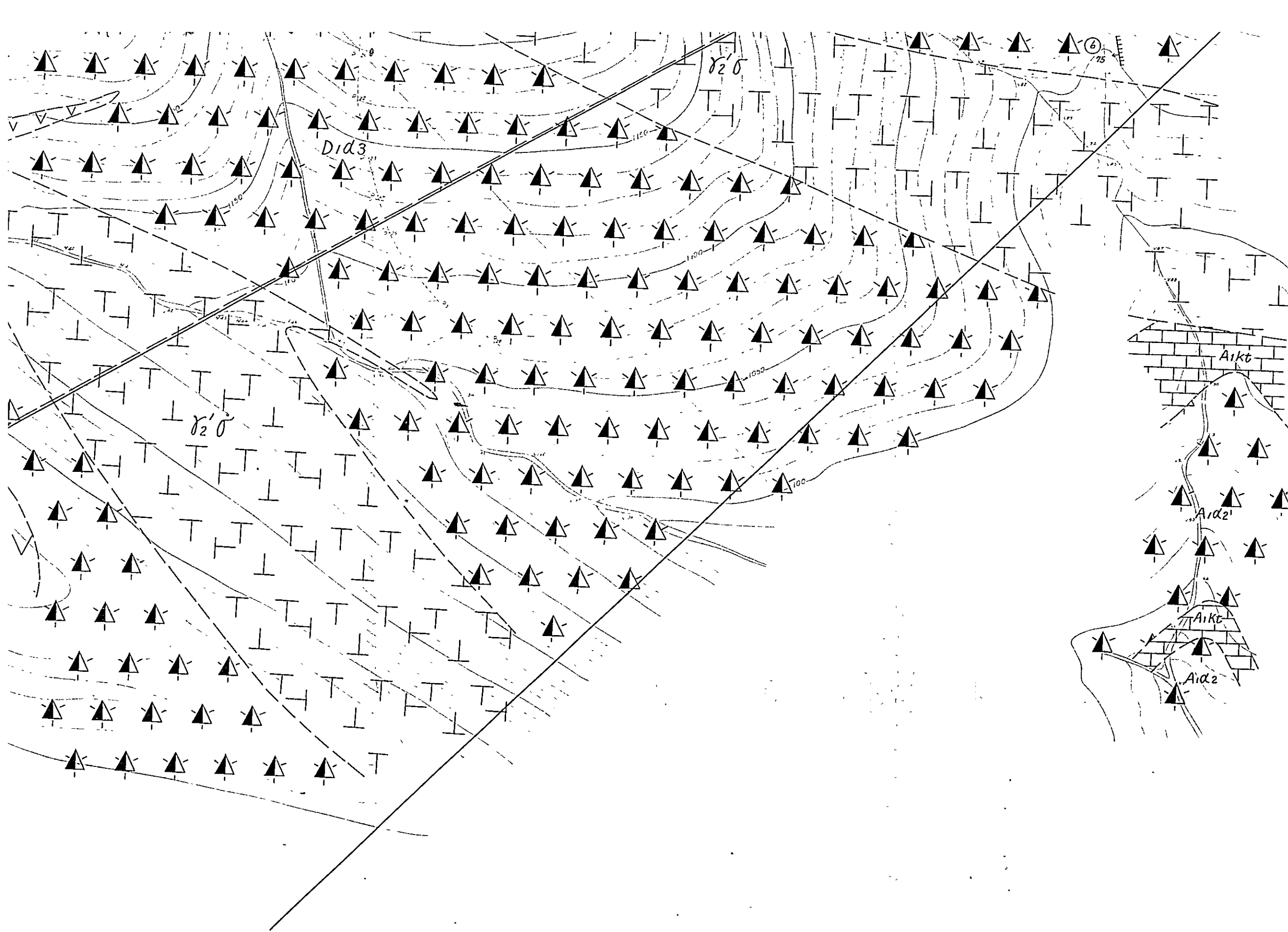
Kızılağaç area

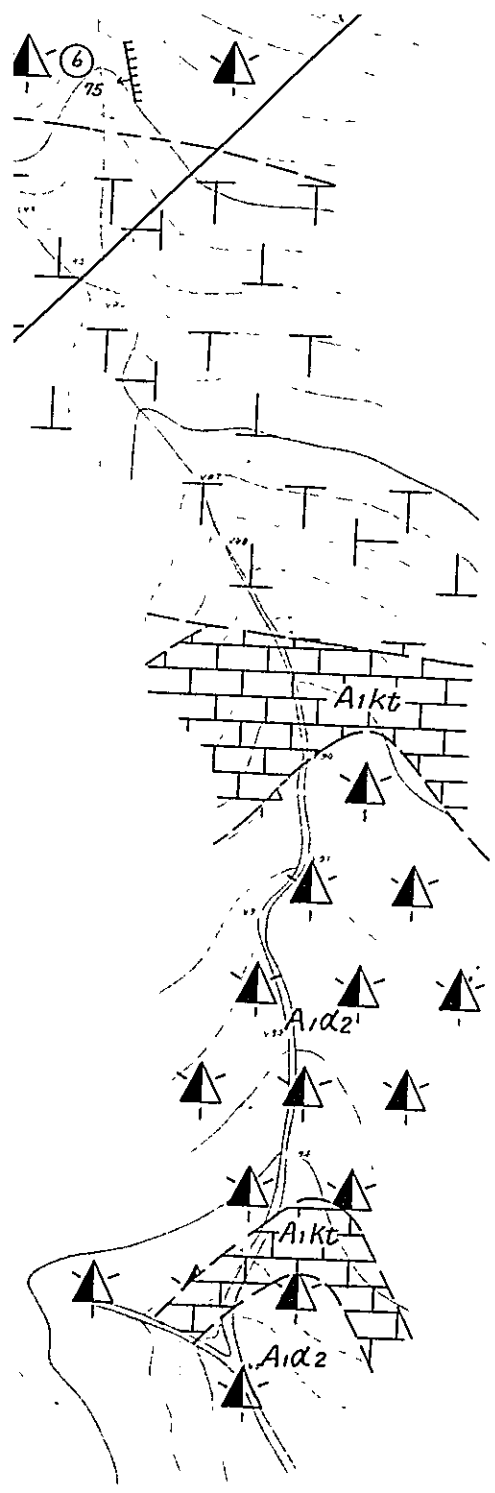
Member Üye	Columnar section Sütun kesit (N)	Rock facies Kayaç fasiyezi	Thickness Kalınlık	Mineralization Mineralizasyon
D1A4		andesite tuff lapilli tuff tuff breccia.	0~50m+	
D1A3		andesite dyke diorite porphyry dyke quartz porphyry dyke mudstone dacite lava quartz porphyry dyke dacite tuff lapilli tuff tuff breccia dacite lava	400m+	
		andesite tuff alternation of marl sandstone & fine tuff quartz porphyry dyke dacite dyke andesite lava		skarn type vein type
D1A3		diorite porphyry dyke quartz porphyry dyke	400m+	
		andesite tuff lapilli tuff tuff breccia		



Çağlıhanları area

Member Üye	Columnar section Sütun kesit (N)	Rock facies Kayaç fasiyezi	Thickness Kalınlık	Mineralization Mineralizasyon
D1A4		andesite tuff lapilli tuff	0~50m+	
D1A3		dacite tuff lapilli tuff tuff breccia quartz porphyry dyke diorite porphyry dyke andesite dyke quartz porphyry dyke dacite lava dacite lava	300m-	Pyrite dissemination in quartz porphyry
		marl, fine tuff mudstone andesite lava	20m	dissemination type vein type
D1A3		andesite lava		dissemination type vein type
D1A3		andesite tuff, lapilli tuff tuff breccia	220m	





LEGEND  
LEJAND

Geological age <i>Jeolojik yas</i>	Formation <i>Formasyon</i>	Stratigraphical <i>Stratigrafik</i>		Lithology <i>Litoloji</i>		
		Marks <i>Isarefler</i>	Symbol <i>Sembol</i>			
Paleogene <i>Paleosen</i> ~ Neogene <i>Miyosen</i>	A3		A3α	Andesite lava <i>Andezit lavı</i>		
	A2		A2α	Andesite pyroclastics <i>Andezitik Piroklastikler</i>		
Upper Cretaceous <i>Ust Kretase</i>	D1		D1λ4	Dacite lava <i>Dasit lavı</i> Dacite pyroclastics <i>Dasit Piroklastikler</i> Fine tuff & calcareous mudstone <i>İnce tüf &amp; kalkerli çamurtaşı</i>		
			D1α4	Andesite lava <i>Andezitik lav</i> Andesite pyroclastics <i>Andezitik Piroklastikler</i>		
			D1λ3	Dacite lava <i>Dasit lavı</i> Dacite pyroclastics <i>Dasit Piroklastikler</i> Basalt lava <i>Bazalt lavı</i> Fine tuff & calcareous mudstone <i>İnce tüf &amp; kalkerli çamurtaşı</i>		
			D1α3	Andesite lava <i>Andezitik lav</i> Andesite pyroclastics <i>Andezitik Piroklastikler</i> Fine tuff & calcareous mudstone <i>İnce tüf &amp; kalkerli çamurtaşı</i>		
	A1	D1kt		D1kt	Limestone, marl. <i>Kireçtaşı, marı</i>	
				A1λ2	Dacite lava <i>Dasit lavı</i> Dacite pyroclastics <i>Dasit Piroklastikler</i> Fine tuff & calcareous mudstone <i>İnce tüf &amp; kalkerli çamurtaşı</i> Limestone, marl. <i>Kireçtaşı, marı</i>	
		A1α2		A1α2	Andesite lava <i>Andezitik lav</i> Andesite pyroclastics <i>Andezitik Piroklastikler</i> Fine tuff & calcareous mudstone <i>İnce tüf &amp; kalkerli çamurtaşı</i>	
				A1kt	Limestone, marl. <i>Kireçtaşı, marı</i>	
		Intrusive rocks <i>Intruzifler</i>			β	Basalt <i>Bazalt</i>
					α	Andesite <i>Andezit</i>
	ε			Dacite <i>Dasit</i>		
	σ			Porphyrite <i>Porfir</i>		
	δσ2			Diorite porphyrite <i>Diorit porfir</i>		
	δ2			Quartz diorite <i>Kuars diorit</i>		
			δ2σ	Quartz diorite porphyrite <i>Kuars diorit porfir</i>		
			δ2σ	Quartz porphyry <i>Kuars porfiri</i>		
				Bedding <i>Tabaka</i>		
				Fault <i>Fay</i>		
				Joint <i>Kirik</i>		
				Flow structure <i>Akıntılı yapı</i>		
				Anticlinal/synclinal, axis <i>Antiklinal/senklinial eksen</i>		
				Working mine/abandoned mine <i>Çalışan maden/kapalı maden</i>		
				Mineralization, vein type/dissemination type <i>Mineralizasyon damar tip/disseminasyon tip</i>		
				Massive bedded ore/veinlets		
				Bedding <i>Tabaka</i>		
				Fault <i>Fay</i>		

Future recommendation

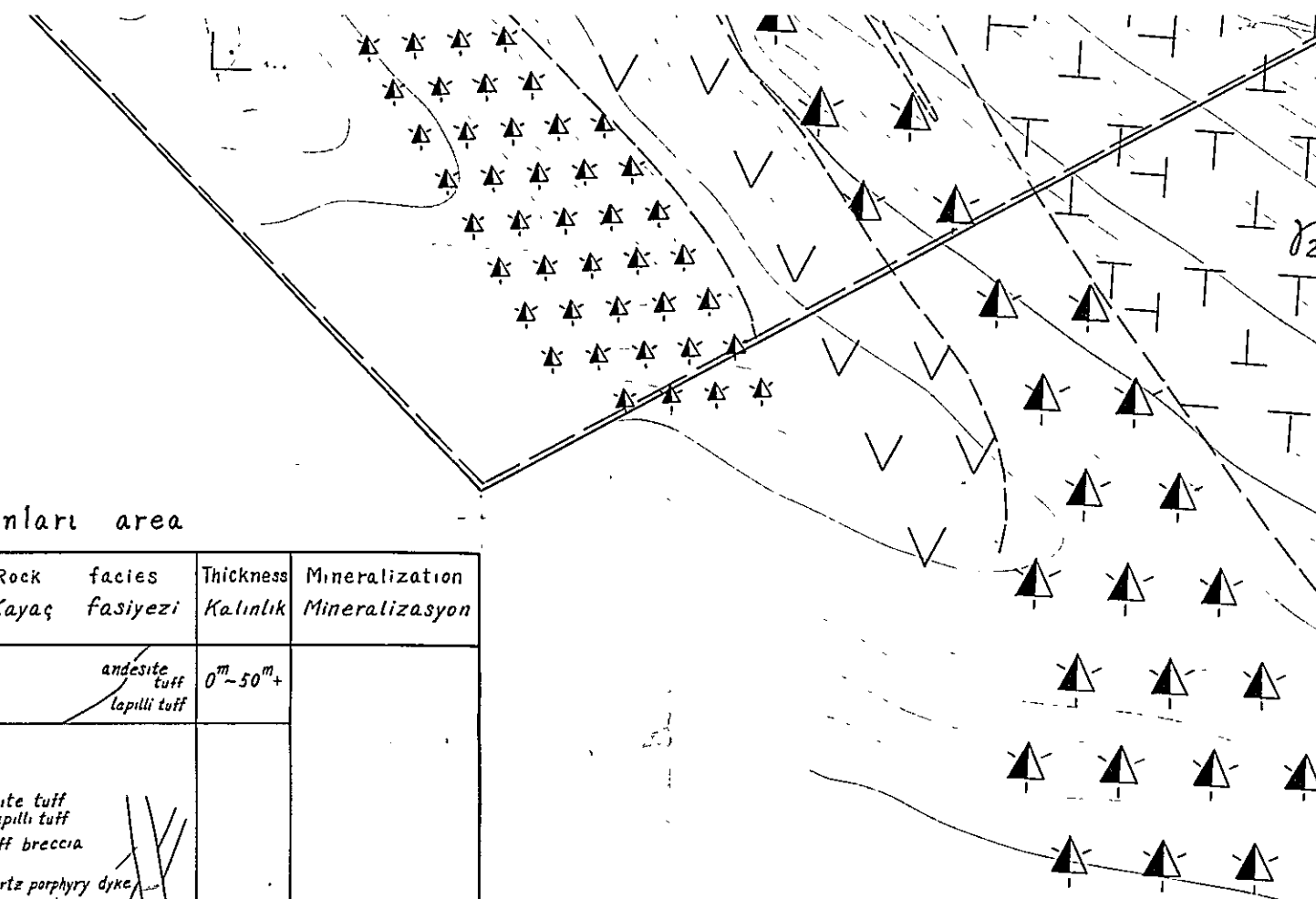
	Method	No	Amount of works
	Magnetic survey	2	0.65km (1.3km x 0.5km)
		3	1.3125 km (1.75km x 0.75km)

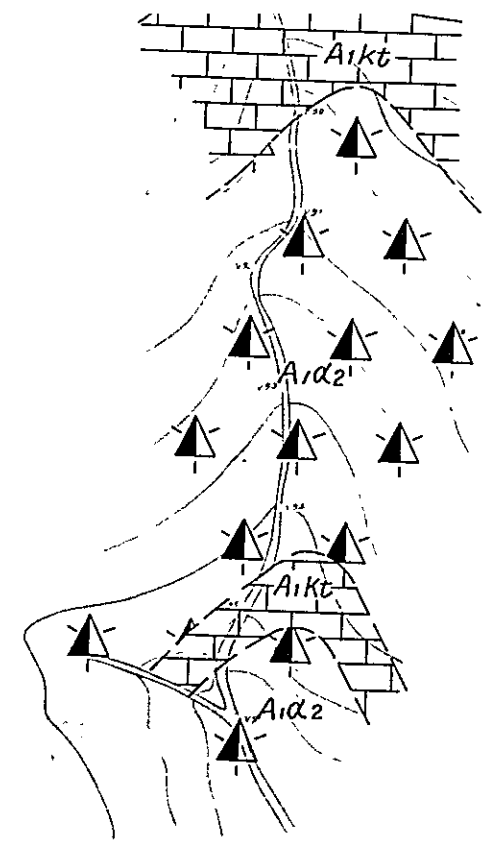
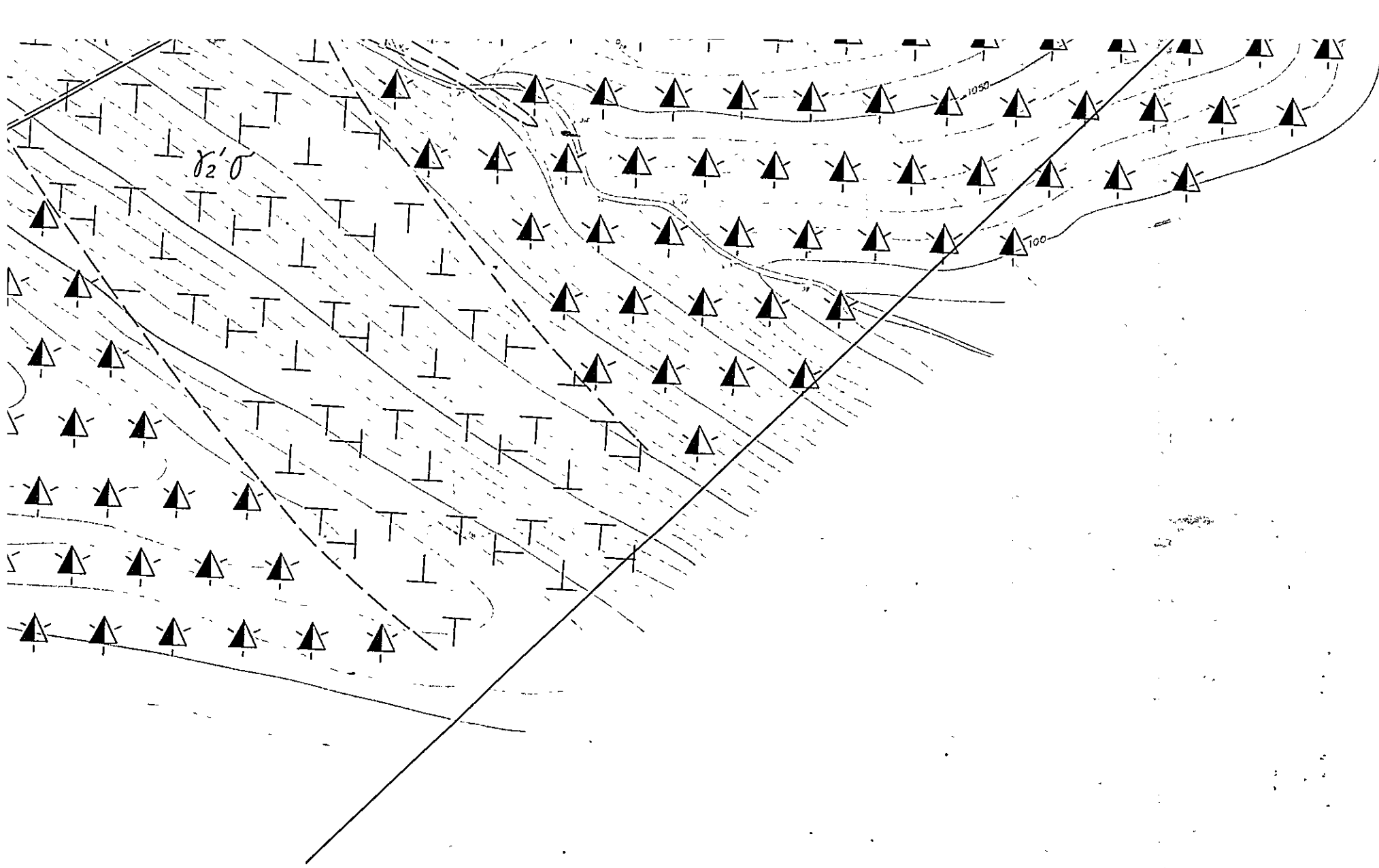
Kızılağaç area

Member Üye	Columnar section Sütun kesit (N)	Rock facies Kayaç fasiyezi	Thickness Kalınlık	Mineralization Mineralizasyon
D1α4		andesite tuff lapilli tuff tuff breccia	0 <sup>m</sup> ~50 <sup>m</sup> +	
D1λ3		andesite dyke diorite porphyry dyke quartz porphyry dyke mudstone dacite lava quartz porphyry dyke dacite tuff lapilli tuff tuff breccia dacite lava	400 <sup>m</sup> +	
D1α3		andesite tuff alternation of marl mudstone & fine tuff quartz porphyry dyke dacite dyke andesite lava		skarn type vein type
D1α3		andesite lava diorite porphyry dyke quartz porphyry dyke	400 <sup>m</sup> +	
A1λ2		marl fine tuff dacite lava	30 <sup>m</sup>	
A1α2		andesite tuff andesite tuff breccia lava limestone, marl fine tuff	100 <sup>m</sup> +	

Çağlıhanları area

Member Üye	Columnar section Sütun kesit (N)	Rock facies Kayaç fasiyezi	Thickness Kalınlık	Mineralization Mineralizasyon
D1α4		andesite tuff lapilli tuff	0 <sup>m</sup> ~50 <sup>m</sup> +	
D1λ3		andesite tuff lapilli tuff tuff breccia quartz porphyry dyke diorite porphyry dyke andesite dyke quartz porphyry dyke dacite lava dacite lava	300 <sup>m</sup> +	Pyrite dissemination in quartz porphyry
D1α3		marl, fine tuff mudstone	20 <sup>m</sup>	dissemination type vein type
D1α3		andesite lava andesite tuff, lapilli tuff tuff breccia	220 <sup>m</sup>	dissemination type vein type
A1λ2		quartz porphyry dyke		
A1λ2		andesite lava dacite tuff lapilli tuff tuff breccia	50 <sup>m</sup> +	

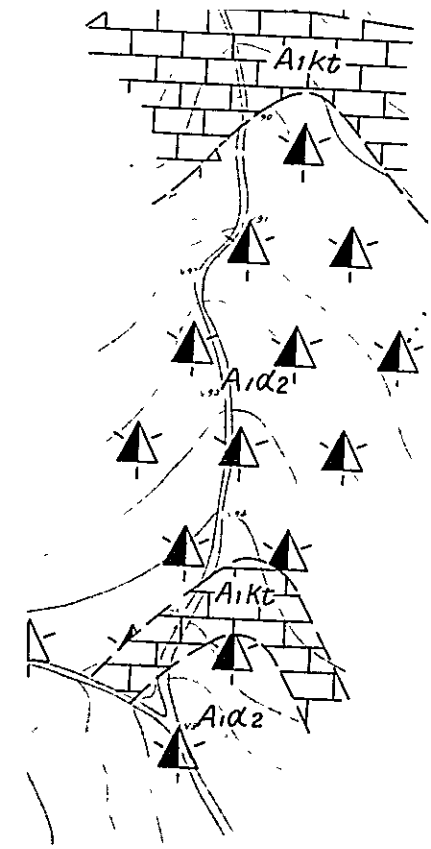




Future reco

	Method
	Magnetic survey



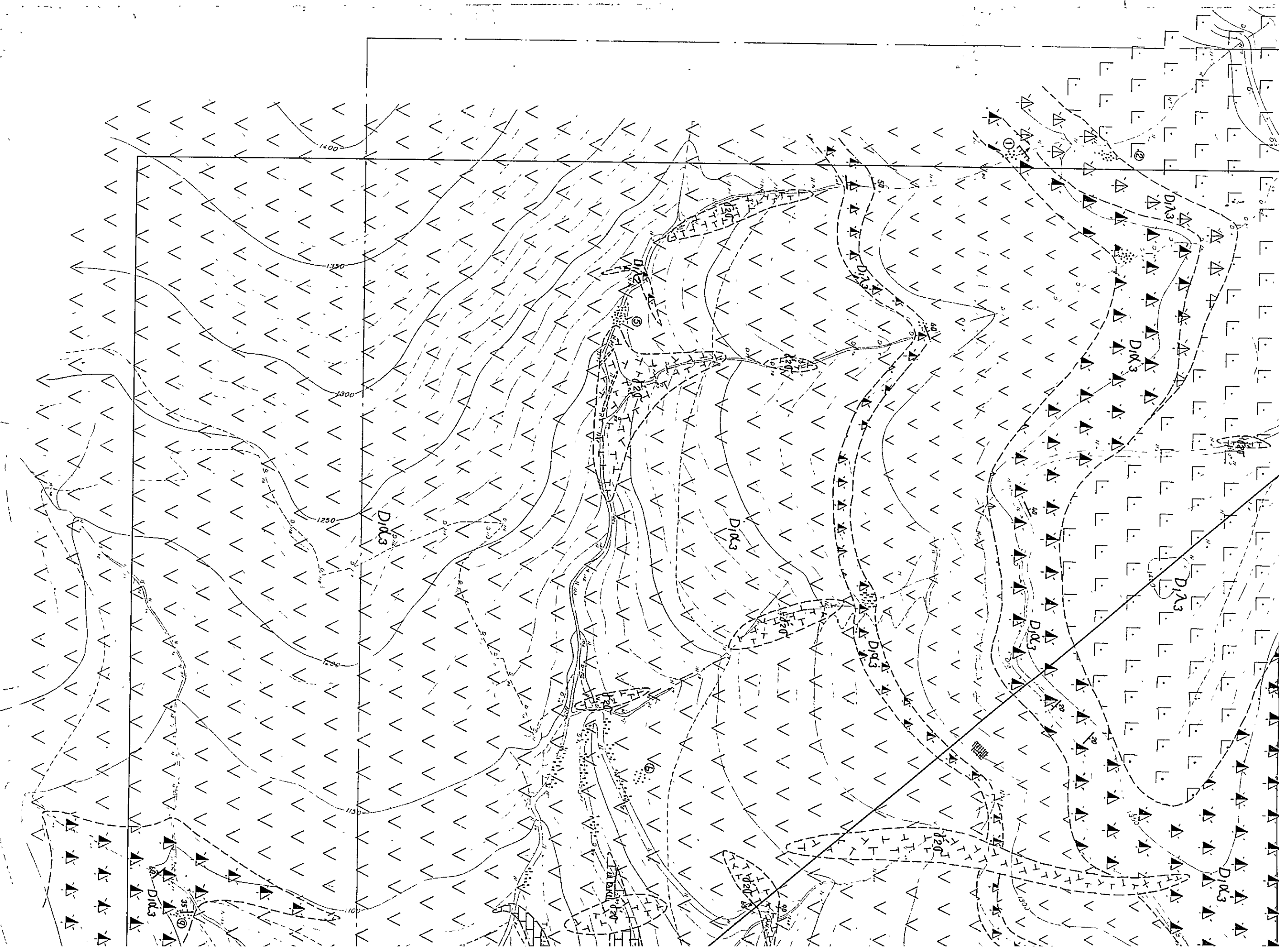


Future recommendation

	Method	No	Amount of works
	Magnetic survey	2	0.65km (1.3km x 0.5km)
		3	1.3125 km (1.75km x 0.75km)

Upper Cretaceous Üst Kretase	D <sub>1</sub> λ <sub>3</sub>		Dasit Piroklastikler Basalt lava Bazalt lavı Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı	
			Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı	
			Limestone, marl Kireçtaşı, marl	
	A <sub>1</sub>	A <sub>1</sub> λ <sub>2</sub>		Dacite lava Dasit lavı Dacite pyroclastics Dasit Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı Limestone, marl. Kireçtaşı, marl
				Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı
		A <sub>1</sub> kt		Limestone, marl. Kireçtaşı, marl.
Intrusive rocks İntruzifler			Basalt Bazalt	
			Andesite Andezit	
			Dacite Dasit	
			Porphyrite Porfirit	
			Diorite porphyrite Diorit porfirit	
			Quartz diorite Kuvars diorit	
			Quartz diorite porphyrite Kuvars diorit porfirit	
			Quartz porphyry Kuvars porfiri	
			Bedding Tabaka	
			Fault Fay	
			Joint Kırık	
			Flow structure Akıntılı yapı	
			Anticlinal/synclinal, axis Antiklinal/senklinial eksen	
			Working mine/abandoned mine Çalışan maden/kapalı maden	
			Mineralization vein type/dissemination type Mineralizasyon damar tip/disseminasyon tip	
			Massive, bedded ore/veinlets Masif, tabakalı cevher/damarcıklar	
			Skarnized zone Skarn zonu	
			Drilling site Sondaj yer	
			Geological profile line Jeolojik kesit çizgisi	

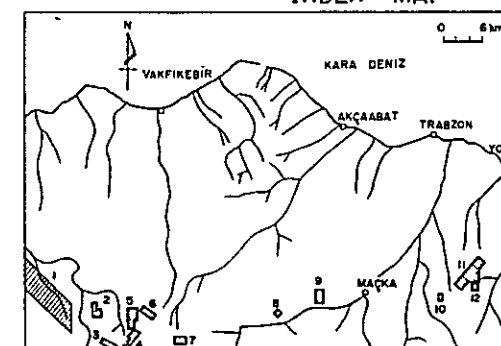




Member	Columnar section	Rock facies
Uye	Sulun Kesit	Kayag fasiye
D1K3	(W) (E)	dacite lava

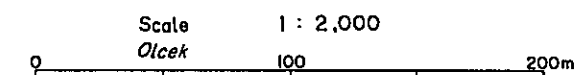
MINERAL RESEARCH AND EXPLORATION INSTITUTE  
 GEOLOGICAL SURVEY  
 OF  
 TRABZON AREA , NORTHEASTERN TURKEY

PHASE III  
 GEOLOGICAL MAP WITH GEOLOGICAL PROFILE,  
 COLUMNAR SECTION AND FUTURE RECOMENDATION  
 OF TUZLAK MEZRAASI AREA  
 TUZLAK MEZRAASI SAHASININ JEOLoji  
 HARITASI JEOLoji KESITLERI SÜTUN KESITI  
 VE ÖNERİLER  
 INDEX MAP



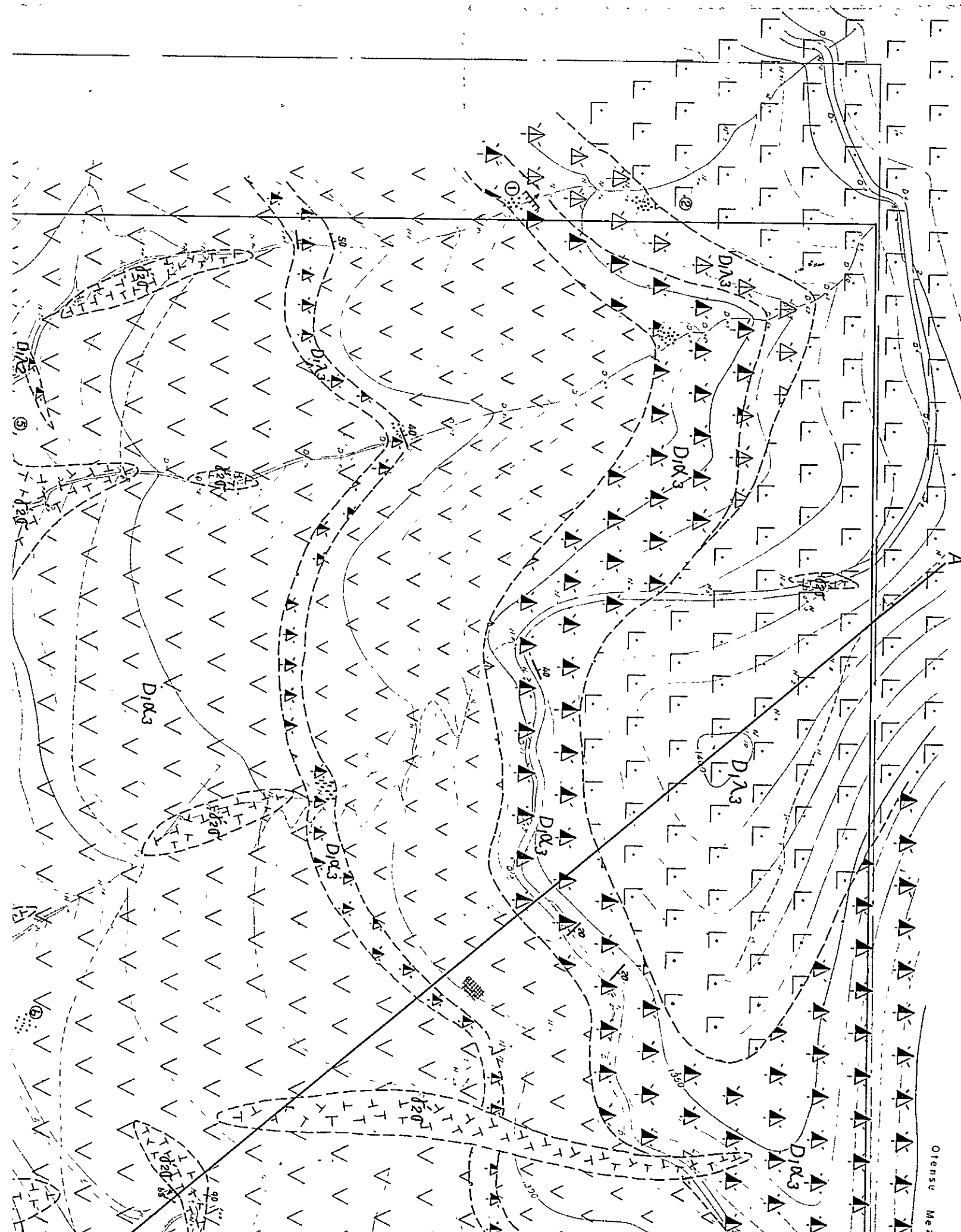
- 1 Kahraman Dere
- 2 Açıcağuş
- 3 Çeşel Dere
- 4 Göllüalan
- 5 Ken mine
- 6 Ken Dere, Fal Dere
- 7 Akise Yayla
- 8 Yeni Mahalle
- 9 Salanö
- 10 Kani Tepe
- 11 Kızılağaç-Çağhanlı
- 12 Tuzlak Mezraası
- 13 Ocak
- 14 Uzunlu

General geological survey area Detailed geological survey area



METAL MINING AGENCY OF JAPAN  
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 FEBRUARY 1977

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Geological age Jeolojik yaş	Formation Formasyon	Stratigraphical Stratigrafik		Lithology Litoloji
		Marks İsaretler	Symbol Sembol	
Paleogene Paleosen Neogene Miyosen	A3		A3λ	Andesite lava Andezit lavı
	A2		A2λ	Andesite pyroclastics Andezitik Piroklastikler
				Dacite lava Dasit lavı
			D1λ4	Dacite pyroclastics Dasit Piroklastikler
				Fine tuff & calcareous mudstone İnce tıf & kalkerli çamurtaşı
			D1λ4	Andesite lava Andezitik lav
			D1λ4	Andesite pyroclastics Andezitik Piroklastikler
				Dacite lava Dasit lavı

olumat section Suton Kest	Rock facies Kayaq fasizez	Thickness Kalinlik	Mineralization Mineralizatsiyon
(E)	dacite lava quartz porphyry dyke andesite tuff lapilli tuff andesite tuff tuff breccia	70m <sub>±</sub>	pyrite dissemination banded
	andesite lava quartz porphyry dyke	50m	pyrite dissemination
	andesite tuff, tuff breccia	15m	
	andesite lava quartz porphyry dyke andesite tuff basalt dyke	150m	Skarn type
	andesite lava marl	30m	
	quartz porphyry dyke marl	30m	
	marl andesite tuff lapilli tuff quartz porphyry dyke	40m	
	andesite tuff lapilli tuff marl	35m	
	marl	40m	
	andesite lava andesite tuff tuff breccia	60m <sub>±</sub>	

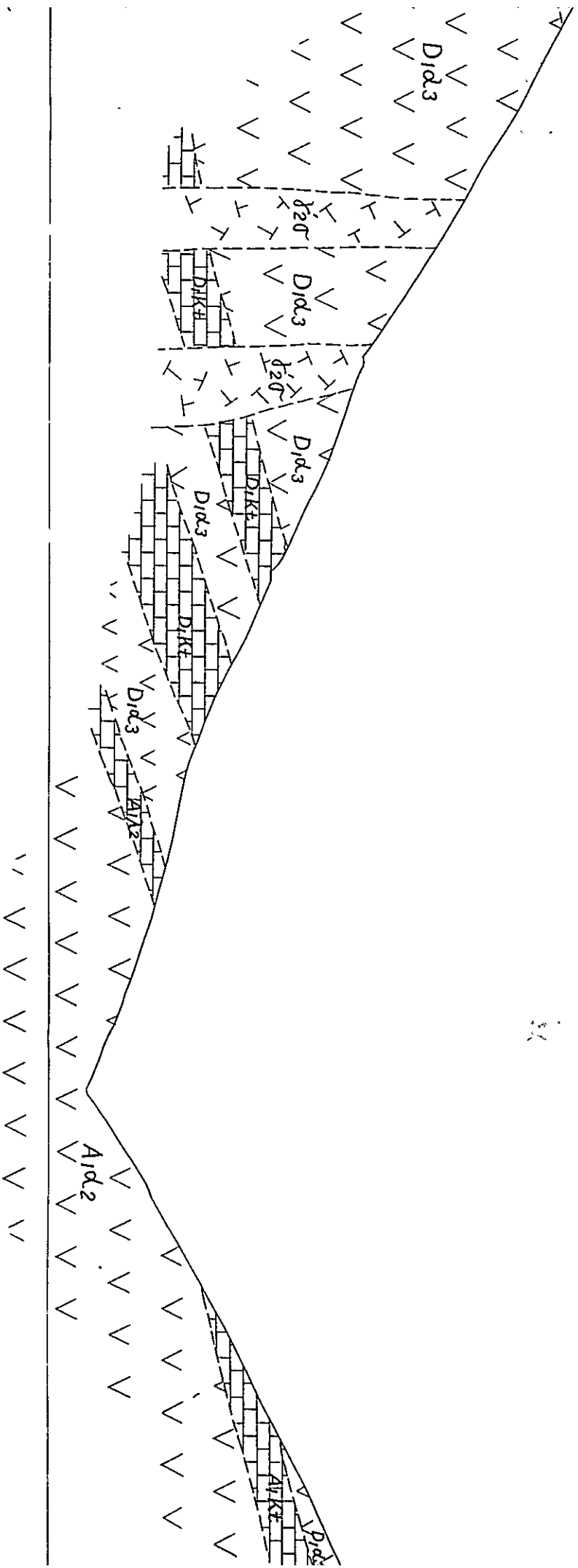
Sample No.	Index No.	Kind of ore mineral	Mode of occurrence	Width or thickness (cm)	Strike & dip	Sampling width (cm)	Sampling method	Cu (%)
D-43	2	Py	dis					0.01
N-142	2	Py	dis					0.06
N-143	1	Py	dis	150				0.19
N-143	1	Py	dis	120		120	L	0.19
N-147	1	Py	dis	90		90	L	0.14
N-148	1	Py	dis	180		180	L	0.11
N-164	7	Py-Hc	banded & dis	40		40	L	0.01
N-165	7	Hc	massive	140		140	L	0.01

R : random sampling

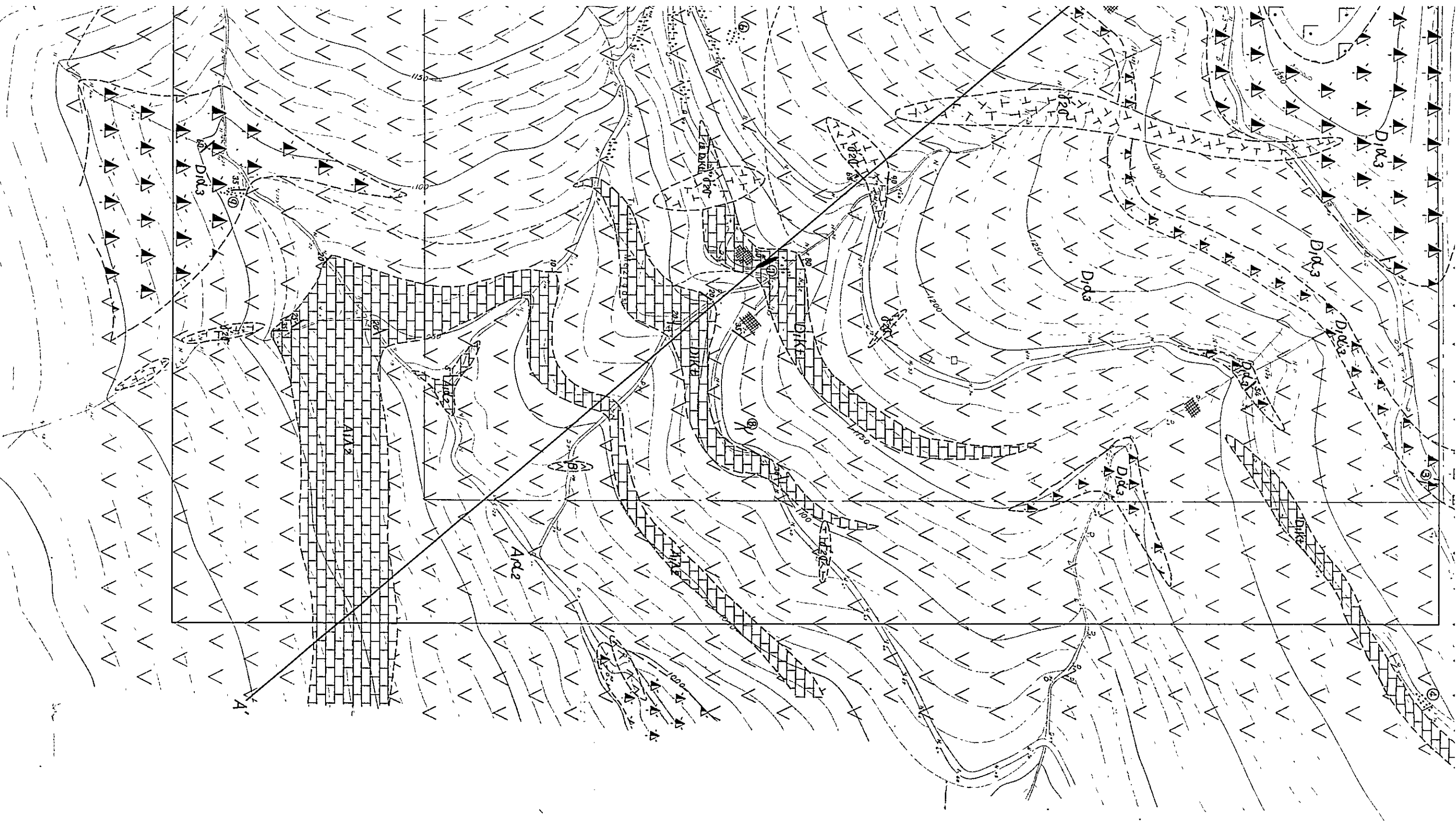
L : line cutting sampling

G : gravel sampling of high grade ore

### A~A' Profile

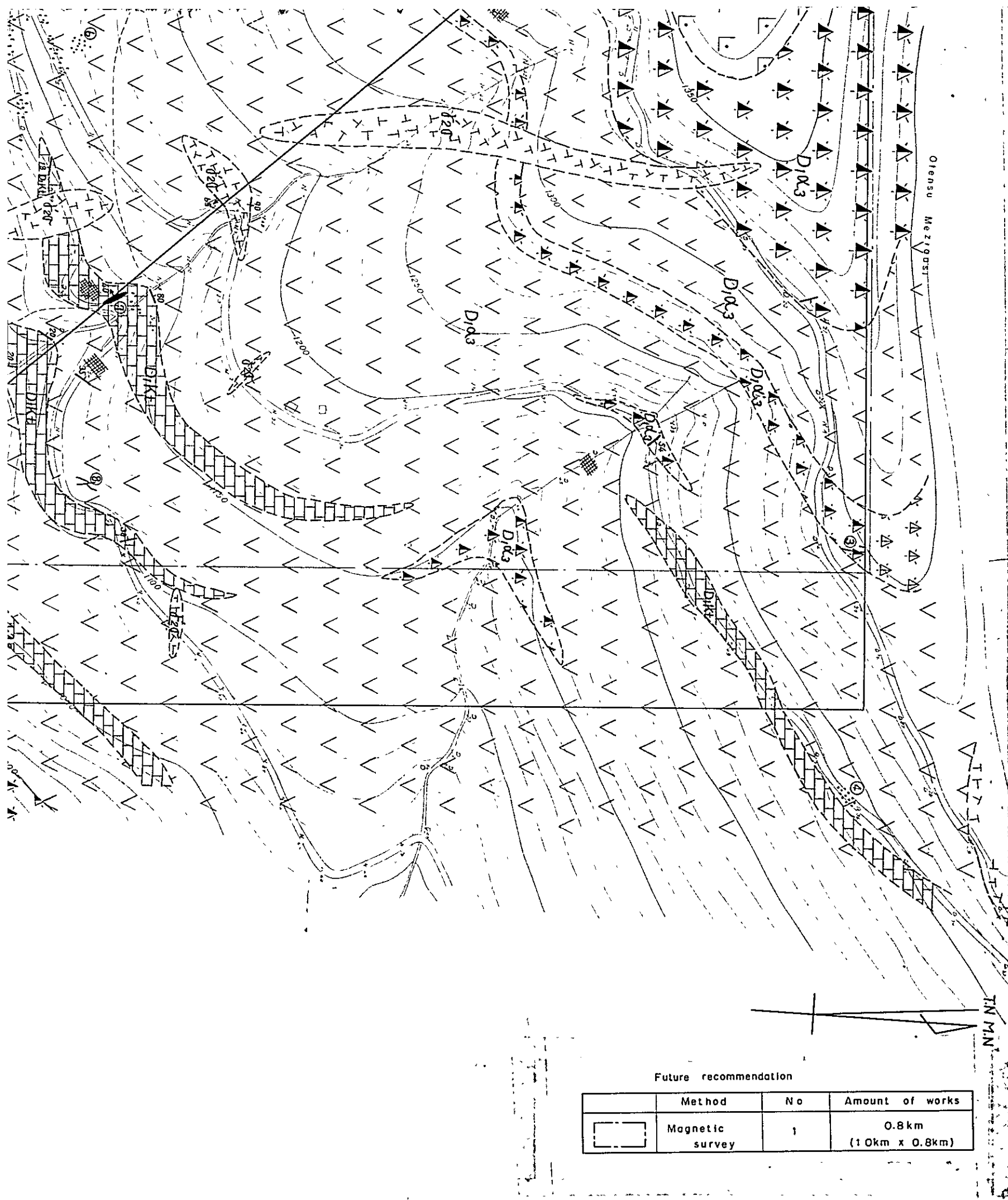


Columnar Section	Rock facies	Thickness	Mineralization
Suton Kesit (E)	Kayaç fasiyesi	Kalınlık	Mineralizasyon
W	daçta lava	70m <sub>3</sub>	



Future recommendation

Method	No	Amou
Magnetic survey	1	(1 Ok



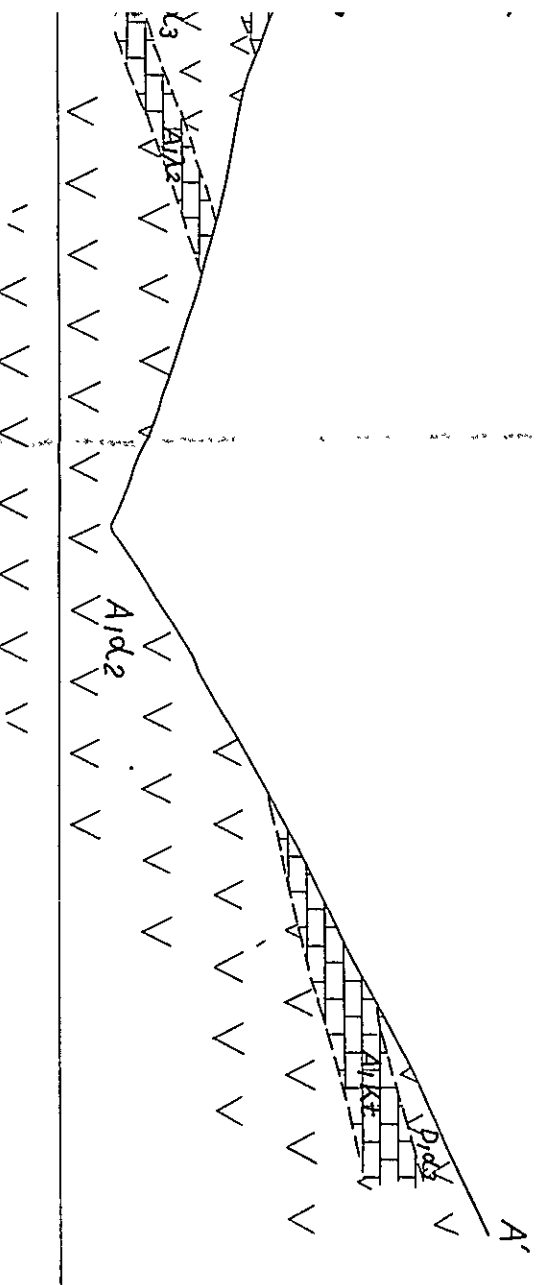
Neogene Miyasen	A3		A3α	Andezit lavı	
	A2		A2α	Andesite pyroclastics Andezitik Piroklastikler	
			D1λ4	Dacite lava Dasit lavı Dacite pyroclastics Dasit Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı	
	D1		D1α4	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler	
			D1λ3	Dacite lava Dasit lavı Dacite pyroclastics Dasit Piroklastikler Basalt lava Bazalt lavı Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı	
			D1α3	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı	
			D1kt	Limestone, marl. Kireçtaşı, marl	
		A1		A1λ2	Dacite lava Dasit lavı Dacite pyroclastics Dasit Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı Limestone, marl Kireçtaşı, marl
				A1α2	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı
			A1kt	Limestone, marl. Kireçtaşı, marl	
Intrusive rocks Intruzifler		β	Basalt Bazalt		
		α	Andesite Andezit		
		ε	Dacite Dasit		
		σ	Porphyrite Porfirit		
		δσ2	Diorite porphyrite Diorit porfirit		
		σ2	Quartz diorite Kuvars diorit		
		δ2σ	Quartz diorite porphyrite Kuvars diorit porfirit		
		δ2σ	Quartz porphyry Kuvars porfiri		
			Bedding Tabaka		
			Fault Fay		
			Joint Kırık		
			Flow structure. Akıntılı yapı		
			Anticlinal/synclinal, axis Antiklinal/senkunal eksen		
			Working mine/abandoned mine Çalışan maden/kapalı maden		
			Mineralization, vein type/dissemination type Mineralizasyon damar tip/disseminasyon tip		
			Massive, bedded ore/veinlets Masif, tabakalı cevher/damarciklar		
			Skarnized zone Skarn zonu		
			Drilling site Sondaj yer		
			Geological profile line Jeolojik kesit çizgisi		

Index No.	Kind of ore mineral	Mode of occurrence	Width or thickness (cm)	Strike & dip	Sampling width (cm)	Sampling method	Cu (%)	Pb (%)	Zn (%)
2	Py	dis				G	0.01		
2	Py	dis				G	0.06	0.01	0.01
1	Py	dis	150			G	0.19	0.01	0.01
1	Py	dis	120		120	L	0.19	0.01	0.01
1	Py	dis	90		90	L	0.14	0.01	0.01
1	Py	dis	180		180	L	0.11	0.01	0.02
7	Py-Ht	banded & dis	40	N40W	40	L	0.01	0.01	0.02
7	Ht	massive	140	N40W	40W	L	0.01	0.01	0.01

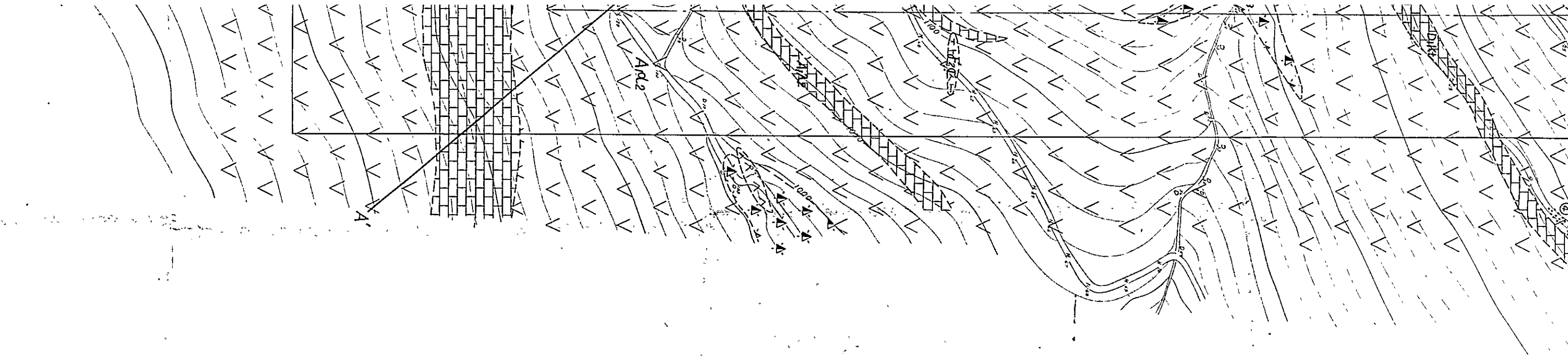
random sampling

L : line cutting sampling


G : gravel sampling of high grade ore

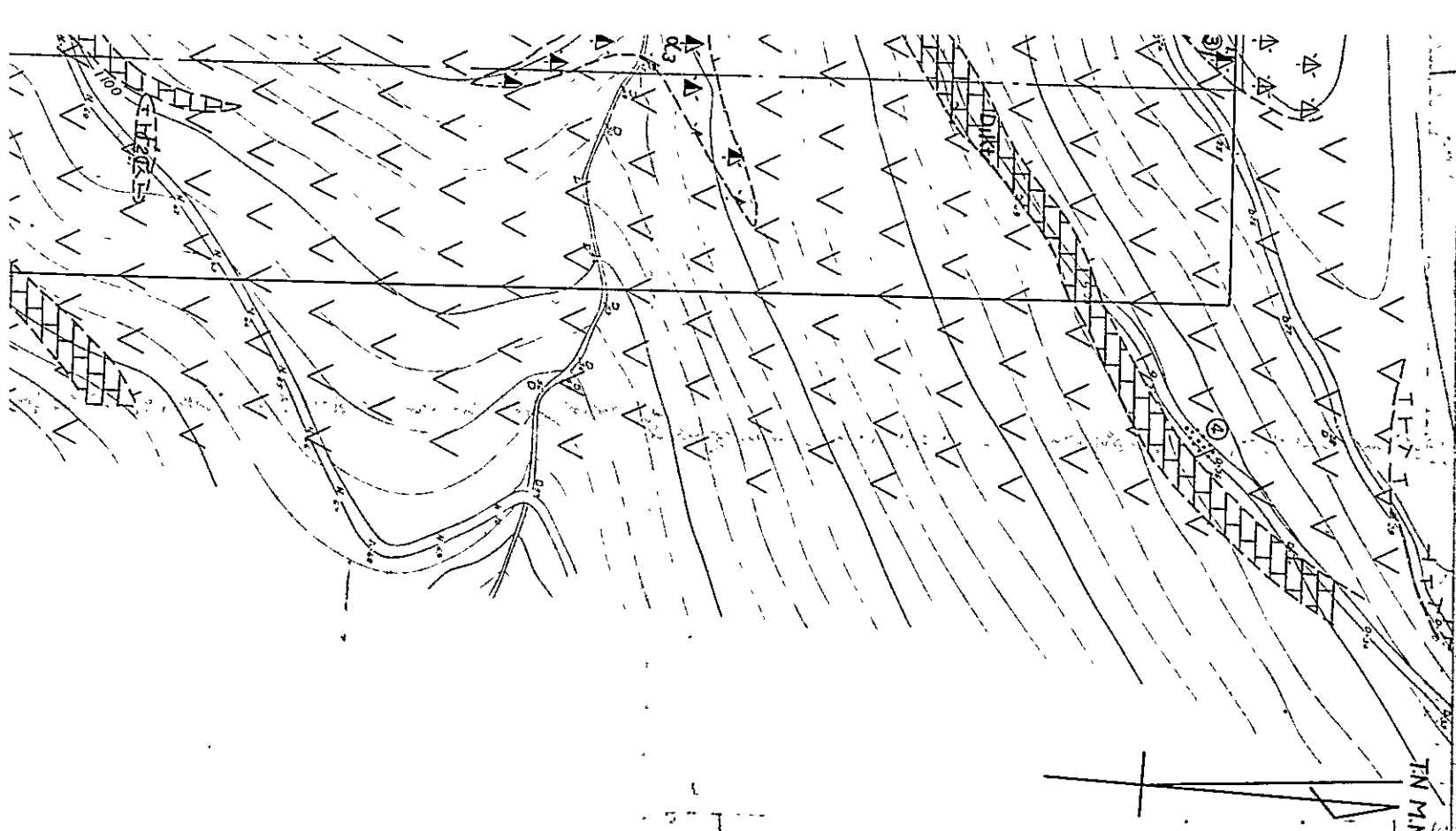






Future recommendation

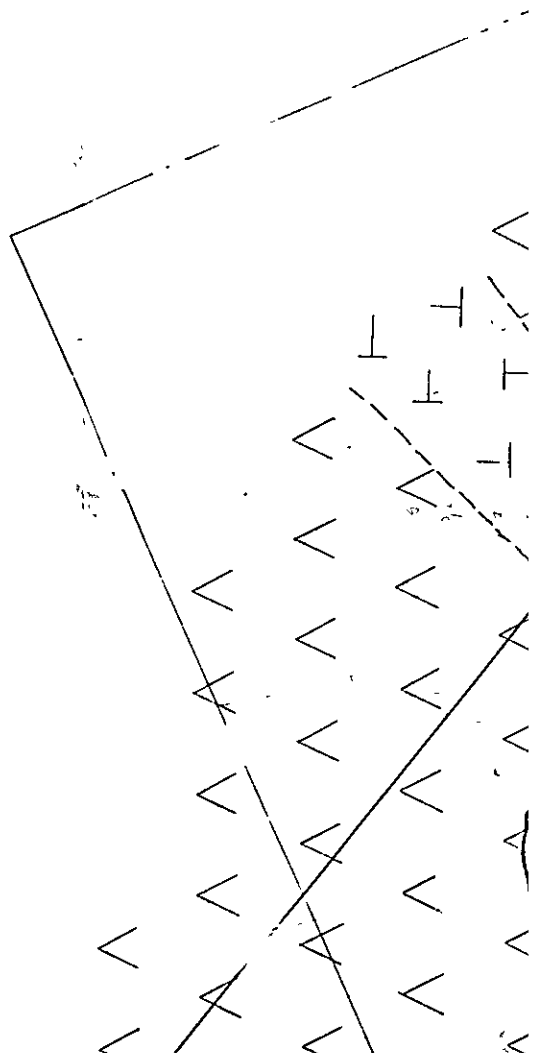
	Method	No	Ar
	Magnetic survey	1	(



Future recommendation

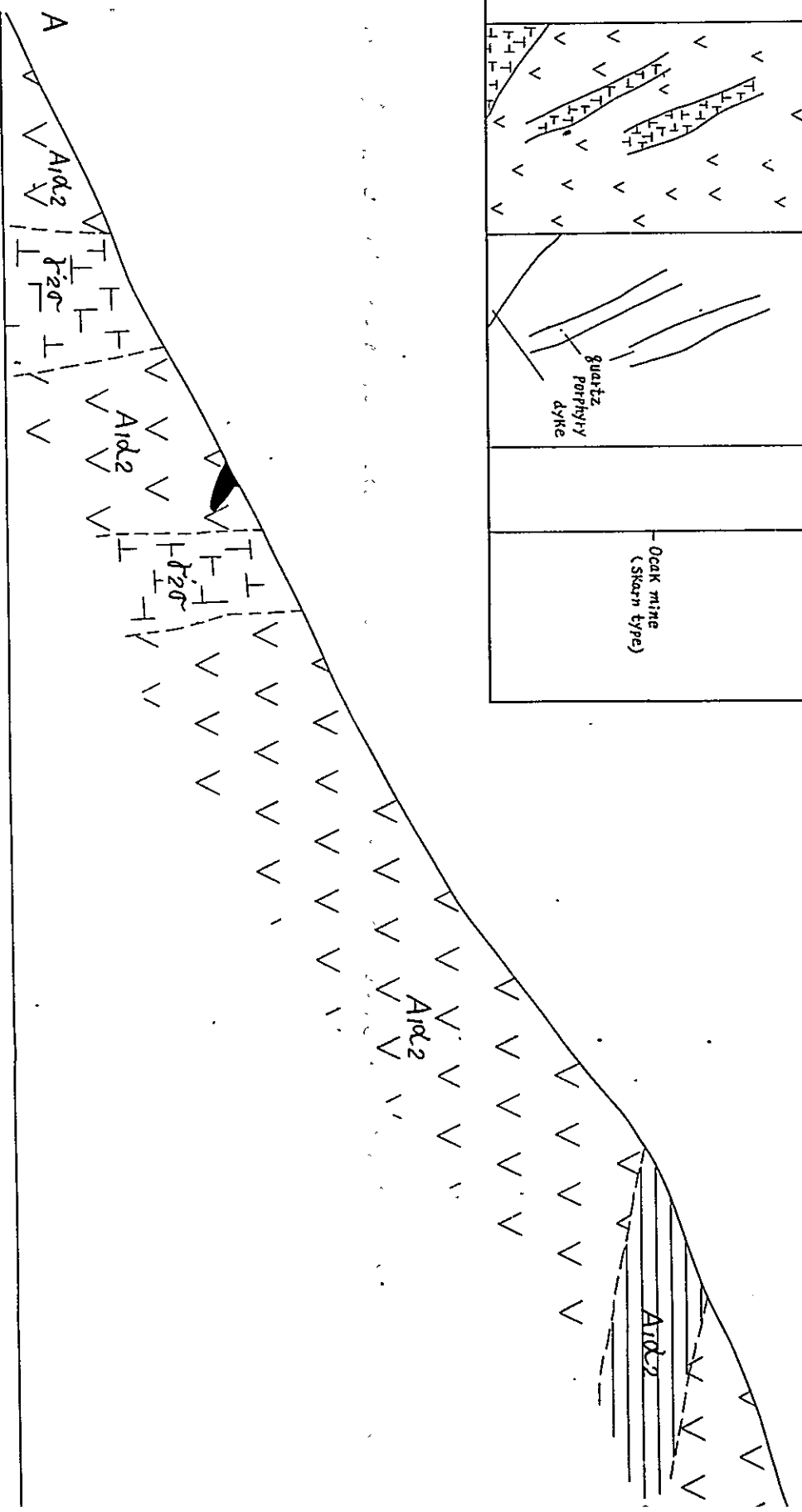
Method	No	Amount of works
Magnetic survey	1	0.8 km (1.0km x 0.8km)

		A1	
			Andesite lava Andezitik lav
			Andesite pyroclastics Andezitik Piroklastikler
			Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı
			Limestone, marl Kireçtaşı, marl
Intrusive rocks İntruzifler			Basalt Bazalt
			Andesite Andezit
			Dacite Dasit
			Porphyrite Porfirit
			Diorite porphyrite Diorit porfirit
			Quartz diorite Kuvars diorit
			Quartz diorite porphyrite Kuvars diorit porfirit
			Quartz porphyry Kuvars porfiri
			Bedding Tabaka
			Fault Fay
			Joint Kirik
			Flow structure. Akıntılı yapı
			Anticlinal/synclinal, axis Antiklinal/senklinial eksen
			Working mine/abandoned mine Çalışan maden/kapalı maden
			Mineralization, vein type/dissemination type Mineralizasyon damar tipi/disseminasyon tipi
			Massive, bedded ore/veinlets Masif, tabakalı cevher/damarcıklar
			Skarnized zone Skarn zonu
			Drilling site Sondaj yer
			Geological profile line Jeolojik kesit çizgisi

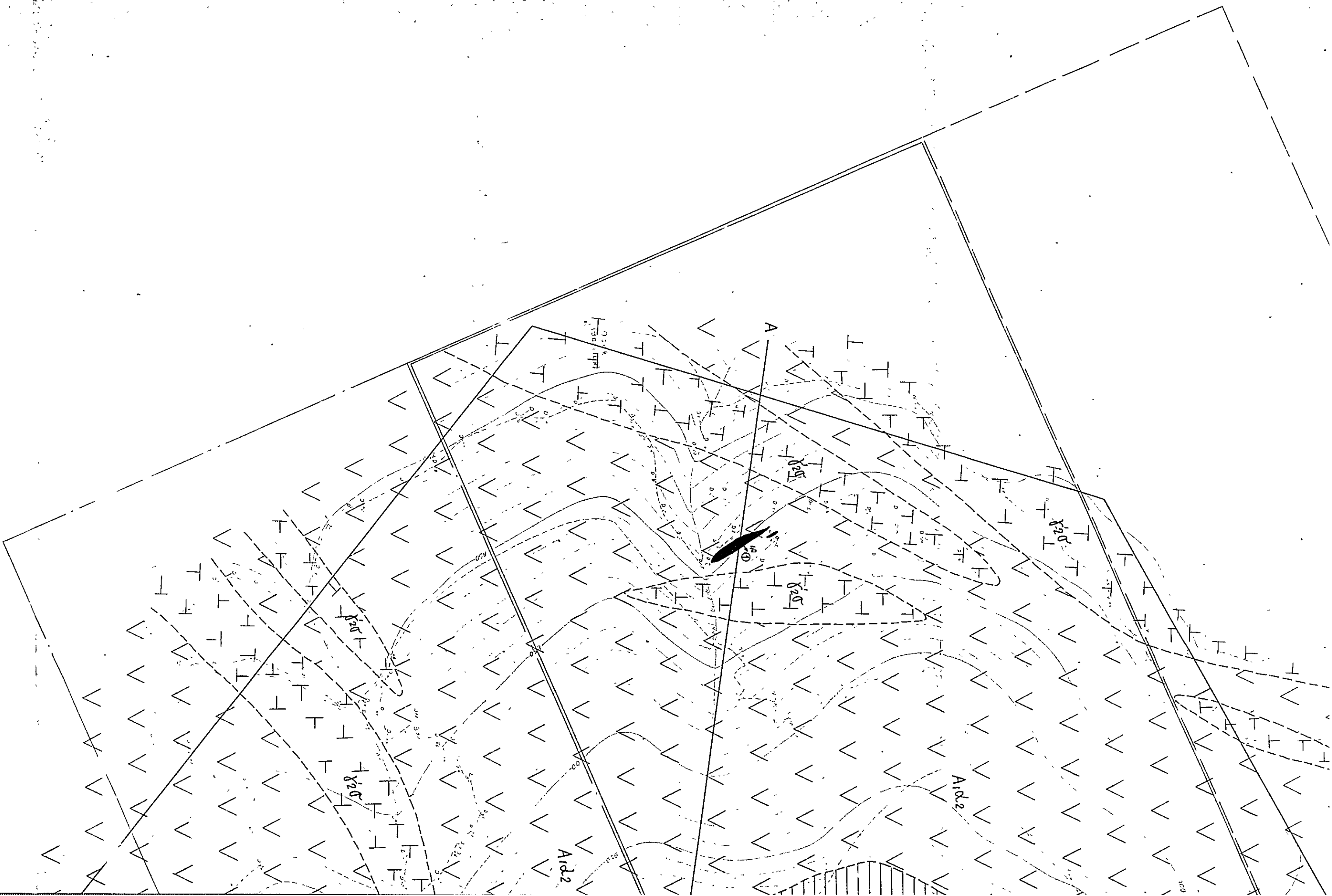


Member Uye	Columnar section (S)	Rock facies Kayas Jasiyesi	Thickness Kalinlik	Mineralization Mineralizatsiya
Aid2		quartz porphyry dyke andesite lava alteration of mudstone, fine tuff & marl andesite tuff quartz porphyry dyke andesite lava quartz porphyry dyke	250m + 400m + 400m +	Pyrite dissemination Skarn type vein type Ocaik mine (Skarn type)

A~A' Profile

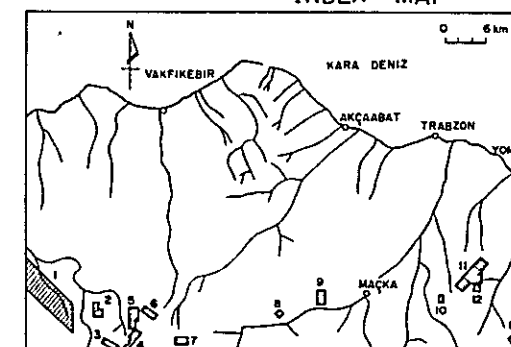


Member Uye	Columnar Sütun	Section Kesit	Rock Kayaç	facies fasiyazi	Thickness Kalınlık	Mineralization Mineralizasyon
---------------	-------------------	------------------	---------------	--------------------	-----------------------	----------------------------------

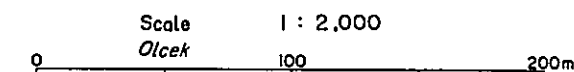


MINERAL RESEARCH AND EXPLORATION INSTITUTE  
 GEOLOGICAL SURVEY  
 OF  
 TRABZON AREA, NORTHEASTERN TURKEY

PHASE III  
 GEOLOGICAL MAP WITH GEOLOGICAL PROFILE,  
 COLUMNAR SECTION AND FUTURE RECOMENDATION  
 OF OCAK AREA  
 OCAK SAHASININ JEOLoji  
 HARITASI JEOLoji KESITLERI SÜTUN  
 KESİTİ VE ÖNERİLER  
 INDEX MAP



General geological survey area Detailed geological survey area



METAL MINING AGENCY OF JAPAN  
 JAPAN INTERNATIONAL COOPERATION AGENCY  
 FEBRUARY 1977

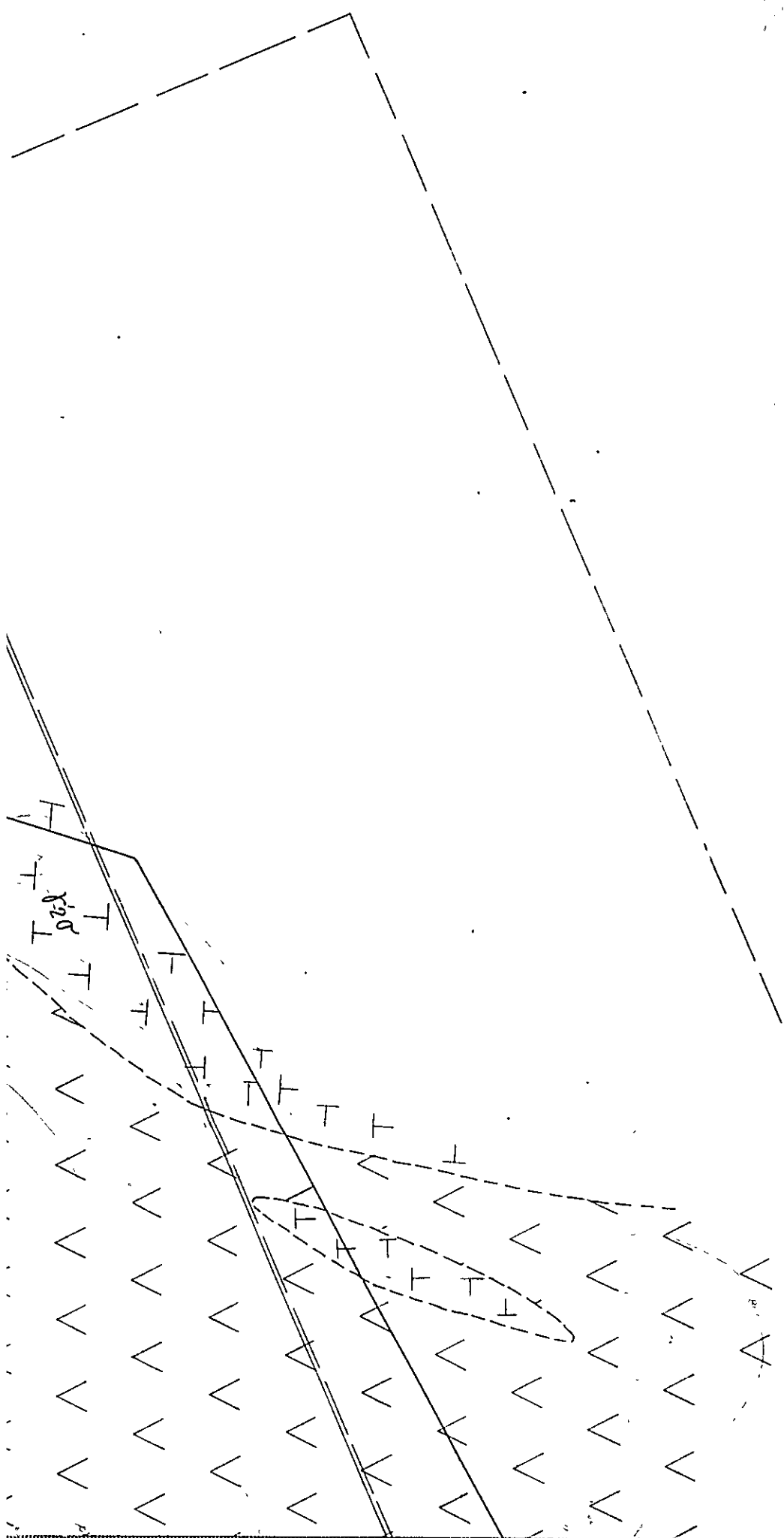
Prepared by Nikko Exploration & Development Co., Ltd

Sample No.	Index No.	Kind of ore mineral	Mode of occurrence	Width or thickness (cm)	Strike & dip	Sampling width (cm)	Sampling method	Cu (%)	Pb (%)	Zn (%)
A	-	Hc	massive	130		130	L	0.19	0.01	0.01
B	-	Hc	massive	180		180	L	0.10	0.01	0.02
C-0m	1	Hc	massive	140		140	L	0.33	0.01	0.01
C-3m	1	Hc	massive	160		150	L	0.20	tr	0.02
C-6m	1	Hc	massive	130		130	L	0.01	tr	tr
D	1	Hc	massive	170		170	L	1.13	0.01	0.01
N-184	1	Hc-(Cpy)-Py	massive	150	N25E	150	L	0.44	0.01	0.01
N-185	1	Hc-(Cpy)-Py	massive	200	N25E	200	L	0.81	0.01	0.01
N-186	1	Hc-(Cpy)-Py	massive	180	N25E	180	L	0.81	0.01	tr
N-187	1	Hc-(Cpy)-Py	massive	170	N25E	170	L	0.48	0.01	0.01
N-188	1	Nc-(Cpy)-Py	massive	180	N25E	180	L	0.73	0.01	0.01
N-189	1	Hc-Cpy	massive		40E		G	0.23	0.01	0.01
N-190	1	Hc	massive				G	0.21	0.01	0.05
N-191	1	Hc-Cpy	massive				G	3.00	0.01	0.03
N-206	-	Py						0.01	0.01	0.02
N-208	5	Py-Spl-Ga	diss					0.13	1.45	1.60

R : Random sampling

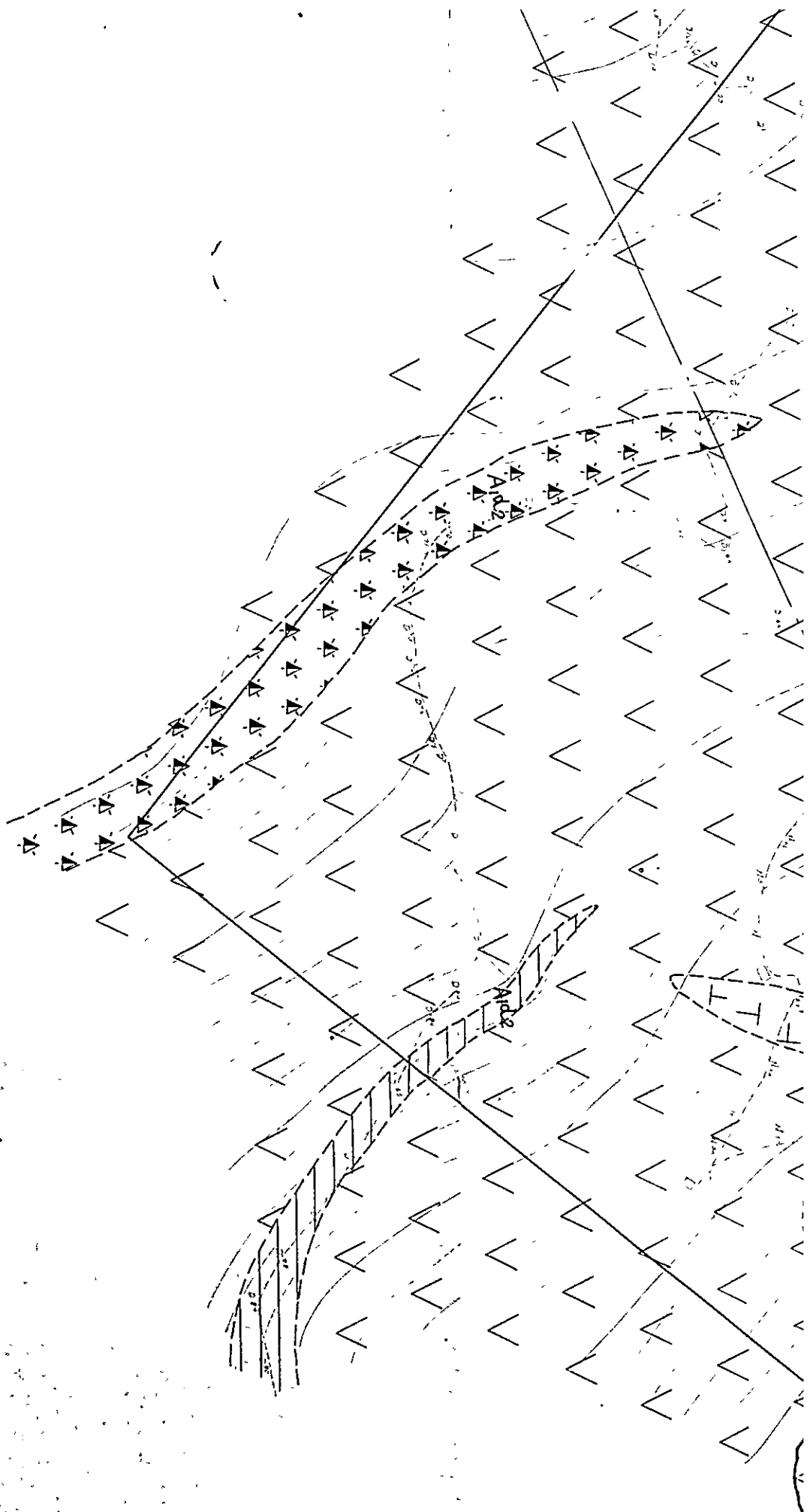
L : Line cutting sampling

G : gravel sampling of high grade ore

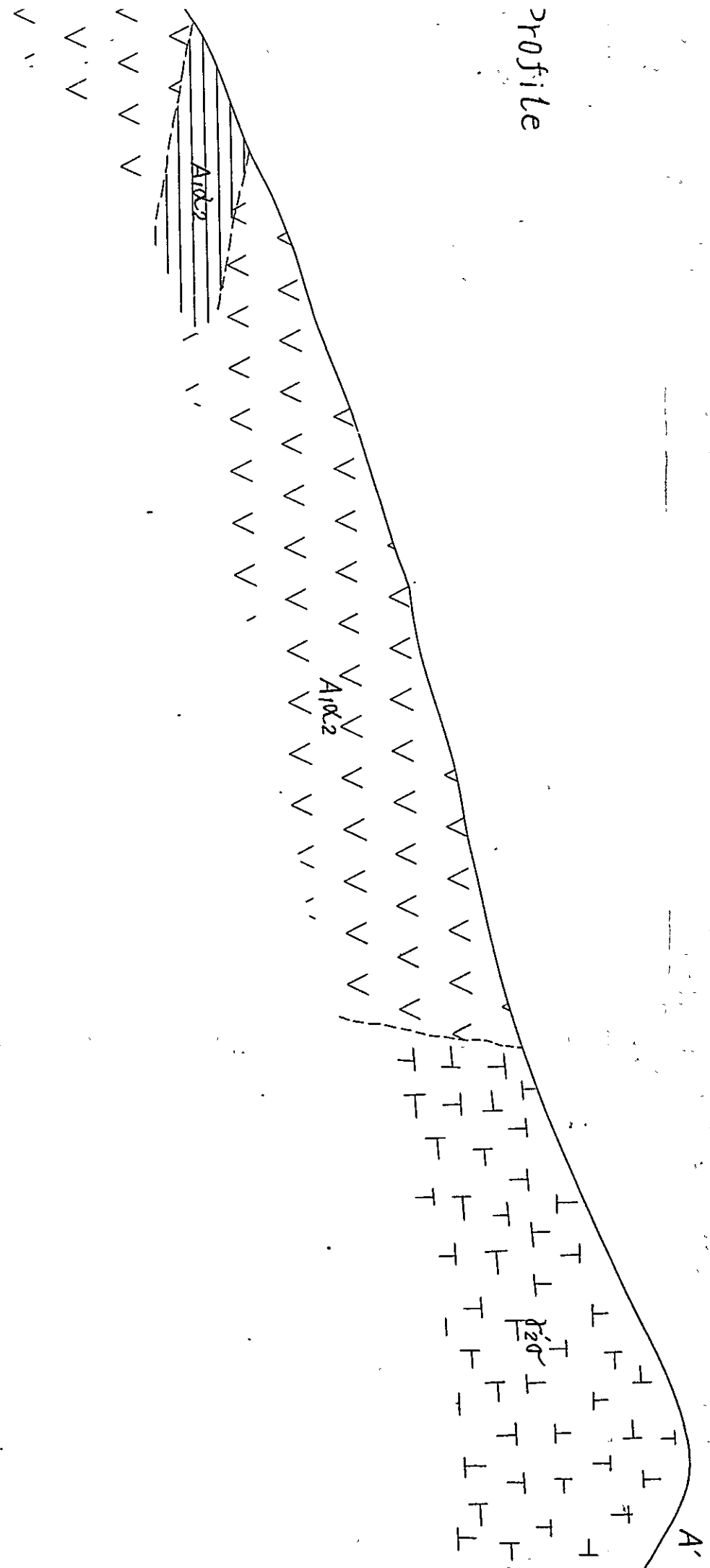


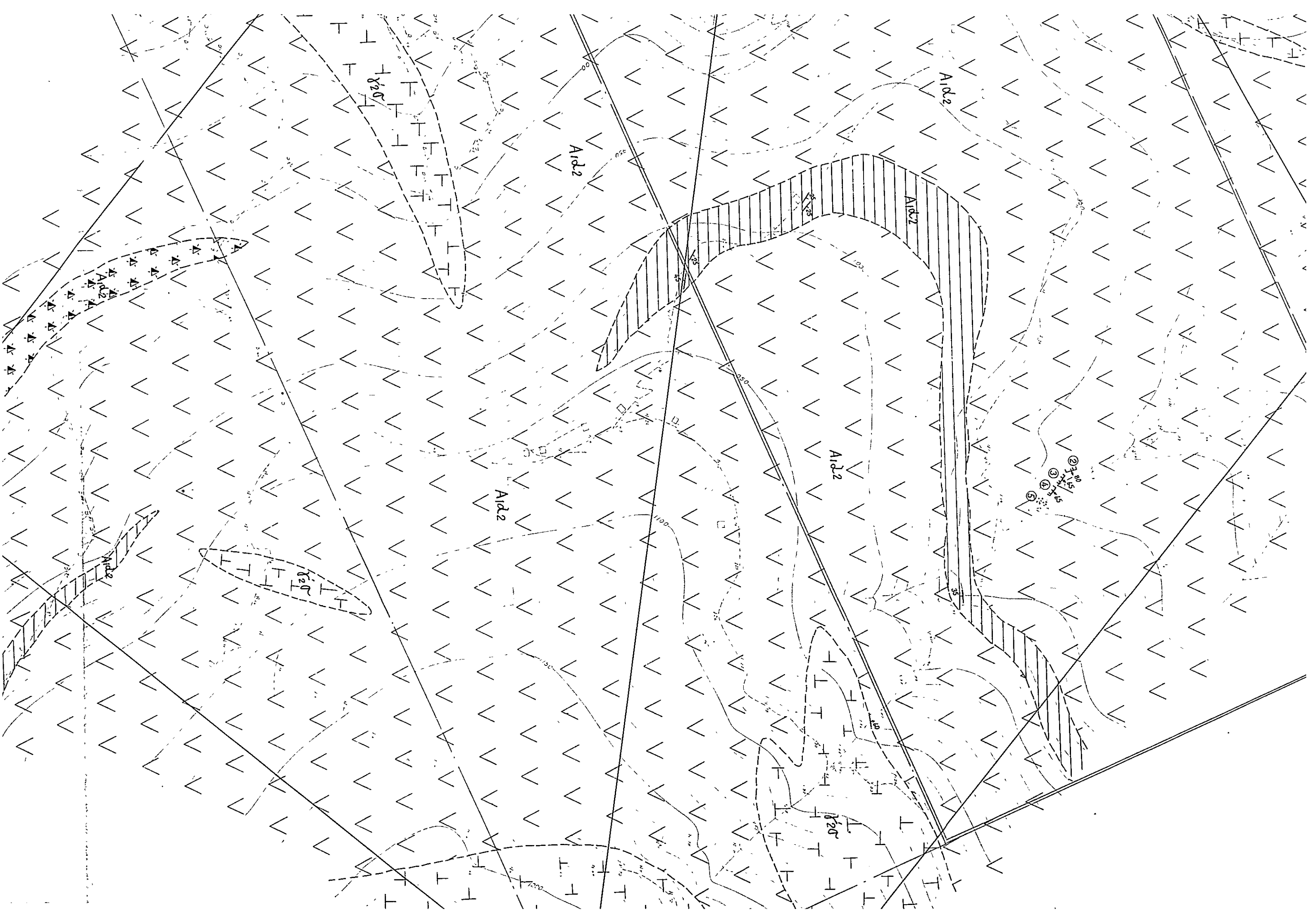
LEGEND  
 LEVAND

Geological age Jeolojik yas	Formation Formasyon	Stratigraphical Stratigrafik		Lithology Litoloji
		Marks Isaretler	Symbol Sembol	
Paleogene Paleosen Neogene Miyosen	A3	V V V	A3α	Andesite lava Andezit lavı
	A2	Δ Δ Δ	A2α	Andesite pyroclastics Andezitik Piroklastikler
		L L L	D1λ4	Dacite lava Dazit lavı
		Δ Δ Δ		Dacite pyroclastics Dazit Piroklastikler
		≡ ≡ ≡		Fine tuff & calcareous mudstone



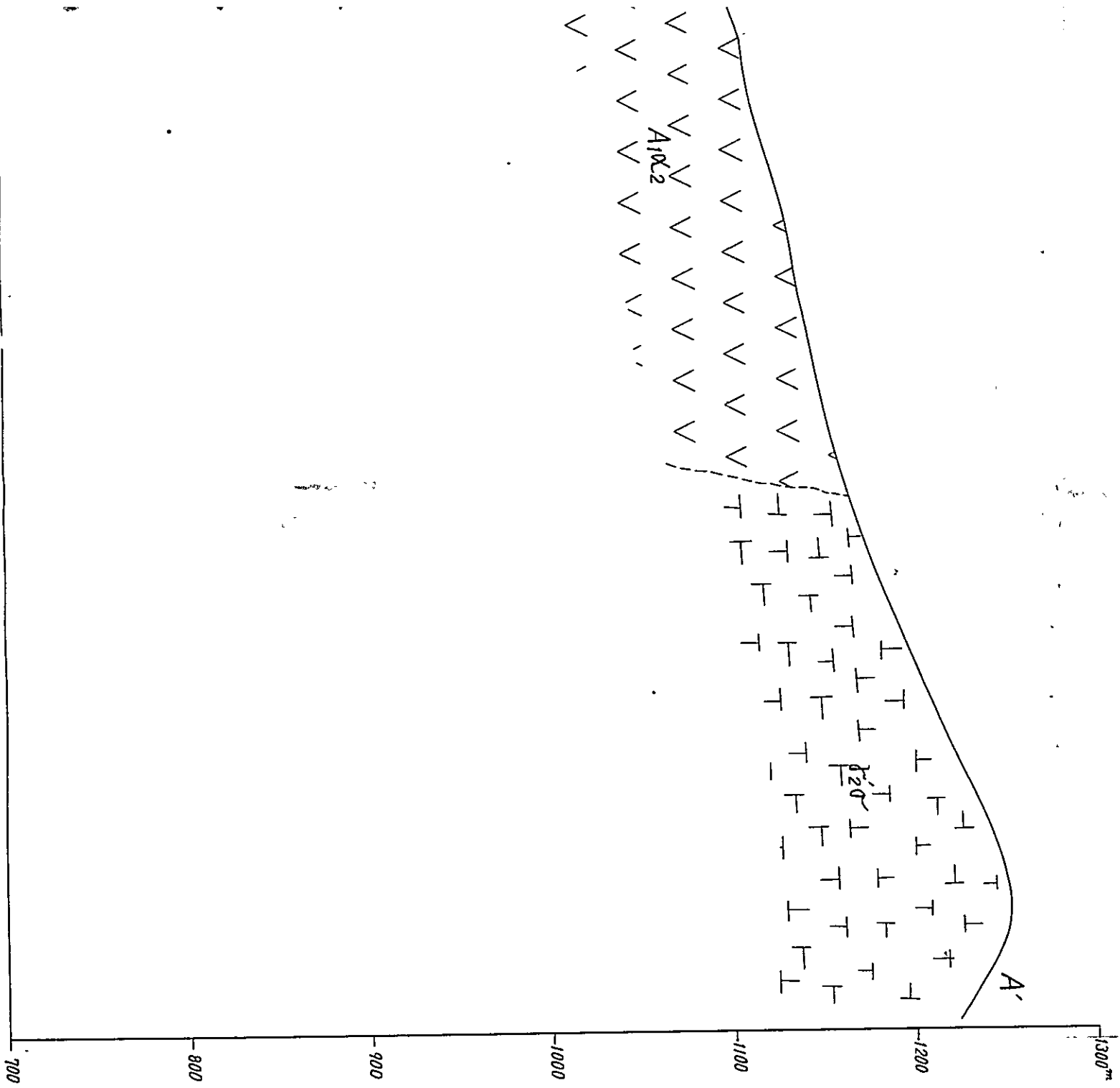
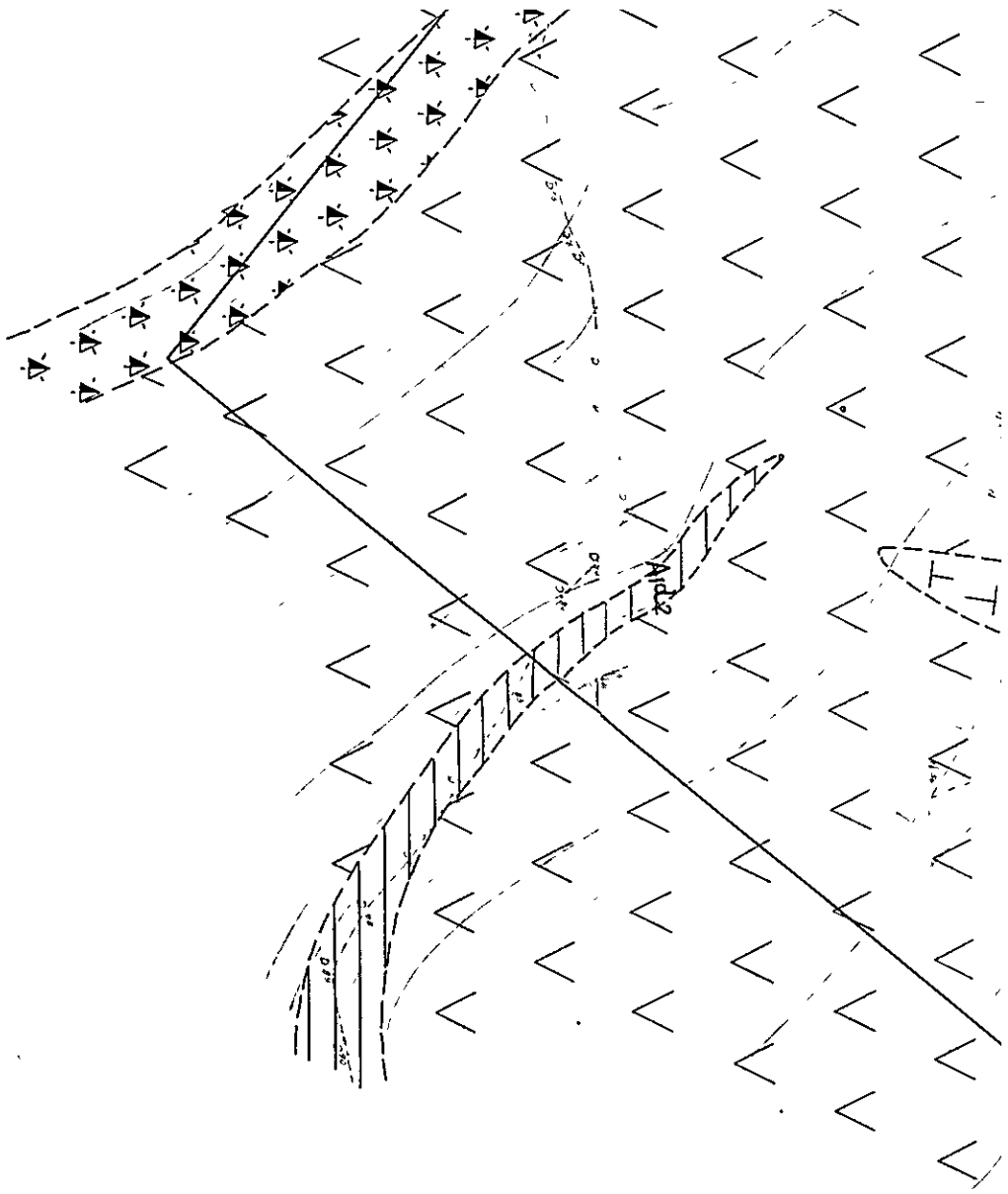
Profile

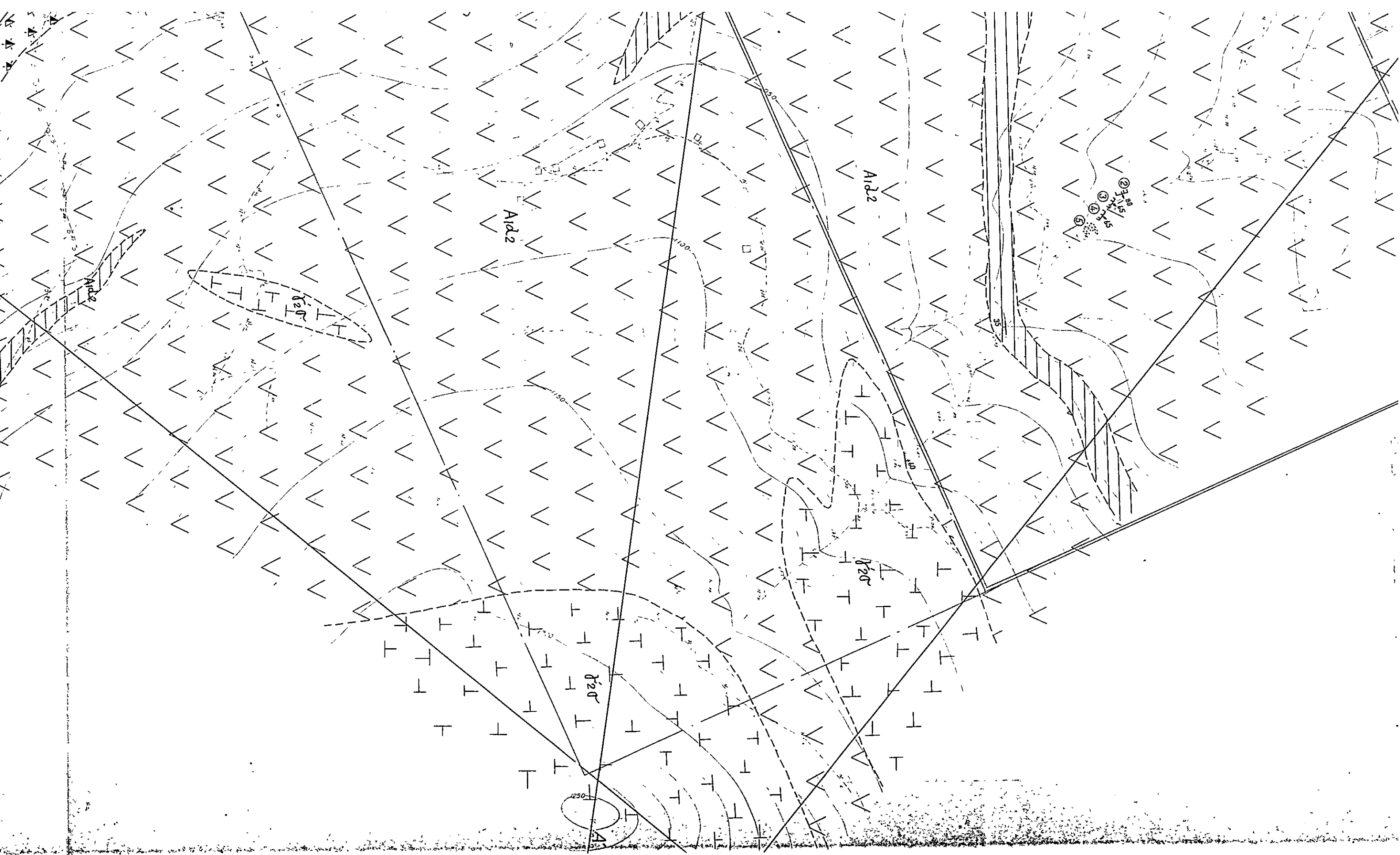


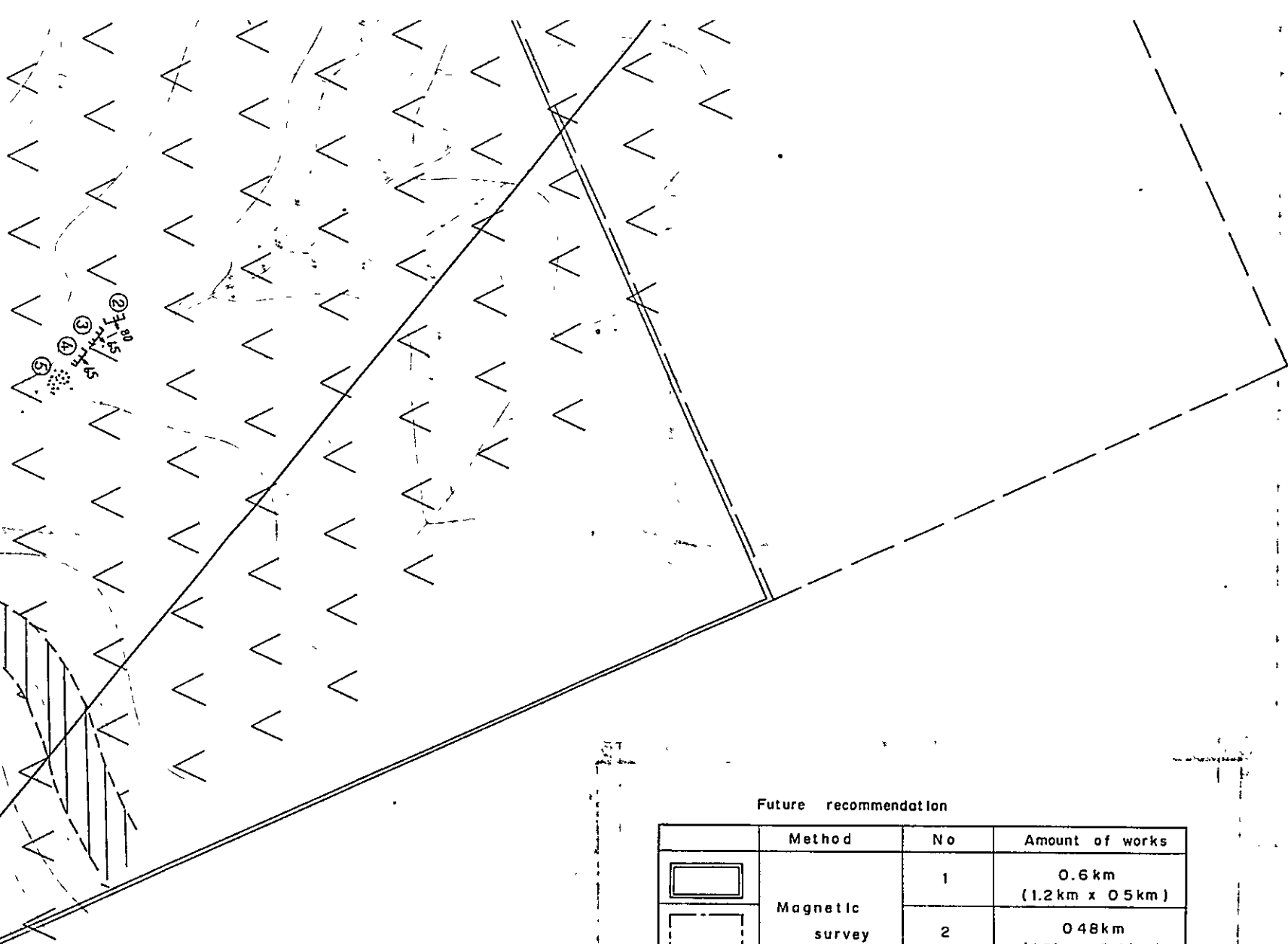






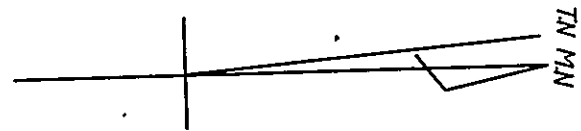




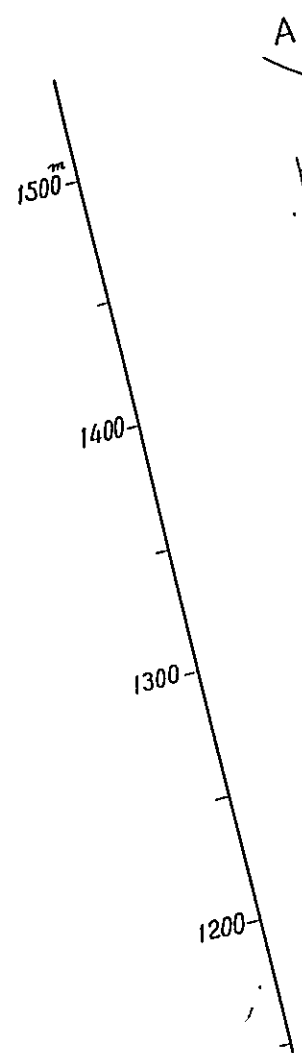


**Future recommendation**

	Method	No	Amount of works
	Magnetic survey	1	0.6 km (1.2 km x 0.5 km)
		2	0.48 km (1.2 km x 0.4 km)
		3	0.36 km (1.2 km x 0.3 km)

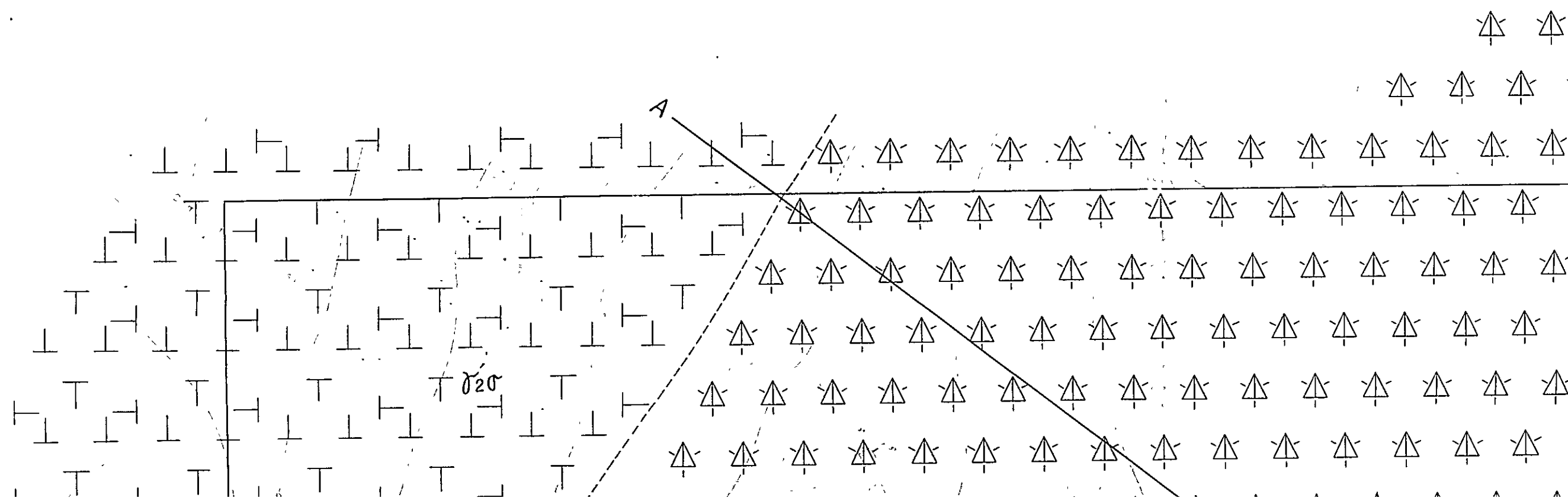
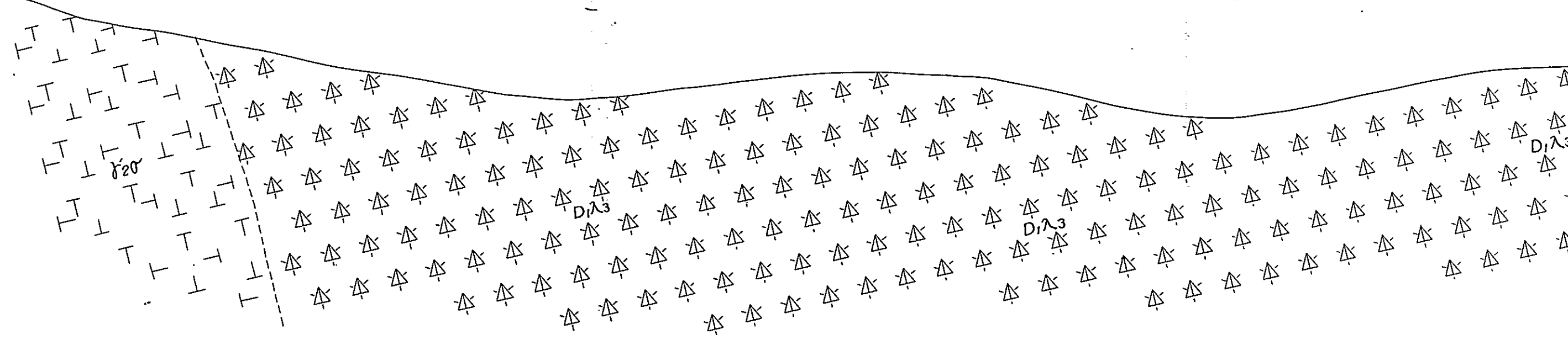


		D <sub>1</sub> α <sub>3</sub>	Andesite lava <i>Andezitik lav</i>
			Andesite pyroclastics <i>Andezitik Proklastikler</i>
		D <sub>1</sub> kt	Fine tuff & calcareous mudstone <i>İnce tüf &amp; kalkerli çamurtaşı</i>
			Limestone, marl. <i>Kireçtaşı, marl</i>
A <sub>1</sub>		A <sub>1</sub> λ <sub>2</sub>	Dacite lava <i>Dasit lavı</i>
			Dacite pyroclastics <i>Dasit Proklastikler</i>
		A <sub>1</sub> α <sub>2</sub>	Fine tuff & calcareous mudstone <i>İnce tüf &amp; kalkerli çamurtaşı</i>
			Limestone, marl. <i>Kireçtaşı, marl</i>
		A <sub>1</sub> α <sub>2</sub>	Andesite lava <i>Andezitik lav</i>
			Andesite pyroclastics <i>Andezitik Proklastikler</i>
		A <sub>1</sub> kt	Fine tuff & calcareous mudstone <i>İnce tüf &amp; kalkerli çamurtaşı</i>
			Limestone, marl. <i>Kireçtaşı, marl.</i>
Intrusive rocks <i>Intruzifler</i>		β	Basalt <i>Bazalt</i>
		α	Andesite <i>Andezit</i>
		ε	Dacite <i>Dasit</i>
		σ	Porphyrite <i>Porfir</i>
		δσ <sub>2</sub>	Diorite porphyrite <i>Diorit porfir</i>
		δ <sub>2</sub>	Quartz diorite <i>Kuars diorit</i>
		δ <sub>2</sub> σ	Quartz diorite porphyrite <i>Kuars diorit porfir</i>
		δ <sub>2</sub> σ	Quartz porphyry <i>Kuars porfiri</i>
			Bedding <i>Tabaka</i>
			Fault <i>Fay</i>
			Joint <i>Kirik</i>
			Flow structure <i>Akıntılı yapı</i>
			Anticlinal/synclinal, axis <i>Antiklinal/senklinal eksen</i>
			Working mine/abandoned mine <i>Çalışan maden/kapalı maden</i>
			Mineralization, vein type/dissemination type <i>Mineralizasyon damar tipi/disseminasyon tipi</i>
			Massive, bedded ore/veinlets <i>Masif, tabakalı cevher/damarcıklar</i>
			Skarnized zone <i>Skarn zonu</i>
			Drilling site <i>Sondaj yer</i>
			Geological profile line <i>Jeolojik kesit çizgisi</i>

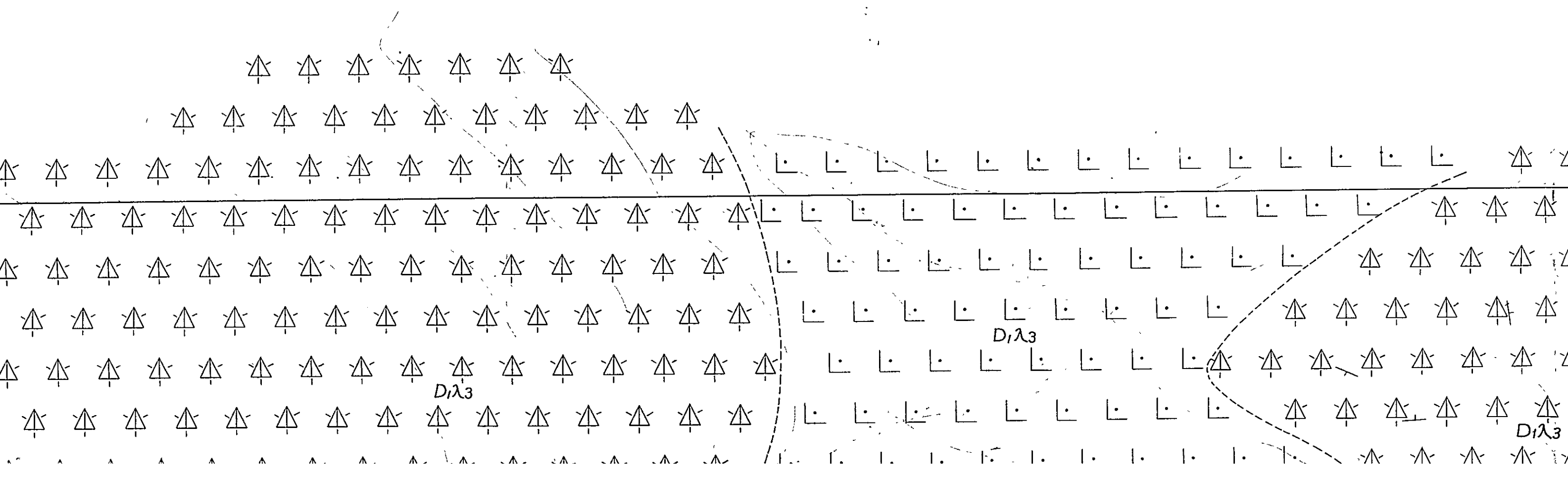
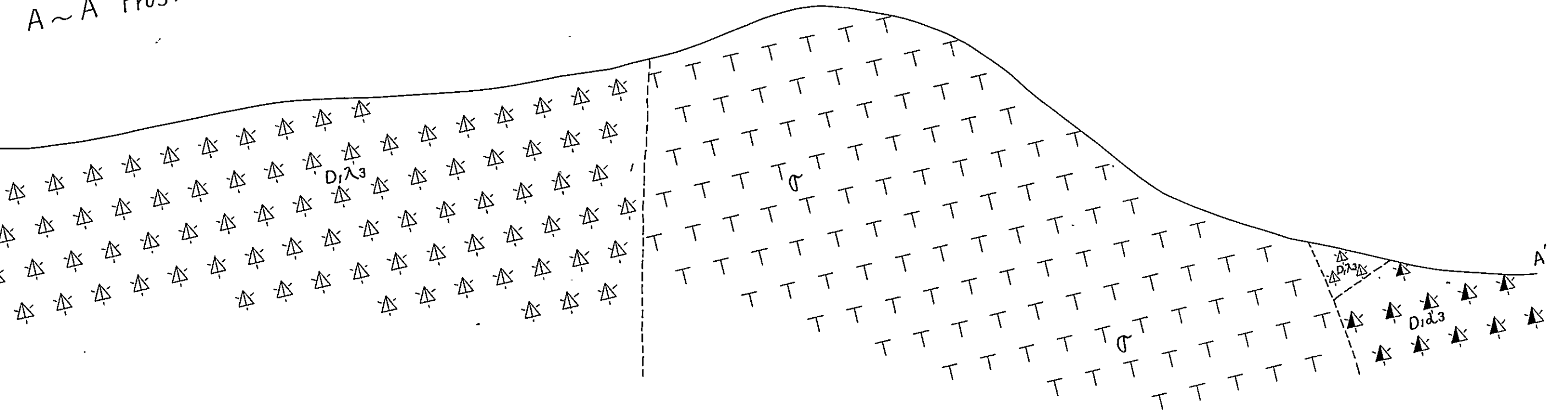


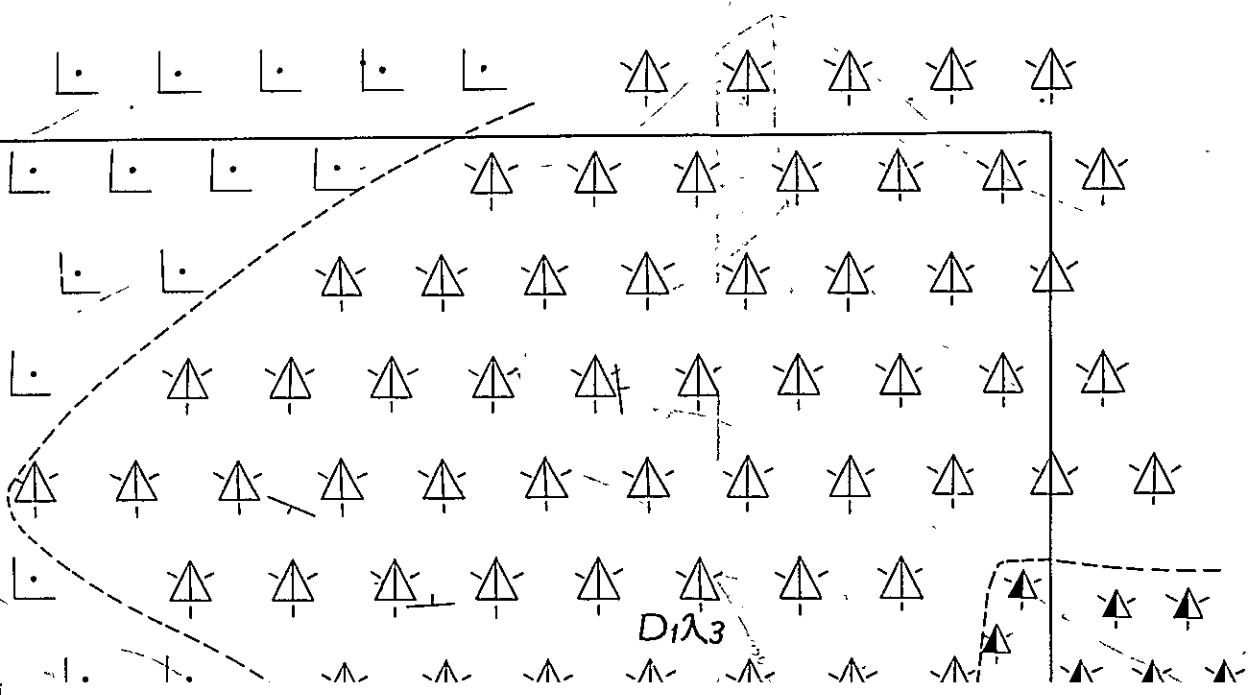
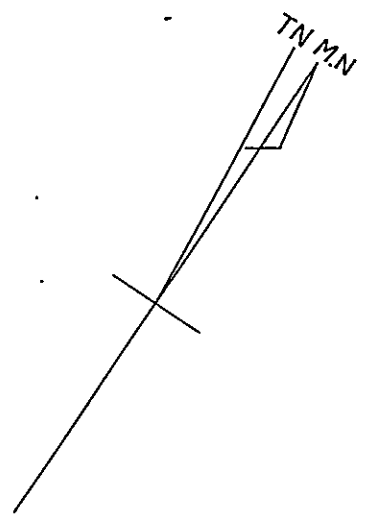
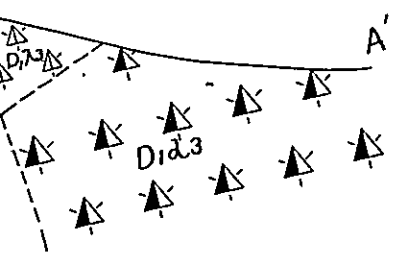
A ~ A' Profile

A



A ~ A' Profile





Member Üye	Columnar section Sütun kesit	Rock facies Kayaş fasıyezi	Thickness Kalınlık	Mineralization Mineralizasyon
	(N) (S)			
D1A3		quartz porphyry dyke  dacite tuff, lapilli tuff tuff breccia  dacite lava		

LEGEND  
LEJAND

Geological age Jeolojik yaş	Formation Formasyon	Stratigraphic Markers İsaretleme
Paleogene Paleosen Neogene Miyosen	A3	
	A2	

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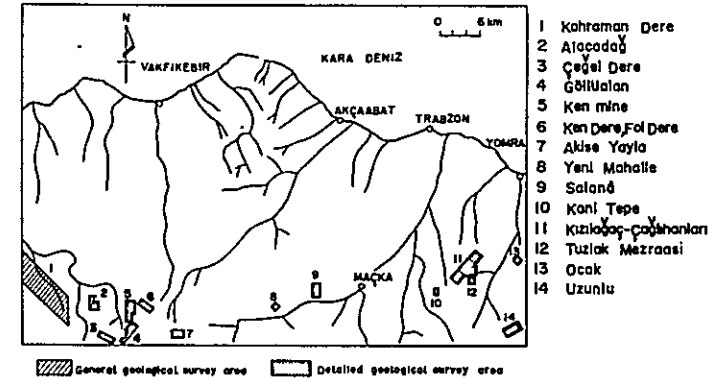
MINERAL RESEARCH AND EXPLORATION INSTITUTE  
GEOLOGICAL SURVEY  
OF  
TRABZON AREA , NORTHEASTERN TURKEY

PHASE III

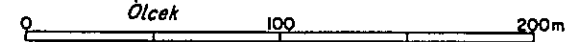
GEOLOGICAL MAP WITH GEOLOGICAL PROFILE  
AND COLUMNAR SECTION OF UZUNLU AREA

UZUNLU SAHASININ JEOLÖJİ  
HARİTASI JEOLÖJİ KESİTLERİ VE  
SÜTUN KESİTİ

INDEX MAP



Scale 1 : 2,000



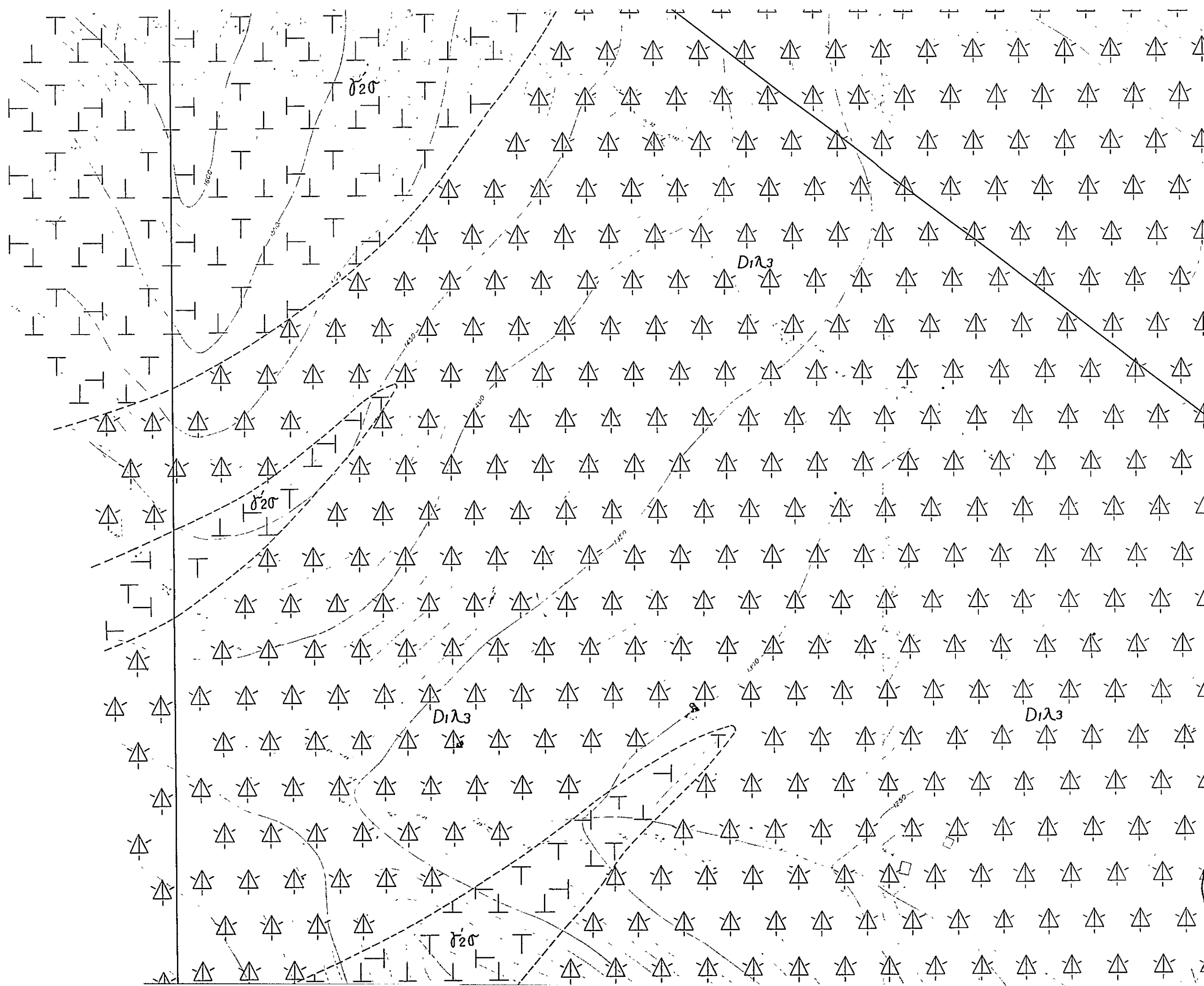
METAL MINING AGENCY OF JAPAN  
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FEBRUARY 1977

Prepared by Nikko Exploration & Development Co., Ltd.

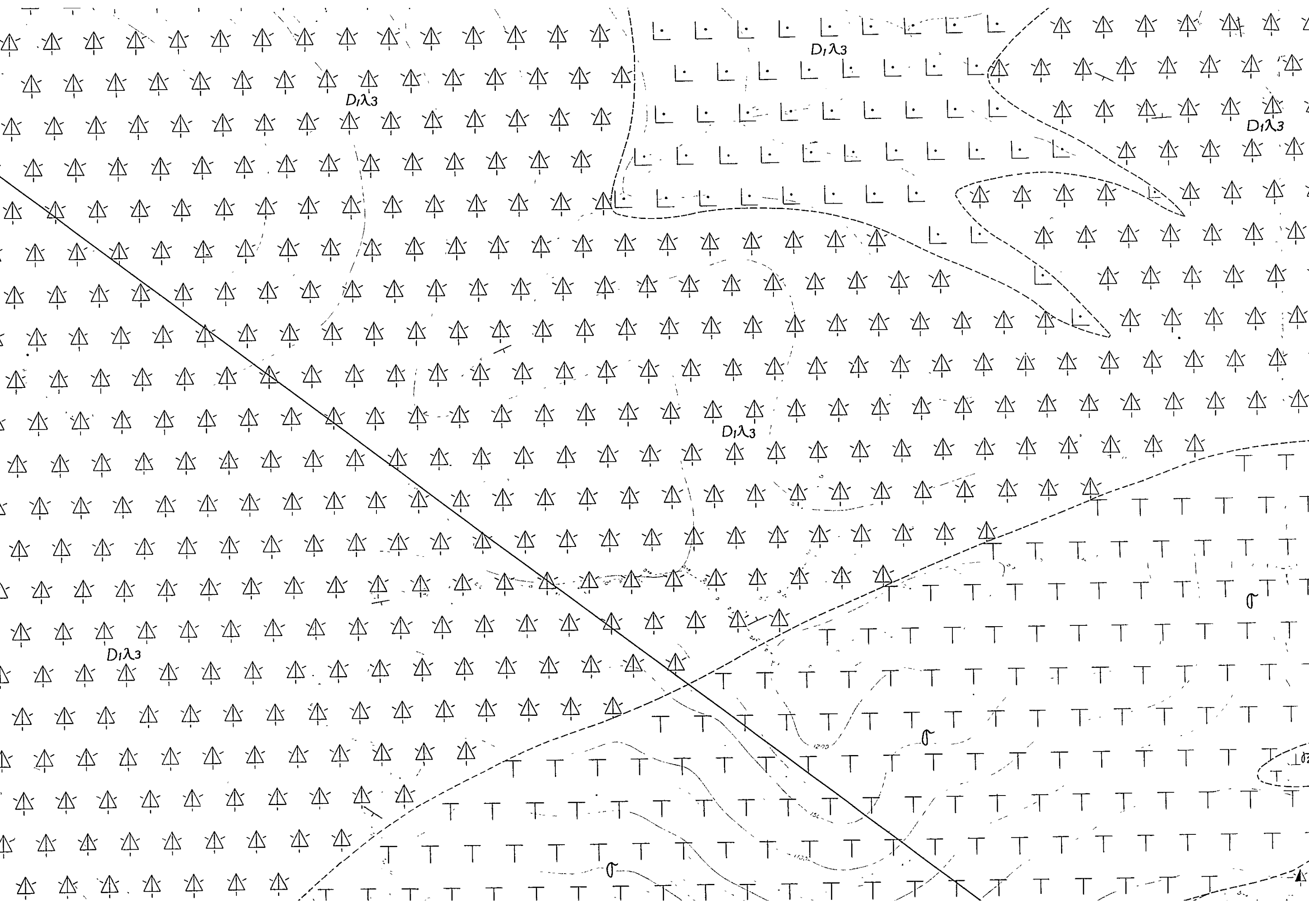
Member Üye	Columnar section Sütun kesit (N) (S)	Rock facies Kayaş Jasıyezi	Thickness Kalınlık	Mineralization Mineralizasyon
		quartz porphyry dyke		
		dacite tuff, lapill. tuff tuff breccia		
		dacite lava		

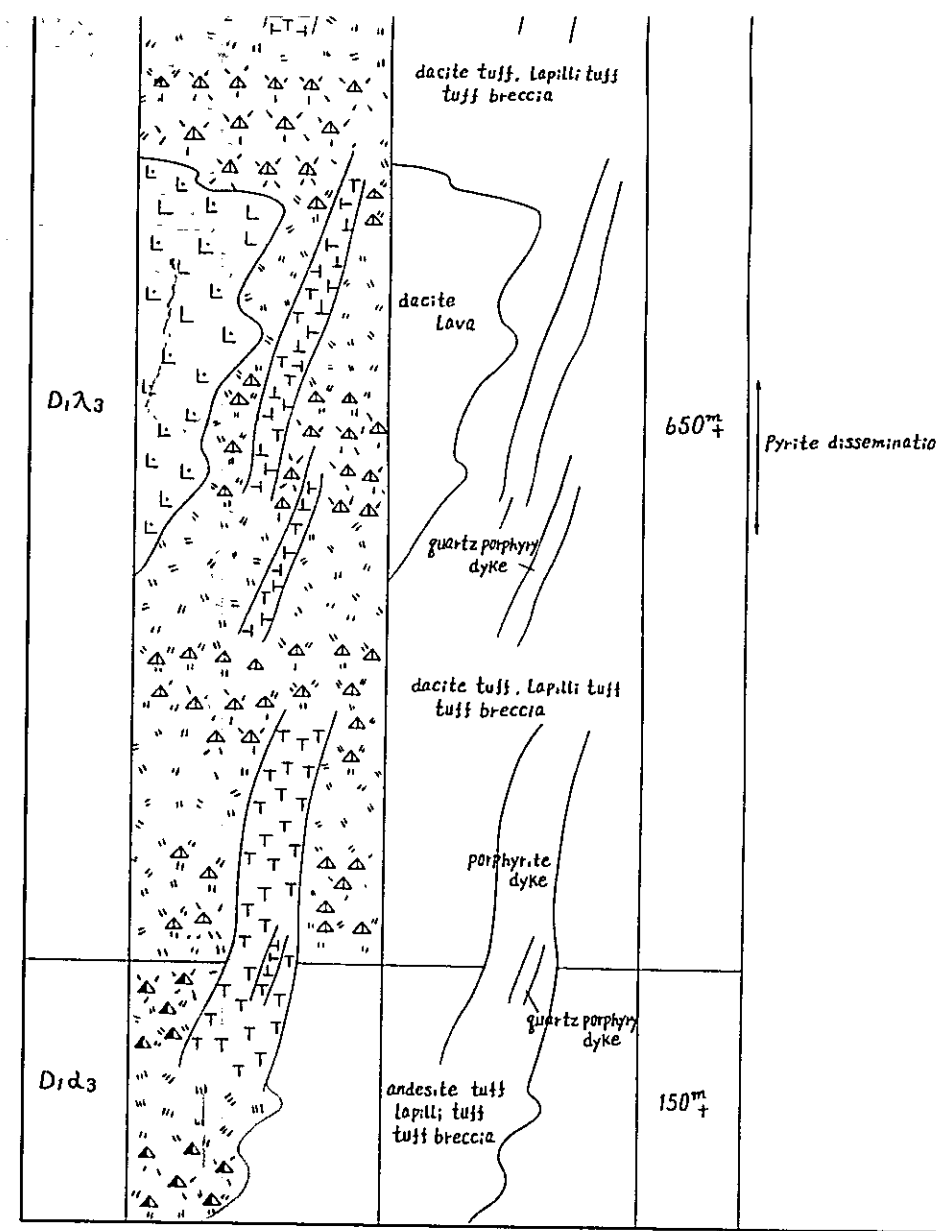
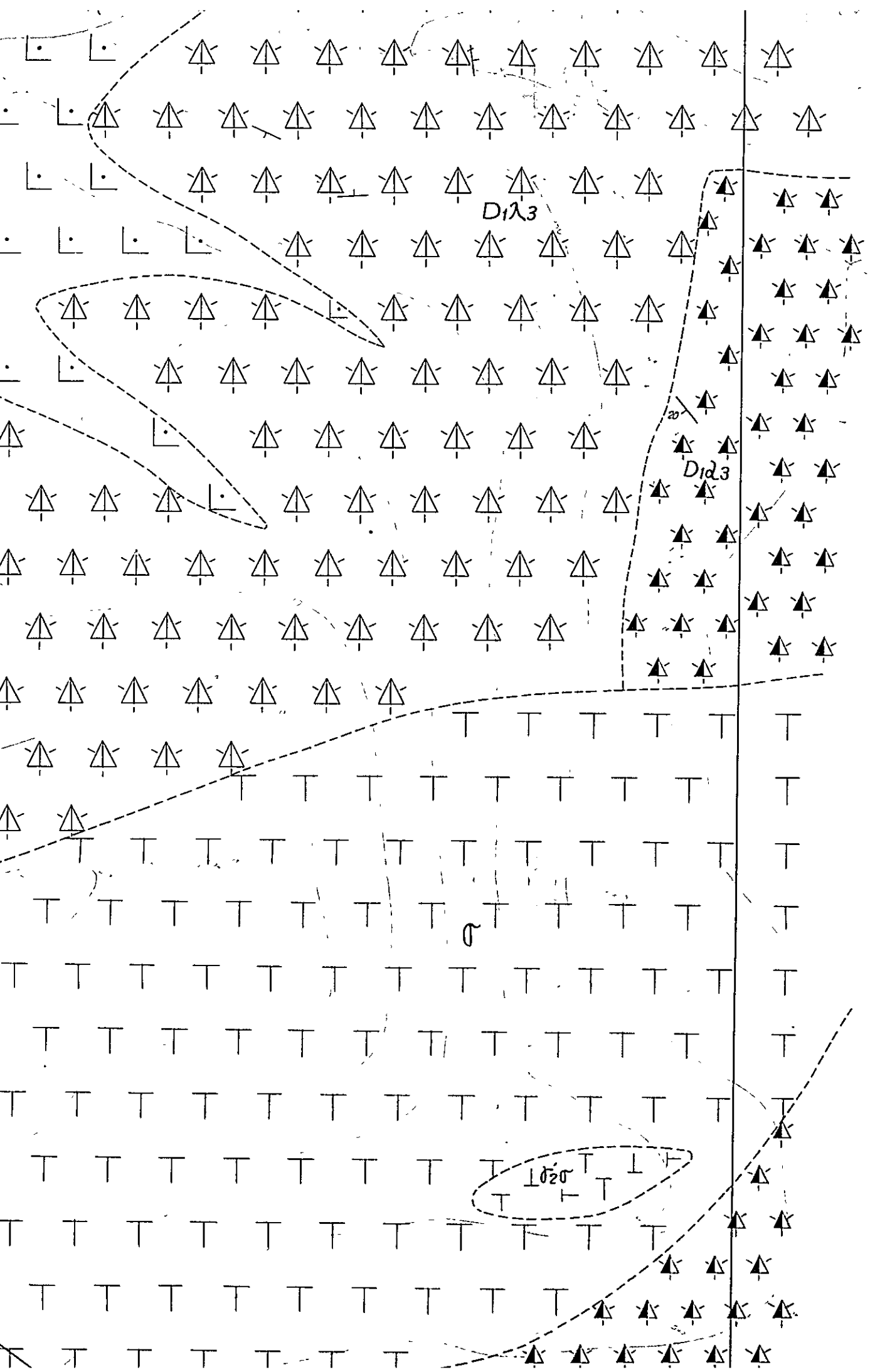
LEGEND  
LEJAND

Geological age Jeolojik yaş	Formation Formasyon	Stratigraphical Stratigrafik		Lithology Litoloji
		Marks İsaretiler	Symbol Sembol	
Paleogene Paleosen ~ Neogene Miyosen	A <sub>3</sub>		A <sub>3</sub> α	Andesite lava Andezit lavı
	A <sub>2</sub>		A <sub>2</sub> α	Andesite pyroclastics Andezitik Piroklastikler
			D <sub>1</sub> A <sub>4</sub>	Dacite lava Dazit lavı
			D <sub>1</sub> A <sub>4</sub>	Dacite pyroclastics Dazit Piroklastikler
			D <sub>1</sub> A <sub>4</sub>	Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı
			D <sub>1</sub> α <sub>4</sub>	Andesite lava Andezitik lav
			D <sub>1</sub> α <sub>4</sub>	Andesite pyroclastics

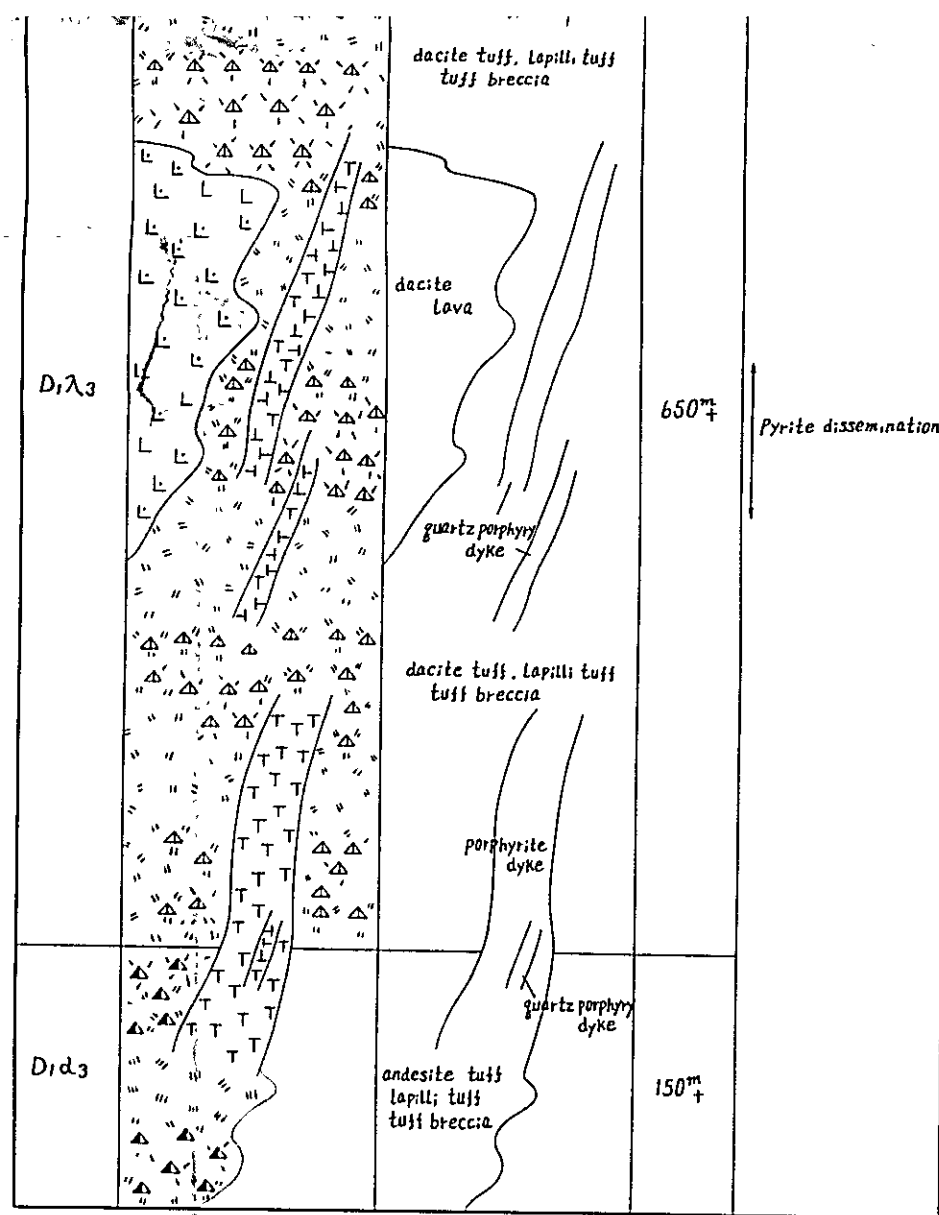




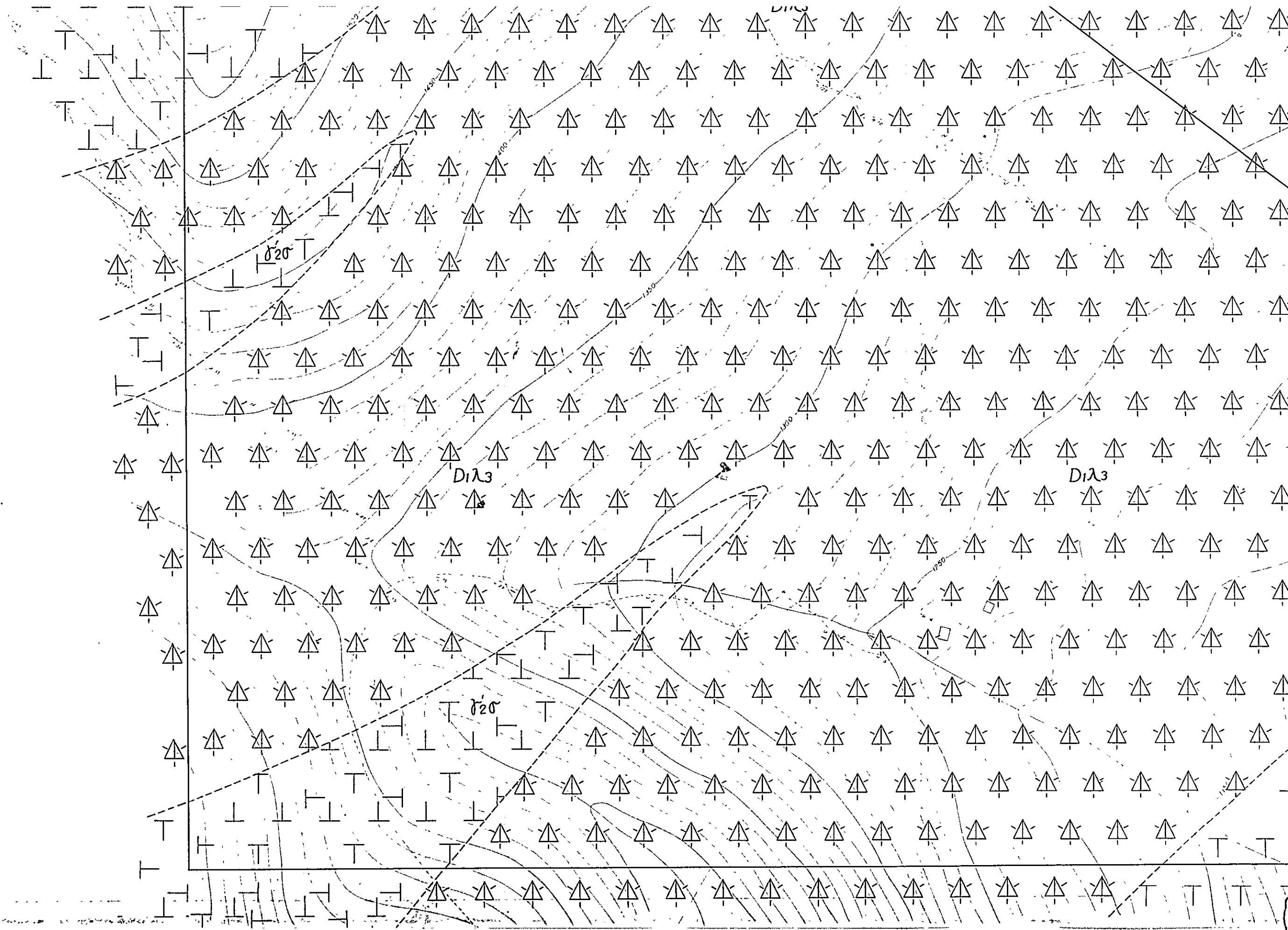


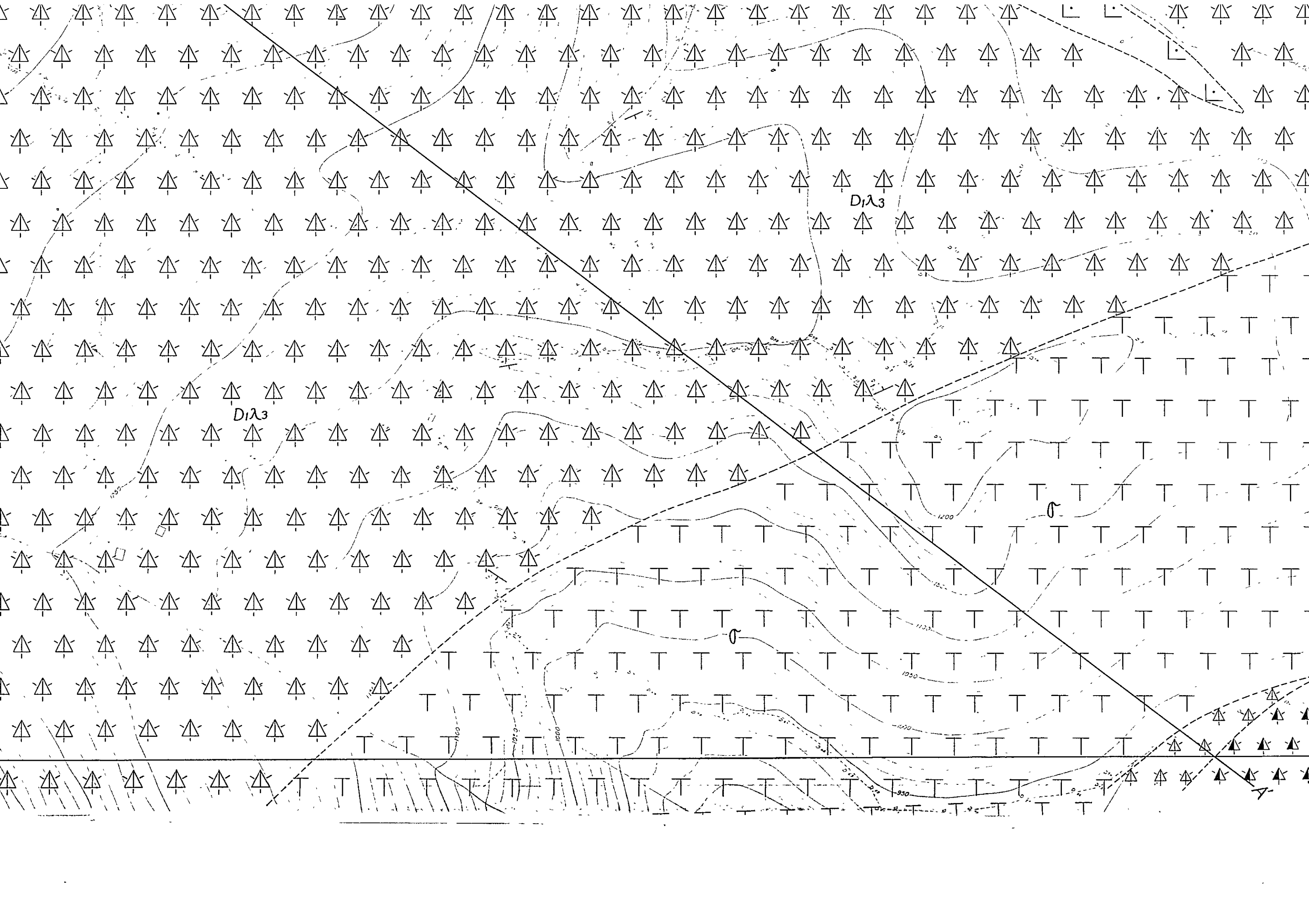


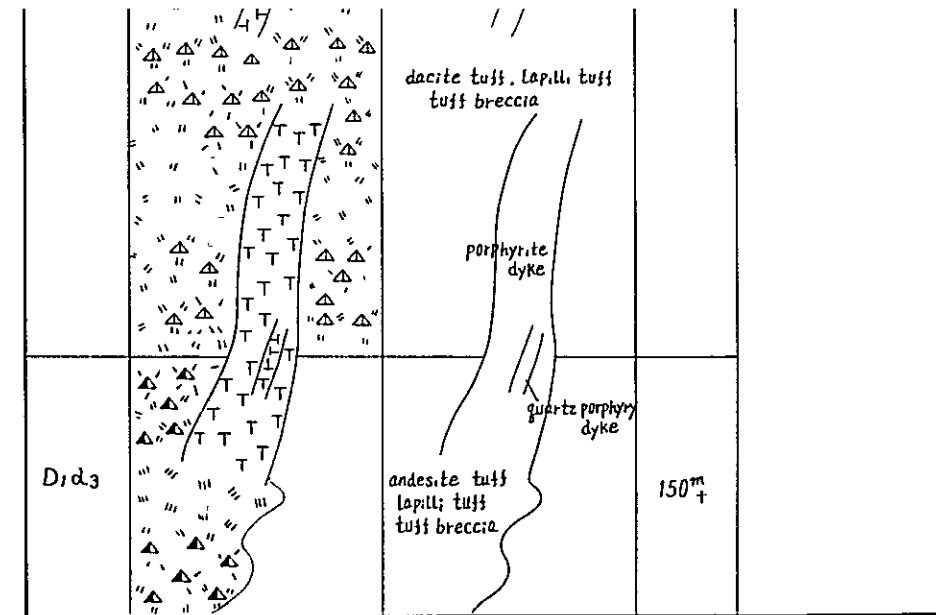
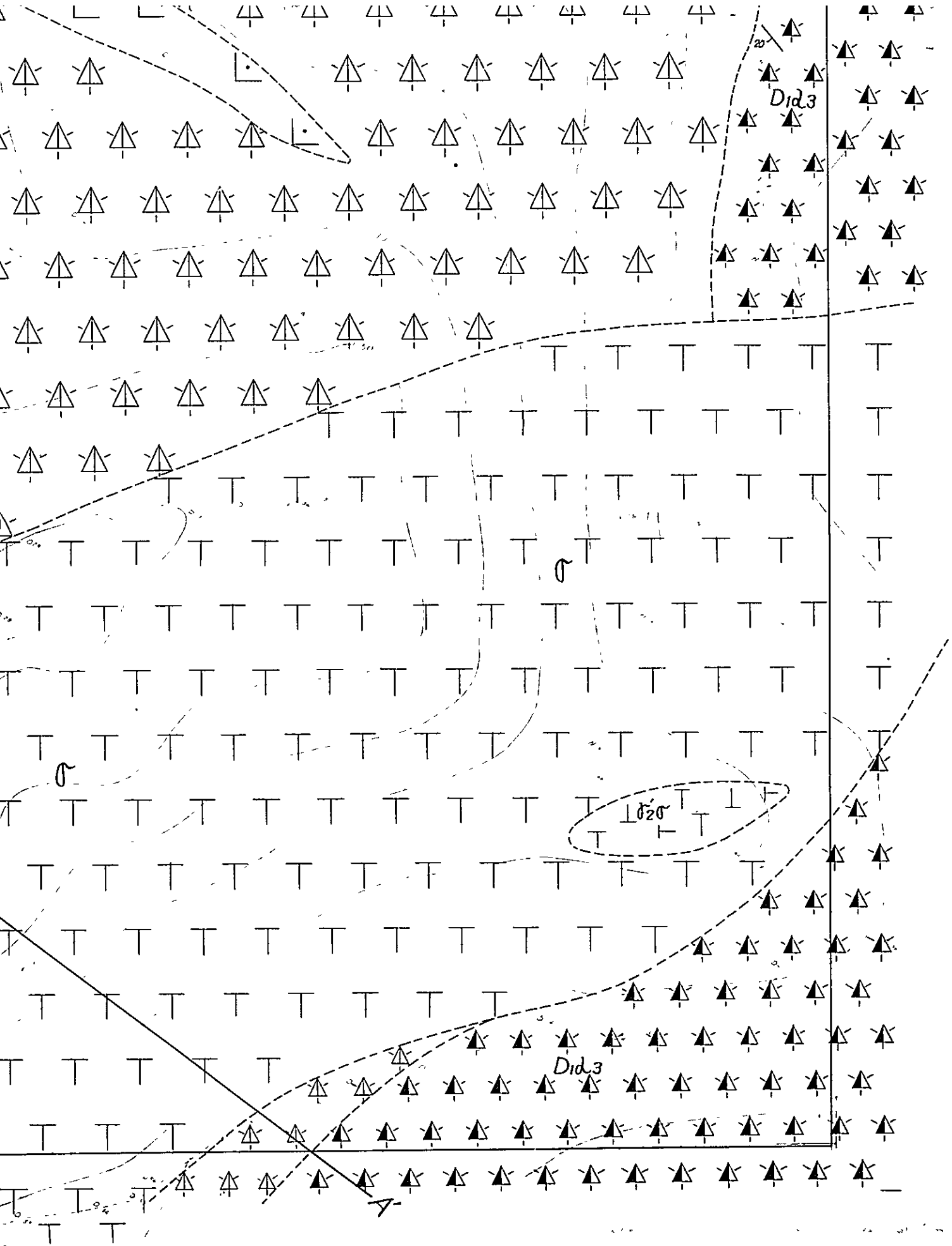
veolajixy 25. 1961. Formasy	
Paleogene Paleosen Neogene Miyosen	A3
Upper Cretaceous Ust Kretase	A2
	D1
Intrusive rocks Intruzivler	A1



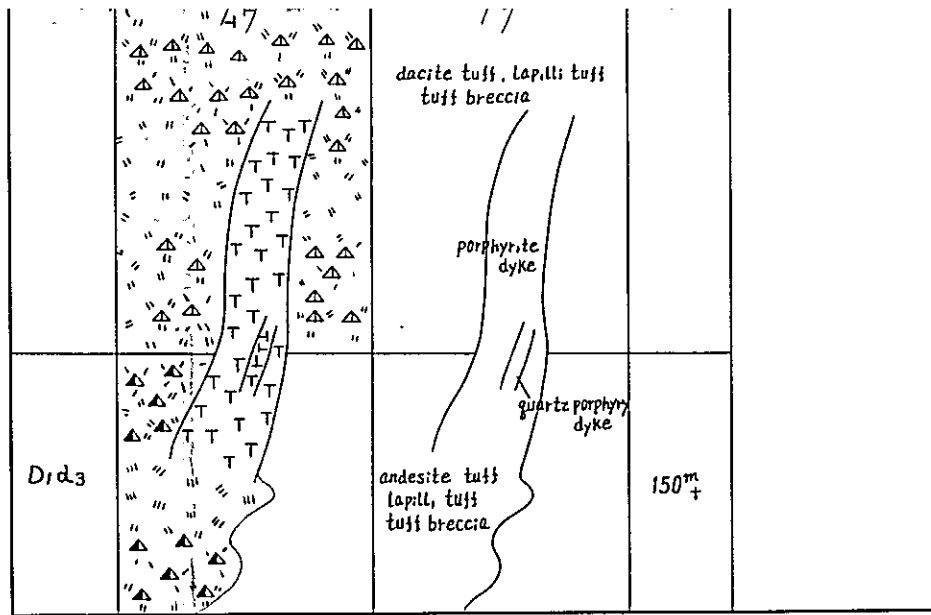
Paleogene Paleosen Neogene Miyosen	A3		A3α	Andesite lava Andezit lavı	
				Upper Cretaceous Üst Kretase	A2
D1		D1λ4	Dacite lava Dasit lavı Dacite pyroclastics Dasit Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı		
		D1α4	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler		
		D1λ3	Dacite lava Dasit lavı Dacite pyroclastics Dasit Piroklastikler Basalt lava Bazalt lavı Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı		
		D1α3	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı		
A1		D1kt	Limestone, marl Kireçtaşı, marl		
		A1λ2	Dacite lava Dasit lavı Dacite pyroclastics Dasit Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı Limestone, marl Kireçtaşı, marl		
A1		A1α2	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı		
		A1kt	Limestone, marl Kireçtaşı, marl		
Intrusive rocks Intruzifler			β		Basalt Bazalt
			α		Andesite Andezit
			ε		Dacite Dasit
			σ	Porphyrite Porfir	
			δσ2	Diorite porphyrite Diorit porfir	
			δ2	Quartz diorite Kuvars diorit	
			δ2σ	Quartz diorite porphyrite Kuvars diorit porfir	
			δ2σ	Quartz porphyry Kuvars porfiri	
				Bedding Tabaka	
				Fault Fay	
				Joint Kırık	
				Flow structure Akıntılı yapı	
				Anticlinal/synclinal, axis Antiklinal/senklinial eksen	
				Working mine/abandoned mine Çalışan maden/kapalı maden	
				Mineralization, vein type/dissemination type Mineralizasyon damar tip/dissemine tip	
				Massive, bedded ore/veinlets Masif, tabakalı cevher/damarcıklar	
				Skarnized zone Skarn zonu	
				Drilling site Sondaj yer	
				Geological profile line Jeolojik kesit çizgisi	





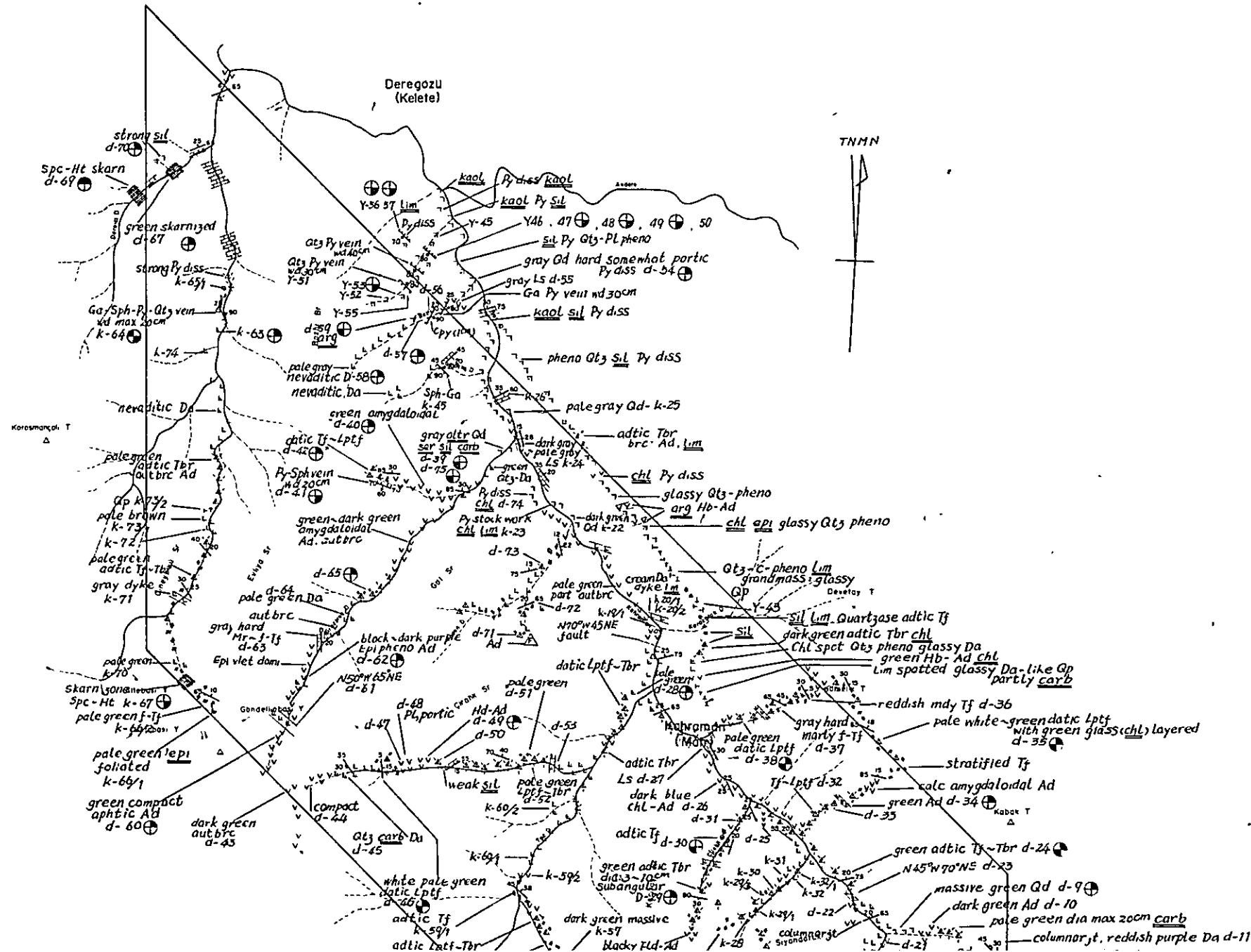


Intrusion  
Intrusion



		D1α3	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Proklastikler Fine tuff & calcareous mudstone Ince tuf & kalkerli çamurtaşı
		D1kt	Limestone, marl. Kireçtaşı, marl.
A1		A1λ2	Dacite lava Dazit lavı Dacite pyroclastics Dazit Proklastikler Fine tuff & calcareous mudstone Ince tuf & kalkerli çamurtaşı
			Andesite lava Andezitik lav Andesite pyroclastics Andezitik Proklastikler Fine tuff & calcareous mudstone Ince tuf & kalkerli çamurtaşı
		A1kt	Limestone, marl. Kireçtaşı, marl.
Intrusive rocks Intruzifler		β	Basalt Bazalt
		α	Andesite Andezit
		ε	Dacite Dazit
		σ	Porphyrite Porfirit
		δσ2	Diorite porphyrite Diorit porfirit
		δ2	Quartz diorite Kuvars diorit
		δ2σ	Quartz diorite porphyrite Kuvars diorit porfirit
		δ2σ	Quartz porphyry Kuvars porfiri
			Bedding Tabaka
			Fault Fay
			Joint Kırık
			Flow structure Akıntılı yapı
			Anticlinal/synclinal, axis Antiklinal/senklinial eksen
			Working mine/abandoned mine Çalışan maden/kapalı maden
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			Skarnized zone Skarn zonu
			Drilling site Sondaj yer
			Geological profile line Jeolojik kesit çizgisi

# LEGEND LEJAND



Geological symbol & abbreviation of geological term  
Jeolojik sembol & jeolojik term kısaltmaları

Symbol Sembol	Mark İşaret	Rock name Kayaç isimleri			
	Ls	limestone kireçtaşı			
	Mr	marl marn			
	Md	mudstone çamurtaşı			
	St	siltstone silt taşı			
	Ss	sandstone kumtaşı			
	Cg	conglomerate konglomera			
	Bt	basalt			
	Ad	andesite andezit			
	Da	dacite dasıt			
	Rh	rhyolite rhyolit			
<b>Sedimentary rocks Sedimantar kayaçlar</b>					
<b>Volcanic &amp; pyroclastic rocks Volkanik piroklastik kayaçlar</b>					
(basalt) (bazalt)	(andesite) (andezit)	(dacite) (dasıt)	(rhyolite) (rhyolit)	Tf	fine-coarse tuff ince-iri tif
				Lptf	lapped tuff lapılı tuf
				Tbr	tuff breccia tuf breş
				Volbrc	volcanic breccia volkanik breş
				Agg	agglomerate aglomera
				Volcg	volcanic conglomerate volkanik konglomera
				Gr	granite granit
				Gd	granodiorite granodiorit
				Dp	diorite porphyrite diorit porfirli
				Od	quartz diorite kuvars diorit
				Po	porphyrite porfirli
				Qp	quartz porphyry kuvars porfirli
				Gp	granite porphyry granit porfirli
				Qdp	quartz diorite porphyrite kuvars diorit porfirli
				Di	diorite diorit
<b>Plutonic &amp; hypabyssal rocks Derinlik hipabisal kayaçlar</b>					
	20 65	strike & dip doğrultu & eğim			
	30 65	strike & dip of joint kırıkların doğrultu eğimi			
	10	flow structure akıntı yapısı			
	60 11	strike & dip of geological boundary dokanak doğrultu doğrultu ve eğimi			
	70 65	fault fay			
	70 65	fault showing direction of dislocation atım yönünü gösteren fay			
	70 65	fault & sheared zone			
					anjestin andezit agglomer konglomera basaltik bazaltik calcareou kalkeren dacitic dasirik granitic



LEGEND  
LEJAND

Geological symbol & abbreviation of geological term  
Jeolojik sembol & jeolojik term kısaltmaları

Symbol Sembol	Mark İşaret	Rock name Kayaç isimleri
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	Ss	sandstone kumtaşı
	Cg	conglomerate konglomera
	Bt	basalt bazalt
	Ad	andesite andezit
	Da	dacite dasit
	Rh	rhyolite ryolit
<p>Sedimentary rocks Sedimanter kayaçlar</p>		
<p>Volcanic &amp; pyroclastic rocks Volkanik piroklastik kayaçlar</p>		
	(basalt) (bazalt)	
	(andesite) (andezit)	
	(dacite) (dasit)	
	(rhyolite) (ryolit)	
	Tf	fine-coarse tuff ince-iri tuf
	Lptf	lapilli tuff lapılı tuf
	Tbr	tuff breccia tuf breş
	Volbrc	volcanic breccia volkanik breş
	Agg	agglomerate aglomera
	Volcg	volcanic conglomerate volkanik konglomera
	Gr	granite granit
	Gd	granodiorite granodiorit
	Dp	diorite porphyrite diorit porfir
	Qd	quartz diorite kuvars diorit
	Po	porphyrite porfir
	Qp	quartz porphyry kuvars porfiri
	Gp	granite porphyry granit porfiri
	Qdp	quartz diorite porphyrite kuvars diorit porfiri
	Di	diorite diorit
<p>Plutonic &amp; hypabyssal rocks Derinlik hipabisal kayaçlar</p>		

Symbol	Description
	strike & dip doğrultu & eğim
	strike & dip of joint kırıkların doğrultu eğimi
	flow structure akın yapısı
	strike & dip of geological boundary dokümanak doğrultu doğrultu ve eğimi
	fault fay
	fault showing direction of dislocation atım yönünü gösteren fay

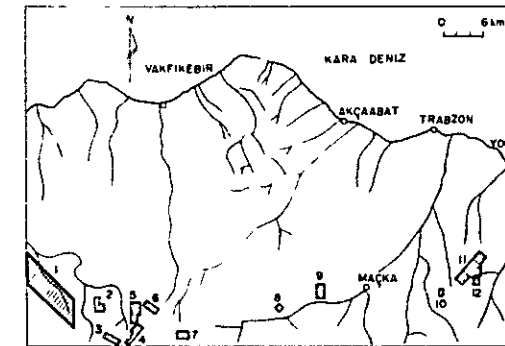
  

Mark İşaret	Word Kelime	Mark İşaret	Word Kelime	Mark İşaret	Word Kelime
(Lithology)		Hb	hornblende hornblend	pillow	pillow structure yastık yapısı
adtic	andesitic andezitik	Ht	hematite hematit	poritic	porphyritic porfiritik
aggtic	agglomeratic aglomeratik	k-Fld	potash feldspar potas-feldspat	vlet	veinlet damarcık
btic	basaltic bazaltik	Kaol	kaoline kaolin		
calc	calcareous kalkerli	Lim	limonite limonit	(Alteration)	
datic	dacitic dasitik	Malct	malachite malakit	(Alterasyon)	altered altere olmuş
gnic	granitic granitik			altr	albitized

MINERAL RESEARCH AND EXPLORATION INSTITUTE  
GEOLOGICAL SURVEY  
OF  
TRABZON AREA, NORTHEASTERN TURKEY

PHASE III  
ROUTE MAP WITH LOCALITIES OF ROCK  
SAMPLES AROUND KAHRAMAN DERE AREA  
KAHRAMAN DERE SAHASININ  
GÜZERGAH HARİTASI VE NUMUNE YERLERİ

INDEX MAP



- 1 Kahraman Dere
- 2 Ajaçadağ
- 3 Çeşel Dere
- 4 Gölüalan
- 5 Ken mine
- 6 Ken Dere, Fıldere
- 7 Akise Yayla
- 8 Yeni Mahalle
- 9 Salana
- 10 Kani Tepe
- 11 Kızılcık Çayhanları
- 12 Tuzlak Mezrası
- 13 Ocak
- 14 Uzunlu

General geological survey area Detailed geological survey area

Scale 1:25,000

0 1 2 km  
Ölçek

METAL MINING AGENCY OF JAPAN  
JAPAN INTERNATIONAL COOPERATION AGENCY  
FEBRUARY 1977

Prepared by Nikko Exploration & Development Co. Ltd

gase adtic Tf  
c. Tbr chl  
pheno glassy Da  
green hb- Ad chl  
L.m spotted glassy Da-like Gp  
partly carb

reddish mdy Tf d-36  
pale white-green datic Lptf  
with green glass(chl) layered  
d-35

stratified Tf  
calc amygdaloidal Ad  
green Ad d-34  
KABON T  
d-35

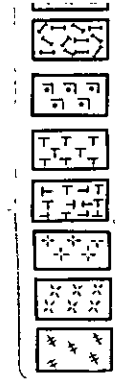
green adtic Tf-Tbr d-24  
N45°W 70°NE d-23

massive green Qd d-9  
dark green Ad d-10  
pale green dia-max zoom carb  
d-27

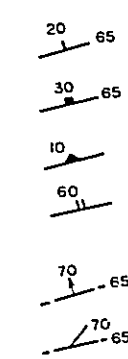
columnar jt. reddish purple Da d-11



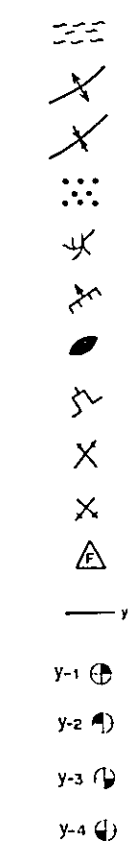
rocks  
Derinlik  
hipabisal  
kavaçlar



Dp diorite porphyry  
Qd quartz diorite  
Po porphyrite  
Qp quartz porphyry  
Gp granite porphyry  
Qdp quartz diorite porphyry  
Di diorite

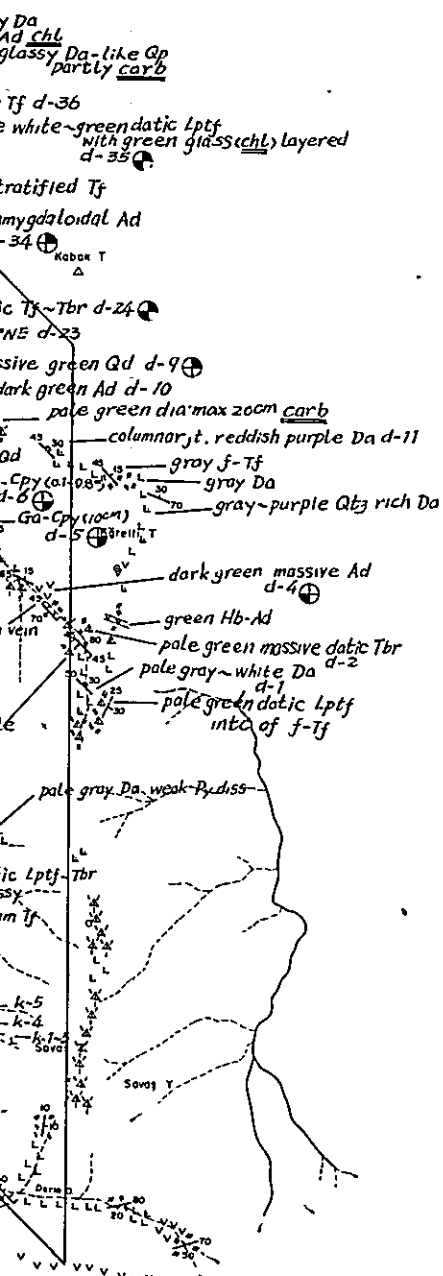


20 65 strike & dip  
doğrultu & eğim  
30 65 strike & dip of joint  
kırıkların doğrultu eğimi  
10 flow structure  
akıntı yapısı  
60 strike & dip of geological boundary  
dokümanak doğrultu ve eğimi  
70 fault  
fay  
70 65 fault showing direction of dislocation  
atım yönünü gösteren fay

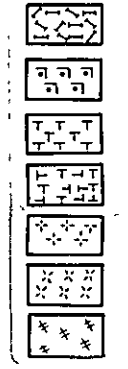


fault & sheared zone  
fay & makaslama zonu  
anticline  
antiklinal  
syncline  
senklinal  
dissemination  
disseminasyon  
veinlets  
damarcıklar  
vens  
damar  
massive, bedded ore  
masif, tabakalı cevher  
adit  
güleri  
working mine  
çalışan maden  
old mine  
eski maden  
float  
dokuntu  
position of rock sample  
kayaç numunelerinin durumu  
for Microscopic observation of thin section  
İnce kesit mikroskopik araştırma için  
for Microscopic observation of polish section  
Parlak kesit mikroskopik araştırma için  
for Chemical analysis  
Kimyasal analiz için  
for X ray diffractive analysis  
X-ışını difraktif analiz için

Mark  
İsaret  
(Lithology)  
(Litoloji)  
adtic  
aggitic  
btic  
calc  
datitic  
gritic  
mdy  
pmc  
rhtic  
sdy  
sil  
sty  
tfc  
xeno  
(Minerals)  
(Mineraller)  
Arag  
Ba  
Biot  
Cal  
Carb  
Chi  
Cpy  
Epi  
Fld  
Ga



Derinlik hipabisal kayalar



- strike & dip of joint  
kırıkların doğrultu ve eğimi
- flow structure  
akıntı yapısı
- strike & dip of geological boundary  
dokunak doğrultu ve eğimi
- fault  
fay
- fault showing direction of dislocation  
atım yönünü gösteren fay
- fault & sheared zone  
fay & makaslama zonu
- anticline  
antiklinal
- syncline  
senklinal
- dissemination  
diseminasyon
- veinlets  
damarcıklar
- vien  
damar
- massive, bedded ore  
masif, tabakalı cevher
- adit  
galeri
- working mine  
çalışan maden
- old mine  
eski maden
- float  
dokuntü
- position of rock sample  
kayaç numunelerinin durumu
- for Microscopic observation of thin section  
İnce kesit mikroskopik araştırma için
- for Microscopic observation of polish section  
Parlak kesit mikroskopik araştırma için
- for Chemical analysis  
Kimyasal analiz için
- for X-ray diffractive analysis  
X-ışını difraktif analizi için

- Dp diorite porphyrite  
diorit porfiru
- Qd quartz diorite  
kuvars diorit
- Po porphyrite  
porfiru
- Qp quartz porphyry  
kuvars porfiri
- Gp granite porphyry  
granit porfiri
- Qdp quartz diorite porphyrite  
kuvars diorit porfiru
- Di diorite  
diorit

Mark Isaret	Word Kelime	Mark Isaret	Word Kelime	Mark Isaret	Word Kelime
(Lithology) (Litoloji)		Hb	hornblende hornblend	pillow	pillow structure yastık yapısı
adtc	andesitic andezitik	Ht	hematite hematit	portic	porphyritic porfiritik
aggtic	agglomeratic aglomeratik	k-Fld	potash-feldspar potas-feldspat	vlet	veinlet damarcık
btic	basaltic bazaltik	Kaol	kaolin kaolin	(Alteration) (Alterasyon)	
calc	calcareous kalkerli	Lim	limonite limonit	altr	altered altere olmuş
datic	dacitic dasitik	Malct	malachite malakit	alb	albitized albitleşmiş
grtic	granitic granitik	Mt	magnetite manyetit	argl	argillaceous kil
mdy	muddy çamurlu	Mont	montmorillonite montmorillonit	carb	carbonized karbonatlaşmış
pmc	pumiceous pumis	OI	olivine olivin	chl	chloritized kloritleşmiş
rhtic	rhyolitic riyolitik	Pl	plagioclase plajyoklas	epi	epidotized epidotlaşmış
sdv	sandy kumlu	Py	Pyrite pirit	ht	hematitized hematitleşmiş
sil	siliceous silisli	Pyr	Pyroxene pirokсен	kaol	kaolinized kaolinleşmiş
sty	silty siltili	Qtz	quartz kuvars	lim	limonitized limonitleşmiş
tfc	tuffaceous tuffli	Ser	sericite serizit	mont	montmorillonized montmorillonitleşmiş
xeno	xenolith ksenolit	Spc	Specularite Spekularit	ser	sericitized serizitleşmiş
(Minerals) (Mineraller)		Sph	sphalerite sfalerit	sil	silicified silisleşmiş
Arag	aragonite aragonit	Zeo	zeolite zeolit	(Others) (Diğerleri)	
Ba	barite barit	(Texture) (Tekstür)		aver	average ortalama
Biot	biotite biyit	altn	alternation münavebe	dia	diameter çap
Cal	calcite kalsit	aphitic	aphanitic afanitik	diss	dissemination diseminasyon
Carb	carbonates karbonat	autbrc	autobrecciated structure otobreleşmiş	max	maximum maksimum
Chl	chlorite klorit	brc	breccia(structure) breşik(yapı)	strong	strong, strongly kuvvetli, kuvvetlice
Cpy	Chalcopyrite kalkopirit	flow	flow structure akıntılı yapı	weak	weak, weakly zayıf, zayıfca
Ep	epidote epidot	frag	fragment tane	wd	width genişlik
Fld	feldspar feldspat	grad	gradually tedrici	U	upper üst
Ga	galena galen	Intc	intercalation arakağı	M	middle orta
		jt	joint kırık	L	lower alt
		mtx	matrix hamur	f	fine ince
		onion	onion structure soğan yapısı	m	medium orta
		pheno	phenocryst fenokrist	c	coarse iri
				domi	dominant



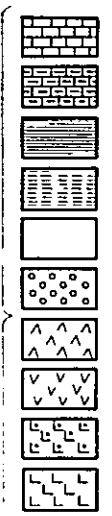


# LEGEND LEJAND

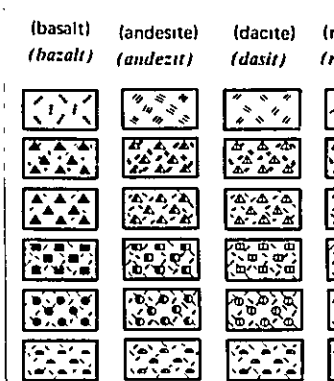
Geological symbol & abbreviation  
Jeolojik sembol & jeolojik terim k

Symbol  
Sembol

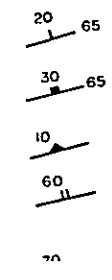
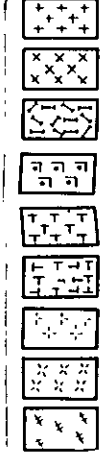
Sedimentary rocks  
Sedimantar kayalar



Volcanic & pyroclastic rocks  
Vulkanik piroklastik kayalar



Plutonic & hypabyssal rocks  
Derinlik hipabisal kayalar

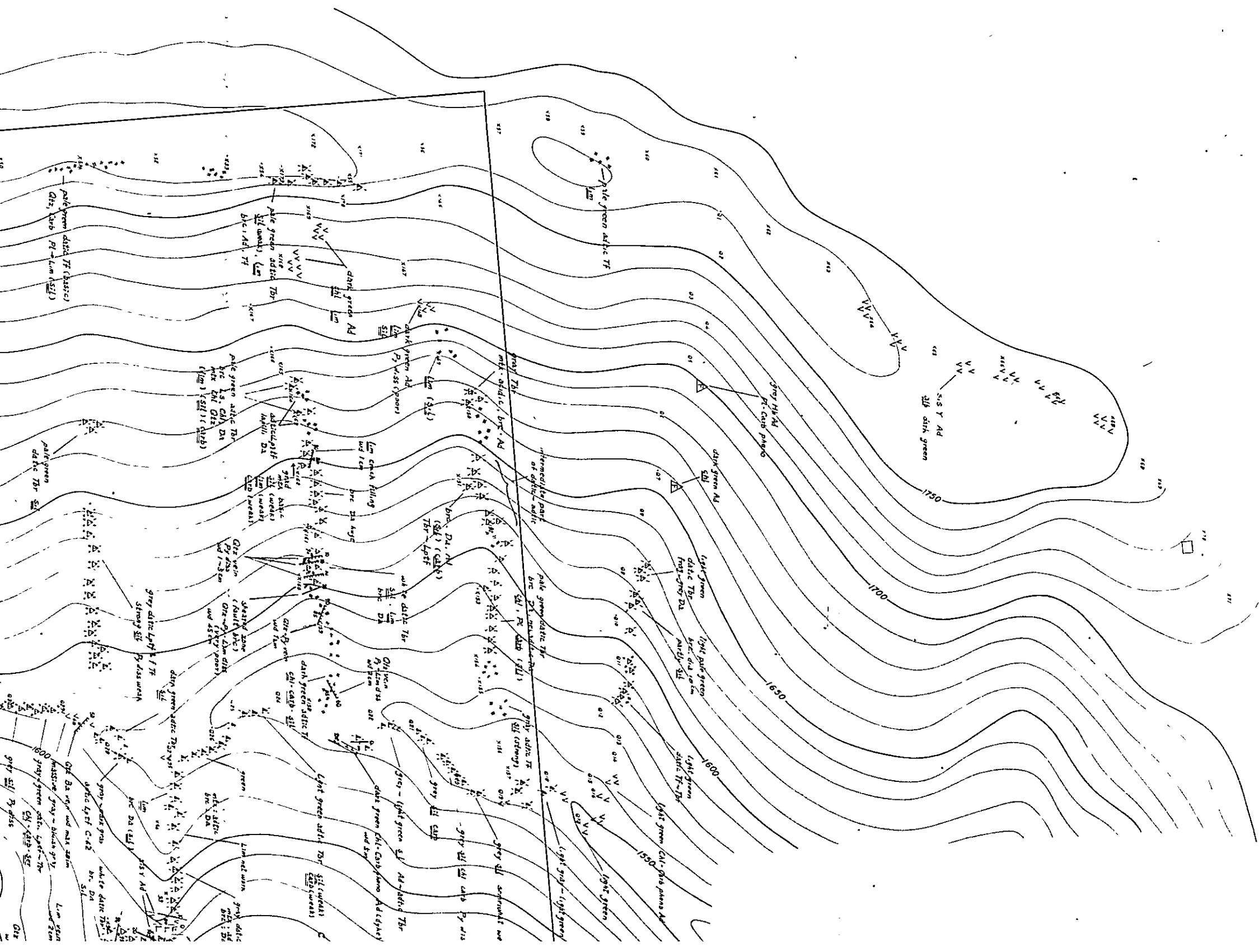


strike & dip  
doğrultu & eğim

strike & dip of joint  
kırıkların doğrultu eğimi

flow structure  
akma yapısı

strike & dip of geological contact  
dokunak doğrultu eğimi



LEGEND  
LEJAND

Geological symbol & abbreviation of geological term  
Jeolojik sembol & jeolojik terim kısaltmaları

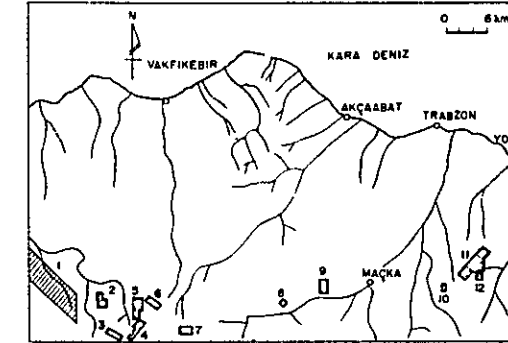
	Symbol Sembol	Mark İşaret	Rock name Kayaç isimleri
Sedimentary rocks Sedimanter kayaçlar		Ls	limestone kireçtaşı
		Mr	marl marn
		Md	mudstone çamurtaşı
		St	siltstone silt taşı
		Ss	sandstone kumtaşı
		Cg	conglomerate konglomera
		Bt	basalt
		Ad	andesite andezit
		Da	dacite dasit
		Rh	rhyolite riyolit
Volcanic & pyroclastic rocks Volkanik piroklastik kayaçlar	(basalt) (andesite) (dacite) (rhyolite) (bazalt) (andezit) (dasit) (riyolit)		
		Tf	fine-coarse tuff ince-iri tüf
		Lptf	lapilli tuff lapilli tüf
		Tbr	tuff breccia tüf breş
		Volbrc	volcanic breccia volkanik breş
		Agg	agglomerate aglomera
		Volcg	volcanic conglomerate volkanik konglomera
		Gr	granite granit
		Gd	granodiorite granodiorit
		Dp	diorite porphyrite diorit porfir
Plutonic & hypabyssal rocks Derinlik hipabisal kayaçlar		Qd	quartz diorite kuvars diorit
		Po	porphyrite porfir
		Qp	quartz porphyry kuvars porfiri
		Gp	granite porphyry granit porfiri
		Qdp	quartz diorite porphyrite kuvars diorit porfir
		Di	diorite diorit
			strike & dip doğrultu & eğim
			strike & dip of joint kırıkların doğrultu eğimi
			flow structure akma yapısı
			strike & dip of geological boundary dokanak doğrultu doğrultu ve eğimi

MINERAL RESEARCH AND EXPLORATION INSTITUTE  
GEOLOGICAL SURVEY  
OF  
TRABZON AREA, NORTHEASTERN TURKEY

PHASE III

ROUTE MAP WITH LOCALITIES OF ROCK  
SAMPLES AROUND ALACADAĞ AREA  
ALACADAĞ SAHASININ GÜZERGAH  
HARİTASI VE NUMUNE YERLERİ

INDEX MAP



- 1 Kahraman Dere
- 2 Alacadağ
- 3 Çeşel Dere
- 4 Gülüalan
- 5 Ken mine
- 6 Ken Dere, Fol Dere
- 7 Akise Yayla
- 8 Yeni Mahalle
- 9 Salanâ
- 10 Kani Tepe
- 11 Kızıldağ Çukurluğu
- 12 Tuzlak Mezraası
- 13 Ocak
- 14 Uzumlu

General geological survey area Detailed geological survey area

Scale 1:2,000  
0 100 200m  
Olçek

METAL MINING AGENCY OF JAPAN  
JAPAN INTERNATIONAL COOPERATION AGENCY  
FEBRUARY 1977

Prepared by Nikko Exploration & Development Co., Ltd.

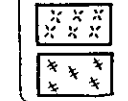
Mark İşaret	Word Kelime	Mark İşaret	Word Kelime	Mark İşaret	Word Kelime
(Lithology) (Litoloji) adtic	andésitic andezitik	Hb	hornblende hornblend	pillow	pillow structure yastık yapısı
aggtic	agglomeratic aglomeraatik	Ht	hematite hematit	portic	porphyritic porfiritik
huc	basaltic	k-Fld	potash-feldspar potas-feldspat	vlet	veinlet damarlık











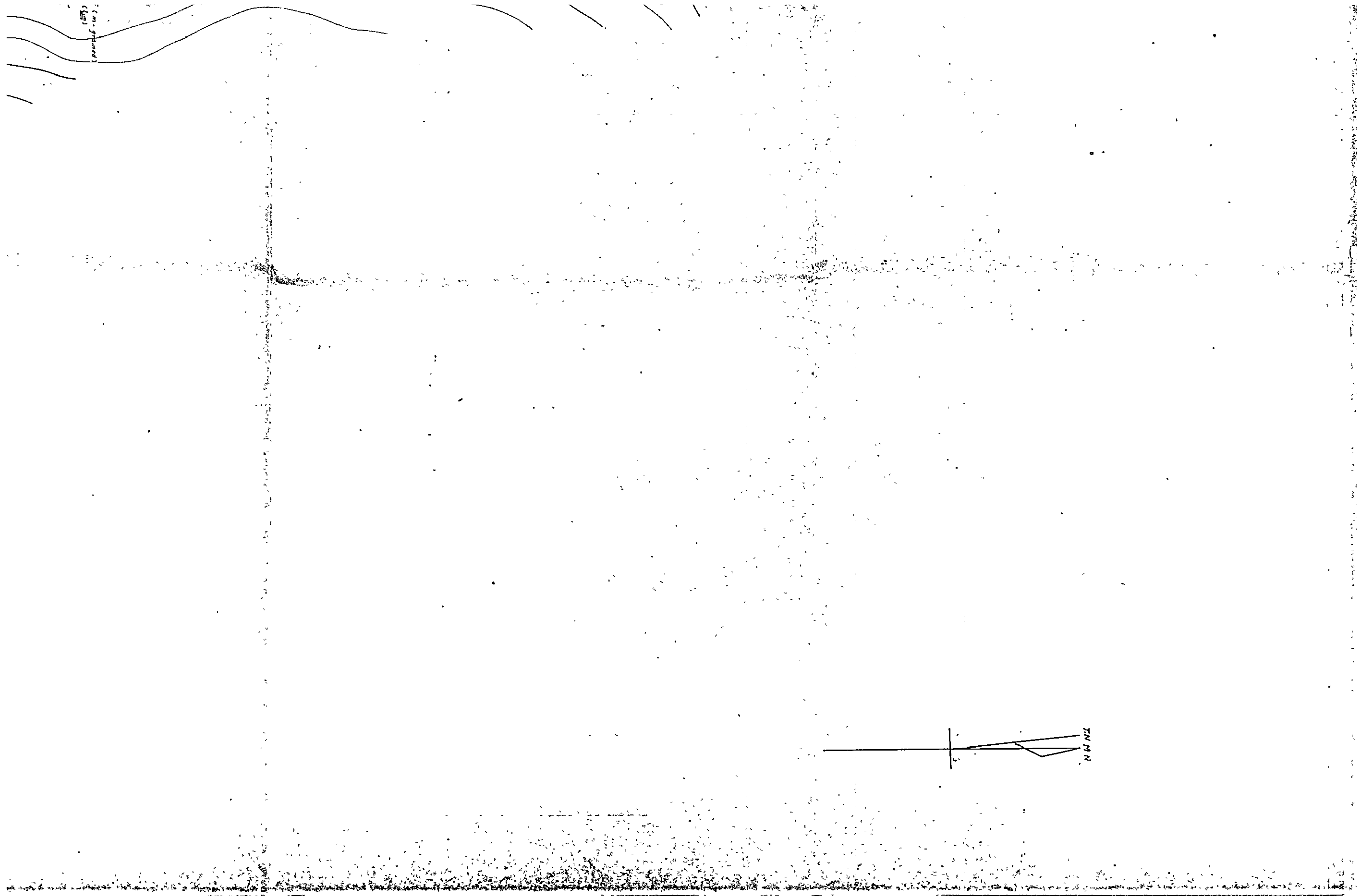
- strike & dip  
*doğrultu & eğim*
- strike & dip of joint  
*kirikların doğrultu eğimi*
- flow structure  
*akma yapısı*
- strike & dip of geological boundary  
*dokumanak doğrultu doğrultu ve eğimi*
- fault  
*fay*
- fault showing direction of dislocation  
*atım yönünü gösteren fay*
- fault & sheared zone  
*fay & makaslama zonu*
- anticline  
*antiklinal*
- syncline  
*senklinal*
- dissemination  
*diseminasyon*
- veinlets  
*damarcıklar*
- vien  
*damar*
- massive, bedded ore  
*masif, tabakalı cevher*
- adit  
*galeri*
- working mine  
*çalışan maden*
- old mine  
*eski maden*
- float  
*doküntü*
- position of rock sample  
*kayaç numunelerinin durumu*
- for Microscopic observation of thin section  
*İnce kesit mikroskopik araştırma için*
- for Microscopic observation of polish section  
*Parlak kesit mikroskopik araştırma için*
- for Chemical analysis  
*Kimyasal analiz için*
- for X-ray diffractive analysis  
*X-ışını difraktif analizi için*

Qdp	quartz diorite porphyrite kuvars diorit porfiriz
D1	diorite diorit
Mark <i>Isaret</i>	Word <i>Kelime</i>
(Lithology) <i>(Litoloji)</i>	
aditc	andesitic <i>andezitik</i>
aggtic	agglomeratic <i>aglomeratik</i>
btic	basaltic <i>bazaltik</i>
calc	calcareous <i>kalkerli</i>
datic	dacitic <i>dasitik</i>
grtic	granitic <i>granitik</i>
mdy	mudy <i>çamurlu</i>
pmc	pumiceous <i>pümsü</i>
rhtic	rhyolitic <i>riyolitik</i>
sdyl	sandy <i>kumlu</i>
sil	siliceous <i>süslü</i>
sty	silty <i>süslü</i>
tfc	tuffaceous <i>tüflü</i>
xeno	xenolith <i>ksenolit</i>
(Minerals) <i>(Mineraler)</i>	
Arag	aragonite <i>aragonit</i>
Ba	barite <i>barit</i>
Biot	biotite <i>biotit</i>
Cal	calcite <i>kalsit</i>
Carb	carbonates <i>karbonat</i>
Chl	chlorite <i>klorit</i>
Cpy	Chalcopyrite <i>kalkopirit</i>
Epi	epidote <i>epidot</i>
Fid	feldspar <i>feldspat</i>
Ga	galena <i>galen</i>
















Mark <i>Isaret</i>	Word <i>Kelime</i>
Hb	hornblende <i>hornblend</i>
Ht	hematite <i>hematit</i>
k-Fld	potash feldspar <i>potas-feldspat</i>
Kaol	kaoline <i>kaolin</i>
Lim	limonite <i>limonit</i>
Malct	malachite <i>malakit</i>
Mt	magnetite <i>manyetit</i>
Mont	montmorillonite <i>montmorillonit</i>
Oi	olivine <i>olivin</i>
Pi	plagioclase <i>plajoklas</i>
Py	Pyrite <i>pirit</i>
Pyr	Pyroxene <i>piroksen</i>
Qtz	quartz <i>kuvars</i>
Ser	sericite <i>serisit</i>
Spc	Specularite <i>Spekularit</i>
Sph	sphalerite <i>sfalerit</i>
Zeo	zeolite <i>zeolit</i>
(Texture) <i>(Tekstür)</i>	
altn	alternation <i>munavebe</i>
aphctc	aphanitic <i>afanitik</i>
autbrc	autobrecciated structure <i>otobresleşmiş</i>
brc	breccia(structure) <i>breyik(yapı)</i>
flow	flow structure <i>akıntılı yapı</i>
frag	fragment <i>tane</i>
grad	gradually <i>tedrici</i>
Intc	intercalation <i>arakatki</i>
jt	joint <i>kirik</i>
mtx	matrix <i>hamur</i>
onion	onion structure <i>soğan yapısı</i>
pheno	phenocryst <i>fenokrist</i>
pillow	pillow structure <i>yastık yapısı</i>
portic	porphyritic <i>porfiritik</i>
vlet	veinlet <i>damarcık</i>
(Alterasyon) <i>(Alterasyon)</i>	
altr	altered <i>altere olmuş</i>
alb	albitized <i>albitleşmiş</i>
argl	argillaceous <i>kil</i>
carb	carbonitized <i>karbonatlaşmış</i>
chl	chloritized <i>kloritleşmiş</i>
epi	epidotized <i>epidotlaşmış</i>
ht	hematitized <i>hematitleşmiş</i>
kaol	kaolinized <i>kaolinleşmiş</i>
lim	limonitized <i>limonitleşmiş</i>
mont	montmorillonized <i>montmorillonitleşmiş</i>
ser	sericitized <i>serisitleşmiş</i>
sil	silicified <i>süslüleşmiş</i>
(Others) <i>(Diğerleri)</i>	
aver	average <i>ortalama</i>
dia	diameter <i>çap</i>
diss	dissemination <i>diseminasyon</i>
max	maximum <i>maksimum</i>
strong	strong, strongly <i>kuvvetli-kuvvetlice</i>
weak	weak, weakly <i>zayıf-zayıfca</i>
wd	width <i>genişlik</i>
U	upper <i>üst</i>
M	middle <i>orta</i>
L	lower <i>alt</i>
f-	fine <i>ince</i>
m	medium <i>orta</i>
c-	coarse <i>iri</i>
domu	dominant





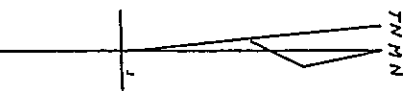


100-1000  
(km)

-  mas
-  adif
-  gale
-  wor
-  çali
-  old
-  eski
-  floi
-  dol
-  pas
-  kay
-  y-1 for
-  y-2 for
-  y-3 for
-  y-4 for

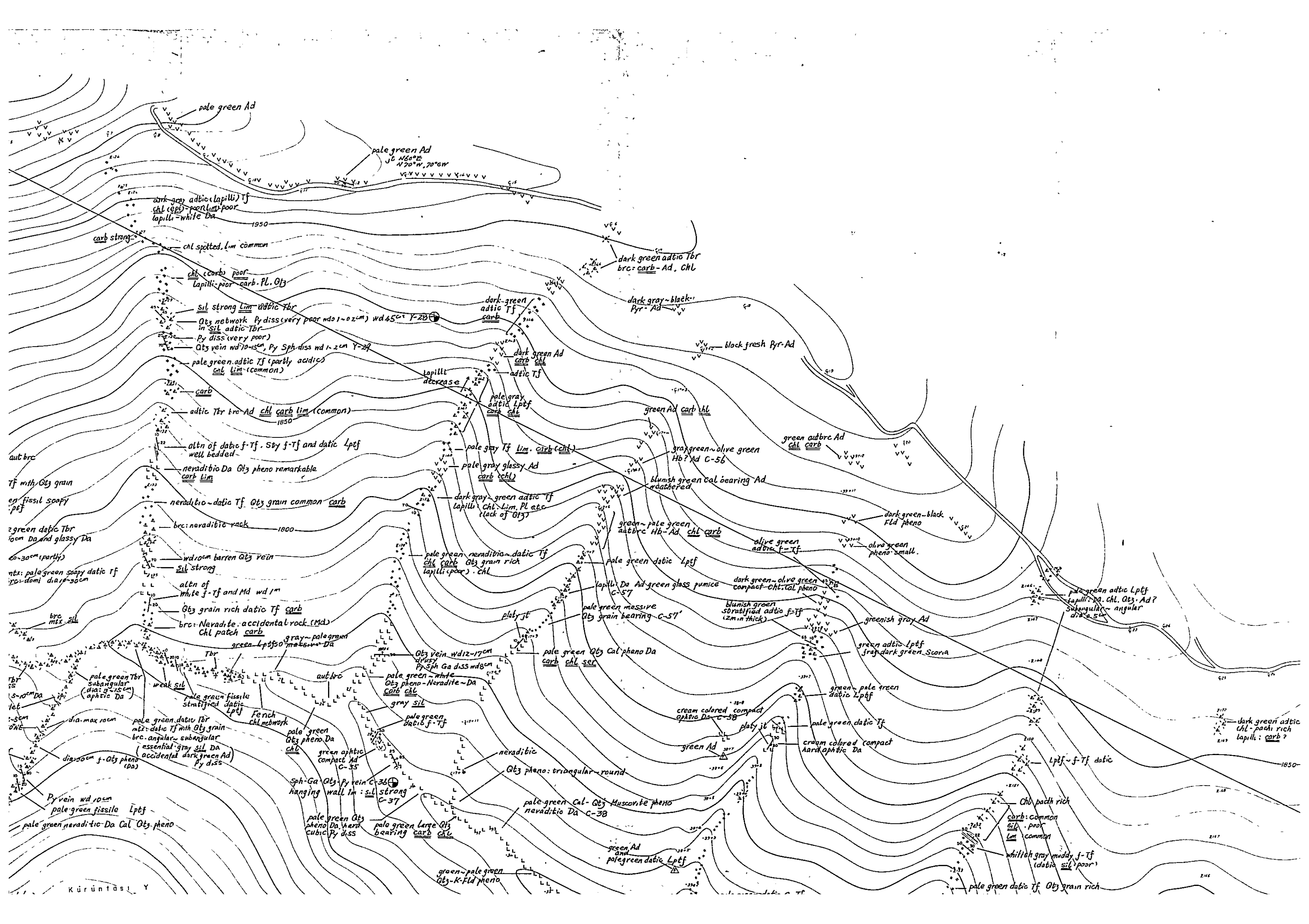


	vien damar	tic	tufaceous tiftli	Ser	sericite serizit	im	limonitized limonitlesmis
	massive, bedded ore masif, tabakali cevher	xeno	xenolith ksenolit	Spc	Specularite Spekulant	mont	montmorillonitized montmorillonitlesmis
	adit galeri	(Minerals) (Mineraler)		Sph	sphalerite sfalerit	ser	sericitized serizitlesmis
	working mine calisan maden	Arag	aragonite aragonit	Zeo	zeolite zeolit	sil	silicified silislesmis
	old mine eski maden	Ba	barite barit	(Texture) (Tekstur)		(Others) (Diğerleri)	
	float dokuntü	Biot	biotite biotit	altn	alternation minavebe	aver	average ortalama
	position of rock sample kayaç numunelerinin durumu	Cal	calcite kalsit	aphic	aphanitic afanitik	dia	diameter diameter
	for Microscopic observation of thin section ince kesit mikroskopik arastirma için	Carb	carbonates karbonat	autbrc	autobrecciated structure otobreşlesmiş	diss	dissemination dissemination
	for Microscopic observation of polish section Parlak kesit mikroskopik arastirma için	Chi	chlorite klorit	brc	breccia(structure) breşik(vapı)	max	maximum maksimum
	for Chemical analysis Kimyasal analiz için	Cpy	Chalcopyrite kalkopirit	flow	flow structure akıntılı yapı	strong	strong, strongly kuvvetli-kuvvetlice
	for X-ray diffractive analysis X-ışını difraktif analizi için	Epi	epidote epidot	frag.	fragment tane	weak	weak, weakly zayıf-zayıfca
		Fld	feldspar feldspat	grad	gradually tedrici	wd	width genişlik
		Ga	galena galen	Intc	intercalation arakatlı	U	upper üst
				jt	joint kırık	M	middle orta
				mtx	matrix hamur	L	lower alt
				onion	onion structure soğan yapısı	f-	fine ince
				pheno	phenocryst fenokrist	m-	medium orta
						c-	coarse iri
						dom	dominant









pale green Ad

pale green Ad  
J6 N60°E  
N70°W, 70°SW

dark gray aditic (lapilli) Tf  
chl (epi)-poor (lim)-poor  
lapilli-white Da

dark green aditic Tbr  
brc: carb-Ad, chl

chl (carb) poor  
lapilli-poor carb-Pl, Qtz

dark green aditic Tf  
carb

dark gray-black  
Pyr-Ad

sil strong Lim aditic Tbr  
Qtz network Py diss (very poor wd 1-0.2cm) wd 45cm Y-28

Py diss (very poor)  
Qtz vein wd 70-15cm, Py Sph diss wd 1-2cm Y-29

dark green Ad  
carb chl

black fresh Pyr-Ad

pale green aditic Tf (partly acidics)  
cal lim (common)

Lapilli decrease

carb

pale gray aditic Lptf  
carb chl

green Ad carb chl

aditic Tbr brc-Ad chl carb lim (common)

alt of datic f-Tf, Sty f-Tf and datic Lptf  
well bedded

pale gray Tf lim carb (chl)

gray-green-olive green  
Hb? Ad C-56

green outbre Ad  
chl carb

neraditic Da Qtz pheno remarkable  
carb lim

pale gray glassy Ad  
carb chl

bluish green Cal bearing Ad  
weathered

neraditic-datic Tf Qtz grain common carb

dark gray-green aditic Tf  
lapilli chl-Lim, Pl etc  
(lack of Qtz)

dark green-black  
Fld pheno

brc: neraditic rack

pale green neraditic-datic Tf  
chl carb Qtz grain rich  
lapilli (poor) chl

green-pale green  
aditic Hb-Ad chl carb

olive green  
aditic f-Tf

olive green  
pheno small

wd 30cm (partly)  
ntx: pale green saapy datic Tf  
10-15cm dia 10-30cm

alt of  
white f-Tf and Md wd 1m

gray-pale green  
green Lptf 50 massive Da

pale green datic Lptf

dark green-olive green  
compact chl-cal pheno

bluish green  
stratified aditic f-Tf  
(2m in thick)

pale green aditic Lptf  
lapilli: Da, chl, Qtz, Ad?  
subangular-angular  
dia 2-5cm

Qtz grain rich datic Tf carb

gray sil

pale green massive  
Qtz grain bearing C-57

lappilli Da Ad green glass pumice  
C-57

greenish gray Ad

green aditic Lptf  
frag dark green Scona

brc: Neradite accidental rock (Md)  
chl patch carb

Qtz vein wd 12-17cm  
drusy  
Py Sph Ga diss w 8cm

pale green Qtz Cal pheno Da  
carb chl ser

cream colored compact  
aphitic Da C-58

green-pale green  
datic Lptf

green-pale green  
datic Lptf

pale green Tbr  
subangular  
dia: 9-15cm  
aphitic Da

weak sil

pale green-white  
Qtz pheno-Neradite-Da  
carb chl

gray sil

platy jt

green Ad

cream colored compact  
hard aphitic Da

pale green datic Tbr  
ntx: datic Tf with Qtz grain  
brc: angular-subangular  
essential gray sil Da  
(accidental dark green Ad)  
Py diss

Fench  
chl network

pale green  
Qtz pheno Da  
chl

neraditic

Qtz pheno: triangular-round

green Ad

Lptf-f-Tf datic

dia: max 10cm

green aphitic  
compact Ad  
C-35

gray sil

platy jt

platy jt

pale green datic Tf

dark green aditic  
chl-pach rich  
lapilli: carb?

Py vein wd 10cm  
pale green fissile Lptf

Sph-Ga Qtz Py vein C-36  
hanging wall 1m: sil strong  
C-37

neraditic

pale green Cal-Qtz  
Muscovite pheno  
neraditic Da C-38

green Ad

cream colored compact  
hard aphitic Da

chl patch rich  
carb: common  
sil: poor  
lim: common

pale green neraditic-Da Cal Qtz pheno

pale green Qtz  
pheno Da hard  
cubic Py diss

pale green large Qtz  
bearing carb chl

green Ad

platy jt

green Ad

whitish gray muddy f-Tf  
(datic sil: poor)

pale green neraditic-Da Cal Qtz pheno

green Ad

green-pale green  
Qtz-K-Fld pheno

green Ad

platy jt

green Ad

pale green datic Tf Qtz grain rich

pale green neraditic-Da Cal Qtz pheno

green Ad

green-pale green  
Qtz-K-Fld pheno

green Ad

platy jt

green Ad

pale green datic Tf Qtz grain rich

pale green neraditic-Da Cal Qtz pheno

green Ad

green-pale green  
Qtz-K-Fld pheno

green Ad

platy jt

green Ad

pale green datic Tf Qtz grain rich

pale green neraditic-Da Cal Qtz pheno

green Ad

green-pale green  
Qtz-K-Fld pheno

green Ad

platy jt

green Ad

pale green datic Tf Qtz grain rich

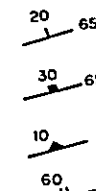
TN M.N



# LEGEND LEJAND

Geological symbol & abbreviation of geological term  
Jeolojik sembol & jeolojik terim kısaltmaları

	Symbol Sembol	Mark İşaret	Rock name Kayaç isimleri
Sedimentary rocks Sedimanter kayaçlar		Ls	limestone kireçtaşı
		Mr	marl marn
		Md	mudstone çamurtaşı
		St	siltstone silt taşı
		Ss	sandstone kumtaşı
		Cg	conglomerate konglomera
		Bt	basalt
		Ad	andesite andezit
		Da	dacite dasit
		Rh	rhyolite riyolit
Volcanic & pyroclastic rocks Volkanik piroklastik kayaçlar	(basalt) (bazalt)		
	(andesite) (andezit)		
	(dacite) (dasit)		
	(rhyolite) (riyolit)		
		Tf	fine-coarse tuff ince-iri tüf
		Lptf	lapilli tuff lapilli tüf
		Tbr	tuff breccia tüf breş
		Volbrc	volcanic breccia volkanik breş
		Agg	agglomerate aglomera
		Volcg	volcanic conglomerate volkanik konglomera
Plutonic & hypabyssal rocks Derinlik hipabisal kayaçlar		Gr	granite granit
		Gd	granodiorite granodiorit
		Dp	diorite porphyrite diorit porfir
		Qd	quartz diorite kuvars diorit
		Po	porphyrite porfir
		Qp	quartz porphyry kuvars porfiri
		Gp	granite porphyry granit porfiri
		Qdp	quartz diorite porphyrite kuvars diorit porfir
		Di	diorite diorit



strike & dip  
doğrultu & eğim  
strike & dip of joint  
kırıkların doğrultu eğimi  
flow structure  
akma yapısı

Mark İşaret	Word Kelime	Mark İşaret
(Lithology) (Litoloji) aditic	andesitic	Hb
		Ht

MINERA

TRABZ

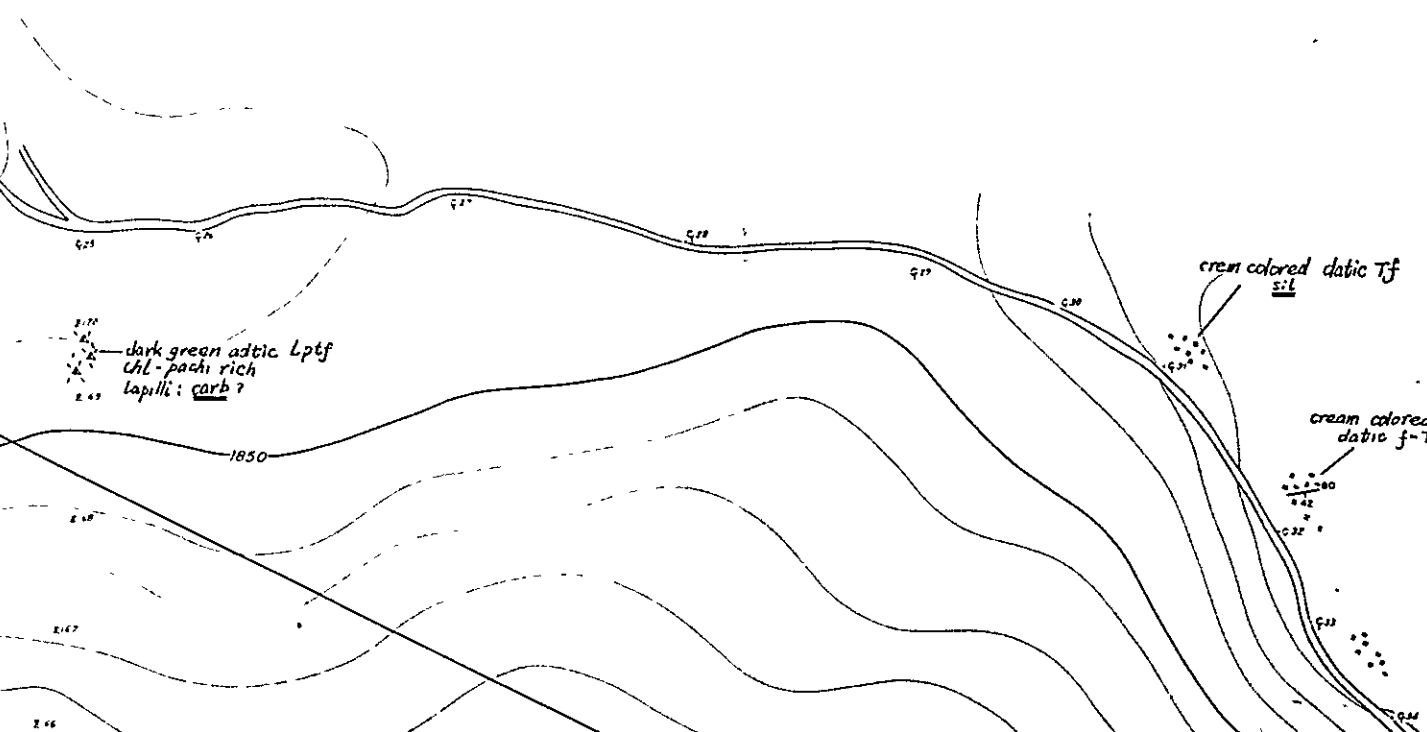
ROUTE  
SAMP

GÜZERG



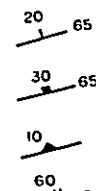
JAPA

Prepared



LEGEND  
LEJAND

Geological symbol & abbreviation of geological term Jeolojik sembol & jeolojik terim kısaltmaları		Mark	Rock name
Symbol	Sembol	İşaret	Kayaç isimleri
Sedimentary rocks Sedimenter kayaçlar		Ls	limestone kireçtaşı
		Mr	marl marn
		Md	mudstone çamurtaşı
		St	siltstone silt taşı
		Ss	sandstone kumtaşı
		Cg	conglomerate konglomera
		Bt	basalt bazalt
		Ad	andesite andezit
		Da	dacite dasit
		Rh	rhyolite riyolit
Volcanic & pyroclastic rocks Volkanik piroklastik kayaçlar	(basalt) (andesite) (dacite) (rhyolite) (bazalt) (andezit) (dasit) (riyolit)	Tf	fine-coarse tuff ince-iri tüf
		Lptf	lapilli tuff lapilli tüf
		Tbr	tuff breccia tüf breş
		Volbrc	volcanic breccia volkanik breş
		Agg	agglomerate ağlomera
		Volcg	volcanic conglomerate volkanik konglomera
		Gr	granite granit
		Gd	granodiorite granodiorit
		Dp	diorite porphyrite diorit porfir
		Qd	quartz diorite kuvars diorit
Plutonic & hypabyssal rocks Derinlik hipabissal kayaçlar		Po	porphyrite porfir
		Qp	quartz porphyry kuvars porfiri
		Gp	granite porphyry granit porfiri
		Qdp	quartz diorite porphyrite kuvars diorit porfir
		Di	diorite diorit
			strike & dip doğrultu & eğim
			strike & dip of joint kırıkların doğrultu eğimi
			flow structure akma yapısı
			geological boundary



strike & dip  
doğrultu & eğim

strike & dip of joint  
kırıkların doğrultu eğimi

flow structure  
akma yapısı

geological boundary

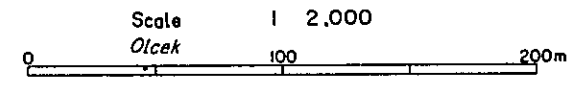
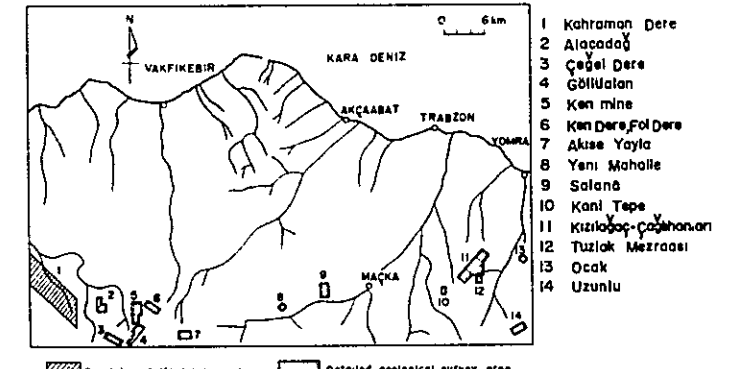
Mark	Word	Mark	Word	Mark	Word
İşaret	Kelime	İşaret	Kelime	İşaret	Kelime
(Lithology)	anfesitic	Hb	hornblende	pillow	pillow structure
aditic		Ht	hornblende hematite	poritic	porphyritic

MINERAL RESEARCH AND EXPLORATION INSTITUTE  
GEOLOGICAL SURVEY  
OF  
TRABZON AREA, NORTHEASTERN TURKEY

PHASE III

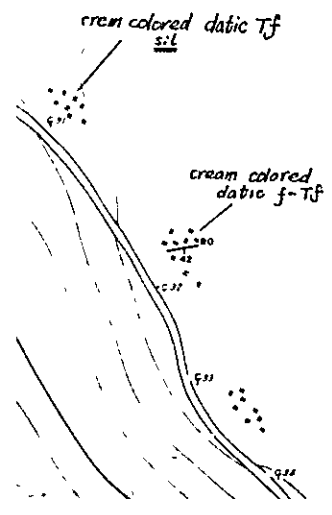
ROUTE MAP WITH LOCALITIES OF ROCK  
SAMPLES AROUND ÇEĞEL DERE AREA  
ÇEĞEL DERE SAHASININ  
GÜZERGAH HARİTASI VE NUMUNE YERLERİ

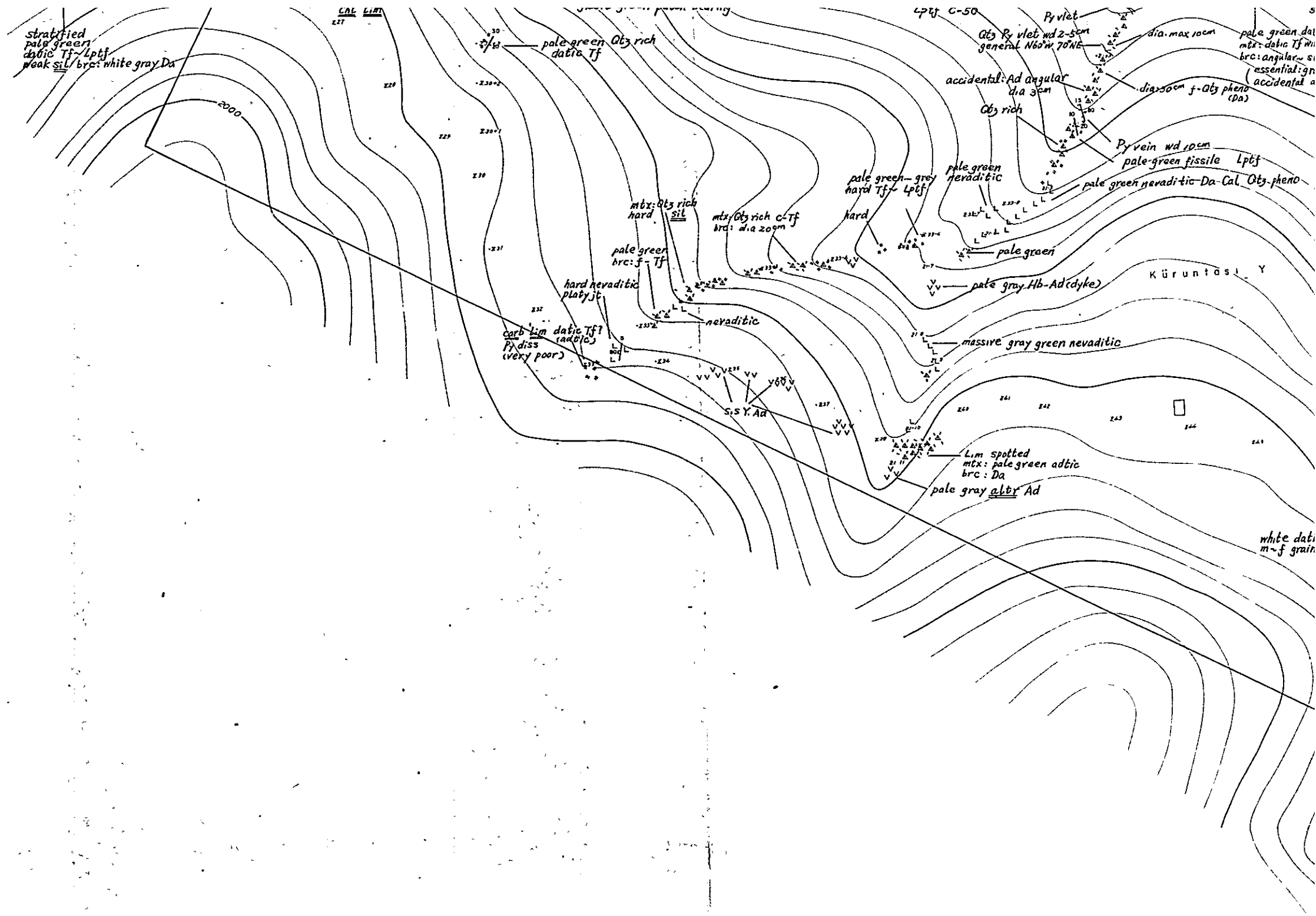
INDEX MAP



METAL MINING AGENCY OF JAPAN  
JAPAN INTERNATIONAL COOPERATION AGENCY  
FEBRUARY 1977

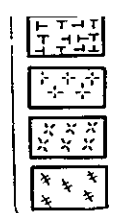
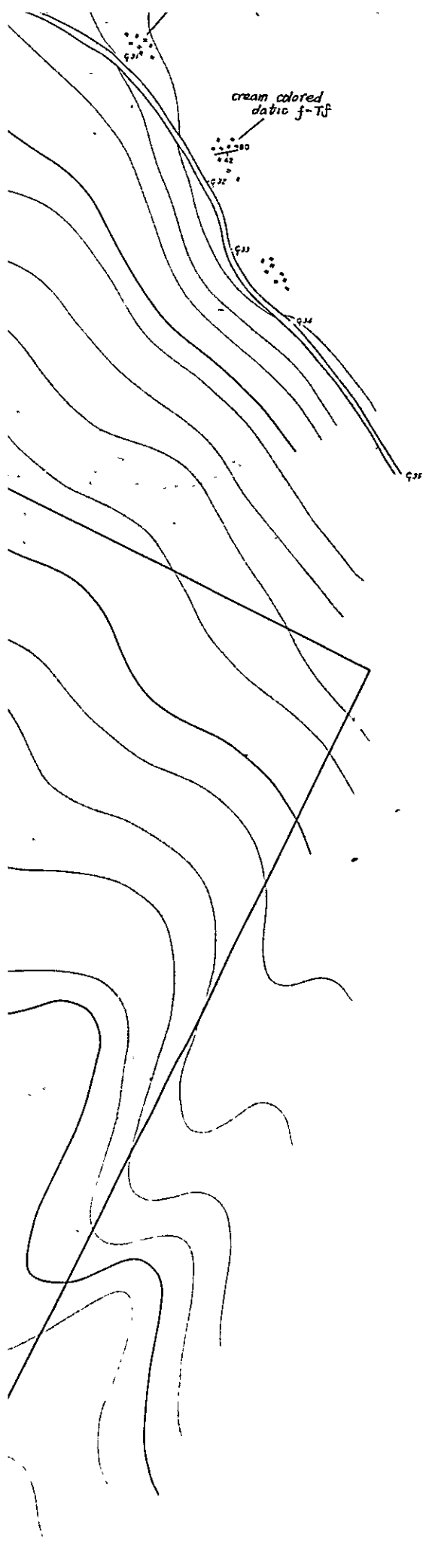
Prepared by Nikko Exploration & Development Co., Ltd









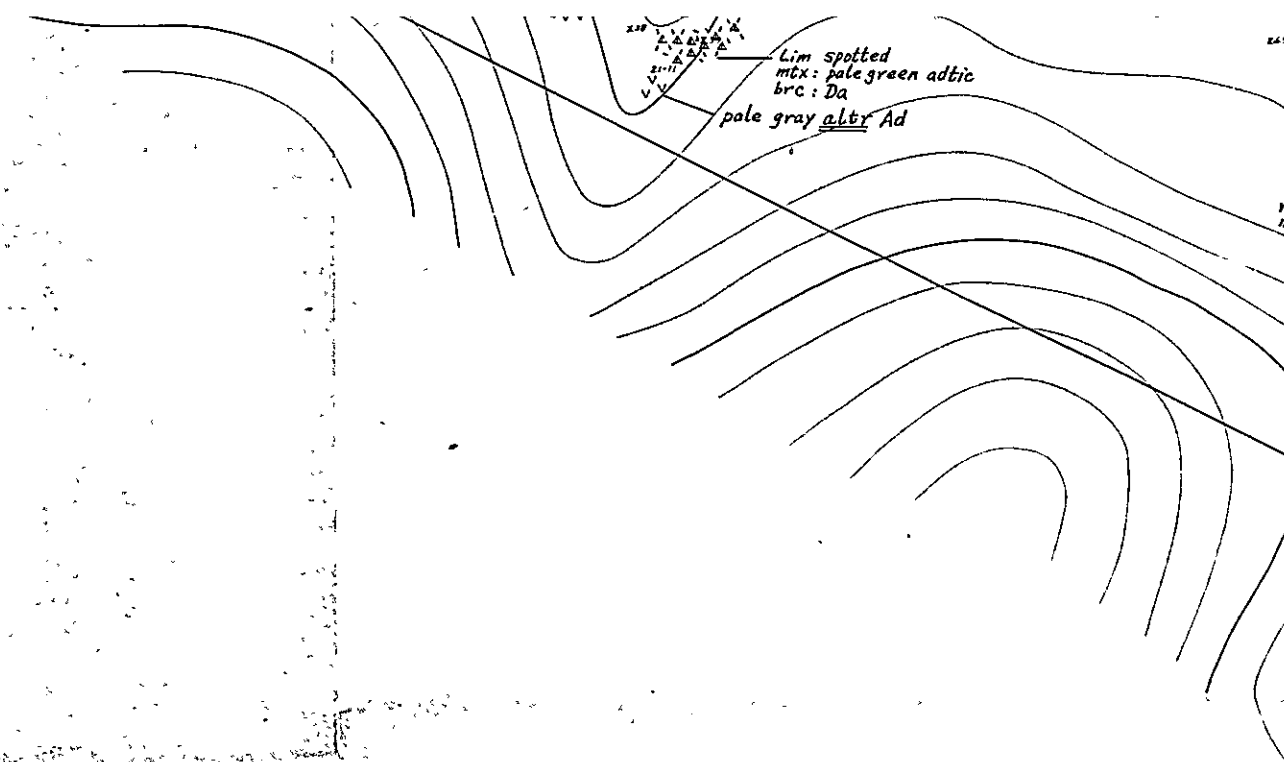


Up quartz porphyry  
kuvars porfiri  
Gp granite porphyry  
granit porfiri  
Qdp quartz diorite porphyrite  
kuvars diorit porfirit  
Di diorite  
diorit

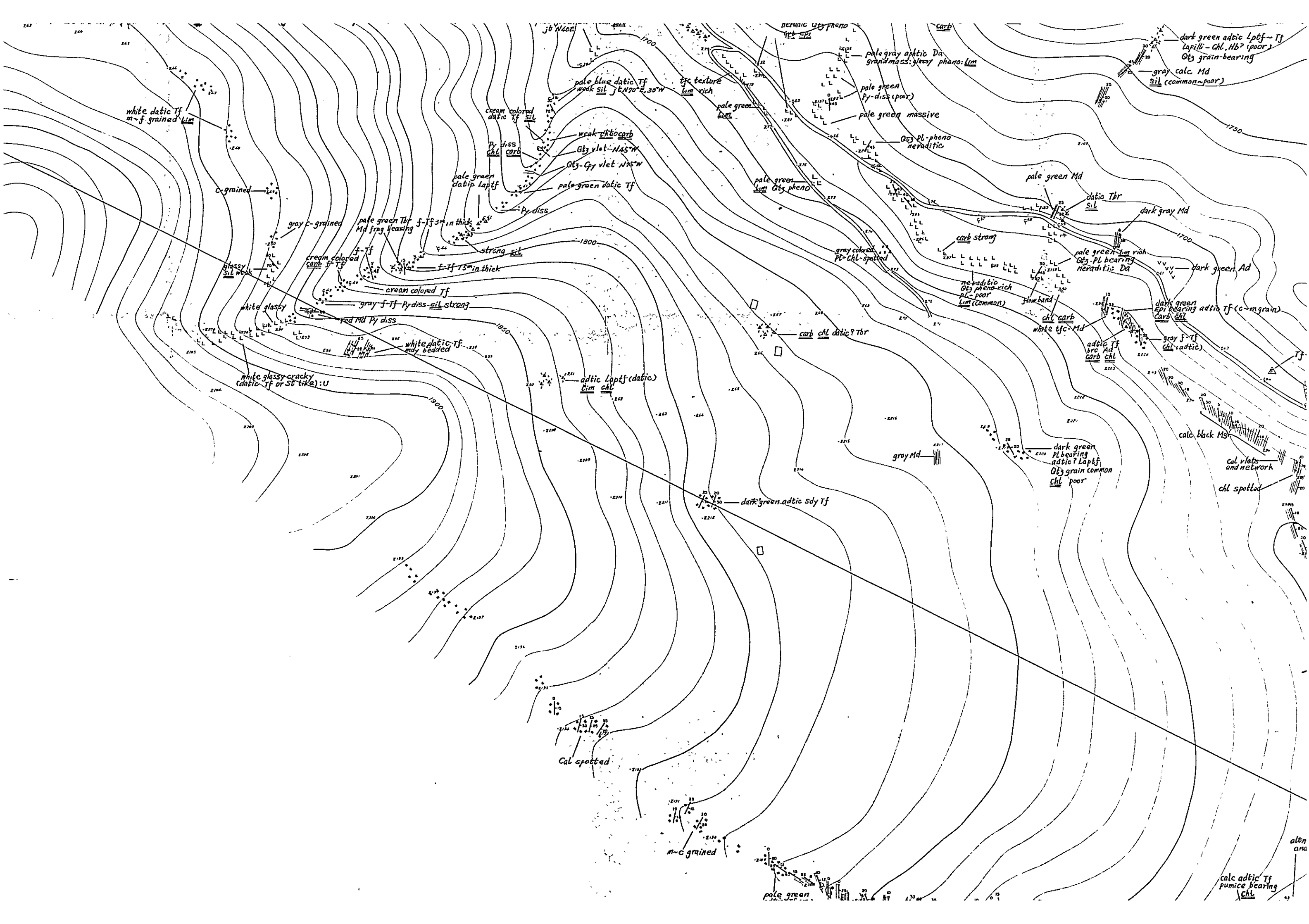
- 20 65 strike & dip  
doğrultu & eğim
- 30 65 strike & dip of joint  
kirikların doğrultu eğimi
- 10 flow structure  
akma yapısı
- 60 65 strike & dip of geological boundary  
dukamak doğrultu doğrultu ve eğimi
- 70 65 fault  
fay
- 70 65 fault showing direction of dislocation  
atım yönünü gösteren fay
- fault & sheared zone  
fay & makaslama zonu
- anticline  
antiklinal
- syncline  
senklinal
- dissemination  
diseminasyon
- veinlets  
damarcıklar
- vien  
damar
- massive, bedded ore  
masif, tabakalı cevher
- adit  
galeri
- working mine  
çalışan maden
- old mine  
eski maden
- float  
doküntü
- position of rock sample  
kayaç numunelerinin durumu
- for Microscopic observation of thin section  
İnce kesit mikroskopik araştırma için
- for Microscopic observation of polish section  
Parlak kesit mikroskopik araştırma için
- for Chemical analysis  
Kimyasal analiz için
- for X-ray diffractive analysis  
X-ışını difraktif analizi için

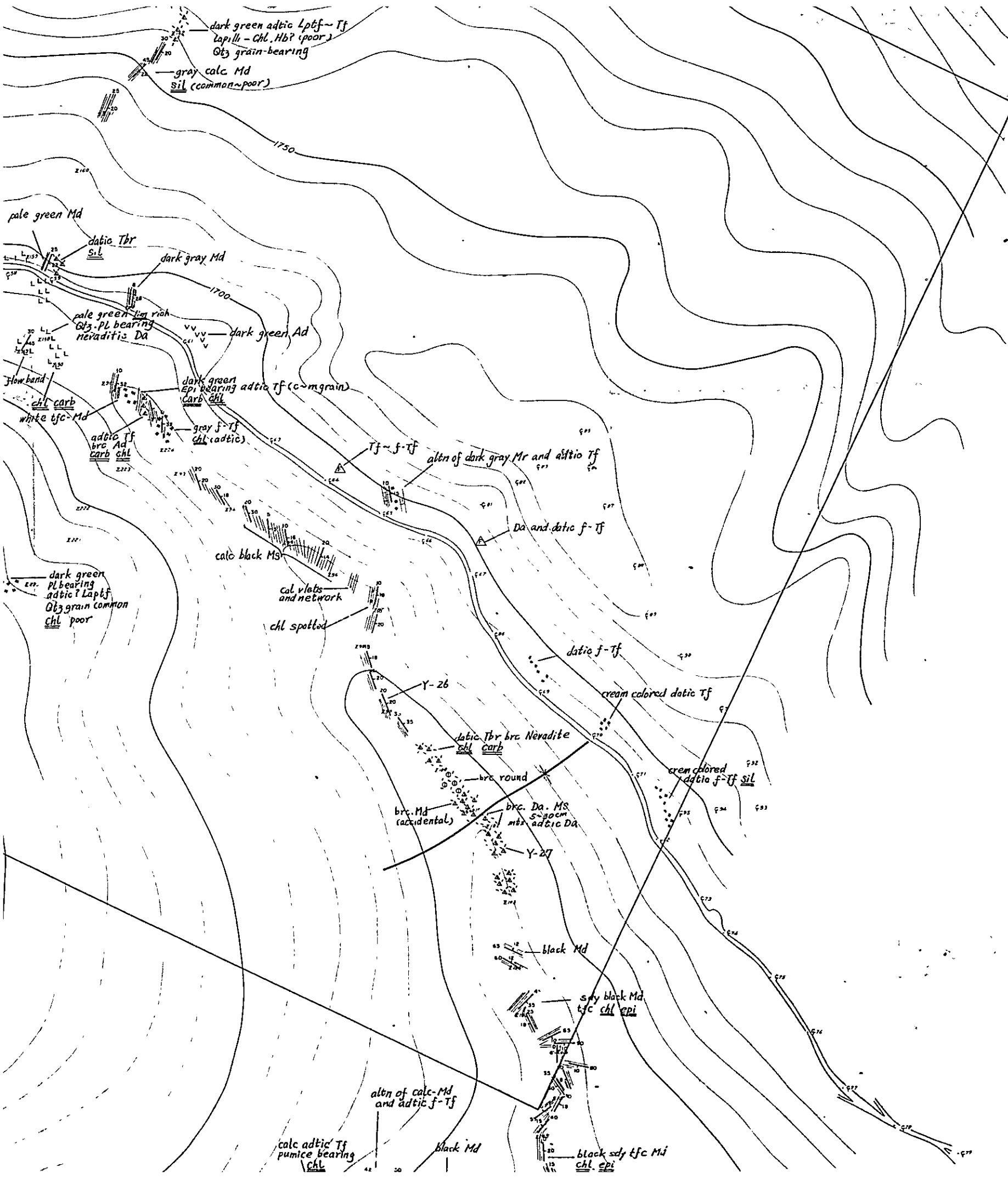
Mark Isaret	Word Kelime	Mark Isaret	Word Kelime	Mark Isaret	Word Kelime
(Lithology) (Litoloji)		Hb	hornblende hornblend	pillow	pillow structure yastık yapısı
adtic	andezitik	Ht	hematite	portic	porphyritic porfiritik
aggtic	agglomeratik	k-Fid	potash-feldspar	vlet	veinlet damarcık
basaltic	bazaltik	Kaol	kaoline		
btic	basaltic		kaolin	(Alteration) (Alterasyon)	
calc	calcareous	Lim	limonite	altr	altered altere olmuş
datic	kalkerli	Malct	limonit	alb	albitized albitleşmiş
grtic	dacitic	Mt	malachite	argl	albitleşmiş argillaceous
mdy	granitic	Mont	malakit	carb	karbonatlaşmış karbonatlaşmış
pmc	granitik	OI	manyetit	chl	chloritized kloritleşmiş
rhtic	mudy	PI	montmorillonite	epi	epidotized epidotlaşmış
sdv	çamurlu	Py	montmorillonit	ht	hematitized hematitleşmiş
sil	pumiceous	Pyr	olivine	kaol	kaolinized kaolinleşmiş
sty	pyimic	Qtz	oliv	lim	limonitized limonitleşmiş
tfc	rhyolitic	Ser	plagioclase	mont	montmorillonized montmorillonitleşmiş
xeno	riyolitik	Spc	plajtoklas	ser	sericitized serisitleşmiş
(Minerals) (Mineraller)	sandy	Sph	pyrite	sil	silicified silisleşmiş
Arag	kuumlu	Zeo	pirit	(Others) (Diğerleri)	
Ba	siliceous		pyroxene	aver	average ortalama
Biot	şilili	(Texture) (Teksür)	proksen	dia	diameter çap
Cal	şiltli	altn	quartz	diss	dissemination diseminasyon
Carb	tuffaceous	aphctic	kuars	max	maximum maksimum
Chl	tüfllü	autbrc	sericite	strong	strongly kuvvetli-kuvvetlice
Cpy	xenolith	brc	serizit	weak	weak, weakly zayıf-zayıfca
Epi	ksenolit	flow	Spekularite	wd	width genişlik
Fld	aragonite	frag:	Spekularit	U	upper üst
Ga	aragonit	grad	Sfalerit	M	middle orta
	barite	Intc	Sfalerit	L	lower alt
	harit	jt	zeolite	f-	fine ince
	biotite	mtx	zeolit	m-	medium orta
	biotit	onion		c-	coarse iri
	biotit	pheno		dom	dominant
	calcite				
	kalsit				
	carbonates				
	karbonat				
	chlorite				
	klorit				
	Chalcopyrite				
	kalkopirit				
	epidote				
	epidot				
	feldspar				
	feldspat				
	galena				
	galen				
	alternation				
	miınavebe				
	aphanitic				
	afanitik				
	autobrecciated structure				
	otobreşleşmiş				
	breccia(structure)				
	breşli yapı				
	flow structure				
	akıntılı yapı				
	fragment				
	tane				
	gradually				
	tedrici				
	intercalation				
	arakatki				
	joint				
	kirik				
	matrix				
	hamur				
	onion structure				
	voğan yapısı				
	phenocryst				
	fenokrist				

Lim spotted  
mtx: pale green adtic  
brc: Da  
pale gray alt Ad

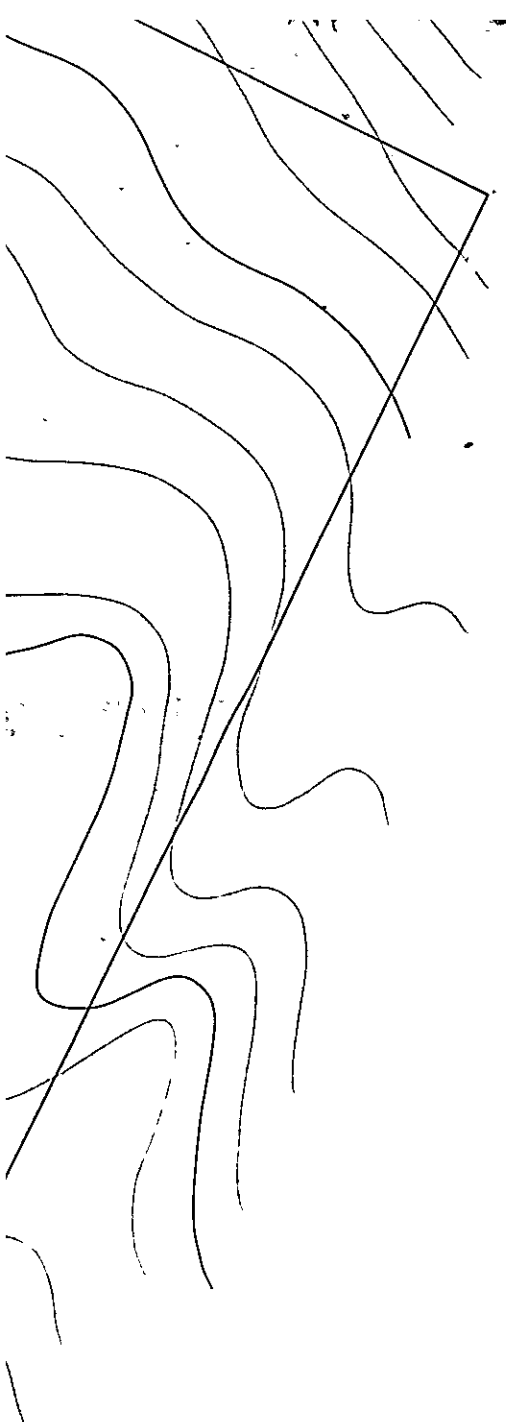




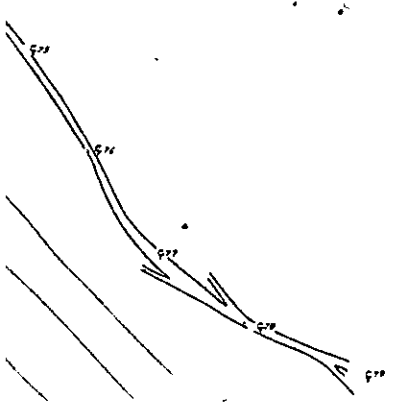




	syncline	
	senklinal	sdv
	dissemination	sil
	veinlets	sty
	damarçiklar	tfc
	vien damar	xeno
	massive, bedded ore	(Minerals)
	masif, tabakali cevher	Arag
	adit	Ba
	galeri	Biot
	working mine	Cal
	çalişan maden	Carb
	old mine	Chl
	eski maden	Cpy
	float	Epi
	doküntü	Fid
	position of rock sample	Ga
	kayaç numunelerinin durumu	
	for Microscopic observation of thin section	
	ince kesit mikroskopik araştırma için	
	for Microscopic observation of polish section	
	Parlak kesit mikroskopik araştırma için	
	for Chemical analysis	
	Kimyasal analiz için	
	for X-ray diffractive analysis	
	X-ışın difraktif analizi için	

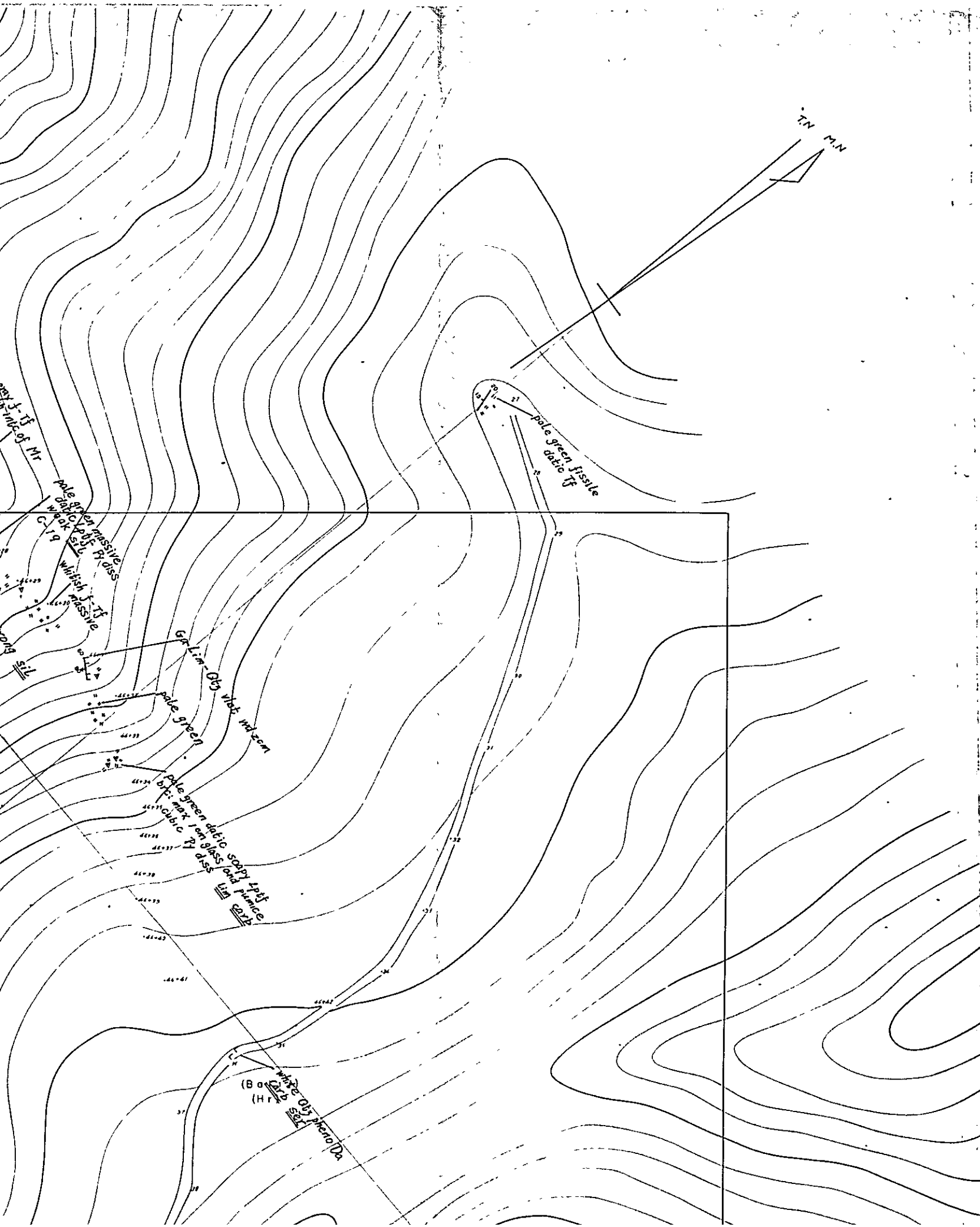


	syncline <i>senklinal</i>	sdv	riyolitik sandy	Py	pyroxene plajyoklas Pyrite	epi	epidotized epidotlaşmış
	dissemination <i>disseminasyon</i>	sil	kumlu siliceous silisli	Pyr	Pyroxene proksen	ht	hematitized hematitleşmiş
	veinlets <i>damarcıklar</i>	sty	siltli silty	Qtz	quartz	kaol	kaolinized kaolinleşmiş
	vien <i>damar</i>	tfc	tuffaceous tufflu	Ser	quartz kuvars	lim	limonitized limonitleşmiş
	massive, bedded ore <i>masif, tabakalı cevher</i>	xeno	xenolith ksenolit	Spc	Specularite <i>Spekularit</i>	mont	montmorillonized montmorillonitleşmiş
	adit <i>galeri</i>	(Minerals) (Mineraller)	aragonite aragonit	Sph	Sphalerite <i>Sfalerit</i>	ser	sericitized serisitleşmiş
	working mine <i>çalışan maden</i>	Arag	barite barit	Zeo	zeolite zeolit	sil	silicified silisleşmiş
	old mine <i>eski maden</i>	Ba	biotite biotit	(Texture) (Tekstür)	alternation <i>münavebe</i>	(Others) (Diğerleri)	average <i>ortalama</i>
	float <i>döküntü</i>	Biot	calcite kalsit	altn		aver	diameter <i>çap</i>
	position of rock sample <i>kayaç numunelerinin durumu</i>	Cal	carbonates <i>karbonat</i>	aphitic	aphanitic <i>afanitik</i>	dia	dissemination <i>disseminasyon</i>
	for Microscopic observation of thin section <i>Ince kesit mikroskopik araştırma için</i>	Carb	chlorite <i>klorit</i>	autbrc	autobrecciated structure <i>otobreşleşmiş</i>	diss	maximum <i>maksimum</i>
	for Microscopic observation of polish section <i>Parlak kesit mikroskopik araştırma için</i>	Chl	Chalcopyrite <i>kalkopirit</i>	brc	breccia(structure) <i>breşik(yapı)</i>	max	strong, strongly <i>kuvvetli-kuvvetlice</i>
	for Chemical analysis <i>Kımyasal analiz için</i>	Cpy	epidote <i>epidot</i>	flow	flow structure <i>akıntılı yapı</i>	strong	weak, weakly <i>zayıf-zayıfca</i>
	for X ray diffractive analysis <i>X-ışını difraktif analizi için</i>	Epi	feldspar <i>feldspat</i>	frag:	fragment <i>tane</i>	weak	width <i>genişlik</i>
		Fld	galena <i>galen</i>	grad	gradually <i>tedrici</i>	wd	upper <i>üst</i>
		Ga		Intc	intercalation <i>arakatki</i>	U	middle <i>orta</i>
				jt	joint <i>kırık</i>	L	lower <i>alt</i>
				mtx	matrix <i>hamur</i>	f-	fine <i>ince</i>
				onion	onion structure <i>soğan yapısı</i>	m-	medium <i>orta</i>
				pheno	phenocryst <i>fenokrist</i>	c-	coarse <i>iri</i>
						dom	dominant









**LEGEND  
LEJAND**

Geological symbol & abbreviation of geological term Jeolojik sembol & jeolojik terim kısaltmaları		Mark İşaret	Rock name Kayaç isimleri	
Symbol Sembol				
Sedimentary rocks Sedimanter kayaçlar	[Symbol]	Ls	limestone kireçtaşı	
	[Symbol]	Mr	marl marn	
	[Symbol]	Md	mudstone çamurtaşı	
	[Symbol]	St	siltstone silt taşı	
	[Symbol]	Ss	sandstone kumtaşı	
	[Symbol]	Cg	conglomerate konglomera	
	[Symbol]	Bt	basalt bazalt	
	[Symbol]	Ad	andesite andezit	
	[Symbol]	Da	dacite dasit	
	[Symbol]	Rh	rhyolite riyolit	
Volcanic & pyroclastic rocks Volkanik piroklastik kayaçlar	[Symbol]	Tf	fine-coarse tuff ince-iri tiif	
	[Symbol]	Lptf	lapilli tuff lapilli tiif	
	[Symbol]	Tbr	tuff breccia tiif breş	
	[Symbol]	Volbrc	volcanic breccia volkanik breş	
	[Symbol]	Agg	agglomerate aglomera	
	[Symbol]	Volcg	volcanic conglomerate volkanik konglomera	
	[Symbol]	Gr	granite granit	
	[Symbol]	Gd	granodiorite granodiorit	
	[Symbol]	Dp	diorite porphyrite diorit porfir	
	[Symbol]	Qd	quartz diorite kuvars diorit	
Plutonic & hypabyssal rocks Derinlik hipabisal kayaçlar	[Symbol]	Po	porphyrite porfir	
	[Symbol]	Qp	quartz porphyry kuvars porfiri	
	[Symbol]	Gp	granite porphyry granit porfiri	
	[Symbol]	Qdp	quartz diorite porphyrite kuvars diorit porfir	
	[Symbol]	Di	diorite diorit	
	[Symbol]			
	[Symbol]			
	[Symbol]			
	[Symbol]			
	[Symbol]			

20 65 strike & dip  
doğrultu & eğim

30 65 strike & dip of joint  
kırıkların doğrultu eğimi

10 flow structure  
akma yapısı

60 strike & dip of geological boundary  
dokümanak doğrultu doğrultu ve eğimi

Mark İşaret	Word Kelime	Mark İşaret	Word Kelime
[Symbol]	(Lithology) (Litoloji)	Hb	hornblende hornblende
[Symbol]	aditic	Ht	hematite hematit
[Symbol]	aggtic	k-Fld	potash potas
[Symbol]	andesitic andezitlik		agglomeratic agglomeratik

MINERAL RE

TRABZON

ROUTE MA  
SAMPLES

GÜZERGAH

General geological

0

MET

JAPAN IN

Prepared by

LEGEND  
LEJAND

Geological symbol & abbreviation of geological term  
Jeolojik sembol & jeolojik terim kısaltmaları

Symbol Sembol	Mark İşaret	Rock name Kayaç isimleri
	Ls	limestone kireçtaşı
	Mr	marl marn
	Md	mudstone çamurtaşı
	St	siltstone silt taşı
	Ss	sandstone kumtaşı
	Cg	conglomerate konglomera
	Bt	basalt bazalt
	Ad	andesite andezit
	Da	dacite dasit
	Rh	rhyolite riyolit
	Tf	fine-coarse tuff ince-iri tüf
	Lptf	lapilli tuff lapilli tüf
	Tbr	tuff breccia tüf breş
	Volbrc	volcanic breccia volkanik breş
	Agg	agglomerate aglomera
	Volcg	volcanic conglomerate volkanik konglomera
	Gr	granite granit
	Gd	granodiorite granodiorit
	Dp	diorite porphyrite diorit porfirit
	Qd	quartz diorite kuvars diorit
	Po	porphyrite porfirit
	Qp	quartz porphyry kuvars porfiri
	Gp	granite porphyry granit porfiri
	Qdp	quartz diorite porphyrite kuvars diorit porfirit
	Di	diorite diorit

Sedimentary  
rocks  
Sedimenter  
kayaçlar

Volcanic &  
pyroclastic  
rocks  
Volkanik  
piroklastik  
kayaçlar

Plutonic &  
hypabyssal  
rocks  
Derinlik  
hipabisal  
kayaçlar

20 65

strike & dip  
doğrultu & eğim

30 65

strike & dip of joint  
kırıkların doğrultu eğimi

10

flow structure  
akma yapısı

60

strike & dip of geological boundary  
dokamak doğrultu doğrultu ve eğimi

Mark  
İşaret

(Lithology)  
(Litoloji)

adtic  
aggtic

Word  
Kelime

andesitic  
andezitik  
agglomeratic  
agglomeratik

Mark  
İşaret

Hb  
Ht  
k-Fld

Word  
Kelime

hornblende  
hornblend  
hematite  
hematit  
potash-feldspar  
potas-feldspat

Mark  
İşaret

pillow  
portic  
vlet

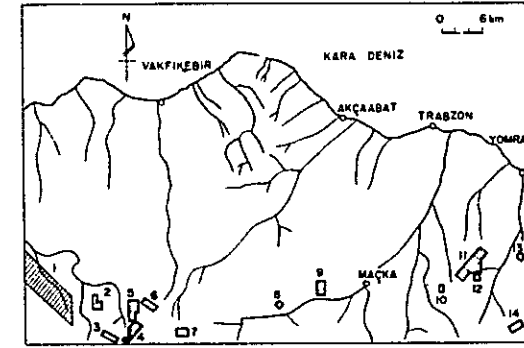
pillow structure  
yastık yapısı  
porphyritic  
porfiritik  
veinlet

PL. 2-4-I

MINERAL RESEARCH AND EXPLORATION INSTITUTE  
GEOLOGICAL SURVEY  
OF  
TRABZON AREA, NORTHEASTERN TURKEY  
PHASE III

ROUTE MAP WITH LOCALITIES OF ROCK  
SAMPLES AROUND GÖLLÜALAN AREA  
GÜZERGAH HARİTASI VE NUMUNE YERLERİ

INDEX MAP

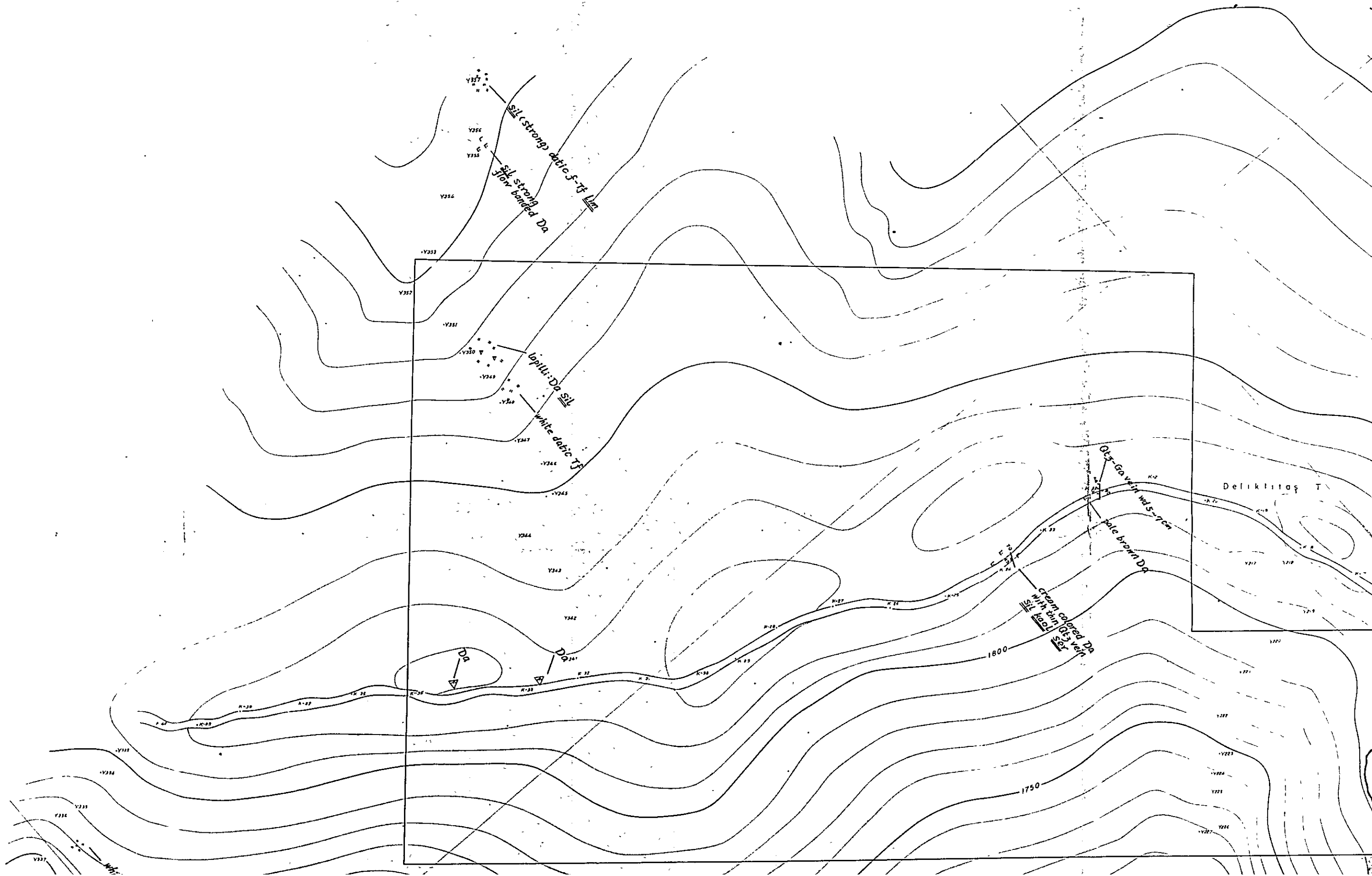


- 1 Kahraman Dere
- 2 Alacadağ
- 3 Çeşel Dere
- 4 GÖLLÜALAN
- 5 Ken mine
- 6 Ken Dere, Fırdere
- 7 Akise Yayla
- 8 Yeni Mahalle
- 9 Salana
- 10 Kani Tepe
- 11 Kızıldağ-Çağışanlar
- 12 Tuzlak Mezraası
- 13 Ocak
- 14 Uzunlu

Scale 1 : 2,000  
Ölçek 1 : 2000

METAL MINING AGENCY OF JAPAN  
JAPAN INTERNATIONAL COOPERATION AGENCY  
FEBRUARY 1977

Prepared by Nikko Exploration & Development Co., Ltd.



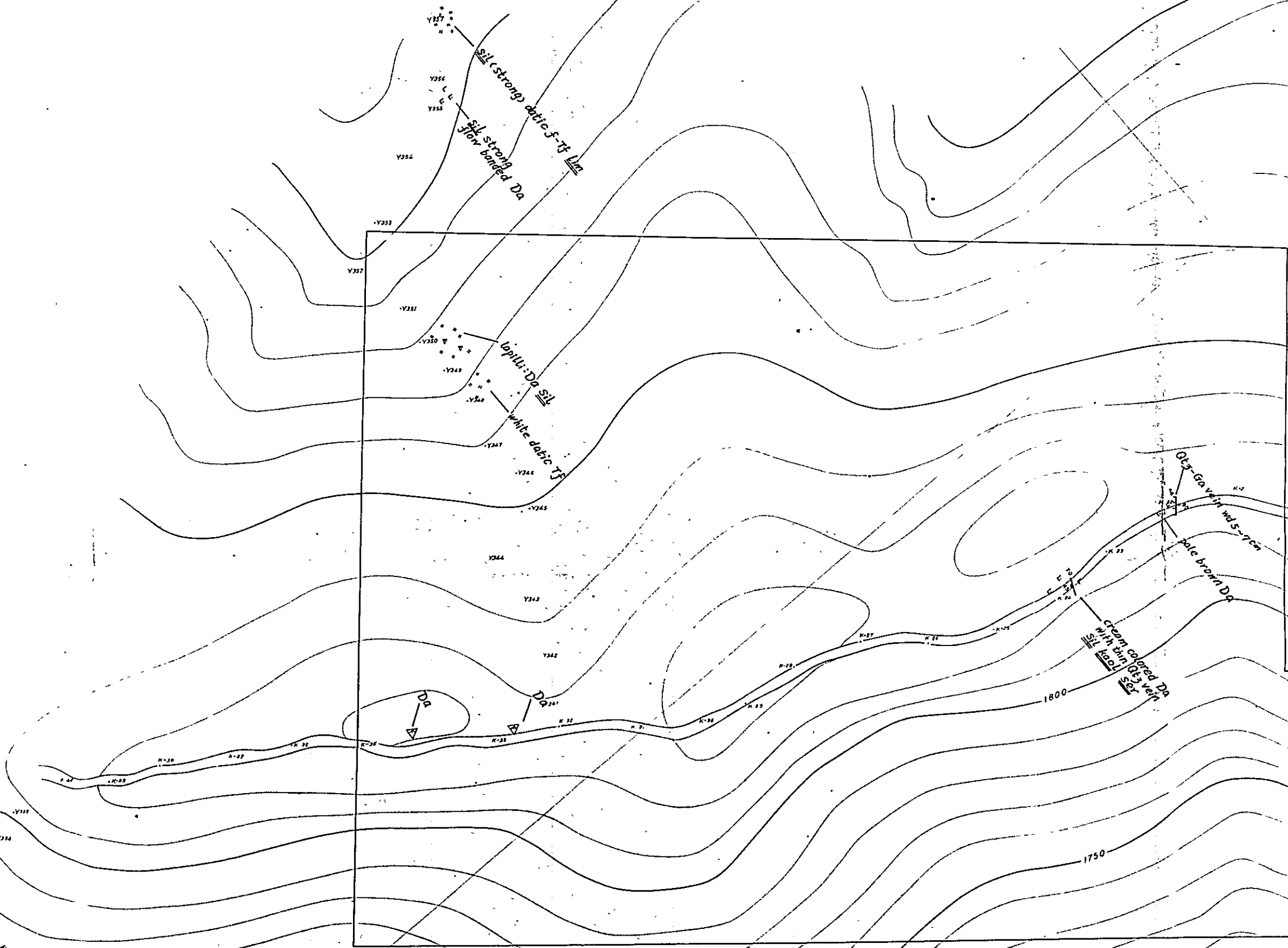
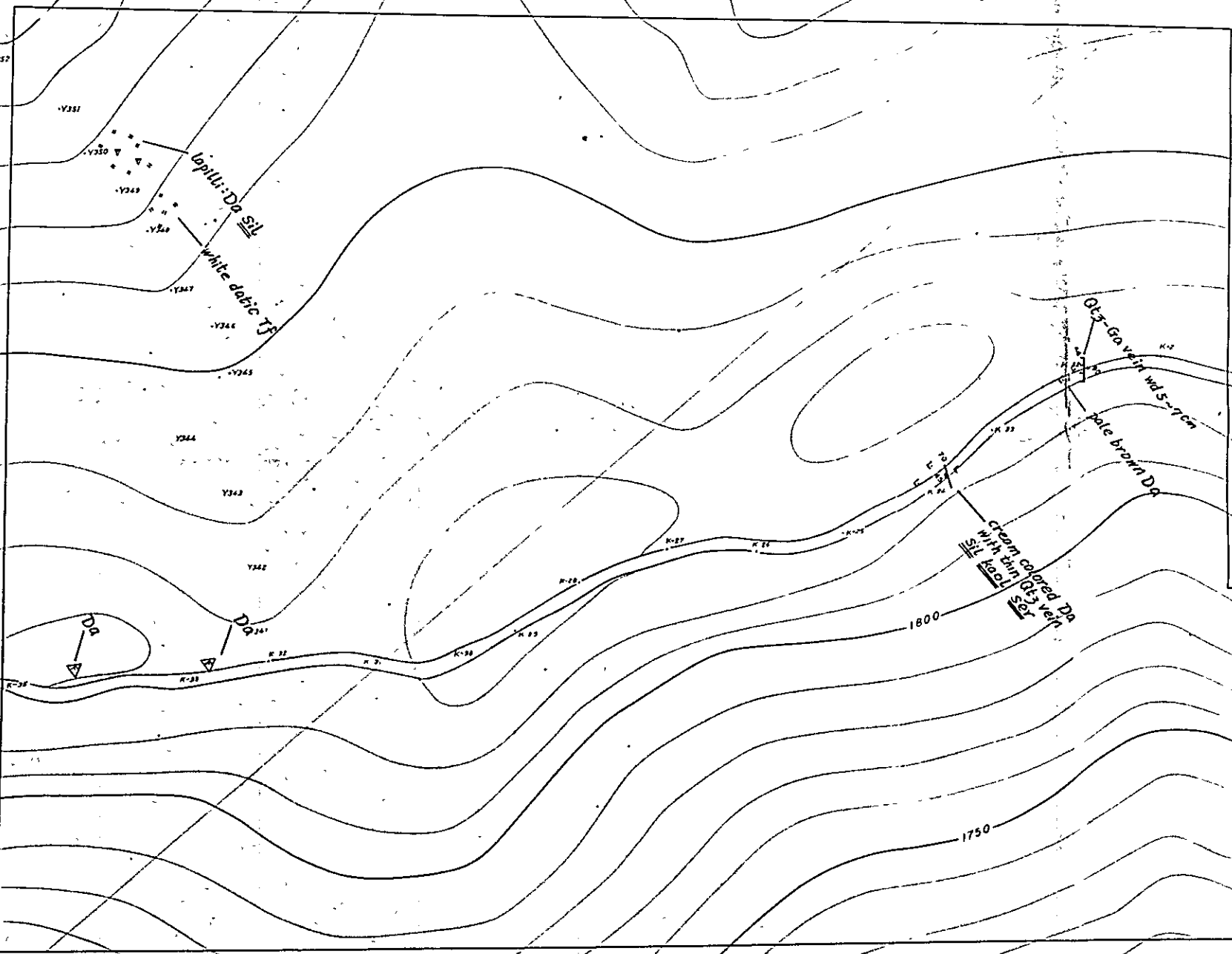
Sil (strong) calc S-Tf Lm  
Sil (strong) calc S-Tf Lm

İpili: Da Sil  
white calc Tf

Deliklitaş T

cream colored Da  
with thin (0.5-1cm)  
Sil. Equ. Lm

0.5-1cm  
dark brown Da



Y337  
Y336  
Y335  
SEA

Y332

Y333

Y332

Y331

Y330

Y329

Y328

Y327

Y326

Y325

Y324

Y343

Y342

Y341

Y340

Y339

Y338

Y337

Y336

Y335

Y334

Y333

1750

1800

Y330

Y329

Y328

Y327

Y326

Y325

Y324

Y323

Y322

Y334

Y333

Y332

Y331

Y330

Y329

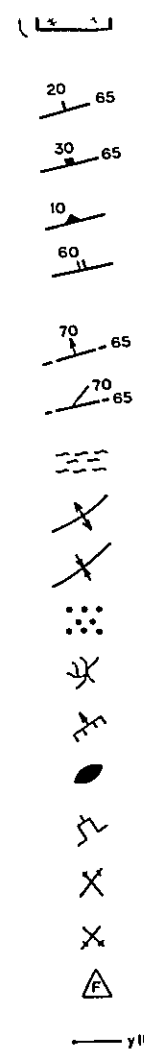
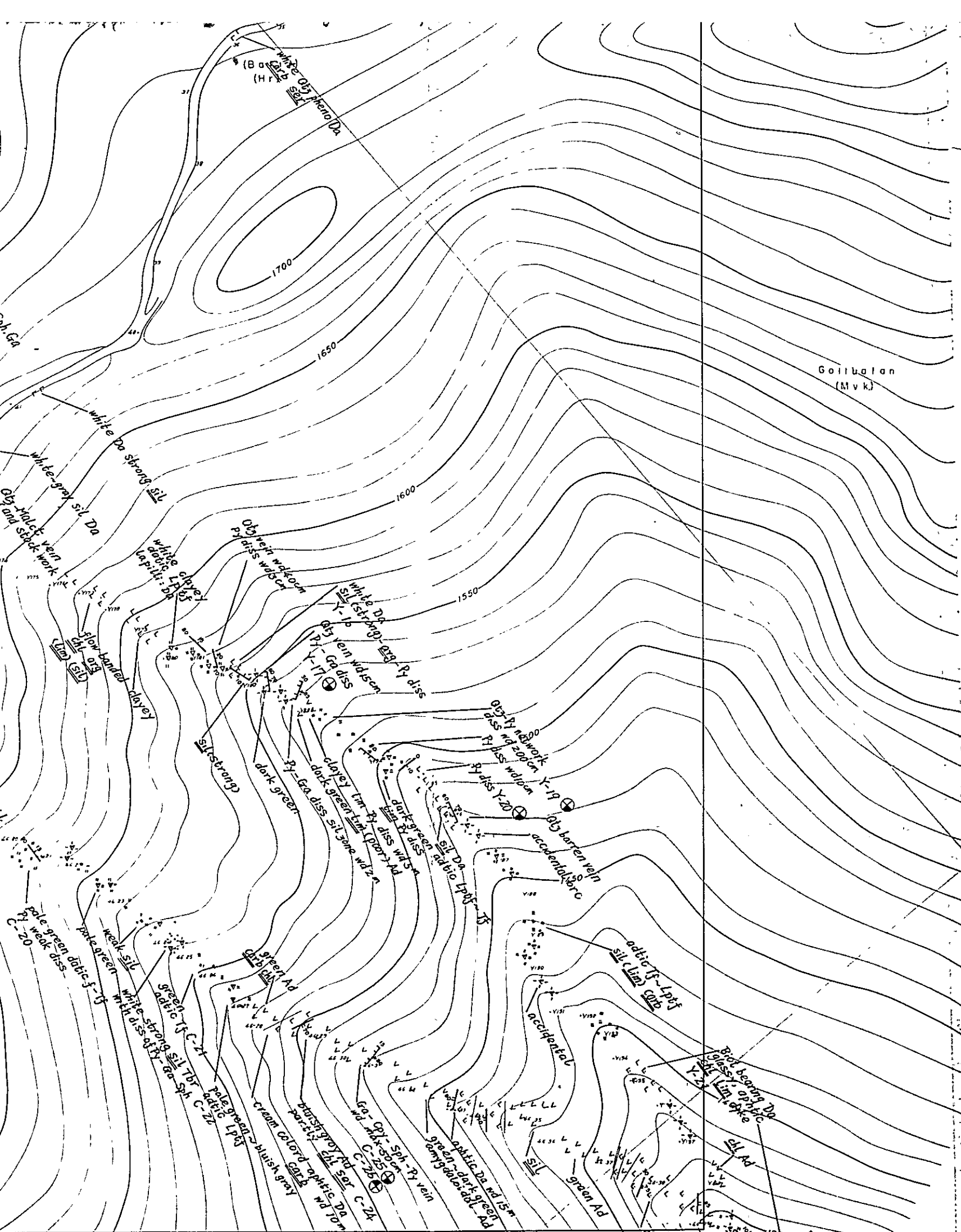
Y328

Y327



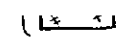
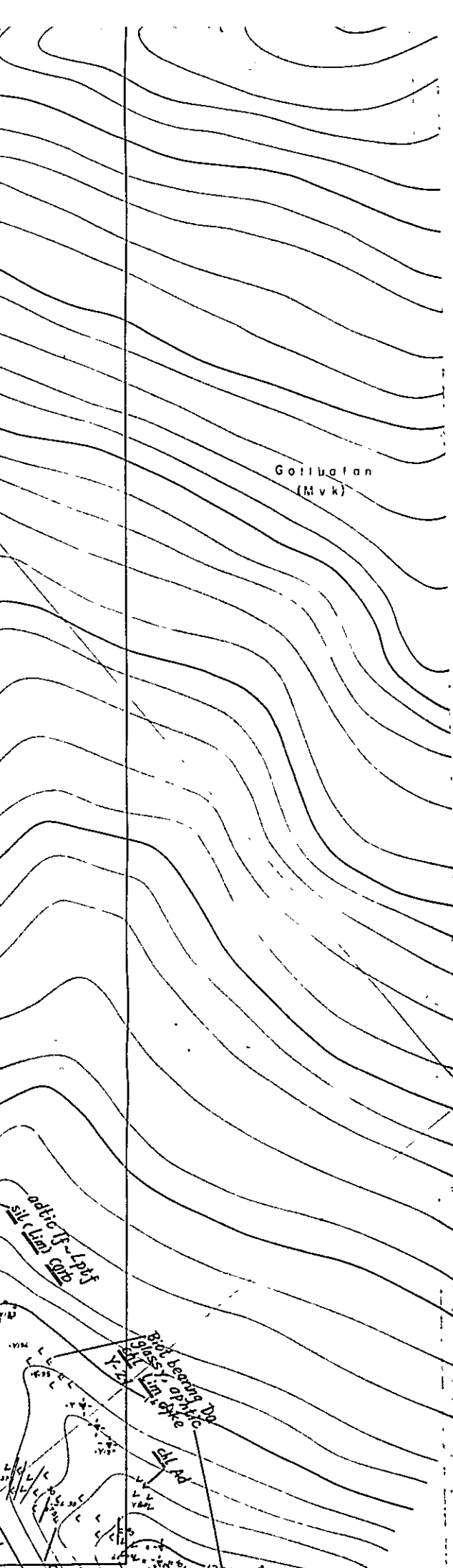






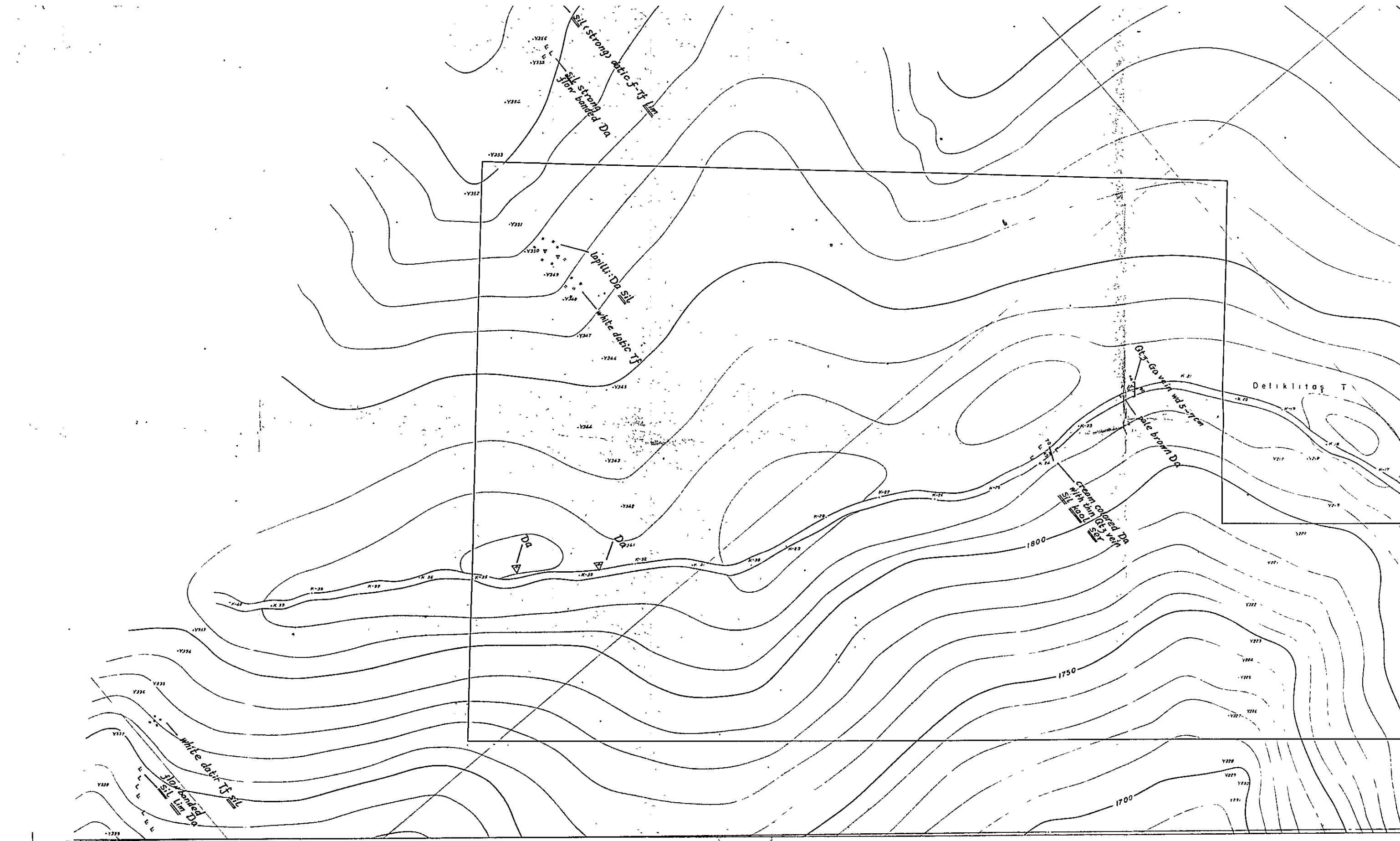
strike & dip  
 doğrultu & eğim  
 strike & dip of joint  
 kırıkların doğrultu eğimi  
 flow structure  
 akma yapısı  
 strike & dip of geological boundary  
 dokanak doğrultu doğrultu ve eğimi  
 fault  
 fay  
 fault showing direction of dislocation  
 atım yönünü gösteren fay  
 fault & sheared zone  
 fay & makaslama zonu  
 anticline  
 antiklinal  
 syncline  
 senklinal  
 dissemination  
 disseminasyon  
 veinlets  
 damarcıklar  
 vien  
 damar  
 massive, bedded ore  
 masif, tabakalı cevher  
 adit  
 galeri  
 working mine  
 çalışan maden  
 old mine  
 eski maden  
 float  
 doküntü  
 position of rock sample  
 kayaç numunelerinin durumu  
 for Microscopic observation of thin section  
 İnce kesit mikroskopik araştırma için  
 for Microscopic observation of polish section  
 Parlak kesit mikroskopik araştırma için  
 for Chemical analysis  
 Kimyasal analiz için  
 for X-ray diffractive analysis  
 X-ışın difraktif analizi için

Mark Isaret	Word Kelime	Mark Isaret	Wo Ke
(Lithology) (Litoloji)		Hb	hornblende
adtic	andesitic andezitik	Ht	hematite hema
aggtic	agglomeratic agglomeratik	k-Fld	potash potas
btic	basaltic bazaltik	Kaol	kaolin kaolin
calc	calcareous kalkerli	Lim	limonite limon
datc	dacitic dazitik	Malct	malachite mala
grtic	granitic granitik	Mt	magnetite magn
mdy	mudry çamurlu	Mont	montmorillonite mon
pmc	pumiceous pümsiz	Oi	olivine oliv
rhtc	rhyolitic riyoitik	Pi	plagioclase plag
sdv	sandy kumlu	Py	pyrite pirit
sil	siliceous silisil	Pyr	pyroxene pyro
sty	silty siltili	Qtz	quartz qua
tfc	tuffaceous tüflü	Ser	sericite seric
xeno	xenolith xenolit	Spc	spinel spe
(Minerals) (Mineraler)		Sph	sphalerite spha
Arag	aragonite aragonit	Zeo	zeolite zeol
Ba	barite barit	(Texture) (Teksür)	
Biot	biotite biotit	altn	alteration mün
Cal	calcite kalsit	aphtic	apophanitic apht
Carb	carbonates karbonat	autbrc	autochthonous aut
Chl	chlorite klorit	brc	breccia brc
Cpy	Chalcopyrite kalkopirit	flow	flowing flow
Epi	epidote epidot	frag	fragile frag
Fld	feldspar feldspar	grad	graded grad
Ga	galena galen	Intc	intermediate intc
		jt	joint joint
		mtx	matrix mat
		onion	onion onion
		pheno	phenocryst phe
			phenocryst phen

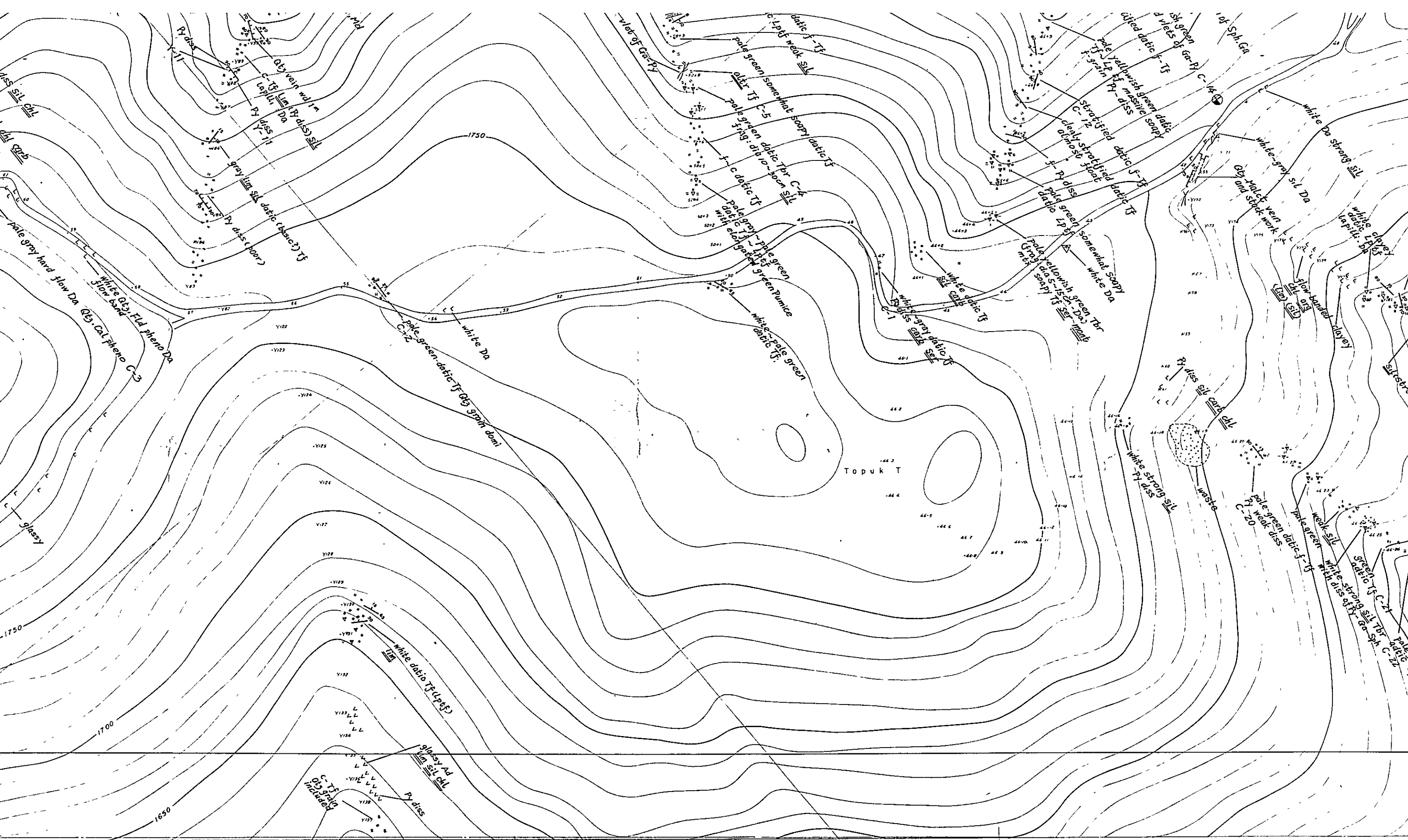


- strike & dip of joint  
*kiriklerin doğrultu eğimi*
- flow structure  
*akma yapısı*
- strike & dip of geological boundary  
*dokanak doğrultu doğrultu ve eğimi*
- fault  
*fay*
- fault showing direction of dislocation  
*atım yönünü gösteren fay*
- fault & sheared zone  
*fay & makaslama zonu*
- anticline  
*antiklinal*
- syncline  
*senklinal*
- dissemination  
*disseminasyon*
- veinlets  
*damarcıklar*
- vien  
*damar*
- massive, bedded ore  
*masif, tabakalı cevher*
- adit  
*galeri*
- working mine  
*çalışan maden*
- old mine  
*eski maden*
- float  
*döküntü*
- position of rock sample  
*kayaç numunelerinin durumu*
- for Microscopic observation of thin section  
*İnce kesit mikroskopik araştırma için*
- for Microscopic observation of polish section  
*Parlak kesit mikroskopik araştırma için*
- for Chemical analysis  
*Kimyasal analiz için*
- for X-ray diffractive analysis  
*X-ışın difraktif analizi için*

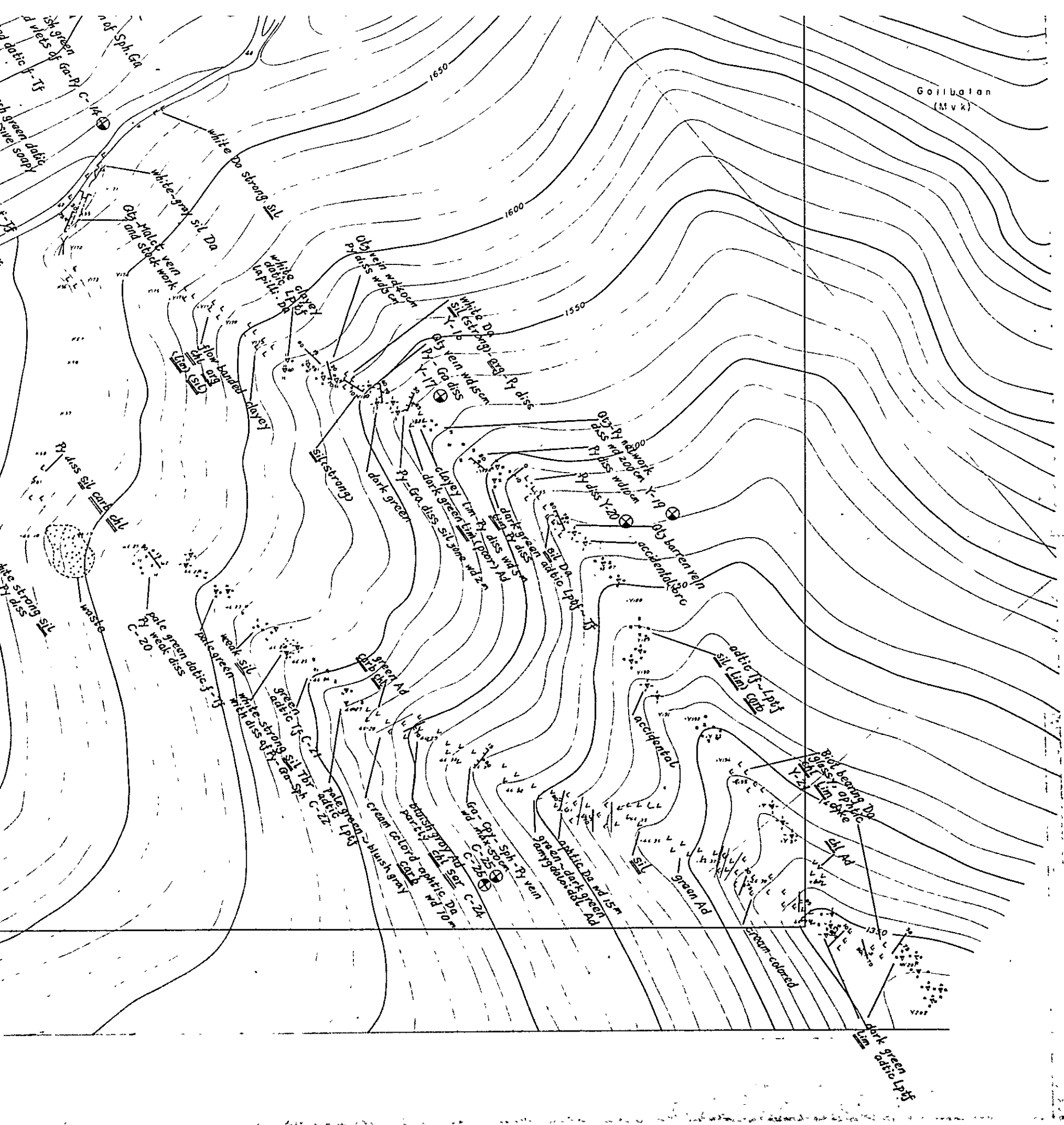
Mark Isaret	Word Kelime	Mark Isaret	Word Kelime	Mark Isaret	Word Kelime
(Lithology)		Hb	hornblende <i>hornblend</i>	pillow	pillow structure <i>yastık yapısı</i>
adtic	andesitic <i>andezitik</i>	Ht	hematite <i>hematit</i>	portic	porphyritic <i>porfiritik</i>
aggtic	agglomeratic <i>aglomeratik</i>	k-Fld	potash-feldspar <i>potas-feldspat</i>	vlet	veinlet <i>damarcık</i>
btic	basaltic <i>bazaltik</i>	Kaol	kaoline <i>kaolin</i>	(Alteration)	
calc	calcareous <i>kalkerli</i>	Lim	limonite <i>limonit</i>	(Alterasyon)	
datic	dacitic <i>dasitik</i>	Malct	malachite <i>malakit</i>	altr	altered <i>altere olmuş</i>
grtic	granitic <i>granitik</i>	Mt	magnetite <i>manyetit</i>	alb	albitized <i>albitleşmiş</i>
mdy	mudy <i>çamurlu</i>	Mont	montmorillonite <i>montmorillonit</i>	argl	argillaceous <i>kil</i>
pmc	pumiceous <i>pişmiş</i>	Oi	olivine <i>olivin</i>	carb	carbonitized <i>karbonatlaşmış</i>
rhtic	ryholitic <i>riyolitik</i>	Pi	plagioclase <i>plajoklas</i>	chl	chloritized <i>kloritleşmiş</i>
sdv	sandy <i>kumlu</i>	Py	Pyrite <i>pirit</i>	epi	epidotized <i>epidotlaşmış</i>
sil	siliceous <i>silisli</i>	Pyr	Pyroxene <i>piroksen</i>	ht	hematitized <i>hematitleşmiş</i>
sty	silty <i>siltili</i>	Qtz	quartz <i>kuvars</i>	kaol	kaolinized <i>kaolinleşmiş</i>
tfc	tuffaceous <i>tüfşü</i>	Ser	sericite <i>serisit</i>	lm	limonitized <i>limonitleşmiş</i>
xeno	xenolith <i>ksenolit</i>	Spc	Specularite <i>Spekularit</i>	mont	montmorillonized <i>montmorillonitleşmiş</i>
(Minerals)		Sph	sphalerite <i>sfelearit</i>	ser	sericitized <i>serizitleşmiş</i>
Arag	aragonite <i>aragonit</i>	Zeo	zeolite <i>zeolit</i>	sil	silicified <i>silisleşmiş</i>
Ba	barite <i>barit</i>	(Texture)		(Others)	
Biot	biotite <i>biotit</i>	altn	alternation <i>münavebe</i>	aver	average <i>ortalama</i>
Cal	calcite <i>kalsit</i>	aphtic	aphanitic <i>afanitik</i>	dia	diameter <i>çap</i>
Carb	carbonates <i>karbonat</i>	autbrc	autobrecciated structure <i>otobresleşmiş</i>	diss	dissemination <i>disseminasyon</i>
Chl	chlorite <i>klorit</i>	brc	breccia(structure) <i>breşik(yapı)</i>	max	maximum <i>maksimum</i>
Cpy	Chalcopyrite <i>kalkopirit</i>	flow	flow structure <i>akıntılı yapı</i>	strong	strong; strongly <i>kuvvetli-kuvvetlice</i>
Epi	epidote <i>epidot</i>	frag:	fragment <i>tane</i>	weak	weak, weakly <i>zayıf-zayıfca</i>
Fld	feldspar <i>galena</i>	grad	gradually <i>tedrici</i>	wd	width <i>genişlik</i>
Ga	galena <i>galen</i>	Intc	intercalation <i>arakatlı</i>	U	upper <i>üst</i>
		jt	joint <i>kırık</i>	M	middle <i>orta</i>
		mtx	matrix <i>hamur</i>	L	lower <i>alt</i>
		onion	onion structure <i>soğan yapısı</i>	f-	fine <i>ince</i>
		pheno	phenocryst <i>fenokrist</i>	m-	medium <i>orta</i>
				c-	coarse <i>iri</i>
				dom	dominant











	anticlinal	pnc	pumiceous
	syncline	rhtic	pyroclastic
	senklinal	sdv	sandy
	dissemination	sil	siliceous
	damarcıklar	sty	silty
	vien damar	tfc	tuffaceous
	massive, bedded ore	xeno	xenolith
	masif, tabakalı cevher	(Minerals)	(Minerals)
	adıt galeri	Araq	aragonite
	working mine	Ba	barite
	çalışan maden	Biot	biotite
	old mine	Cal	calcite
	eski maden	Carb	carbonates
	float	Chl	chlorite
	döküntü	Cpy	chalcopyrite
	position of rock sample	Epi	epidote
	kayaç numunelerinin durumu	Fid	feldspar
	for Microscopic observation of thin section	Ga	galena
	for Microscopic observation of polish section		
	for Chemical analysis		
	for X-ray diffractive analysis		

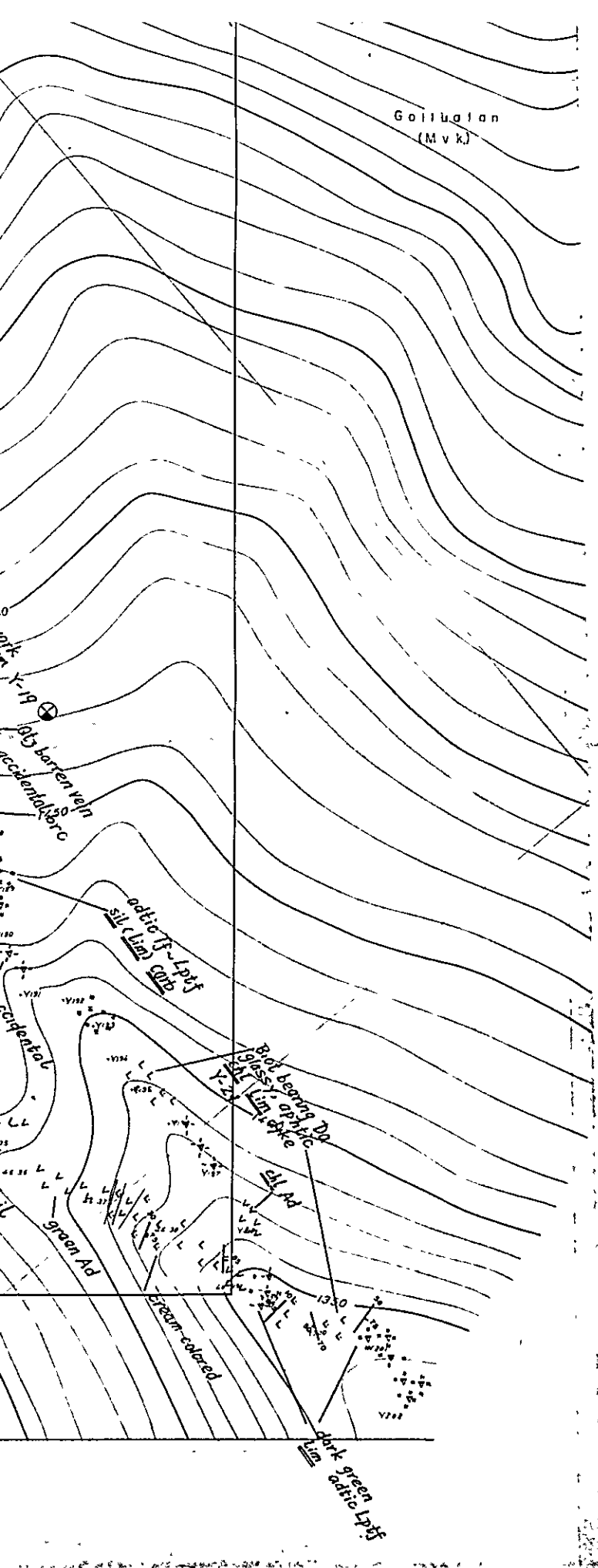
Y-1 ⊕ for Microscopic observation of thin section  
 İnce kesit mikroskopik araştırma için

Y-2 ⊕ for Microscopic observation of polish section  
 Parlak kesit mikroskopik araştırma için

Y-3 ⊕ for Chemical analysis  
 Kimyasal analiz için

Y-4 ⊕ for X-ray diffractive analysis  
 X-ışını difraktif analizi için





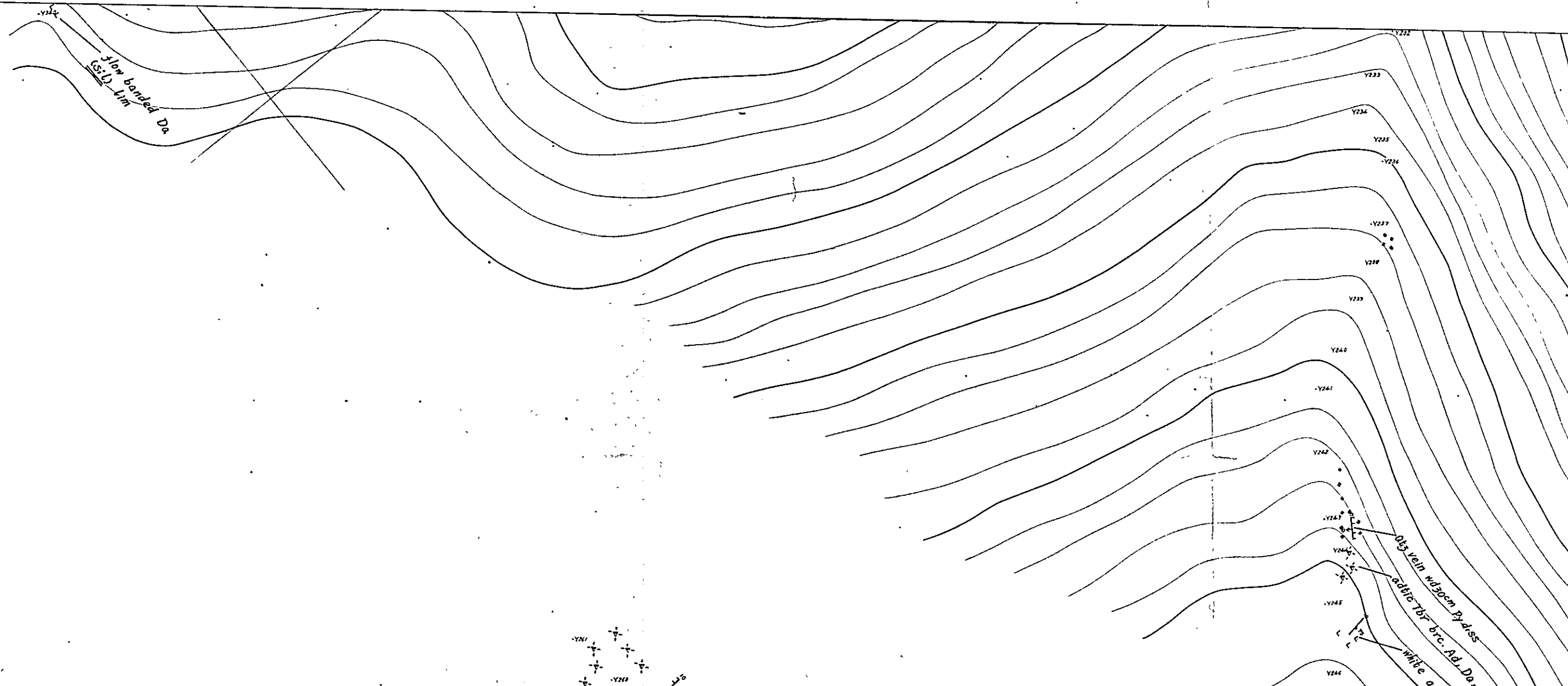
- antiktinal
- syncline
- senklineal
- dissemination
- disseminasyon
- veinlets
- damarcıklar
- vien damar
- massive, bedded ore
- masif, tabakalı cevher
- adit galeri
- working mine
- çalışan maden
- old mine
- eski maden
- float
- döküntü
- position of rock sample
- kayaç numunelerinin durumu
- for Microscopic observation of thin section
- for Microscopic observation of polish section
- for Chemical analysis
- for X-ray diffractive analysis

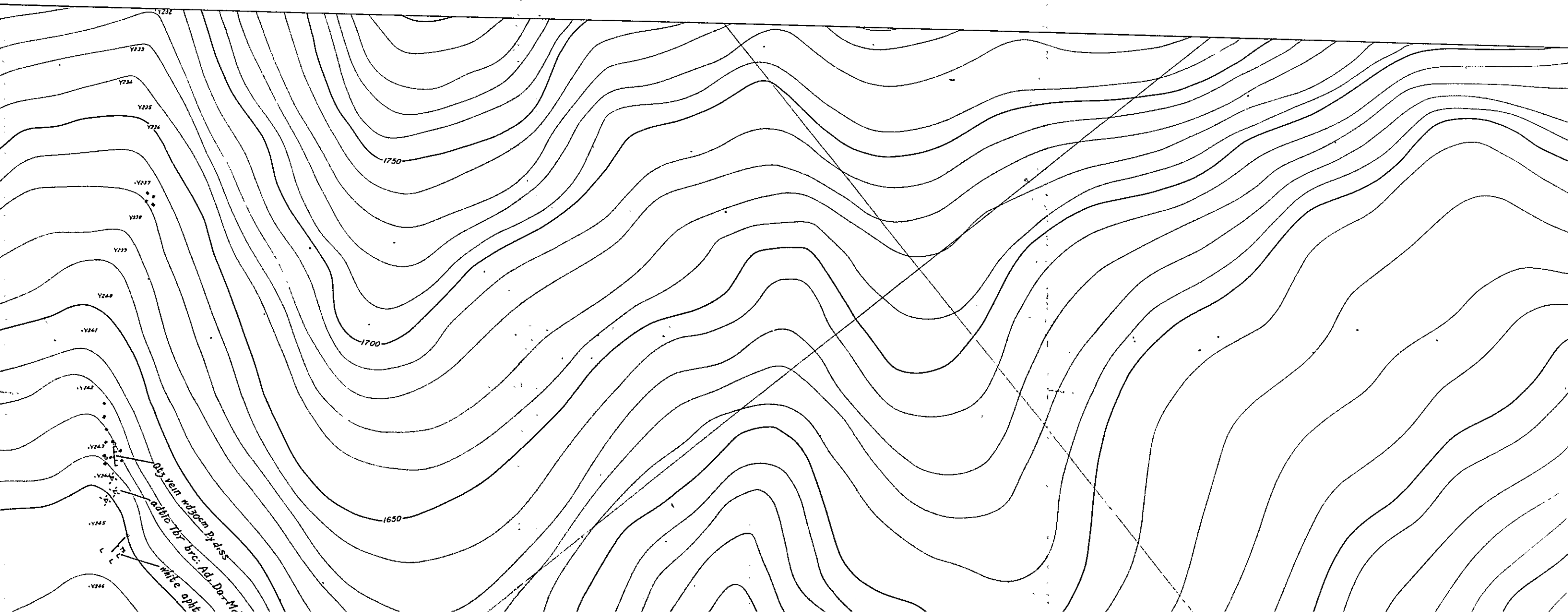
- Y-1 ⊕ for Microscopic observation of thin section  
*Ince kesit mikroskopik araştırma için*
- Y-2 ⊕ for Microscopic observation of polish section  
*Parlak kesit mikroskopik araştırma için*
- Y-3 ⊕ for Chemical analysis  
*Kimyasal analiz için*
- Y-4 ⊕ for X-ray diffractive analysis  
*X-ışını difraktif analizi için*

- rhtc pümit
- sdv rhyolitic
- sil siliceous
- sty silty
- tfc tuffaceous
- xeno tüflü
- (Minerals) xenolith
- (Mineraler) ksenolit
- Arag aragonite
- Ba aragonit
- Biot barite
- Cal biotite
- Carb biotit
- Chl calcite
- Cpy kalsit
- Epi carbonates
- Fld karbonat
- Ga chlorite
- Chl klorit
- Cpy Chalcopyrite
- Epi kalkopirit
- Fld epidote
- Ga feldspar
- galena galena

- Pl olivin
- Py plagioclase
- Pyr pyroxene
- Qtz quartz
- Ser sericite
- Spc specularite
- Sph sphalerite
- Zeo zeolite
- (Texture) alternation
- altn minavebe
- aphitic aphanitic
- autbrc afanitik
- brc autobrecciated structure
- flow otobreşleşmiş
- frag: breccia(structure)
- grad brecçik(yapı)
- Intc flow structure
- Intc akıntılı yapı
- jt fragment
- grad: tane
- Intc gradually
- Intc tedrici
- Intc intercalation
- Intc arakatlı
- jt joint
- mtx kırık
- onion matrix
- pheno hamur
- pheno onion structure
- pheno soğan yapısı
- pheno phenocryst
- pheno fenokrist

- chl karbonatlaşmış
- chl chloritized
- epi kloritleşmiş
- epi epidotized
- ht epidotlaşmış
- ht hematitized
- kaol kaolinized
- lim kaolinleşmiş
- lim limonitized
- mont limonitleşmiş
- mont montmorillonized
- ser montmorillonitleşmiş
- ser sericitized
- ser serizitleşmiş
- sil silicified
- sil silisleşmiş
- (Others) average
- (Diğerleri) ortalama
- aver diameter
- dia çap
- diss dissemination
- diss disseminasyon
- max maximum
- max maksimum
- strong strong, strongly
- strong kuvvetli-kuvvetlice
- weak weak, weakly
- weak zayıf-zayıfca
- wd width
- wd genişlik
- U upper
- U üst
- M middle
- M orta
- L lower
- L alt
- f fine
- f ince
- m medium
- m orta
- c coarse
- c iri
- dom dominant





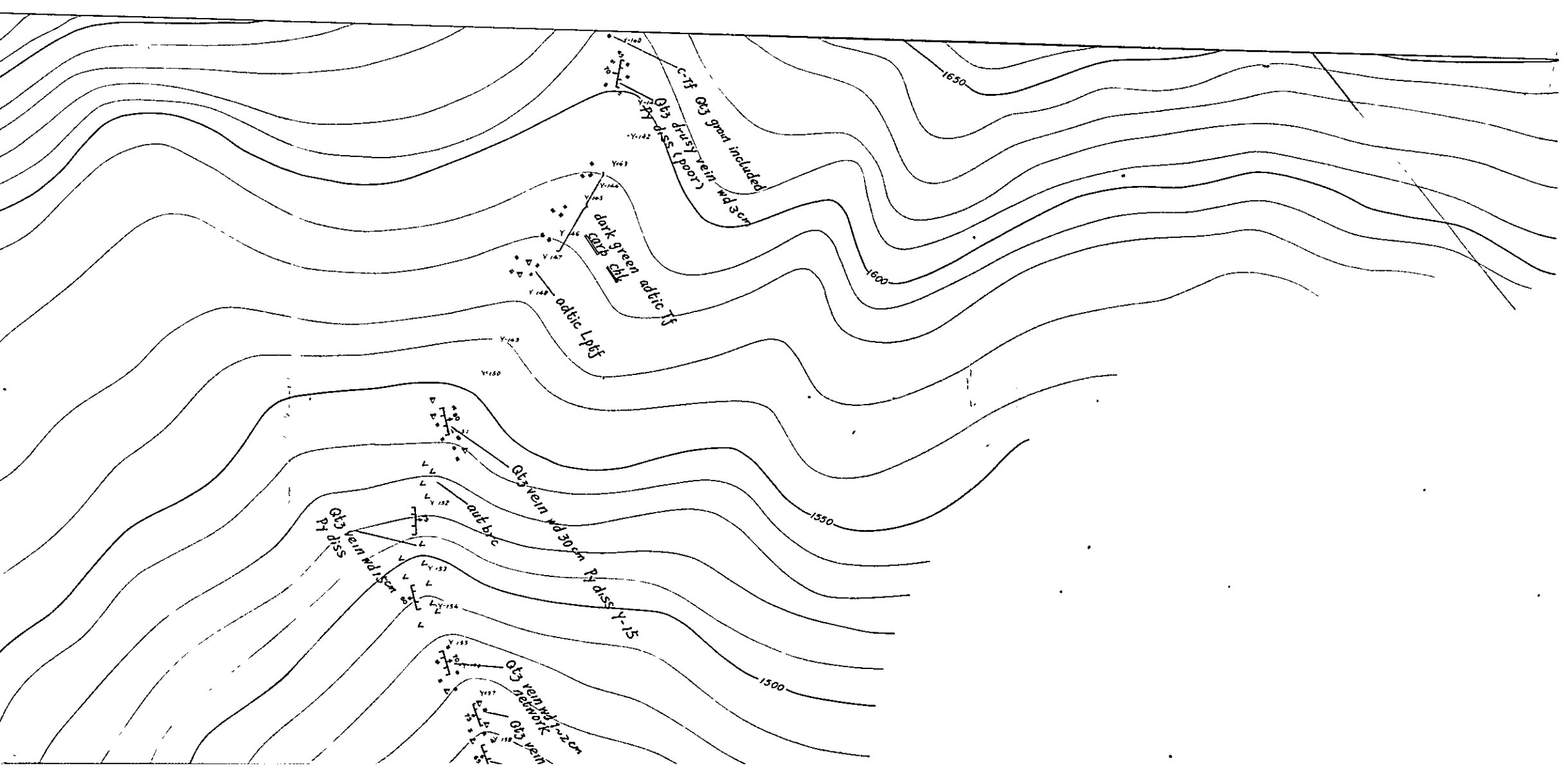
# LEGEND LEJAND

Geological symbol & abbreviation  
Jeolojik simbol & jeolojik terim k

Symbol Sembol	(basalt) (bazalt)	(andesite) (andezit)	(dacite) (dasit)	(rhyolite) (rivolit)
Sedimentary rocks Sedimanter kayalar				
Volcanic & pyroclastic rocks Volkanik piroklastik kayalar				
Plutonic & hypabyssal rocks Derinlik hipabisal kayalar				

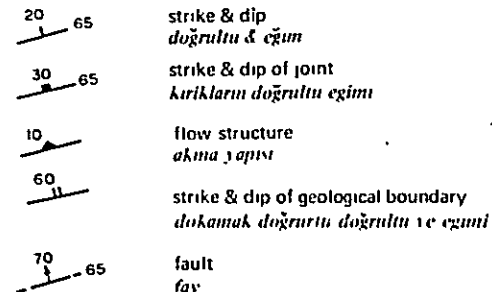
  

	20 65	strike & dip doğrultu & eğim
	30 65	strike & dip of joint kırıklarm doğrultu eğim
	10	flow structure akma yapısı
	60	strike & dip of geologic dokamak doğrultu doğ
	70 65	fault fay



LEGEND  
LEJAND

Geological symbol & abbreviation of geological term Jeolojik sembol & jeolojik terim kısaltmaları		
Symbol Sembol	Mark İşaret	Rock name Kayaç isimleri
Sedimentary rocks Sedimanter kayaçlar	Ls	limestone kireçtaşı
	Mr	marl marl
	Md	mudstone çamurtaşı
	St	siltstone silt taşı
	Ss	sandstone kumtaşı
	Cg	conglomerate konglomera
	Bt	basalt bazalt
	Ad	andesite andezit
	Da	dacite dasit
	Rh	rhyolite riyolit
Volcanic & pyroclastic rocks Volkanik piroklastik kayaçlar	Tf	fine-coarse tuff ince-iri tuf
	Lptf	lapilli tuff lapilli tuf
	Tbr	tuff breccia tuf breş
	Volbrc	volcanic breccia volkanik breş
	Agg	agglomerate aglomera
	Volcg	volcanic conglomerate volkanik konglomera
	Gr	granite granit
	Gd	granodiorite granodiorit
	Dp	diorite porphyrite diorit porfir
	Qd	quartz diorite kuvars diorit
Plutonic & hypabyssal rocks Derinlik hipabisal kayaçlar	Po	porphyrite porfir
	Qp	quartz porphyry kuvars porfiri
	Gp	granite porphyry granit porfiri
	Qdp	quartz diorite porphyrite kuvars diorit porfir
	D1	diorite diorit

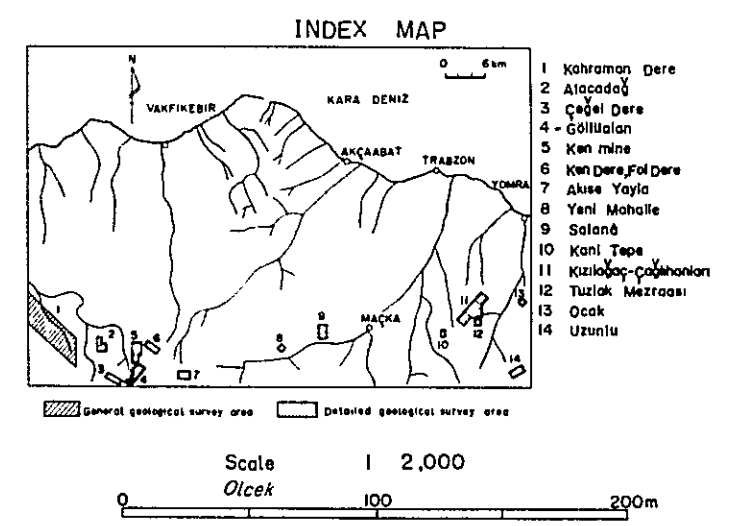


Mark İşaret	Word Kelime	Mark İşaret	Word Kelime	Mark İşaret	Word Kelime
{Lithology}		Hb	hornblende hornblend	pillow	pillow structure yastık yapısı
adtc	andesitic andezitik	Ht	hematite hematit	portic	porphyritic porfiritik
aggtic	agglomeratic aglomera	k-Fld	potash feldspar potas-feldspat	vlet	veinlet damarcık
btic	basaltic bazaltik	Kaol	kaoline kaolin		

MINERAL RESEARCH AND EXPLORATION INSTITUTE  
GEOLOGICAL SURVEY  
OF  
TRABZON AREA, NORTHEASTERN TURKEY

PHASE III

ROUTE MAP WITH LOCALITIES OF ROCK  
SAMPLES AROUND GÖLLÜALAN AREA  
GÖLLÜALAN SAHASININ  
GÜZERGAH HARİTASI VE NUMUNE YERLERİ



Scale 1:2,000  
Olçek 1:2,000  
METAL MINING AGENCY OF JAPAN  
JAPAN INTERNATIONAL COOPERATION AGENCY  
FEBRUARY 1977

Prepared by Nikko Exploration & Development Co. Ltd.

Y270

Y269

Y268

Y267

sil Lim

White Da  
sil Lim

White Da  
Pl-pheno

Y265

Y264

Y263

Y261  
Y260  
Y259  
Y258  
Y257  
Y256  
Y255  
Y254  
Y253  
Y252  
Y251

063 vein  
Py diss (common)  
G63 Sph-Copy) diss

br: Da hye Ad  
addic 7b7  
Py diss (common)

Lim (sil)

white apitic Da  
Sheared

dark green br: Da

Lim

White Da  
Py diss  
G63 Pl-pheno white Da

drusy 063 vein wd 5cm  
Py diss wd 20cm Y-21  
drusy 063 vein wd 6cm  
Py diss

Y243

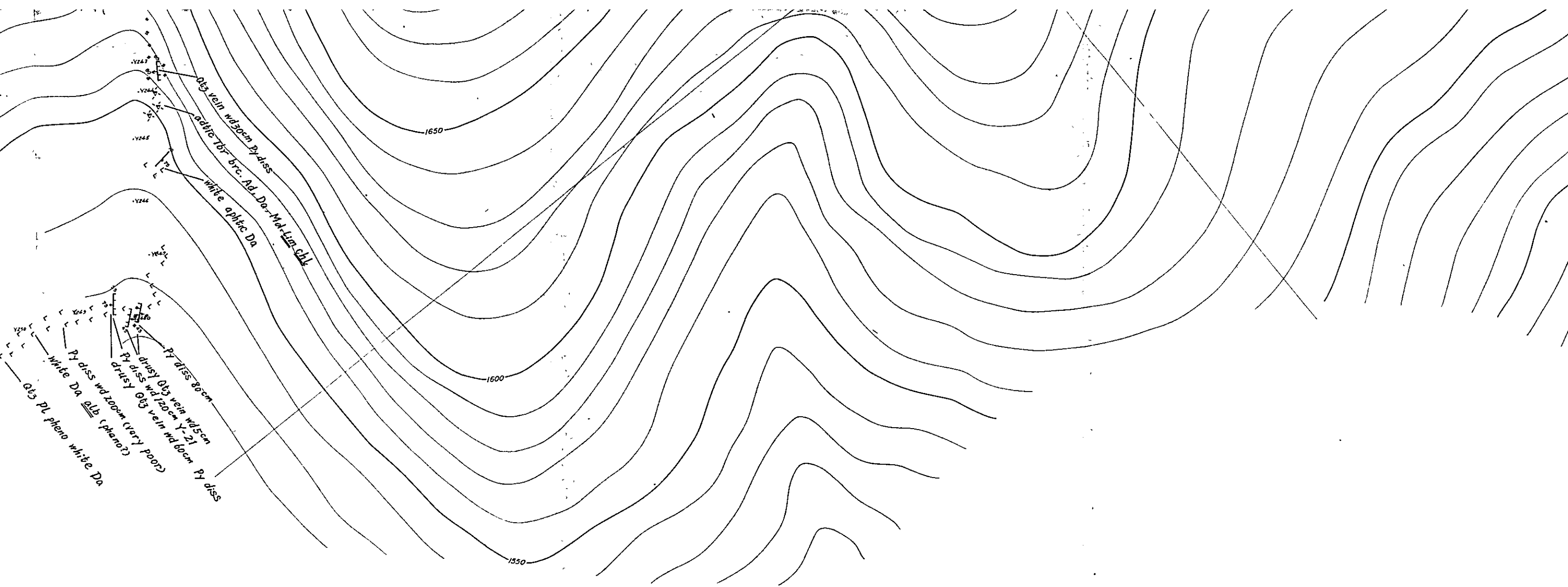
Y244

Y245

Y246

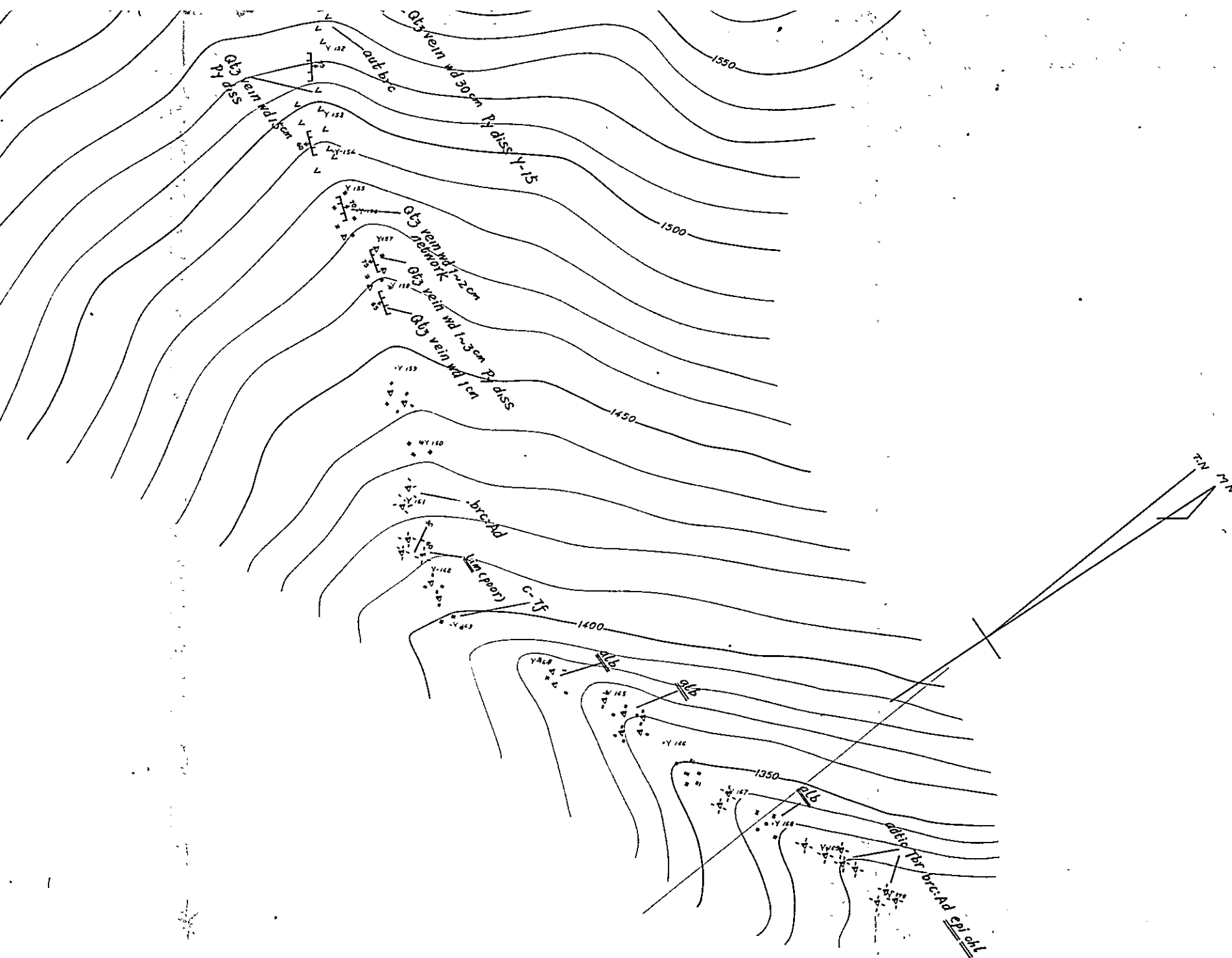
Y247

063 vein wd 30cm  
Py diss  
white apitic Da  
Ad. Da-Md-Lim sil

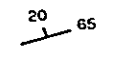


Qtz vein wd 200cm Py diss  
white ophic Da  
Py diss 80cm

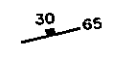
drusy Qtz vein wd 5cm Y-21  
drusy Qtz vein wd 60cm Py diss  
drusy Qtz (phano?)  
White Da  
Qtz pl. pheno white Da



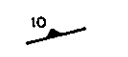
Qdp  
Dı



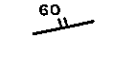
strike & dip  
doğrultu & eğim



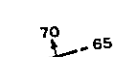
strike & dip of joint  
kırıkların doğrultu eğimi



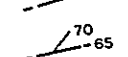
flow structure  
akma yapısı



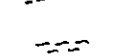
strike & dip of geological boundary  
dokamak doğrultu, doğrultu ve eğim



fault  
fay



fault showing direction of dislocation  
atım yönünü gösteren fay



fault & sheared zone  
fay & makaslama zonu



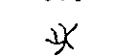
anticline  
antiklinal



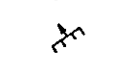
syncline  
senklinal



dissemination  
diseminasyon



veinlets  
damarcıklar



vein  
damar



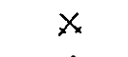
massive, bedded ore  
masif, tabakalı cevher



adit  
galeri



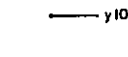
working mine  
çalışan maden



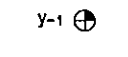
old mine  
eski maden



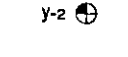
float  
döküntü



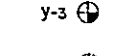
position of rock sample  
kayaç numunelerinin durumu



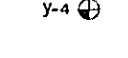
for Microscopic observation of thin sect  
İnce kesit mikroskopik araştırma için



for Microscopic observation of polish se  
Parlak kesit mikroskopik araştırma için

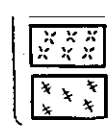


for Chemical analysis  
Kimyasal analiz için



for X ray diffractive analysis  
X-ışını difraktif analizi için

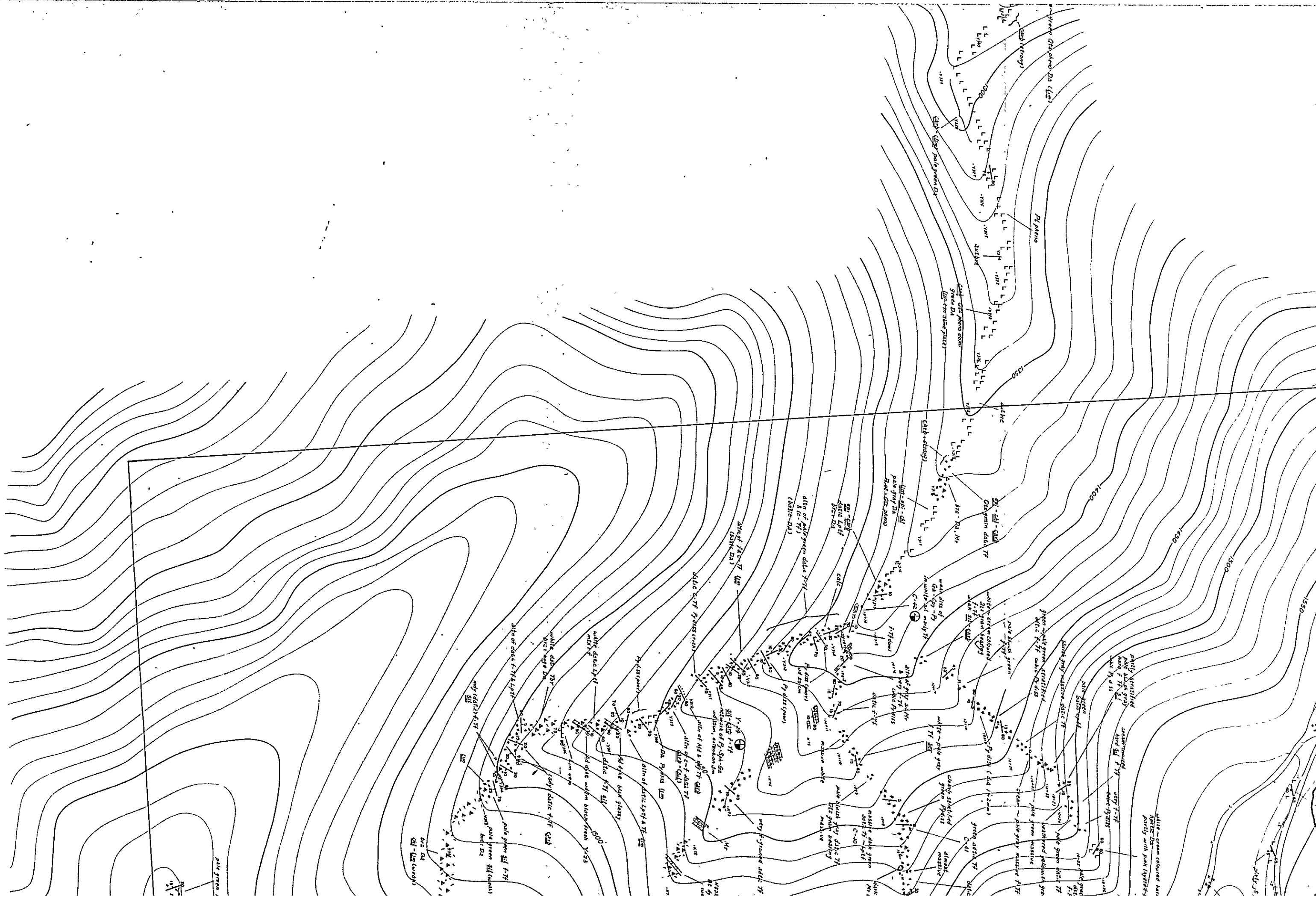




Qdp quartz diorite porphyrite  
Dı diorite

- 20 65 strike & dip  
*doğrultu & eğim*
- 30 65 strike & dip of joint  
*kirikların doğrultu eğimi*
- 10 60 flow structure  
*akma yapısı*
- 60 70 strike & dip of geological boundary  
*dokanak doğrultu, doğrultu ve eğimi*
- 70 65 fault  
*fay*
- 70 65 fault showing direction of dislocation  
*atım yönünü gösteren fay*
- fault & sheared zone  
*fay & makaslama zonu*
- anticline  
*antiklinal*
- syncline  
*senklinal*
- dissemination  
*disseminasyon*
- veinlets  
*damarcıklar*
- vien  
*damar*
- massive, bedded ore  
*masif, tabakalı cevher*
- adit  
*galeri*
- working mine  
*çalışan maden*
- old mine  
*eski maden*
- float  
*doküntü*
- position of rock sample  
*kayaç numunelerinin durumu*
- for Microscopic observation of thin section  
*İnce kesit mikroskopik araştırma için*
- for Microscopic observation of polish section  
*Parlak kesit mikroskopik araştırma için*
- for Chemical analysis  
*Kimyasal analiz için*
- for X-ray diffractive analysis  
*X-ışını difraktif analizi için*

Mark Isaret	Word Kelime	Mark Isaret	Word Kelime	Mark Isaret	Word Kelime
		Hb	hornblende <i>hornblend</i>	pillow	pillow structure <i>yastık yapısı</i>
(Lithology) (Litoloji)		Ht	hematite <i>hematit</i>	portic	porphyritic <i>porfiritik</i>
adtic	andesitic <i>andezitik</i>	k-Fld	potash feldspar <i>potas-feldspat</i>	vlet	veinlet <i>damarcık</i>
aggtic	agglomeratic <i>aglomeratik</i>	Kaol	kaoline <i>kaolin</i>	(Alteration) (Alterasyon)	
btic	basaltic <i>bazaltık</i>	Lim	limonite <i>limonit</i>	<u>altr</u>	altered <i>altere olmuş</i>
calc	calcareous <i>kalherli</i>	Malct	malachite <i>malakit</i>	<u>alb</u>	albitized <i>albitleşmiş</i>
datc	dacitic <i>dasitik</i>	Mt	magnetite <i>manyetit</i>	<u>argl</u>	argillaceous <i>kil</i>
grtic	granitic <i>granitik</i>	Mont	montmorillonite <i>montmorillonit</i>	<u>carb</u>	carbonitized <i>karbonatlaşmış</i>
mdy	mudy <i>çamurlu</i>	Ol	olivine <i>olivin</i>	<u>chl</u>	chloritized <i>kloritleşmiş</i>
pmc	pumiceous <i>pumis</i>	Pl	plagioclase <i>plajoklas</i>	<u>epi</u>	epidotized <i>epidotlaşmış</i>
rhtic	rhyolitic <i>riyolitik</i>	Py	pyrite <i>pirit</i>	<u>ht</u>	hematitized <i>hematitleşmiş</i>
sdv	sandy <i>kumlu</i>	Pyr	pyroxene <i>piroksen</i>	<u>kaol</u>	kaolinized <i>kaolinleşmiş</i>
sil	siliceous <i>silisli</i>	Qtz	quartz <i>kıvars</i>	<u>lim</u>	limonitized <i>limonitleşmiş</i>
sty	silty <i>siltili</i>	Ser	sericite <i>serisit</i>	<u>mont</u>	montmorillonitized <i>montmorillonitleşmiş</i>
tfc	tuffaceous <i>tüflü</i>	Spc	specularite <i>spekularit</i>	<u>ser</u>	sericitized <i>serisitleşmiş</i>
veno	xenolith <i>ksenolit</i>	Sph	sphalerite <i>sfelarit</i>	<u>sil</u>	silicified <i>silisleşmiş</i>
(Minerals) (Mineraler)		Zeo	zeolite <i>zeolit</i>	(Others) (Diğerleri)	
Arag	aragonite <i>aragonit</i>			aver	average <i>ortalama</i>
Ba	barite <i>barit</i>	(Texture) (Tekstür)		dia	diameter <i>çap</i>
Biot	biotite <i>biotit</i>	altn	alternation <i>münavebe</i>	diss	dissimination <i>disseminasyon</i>
Cal	calcite <i>kalsit</i>	aphtic	aphanitic <i>afanitik</i>	max	maximum <i>maksimum</i>
Carb	carbonates <i>karbonat</i>	autbrc	autobrecciated structure <i>otobreşleşmiş</i>	strong	strong, strongly <i>kuvvetli-kuvvetlice</i>
Chi	chlorite <i>klorit</i>	brc	breccial(structure) <i>breşik (yapı)</i>	weak	weak, weakly <i>zayıf-zayıfca</i>
Cpy	Chalcopyrite <i>kalkopirit</i>	flow	flow structure <i>akıntılı yapı</i>	wd	width <i>genişlik</i>
Epi	epidote <i>epidot</i>	frag:	fragment <i>parça</i>	U	upper <i>üst</i>
Fld	feldspar <i>feldspat</i>	grad	gradually <i>tedrici</i>	M	middle <i>orta</i>
Ga	galena <i>galen</i>	Intc	intercalation <i>arakatlı</i>	L	lower <i>alt</i>
		jt	joint <i>kırık</i>	f-	fine <i>ince</i>
		mtx	matrix <i>hamur</i>	m	medium <i>orta</i>
		onion	onion structure <i>soğan yapısı</i>	c-	coarse <i>iri</i>
		pheno	phenocryst <i>fenokrist</i>	domt	dominant



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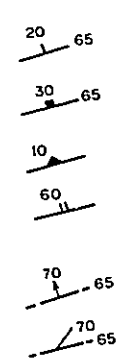
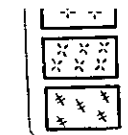
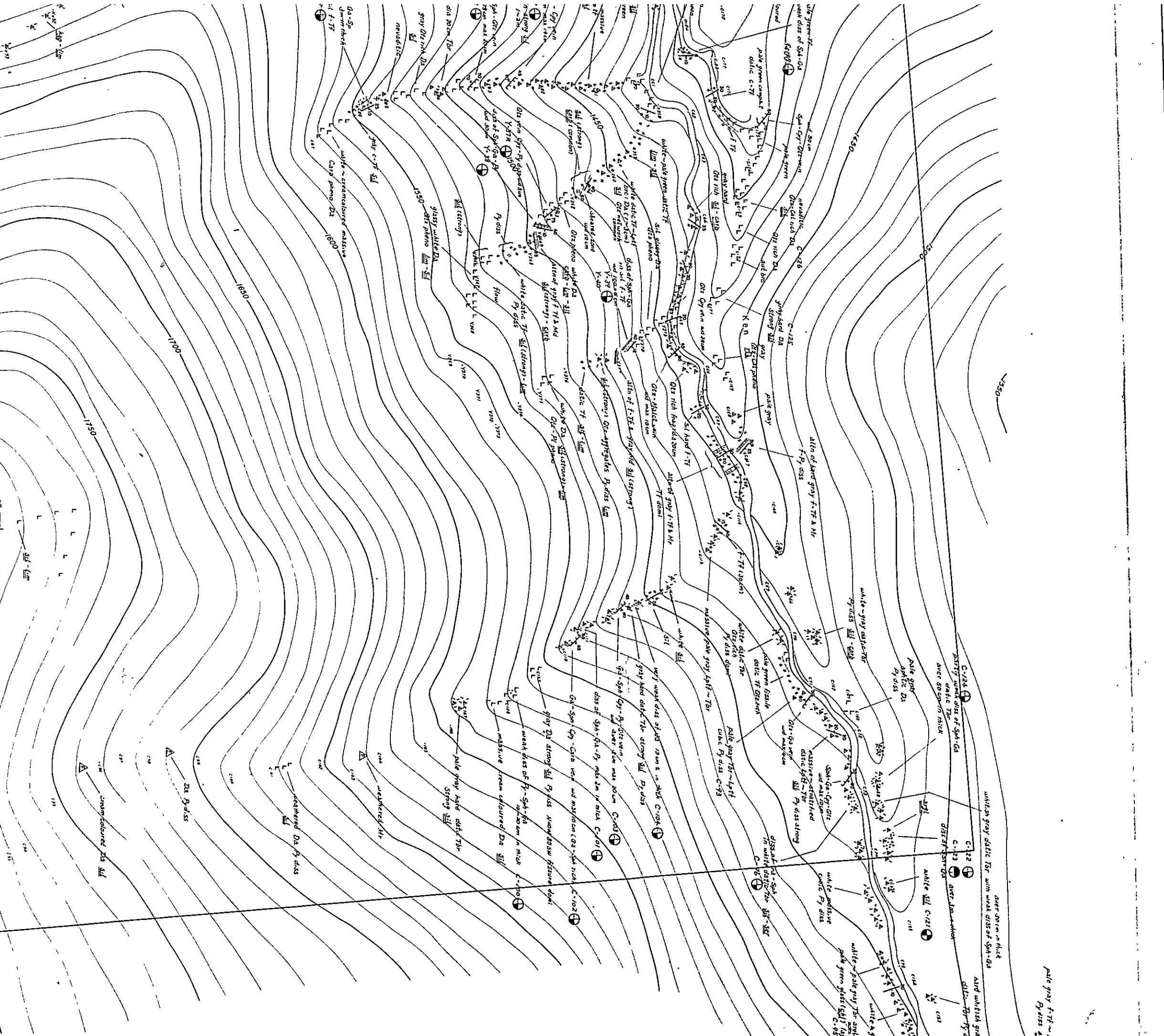








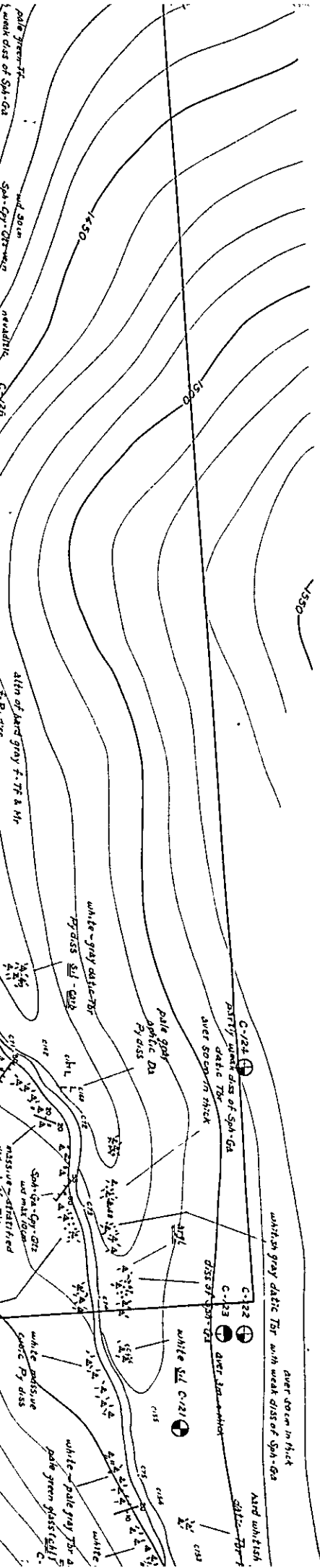




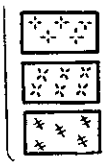
position of rock sample  
 kayaç numunelerinin durumu  
 — y100  
 Y-1 ⊕  
 Y-2 ⊕  
 Y-3 ⊕  
 Y-4 ⊕

strike & dip  
 doğrultu & eğim  
 strike & dip of joint  
 kırıkların doğrultu eğimi  
 flow structure  
 akma yapısı  
 strike & dip of geological boundary  
 doküman doğrultu eğimi  
 fault  
 fay  
 fault showing direction of dislocation  
 atım yönünü gösteren fay  
 fault & sheared zone  
 fay & makaslama zonu  
 anticline  
 antiklinal  
 syncline  
 senklinal  
 dissemination  
 disseminasyon  
 veins  
 damarcıklar  
 vein  
 damar  
 massive, bedded ore  
 masif, tabakalı cevher  
 adit  
 galeri  
 working mine  
 çalışan maden  
 old mine  
 eski maden  
 float  
 doküntü  
 for Microscopic observation of thin section  
 İnce kesit mikroskopik araştırma için  
 for Microscopic observation of polish section  
 Parlak kesit mikroskopik araştırma için  
 for Chemical analysis  
 Kimyasal analiz için  
 for X-ray diffractive analysis  
 X-ışını difraktif analizi için





pale gray f. f. & M  
Py diss



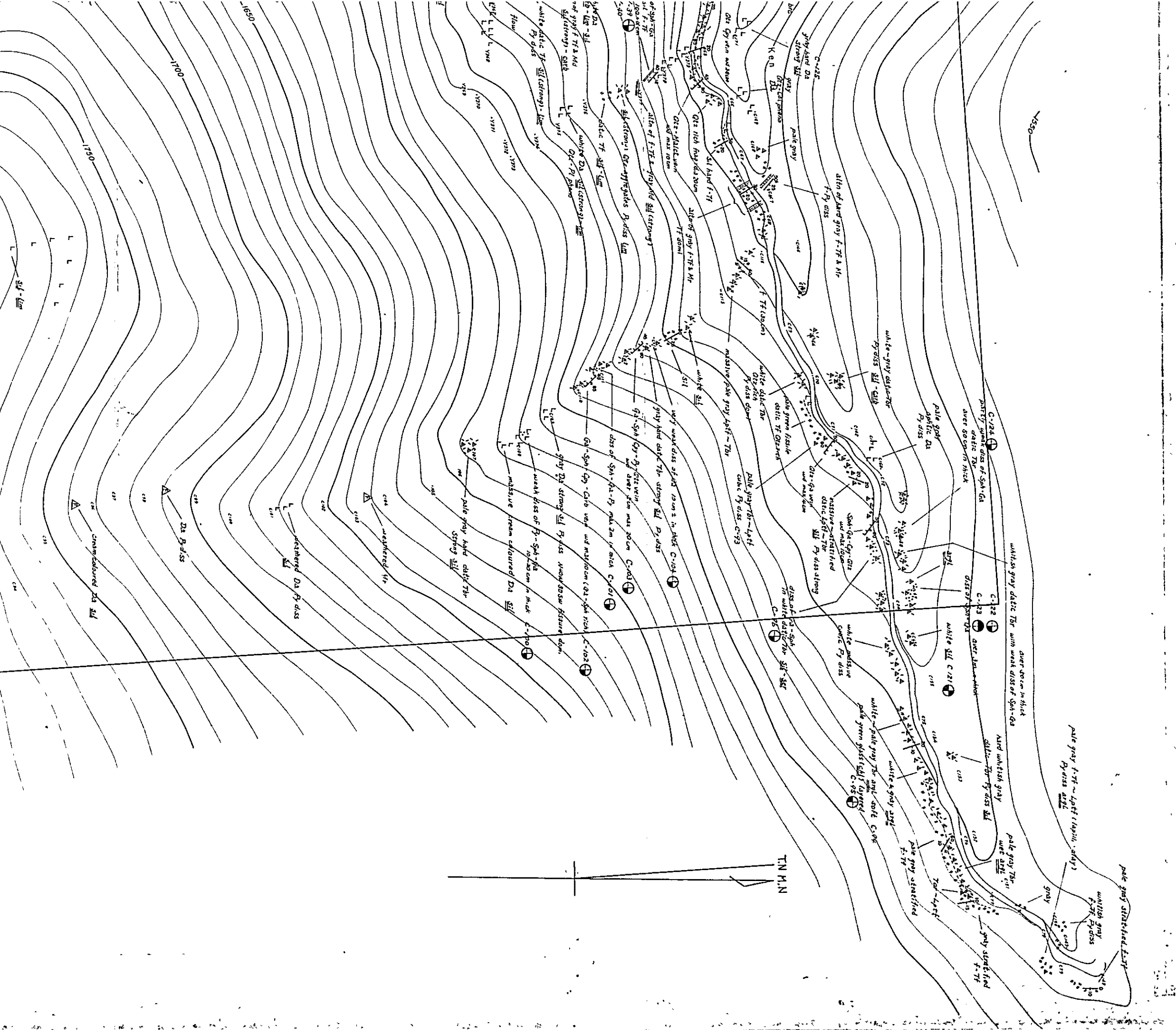
- 20 65 strike & dip  
doğrultu & eğim
- 30 65 strike & dip of joint  
kırıkların doğrultu eğimi
- 10 flow structure  
akını yapısı
- 60 strike & dip of geological boundary  
dokamak doğrultu doğrultu ve eğimi
- 70 65 fault  
fay
- 70 65 fault showing direction of dislocation  
atım yönünü gösteren fay
- fault & sheared zone  
fay & makaslama zonu
- anticline  
antiklinal
- syncline  
senklinal
- dissemination  
disseminasyon
- veinlets  
damarcıklar
- vein  
damar
- massive, bedded ore  
masif, tabakalı cevher
- adit  
galeri
- working mine  
çalışan maden
- old mine  
eski maden
- float  
döküntü
- position of rock sample  
kayaç numunelerinin durumu
- Y-1 ⊕ for Microscopic observation of thin section  
İnce kesit mikroskopik araştırma için
- Y-2 ⊕ for Microscopic observation of polish section  
Parlak kesit mikroskopik araştırma için
- Y-3 ⊕ for Chemical analysis  
Kimyasal analiz için
- Y-4 ⊕ for X-ray diffractive analysis  
X-ışını difraktif analizi için

- Gp granite porphyry  
granit porfir
- Qdp quartz diorite porphyrite  
kuvars diorit porfir
- Di diorite  
diorit

Mark Isaret	Word Kelime	Mark Isaret	Word Kelime	Mark Isaret	Word Kelime
(Lithology) adtc	andesitic andezitik	Hb	hornblende hornblend	pillow	pillow structure yastık yapısı
aggtc	agglomeratic aglomeratik	Ht	hematite hematit	portic	porphyritic porfiritik
btic	basaltic bazaltik	k Fld	potash feldspar potas-feldspat	vlet	veinlet damarcık
calc	calcareous kalkerli	Kaol	kaoline kaolin	(Alteration) (Aterasyon)	
datc	dacitic dasitik	Lim	limonite limonit	altr	altered altere olmuş
grtc	granitic granitik	Malct	malachite malakit	alb	albitized albitleşmiş
mdy	mudy çamurlu	Mr	magnetite manyetit	argl	argillaceous kil
pmc	pumiceous pümsü	Mont	montmorillonite montmorillonit	carb	carbonitized karbonatlaşmış
rhtc	rhyolitic riyalitik	Ol	olivine olivin	chl	chloritized kloritleşmiş
sdyc	sandy kumlu	Pi	plagioclase plajoklas	epi	epidotized epidotlaşmış
sil	siliceous silisli	Py	pyrite pirit	ht	hematitized hematitleşmiş
sty	silty siltili	Pyr	pyroxene pirokzen	kaol	kaolinized kaolinleşmiş
tfc	tuffaceous tüfşilli	Qtz	quartz kuvars	lim	limonitized limonitleşmiş
xeno	xenolith ksenolit	Ser	sericite serizit	mont	montmorillonitized montmorillonitleşmiş
(Minerals) (Mineraler)		Spc	Specularite Spekularit	ser	sericitized serizitleşmiş
Arag	aragonite aragonit	Sph	sphalerite sfelarit	sil	silicified silisleşmiş
Ba	barite barit	Zeo	zeolite zeolit	(Others) (Diğerleri)	
Biot	biotite biotit	(Texture) (Tektür)		aver	average ortalama
Cal	calcite kalsit	altn	alternation münavebe	dia	diameter çap
Carb	carbonates karbonat	aphtc	aphanitic afanitik	diss	dissemination disseminasyon
Chl	chlorite klorit	autbrc	autobrecciated structure otobresleşmiş	max	maximum maksimum
Cpy	Chalcopyrite kalkopirit	brc	breccia (structure) hırcık (yapı)	strong	strong, strongly kuvvetli-kuvvetlice
Epid	epidote epidot	flow	flow structure akıntılı yapı	weak	weak, weakly zayıf-zayıfca
Fld	feldspar feldspat	frag	fragment parça	wd	width genişlik
Ga	galena galen	grad	gradually tedric	U	upper üst
		Intc	intercalation arabarkı	M	middle orta
		Jt	joint kırık	L	lower alt
		mtx	matrix hamur	f	fine ince
		onion	onion structure soğan yapısı	m	medium orta
		pheno	phenocryst fenokrist	c	coarse iri
				dom	dominant







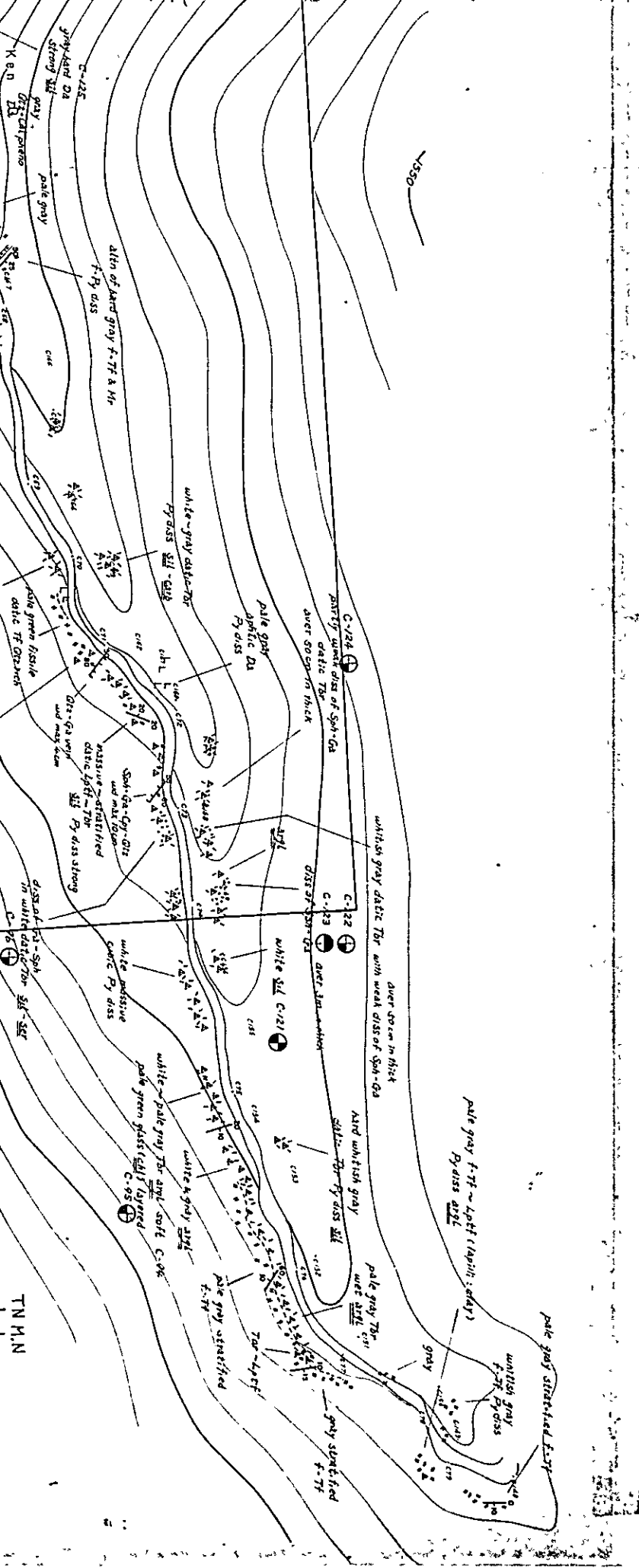
- fay & makaslama zonu
- anticline
- antiklinal
- syncline
- senklinal
- dissemination
- diseminasyon
- veinlets
- damarcıklar
- vien
- damar
- massive, bedded ore
- masif, tabakalı cevher
- adit
- galeri
- working mine
- çalışan maden
- old mine
- eski maden
- float
- doküntü
- position of rock sample
- kayaç numunelerinin durumu
- y100
- Y-1 ⊕
- Y-2 ⊕
- Y-3 ⊕
- Y-4 ⊕

for Microscopic observation of thin section  
*İnce kesit mikroskopik araştırma için*

for Microscopic observation of polish section  
*Parlak kesit mikroskopik araştırma için*

for Chemical analysis  
*Kimyasal analiz için*

for X-ray diffractive analysis  
*X-ışın difraktif analiz için*



	anticline	amc	çamurlu	mont	montmorillonit	carb	karbonatlaşmış
	antiklinal	pmc	pumiceous	Ol	olivine	chl	çloritizelmiş
	syncline	rhtic	rhyolitic	Pl	plagioclase	epi	epidotlaşmış
	senklinal	sdv	sandy	Py	pyrite	ht	hematitizelmiş
	dissemination	sil	siliceous	Pyr	pyroxene	kaol	kaolinizelmiş
	disseminasyon	sty	silty	Qtz	quartz	lim	limonitizelmiş
	veinlets	tfc	tuffaceous	Ser	sericite	mont	montmorillonitizelmiş
	damarcıklar	xeno	xenolith	Spc	specularite	ser	sericitleşmiş
	massive, bedded ore	(Minerals)		Sph	sphalerite	sil	silicified
	masif, tabakalı ces her	(Mineralier)		Zeo	zeolite	(Others)	(Diğerleri)
	adit	Arag	aragonite			aver	average
	galeri	Ba	barite			dia	diameter
	working mine	Biot	biotite	(Texture)		diss	dissemination
	çalışan maden	Cal	calcite	altn	alternation	max	maximum
	old mine	Carb	carbonates	aphtic	aphanitic	strong	strongly
	eski maden	Chl	chlorite	autbrc	autobrecciated structure	weak	weakly
	float	Cpy	chalcopyrite	brc	breccia (structure)	wd	width
	döküntü	Epi	epidote	flow	flow structure	U	upper
	position of rock sample	Fld	feldspar	frag:	fragment	M	middle
	kayaç numunelerinin durumu	Ga	galena	grad	gradually	L	lower
	for Microscopic observation of thin section			Intc	intercalation	f-	fine
	İnce kesit mikroskopik araştırma için			jt	joint	m-	medium
	for Microscopic observation of polish section			mtx	matrix	c-	coarse
	Parlak kesit mikroskopik araştırma için			onion	onion structure	dom	dominant
	for Chemical analysis			pheno	phenocryst		
	Kimyasal analiz için						
	for X-ray diffractive analysis						
	X-ışını difraktif analizi için						

T.N.M.N.









LEGEND  
LEJAND

Geological symbol & abbreviation of geological term Jeolojik sembol & jeolojik terim kısaltmaları			
Symbol Sembol	Mark İşaret	Rock name Kayaç isimleri	
Sedimentary rocks Sedümanter kayaçlar	Ls	limestone kireçtaşı	
	Mr	marl marn	
	Md	mudstone çamurtaşı	
	St	siltstone silt taşı	
	Ss	sandstone kuumsaşı	
	Cg	conglomerate konglomera	
	Bt	basalt	
	Ad	andesite andezit	
	Da	dacite dasit	
	Rh	rhyolite riyolit	
Volcanic & pyroclastic rocks Volkanik piroklastik kayaçlar	(basalt) (bazalt)	(andesite) (andezit)	(dacite) (dasit)
	(rhyolite) (riyolit)		
	Tf	fine-coarse tuff ince-iri tuf	
	Lptf	lapilli tuff lapilli tuf	
	Tbr	tuff breccia tuf breş	
	Volbrc	volcanic breccia volkanik breş	
	Agg	agglomerate aglomera	
	Volcg	volcanic conglomerate volkanik konglomera	
	Gr	granite granit	
	Gd	granodiorite granodiorit	
Plutonic & hypabyssal rocks Derinlik hipabissal kayaçlar	Dp	diorite porphyrite diorit porfir	
	Qd	quartz diorite kuvars diorit	
	Po	porphyrite porfir	
	Qp	quartz porphyry kuvars porfiri	
	Gp	granite porphyry granit porfiri	
	Qdp	quartz diorite porphyrite kuvars diorit porfir	
	Di	diorite diorit	

20 65

strike & dip  
doğrultu & eğim

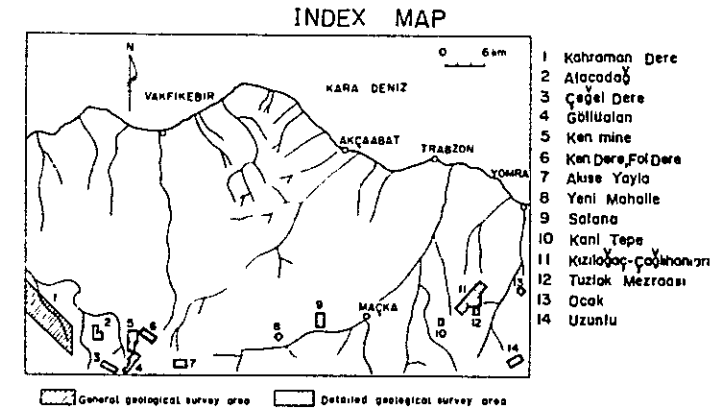
PL. 2-6

MINERAL RESEARCH AND EXPLORATION INSTITUTE  
GEOLOGICAL SURVEY  
OF  
TRABZON AREA, NORTHEASTERN TURKEY

PHASE III

ROUTE MAP WITH LOCALITIES OF ROCK  
SAMPLES AROUND KEN DERE, FOL DERE AREA

KEN DERE - FOL DERE SAHASININ  
GÜZERGAH HARİTASI VE NUMUNE YERLERİ



Scale 1:2,000

Ölçek

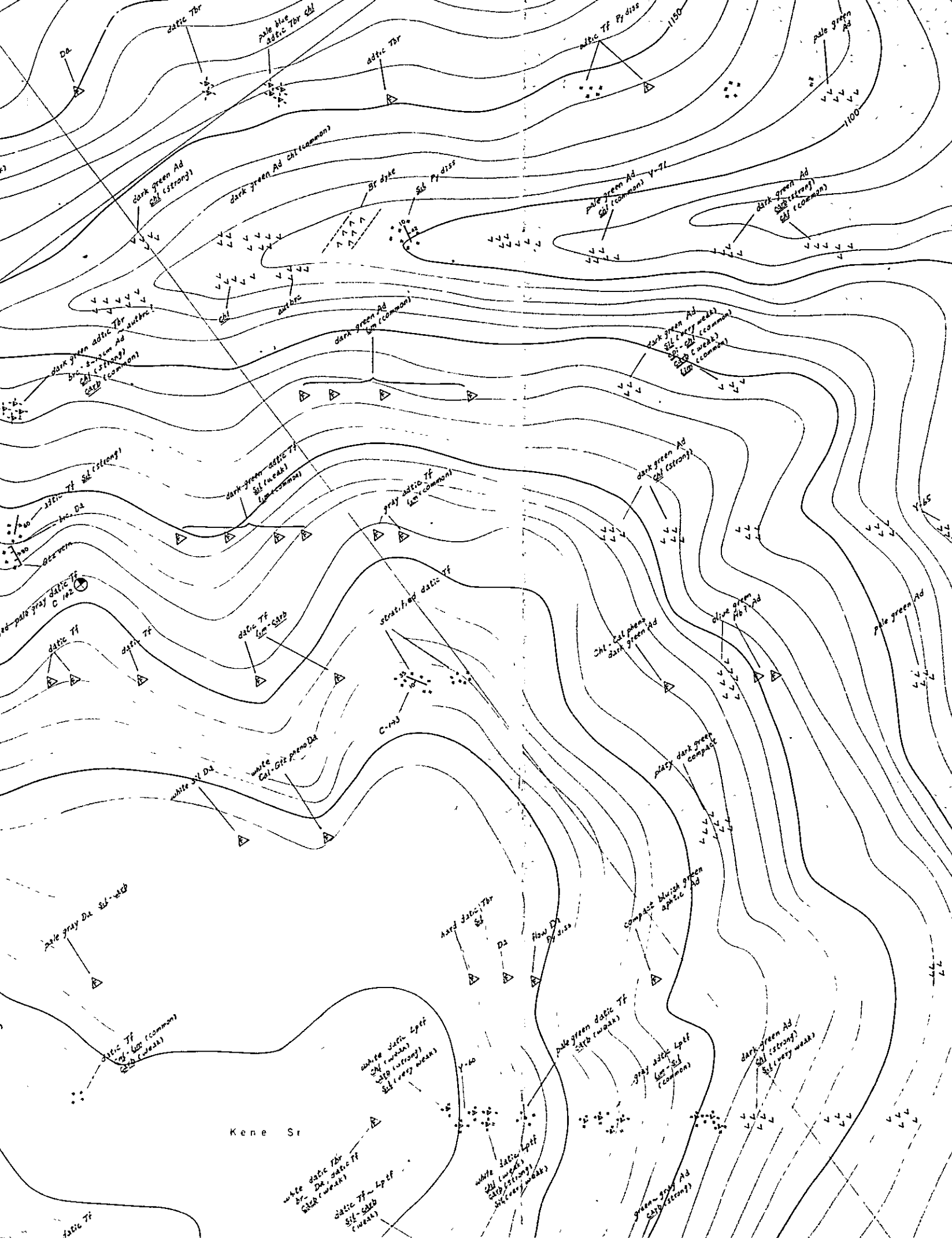
100 200m

METAL MINING AGENCY OF JAPAN  
JAPAN INTERNATIONAL COOPERATION AGENCY  
FEBRUARY 1977

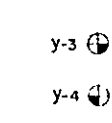
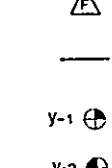
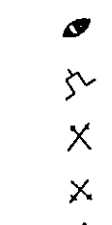
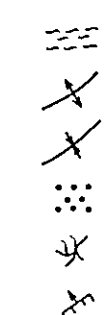
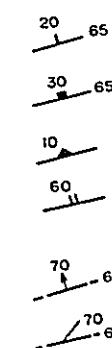
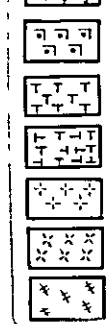
Prepared by Nikko Exploration & Development Co. Ltd







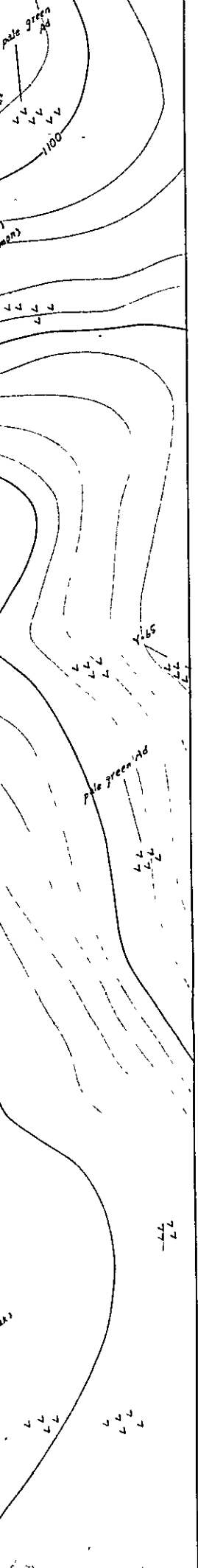
hipabisal kavaçlar



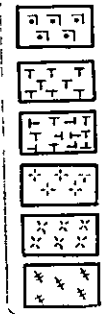
Od	quartz diorite kuvars diorit
Po	porphyrite porfir
Qp	quartz porphyry kuvars porfiri
Gp	granite porphyry granit porfiri
Udp	quartz diorite porphyrite kuvars diorit porfir
Di	diorite diorit

20 65	strike & dip doğrultu & eğim
30 65	strike & dip of joint kırıkların doğrultu eğimi
10	flow structure akma yapısı
60	strike & dip of geological boundary dokamak doğrultu doğrultu ve eğim
70 65	fault fay
70 65	fault showing direction of dislocation atım yönünü gösteren fay
	fault & sheared zone fay & makaslama zonu
	anticline antiklinal
	syncline senklinal
	dissemination diseminasyon
	veinlets damarcıklar
	vein damar
	massive, bedded ore masif. tabakalı cevher
	adit galeri
	working mine çalışan maden
	old mine eski maden
	float dokuntu
— y100	position of rock sample kayaç numunelerinin durumu
Y-1 ⊕	for Microscopic observation of thin section İnce kesit mikroskopik araştırma için
Y-2 ⊕	for Microscopic observation of polish section Parlak kesit mikroskopik araştırma için
Y-3 ⊕	for Chemical analysis Kimyasal analiz için
Y-4 ⊕	for X-ray diffractive analysis X-ışın diffraktif analiz için

Mark	Word
İsaret	Kelime
(Lithology)	
adtic	andezitik
aggtic	agglomeratik
bsaltic	bazaltik
calc	calcareous
datic	dacitic
grtic	granitic
mdy	mudy
pmc	pumiceous
rhtic	rhyolitic
sdv	sandy
sil	siliceous
sty	silty
tfc	tuffaceous
xeno	xenolith
(Minerals)	
Arag	aragonite
Ba	barite
Biot	biotite
Cal	calcite
Carb	carbonates
Chl	chlorite
Cpy	Chalcopyrite
Epi	epidote
Fid	feldspar
Ga	galena



kayaçlar



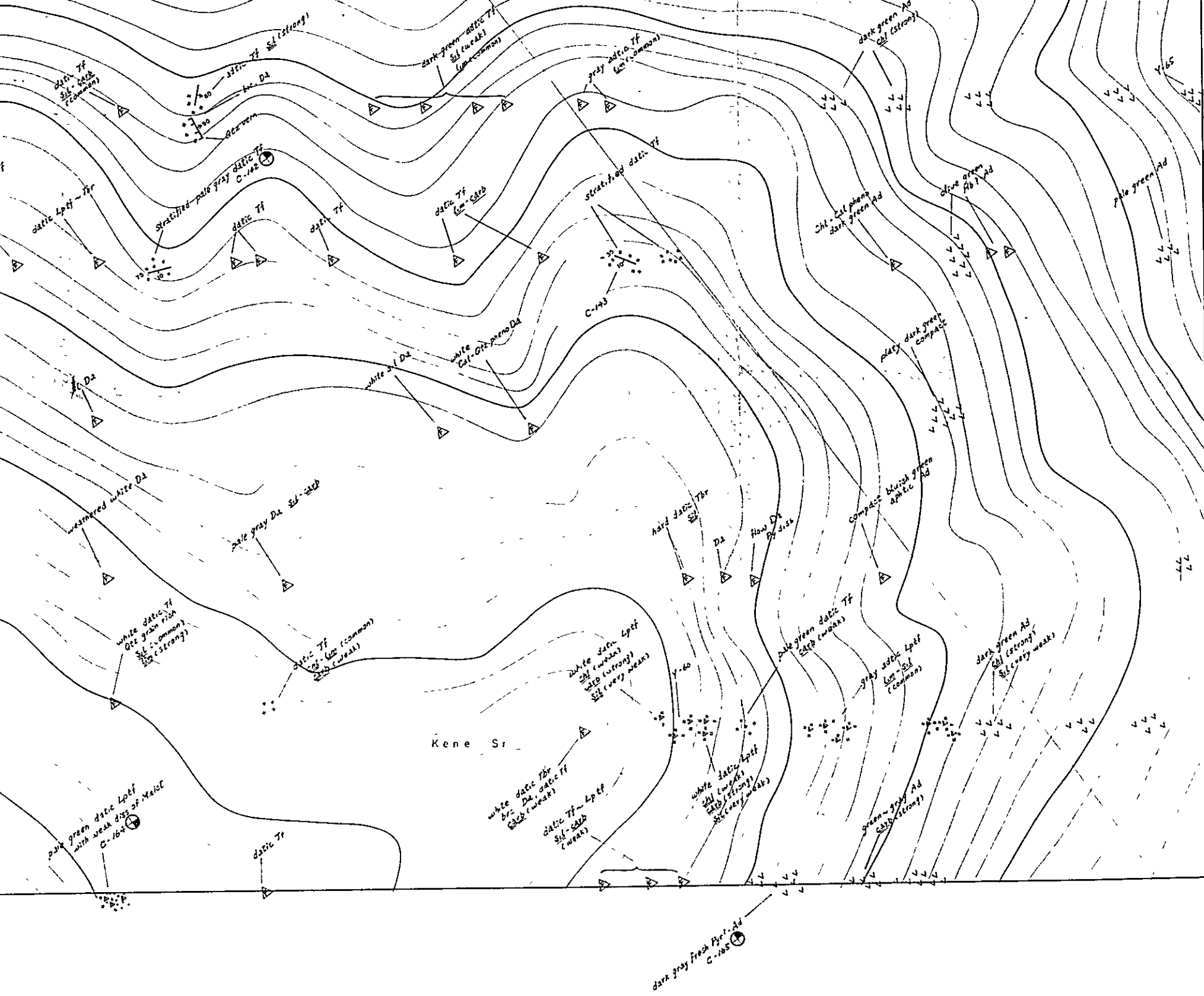
- Qd quartz diorite  
kuvars diorit
- Po porphyrite  
porfir
- Qp quartz porphyry  
kuvars porfir
- Gp granite porphyry  
granit porfir
- Qdp quartz diorite porphyrite  
kuvars diorit porfir
- Di diorite  
diorit
















- 20 65 strike & dip  
doğrultu & eğim
- 30 65 strike & dip of joint  
kırıkların doğrultu eğimi
- 10 flow structure  
akma yapısı
- 60 strike & dip of geological boundary  
dokunak doğrultu ve eğimi
- 70 65 fault  
fay
- 70 65 fault showing direction of dislocation  
atım yönünü gösteren fay
- fault & sheared zone  
fay & makaslama zonu
- anticline  
antiklinal
- syncline  
senklinal
- dissemination  
diseminasyon
- veinlets  
damarcıklar
- vena  
damar
- massive, bedded ore  
masif, tabakalı cevher
- adit  
galeri
- working mine  
çalışan maden
- old mine  
eski maden
- float  
dokuntı
- position of rock sample  
kayaç numunelerinin durumu
- for Microscopic observation of thin section  
İnce kesit mikroskopik araştırma için
- for Microscopic observation of polish section  
Parlak kesit mikroskopik araştırma için
- for Chemical analysis  
Kimyasal analiz için
- for X-ray diffractive analysis  
X-ışını difraktif analizi için

Mark Isaret	Word Kelime	Mark Isaret	Word Kelime	Mark Isaret	Word Kelime
(Lithology) (Litoloji)		Hb	hornblend hornblend	pillow	pillow structure yastık yapısı
adtic	andesitic andezitik	Ht	hematite hematit	portic	porphyritic porfiratik
aggtic	agglomeratic aglomeraatik	k-Fld	potash-feldspar potas-feldspar	vlet	veinlet damarcık
btic	basaltic bazaltik	Kaol	kaoline kaolin	(Alteration) (Alterasyon)	
calc	calcareous kalkareli	Lim	limonite limonit	altr	altered altere olmuş
datic	dacitic dasitik	Malct	malachite malakit	alb	albitized albitleşmiş
grtic	granitic granitik	Mt	magnetite manyetit	argl	argillaceous kil
mdy	muddy çamurlu	Mont	montmorillonite montmorillonit	carb	carbonitized karbonatlaşmış
pmc	pumiceous pümsi	Oi	olivine olivin	chl	chloritized kloritleşmiş
rhtic	rhyolitic riyolitik	Pl	plagioclase plajoklas	epi	epidotized epidotlaşmış
sdv	sandy kumlu	Py	Pyrite pirit	ht	hematitized hematitleşmiş
sil	siliceous silisli	Pyr	Pyroxene piroksen	kaol	kaolinized kaolinleşmiş
sty	silty siltili	Qtz	quartz kuvars	lim	limonitized limonitleşmiş
tfc	tuffaceous tüflü	Ser	sericite serisit	mont	montmorillonized montmorillonitleşmiş
xeno	xenolith ksenolit	Spc	Specularite Spekularit	ser	sericitized serisitleşmiş
(Minerals) (Mineraler)		Sph	sphalerite sfalerit	sil	silicified silisleşmiş
Arag	aragonite aragonit	Zeo	zeolite zeolit	(Others) (Diğerleri)	
Ba	barite barit	(Texture) (Tekstür)		aver	average ortalama
Biot	biotite biyit	altn	alternation münasebe	dia	diameter çap
Cal	calcite kalsit	aphtic	aphanitic afanitik	diss	dissemination diseminasyon
Carb	carbonates karbonat	autbrc	autobrecciated structure otobreleşmiş	max	maximum maksimum
Chl	chlorite klorit	brc	breccia (structure) breşik (yapı)	strong	strong, strongly kuvvetli-kuvvetlice
Cpy	Chalcopyrite kalkopirit	flow	flow structure akıntılı yapı	weak	weak, weakly zayıf-zayıfca
Epi	epidote epidot	frag	fragment tane	wd	width genişlik
Fld	feldspar feldspat	grad	gradually tedric	U	upper üst
Ga	galena galen	Intc	intercalation arakatık	M	middle orta
		jt	joint kırık	L	lower alt
		mtx	matrix hamur	t	fine ince
		onion	onion structure soğan yapısı	m	medium orta
		pheno	phenocryst fenokrist	c	coarse iri
				domi	dominant







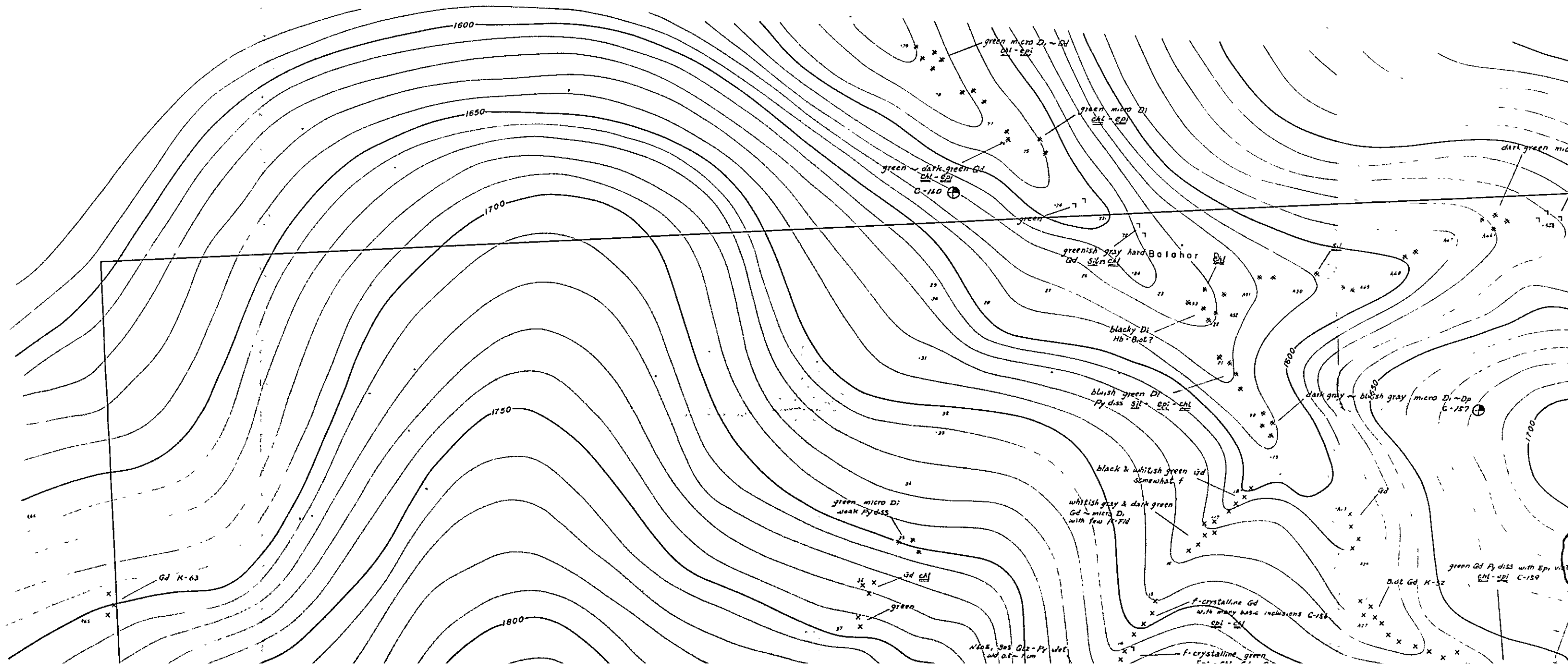
-  anticline
-  syncline
-  dissemination
-  veinlets
-  vena
-  massive, bedded ore
-  adit
-  working mine
-  old mine
-  float
-  position of rock sample
-  for Microscopic observation of thin section
-  for Microscopic observation of polish section
-  for Chemical analysis
-  for X ray diffractive analysis

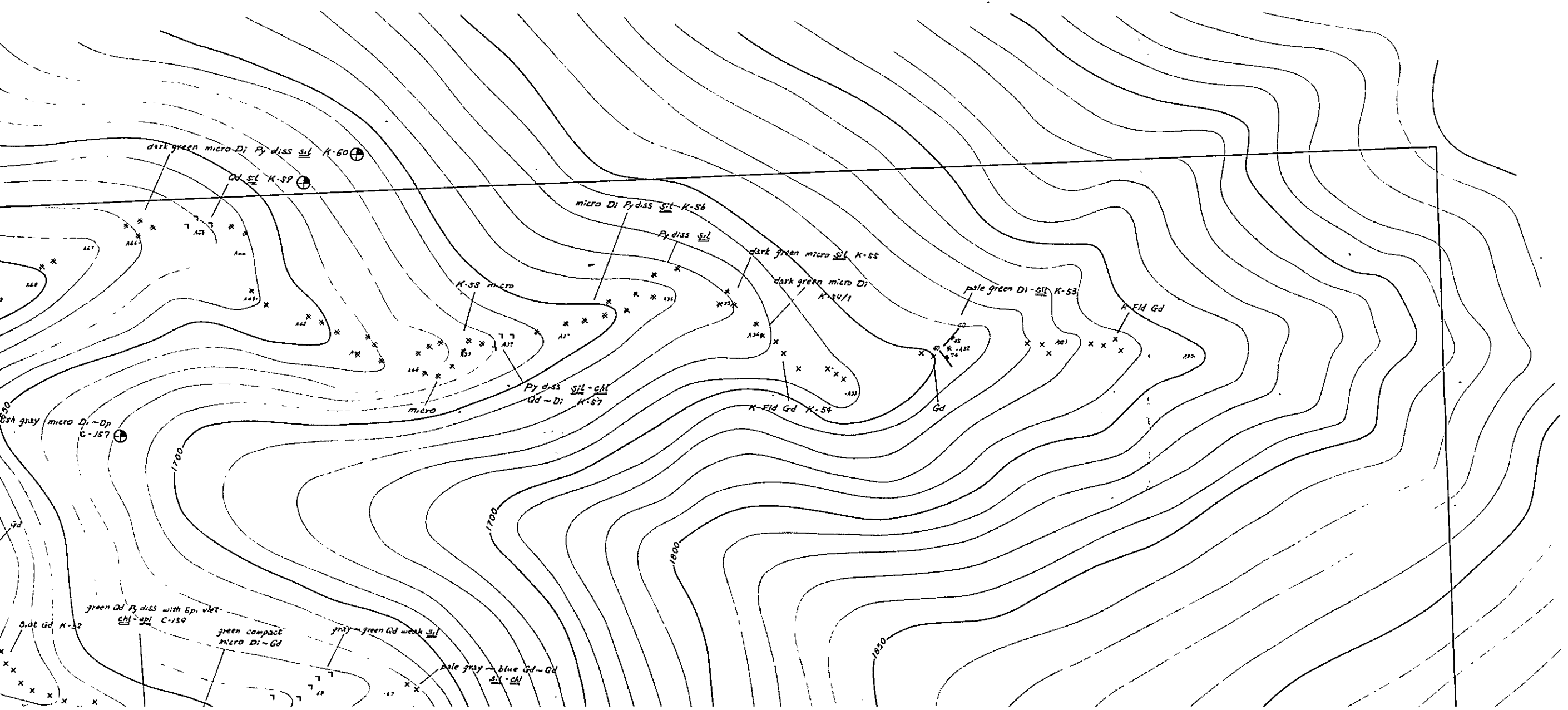
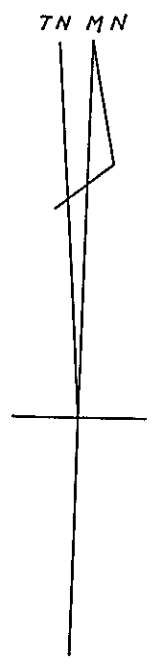
Y-1 ⊕  
 Y-2 ⊕  
 Y-3 ⊕  
 Y-4 ⊕





	anticline antıklinal	pmc	çamırlu pumiceous	OI	olivn olivn	carb	kil karbonatlaşmış
	syncline senklinal	rhtic	rhvilitic rhyolitik	PI	plagioclase plajyoklas	chl	chloritized kloritleşmiş
	dissemination disseminasyon	sdv	sandy kumlu	Py	pyrite pirit	epi	epidotized epidotlaşmış
	veinlets damarcıklar	sil	siliceous silisli	Pyr	Pyroxene pirokxen	ht	hematitized hematitleşmiş
	vien damar	sty	silty siltli	Qtz	quartz kuvars	kaol	kaolinized kaolinleşmiş
	massive, bedded ore masif, tabakalı cevher	tfc	tuffaceous tuffli	Ser	sericite serisit	lim	limonitized limonitleşmiş
	adit galeri	xeno	xenolith ksenolit	Spc	Specularite Spekularit	mont	montmorillonized montmorillonitleşmiş
	working mine çalışan maden	(Minerals) (Mineraller)		Sph	Sphalerite sfalerit	ser	sericitized serisitleşmiş
	old mine eski maden	Arag	aragonite aragonit	Zeo	zeolite zeolit	sil	silicified silisleşmiş
	float döküntü	Ba	barite barit	(Texture) (Teksür)		(Others) (Diğerleri)	
	position of rock sample kayaç numunelerinin durumu	Biot	biotite biyotit	altn	alternation minarebe	aver	average ortalama
	for Microscopic observation of thin section İnce kesit mikroskopik araştırma için	Cal	calcite kalsit	aphitic	aphanitic afanitik	dia	diameter çap
	for Microscopic observation of polish section Parlak kesit mikroskopik araştırma için	Carb	carbonate karbonat	aphtic	aphanitic afanitik	diss	dissemination disseminasyon
	for Chemical analysis Kimyasal analiz için	Chl	chlorite klorit	autbrc	autobrecciated structure otobreleşmiş	max	maximum maksimum
	for X-ray diffractive analysis X-ışını difraktif analizi için	Cpy	Chalcopyrite kalkopirit	brc	breccia(structure) breşikli yapı	strong	strong, strongly kuvvetli-kuvvetlice
	100	Epi	epidote epidot	flow	flow structure akıntılı yapı	weak	weak, weakly zayıf-zayıfca
	Y-1	Fld	feldspar feldspat	frag	fragment tane	wd	width genişlik
	Y-2	Ga	galena galen	grad	gradually tedrici	U	upper üst
	Y-3			Intc	intercalation arakatki	M	middle orta
	Y-4			jt	joint kirik	L	lower alt
				mtx	matrix hamur	m	medium orta
				onion	onion structure soğan yapısı	c	coarse iri
				pheno	phenocryst fenokrist	domi	dominant





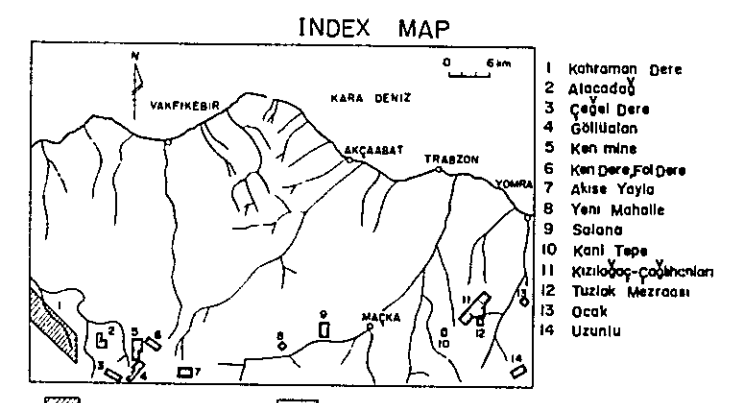
T.N M.N

# LEGEND LEJAND

Geological symbol & abbreviation of geological term <i>Jeolojik sembol &amp; jeolojik terim kısaltmaları</i>		Mark <i>İşaret</i>	Rock name <i>Kayaç isimleri</i>
Symbol <i>Sembol</i>			
Sedimentary rocks <i>Sedimantar kayalar</i>		Ls	limestone <i>kireçtaşı</i>
		Mr	marl <i>marn</i>
		Md	mudstone <i>çamurtaşı</i>
		St	siltstone <i>silt taşı</i>
		Ss	sandstone <i>kumtaşı</i>
		Cg	conglomerate <i>konglomera</i>
		Bt	basalt
		Ad	andesite
		Da	dacite
		Rh	rhyolite
Volcanic & pyroclastic rocks <i>Volkanik piroklastik kayalar</i>	(basalt) (andesite) (dacite) (rhyolite) <i>(bazalt) (andezit) (dasit) (riyolit)</i>	Tf	fine-coarse tuff <i>ince-iri tüf</i>
		Lptf	lapilli tuff <i>lapilli tüf</i>
		Tbr	tuff breccia <i>tüf breş</i>
		Volbrc	volcanic breccia <i>volkanik breş</i>
		Agg	agglomerate <i>aglomera</i>
		Volcg	volcanic conglomerate <i>volkanik konglomera</i>
		Gr	granite <i>granit</i>
		Gd	granodiorite <i>granodiorit</i>
		Dp	diorite porphyrite <i>diorit porfir</i>
		Qd	quartz diorite <i>kuvars diorit</i>
Plutonic & hypabyssal rocks <i>Derinlik hipabisal kayalar</i>		Po	porphyrite <i>porfir</i>
		Qp	quartz porphyry <i>kuvars porfiri</i>
		Gp	granite porphyry <i>granit porfiri</i>
		Qdp	quartz diorite porphyrite <i>kuvars diorit porfir</i>
		Dı	diorite <i>diorit</i>
			strike & dip <i>doğrultu &amp; eğim</i>
			strike & dip of joint <i>kırıkların doğrultu eğimi</i>
			flow structure <i>akma yapısı</i>
			strike & dip of geological boundary <i>dokumanak doğrultu doğrultu ve eğimi</i>
			fault

MINERAL RESEARCH AND EXPLORATION INSTITUTE  
GEOLOGICAL SURVEY  
OF  
TRABZON AREA, NORTHEASTERN TURKEY

PHASE III  
ROUTE MAP WITH LOCALITIES OF ROCK  
SAMPLES AROUND AKİSE YAYLA AREA  
*AKİSE YAYLA SAHASININ  
GÜZERGAH HARİTASI VE NUMUNE YERLERİ*



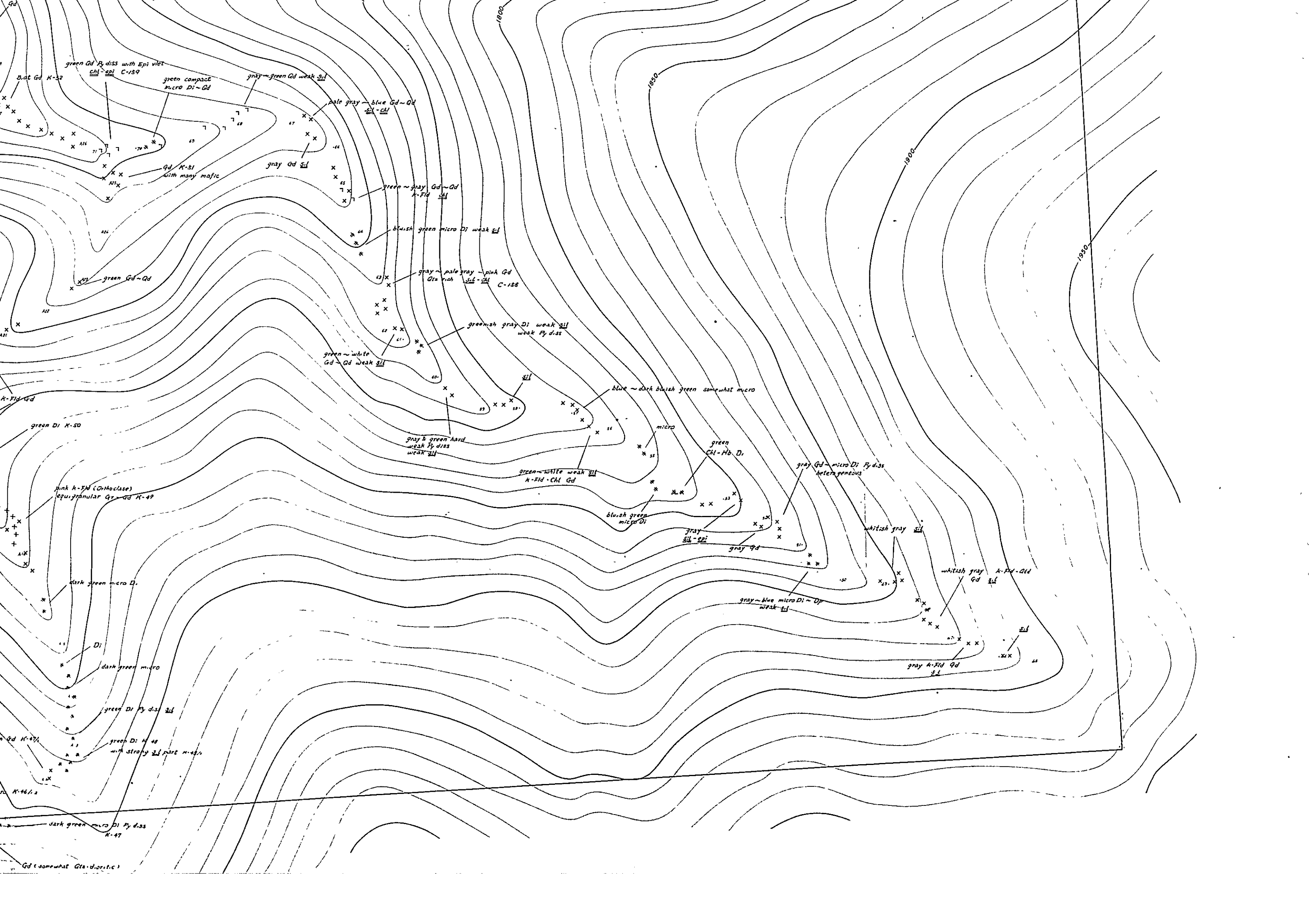
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*Ölçek 1:2000*

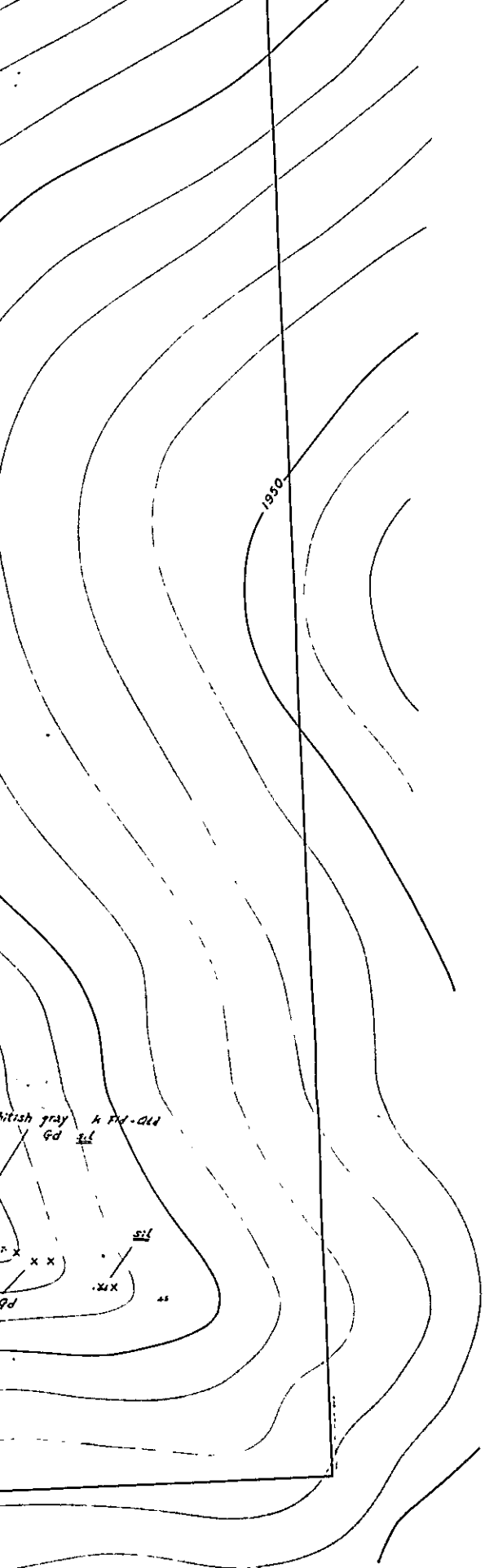
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JAPAN INTERNATIONAL COOPERATION AGENCY  
FEBRUARY 1977

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Mark <i>İşaret</i>	Word <i>Kelime</i>	Mark <i>İşaret</i>	Word <i>Kelime</i>
(Lithology)		Hb	hornblende <i>hornblend</i>
adtc	andesitic <i>andezitik</i>	Ht	hematite <i>hematit</i>
aggic	agglomeratic <i>aglomeratik</i>	k-Fld	potash-feldspar <i>potas-feldspat</i>
btc	basaltic <i>bazaltik</i>	Kaol	kaoline <i>kaolin</i>
			pillow <i>yastık yapısı</i>
			poritic <i>porfiritik</i>
			vlet <i>veinlet</i>
			danarık

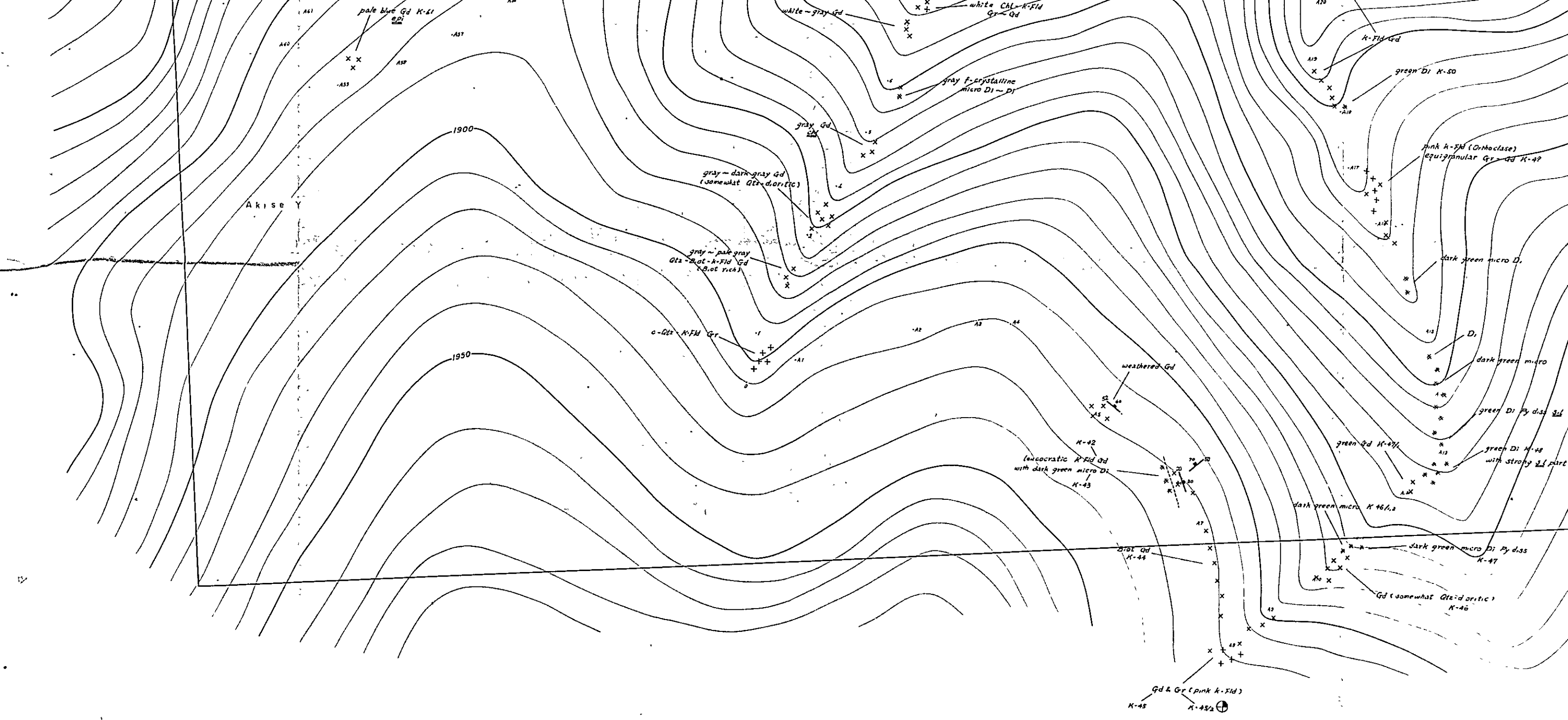






	20 65	strike & dip
	30 65	strike & dip of joint
	10	flow structure
	60	strike & dip of geological boundary
	70 65	fault
	70 65	fault showing direction of dislocation
		fault & sheared zone
		anticline
		syncline
		dissemination
		veinlets
		vien
		massive, bedded ore
		adit
		working mine
		old mine
		float
		position of rock sample
	Y-1	for Microscopic observation of thin section
	Y-2	for Microscopic observation of polish section
	Y-3	for Chemical analysis
	Y-4	for X-ray diffractive analysis

Mark Isaret	Word Kelime	Mark Isaret	Word Kelime	Mark Isaret	Word Kelime
(Lithology)	aditic	Hb	hornblende	pillow	pillow structure
	aggtic	Ht	hornblend	portic	yastik yapısı
	btic	k-Fld	hematite	vlet	porphyritic
	calc	Kaol	potash-feldspar		porfiritik
	datc	Lim	potas-feldspat	(Alteration)	veinlet
	grtic	Malct	kaoline	(Alterasyon)	damarcık
	mdy	Mt	kaolin	altr	altered
	pmc	Mont	limonite	alb	altere olmuş
	rhtic	OI	limonit	argl	albitized
	sdv	PI	malachite	carb	albitleşmiş
	sil	Py	malakit	chl	argillaceous
	sty	Pyr	magnetite	epi	ki
	tfc	Qtz	maryetit	ht	karbonitizad
	xeno	Ser	manyetit	kaol	karbonatlaşmış
(Minerals)	Arag	Spc	montmorillonite	lim	chloritized
	Ba	Sph	montmorillonit	mont	kloritleşmiş
	Biot	Zeo	montmorillonit	ser	epidotlaşmış
	Cal	(Texture)	olivine	sil	hematitizad
	Carb	(Tekstür)	oliv		hematitleşmiş
	Chl	altn	plagioclase		kaolinized
	Cpy	aphitic	plagioklas		kaolinleşmiş
	Epi	autbrc	pyrite		limonitizad
	Fld	brc	pirit		limonitleşmiş
	Ga	flow	pyroxene		montmorillonized
		frag.	piroksen		montmorillonitleşmiş
		grad	kuvars		sericitized
		Intc	kuvars		sericitleşmiş
		it	sericite		silicified
		mtx	serizit		silicleşmiş
		onion	Spekularite	(Others)	
		pheno	Spekularit	(Diğerleri)	
			sphalerite	aver	average
			zeolite	dia	ortakama
			zeolit	diss	diameter
				max	çap
				strong	dissemination
				weak	disseminasyon
				wd	maximum
				U	maksimum
				M	strong, strongly
				L	kuvvetli-kuvvetlice
				f-	weak, weakly
				m	zayıf-zayıfca
				c-	width
				dom	genişlik
					upper
					ist
					middle
					orta
					lower
					alt
					fine
					ince
					medium
					orta
					coarse
					iri
					dominant



Akise Y

1900

1950

pale blue Gd K-61

white - gray Gd

gray F-crystalline  
micro Di - Di

gray - dark gray Gd  
(somewhat Qtz-dioritic)

gray - pale gray  
Qtz - biot - k-Fld Gd  
(Biot rich)

o-Gtz K-Fld Gr

leucocratic K-Fld Gd  
with dark green micro Di

weathered Gd

green Gd K-47/1

dark green micro K-46/2

dark green micro Di Py dis  
K-47

Gd (somewhat Qtz-dioritic)  
K-46

Gd & Gr (pink k-Fld)  
K-45 K-45/2

pink k-Fld (Orthoclase)  
equigranular Gr - Gd K-49

dark green micro Di

dark green micro

green Di Py dis

green Di K-48  
with strong part

A61

A60

A59

A58

A57

A56

A55

A54

A53

A52

A51

A50

A49

A48

A47

A46

A45

A44

A43

A42

A41

A40

A39

A38

A37

A36

A35

A34

A33

A32

A19

A18

A17

A16

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A14

A13

A12

A11

A10

A9

A8

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A4

A3

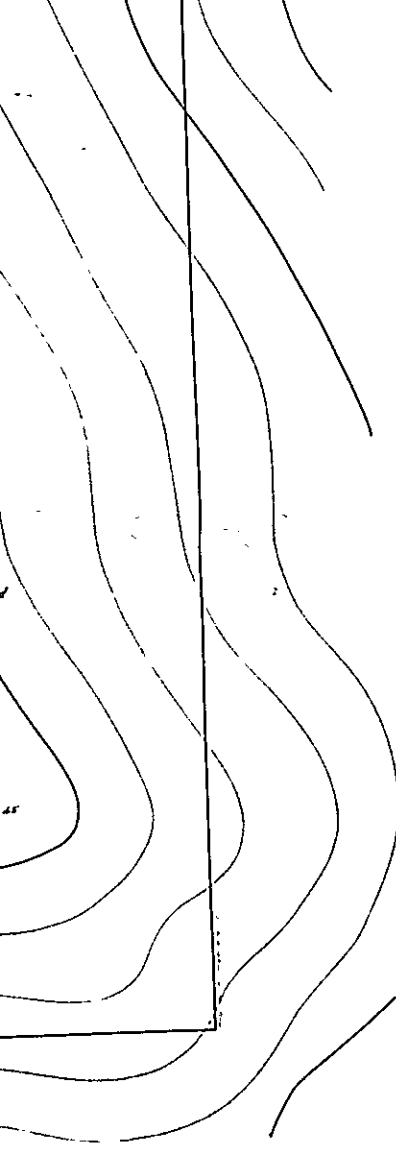
A2

A1

A0







- X working mine  
çalışan maden
- X old mine  
eski maden
- △ float  
döküntü
- y100 position of rock sample  
kayaç numunelerinin durumu
- Y-1 ⊕ for Microscopic observation of thin section  
İnce kesit mikroskopik araştırma için
- Y-2 ⊕ for Microscopic observation of polish section  
Parlak kesit mikroskopik araştırma için
- Y-3 ⊕ for Chemical analysis  
Kimyasal analiz için
- Y-4 ⊕ for X-ray diffractive analysis  
X-ışını difraktif analizi için

Biot	biotite biotit	(Tektür) (Tektür)	alternation münavebe	aver	average ortalama
Cal	calcite kalsit			dia	diameter çap
Carb	carbonates karbonat	aphitic	aphanitic afanitik	diss	dissemination disseminasyon
Chl	chlorite klorit	autbrc	autobrecciated structure otobreşmiş	max	maximum maksimum
Cpy	Chalcopyrite kalkopirit	brc	breccia(structure) breşik(yapı)	strong	strong, strongly kuvvetli-kuvvetlice
Epi	epidote epidot	flow	flow structure akıntılı yapı	weak	weak, weakly zayıf-zayıfca
Fid	feldspar feldspat	frag:	fragment tane	wd	width genişlik
Ga	galena galen	grad	gradually tedrici	U	upper üst
		intc	intercalation arakaatki	M	middle orta
		jt	joint kırık	L	lower alt
		mtx	matrix hamur	f-	fine ince
		onion	onion structure soğan yapısı	m-	medium orta
		pheno	phenocryst fenokrist	c-	coarse iri
				domi	dominant

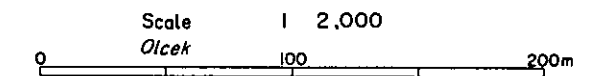
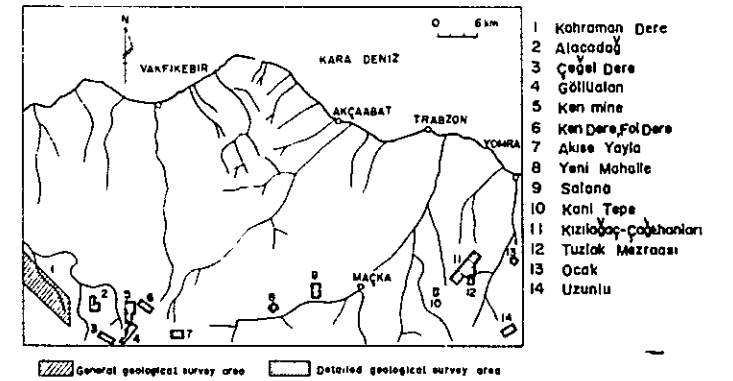


MINERAL RESEARCH AND EXPLORATION INSTITUTE  
GEOLOGICAL SURVEY  
OF  
TRABZON AREA, NORTHEASTERN TURKEY

PHASE III

ROUTE MAP WITH LOCALITIES OF ROCK  
SAMPLES AROUND YENİ MAHALLE AREA  
YENİ MAHALLE SAHASININ  
GÜZERGAH HARİTASI VE NUMUNE YERLERİ

INDEX MAP



METAL MINING AGENCY OF JAPAN  
JAPAN INTERNATIONAL COOPERATION AGENCY  
FEBRUARY 1977

Prepared by Nikko Exploration & Development Co., Ltd

LEGEND  
LEJAND

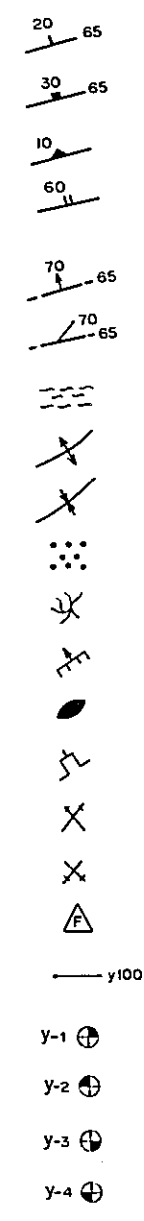
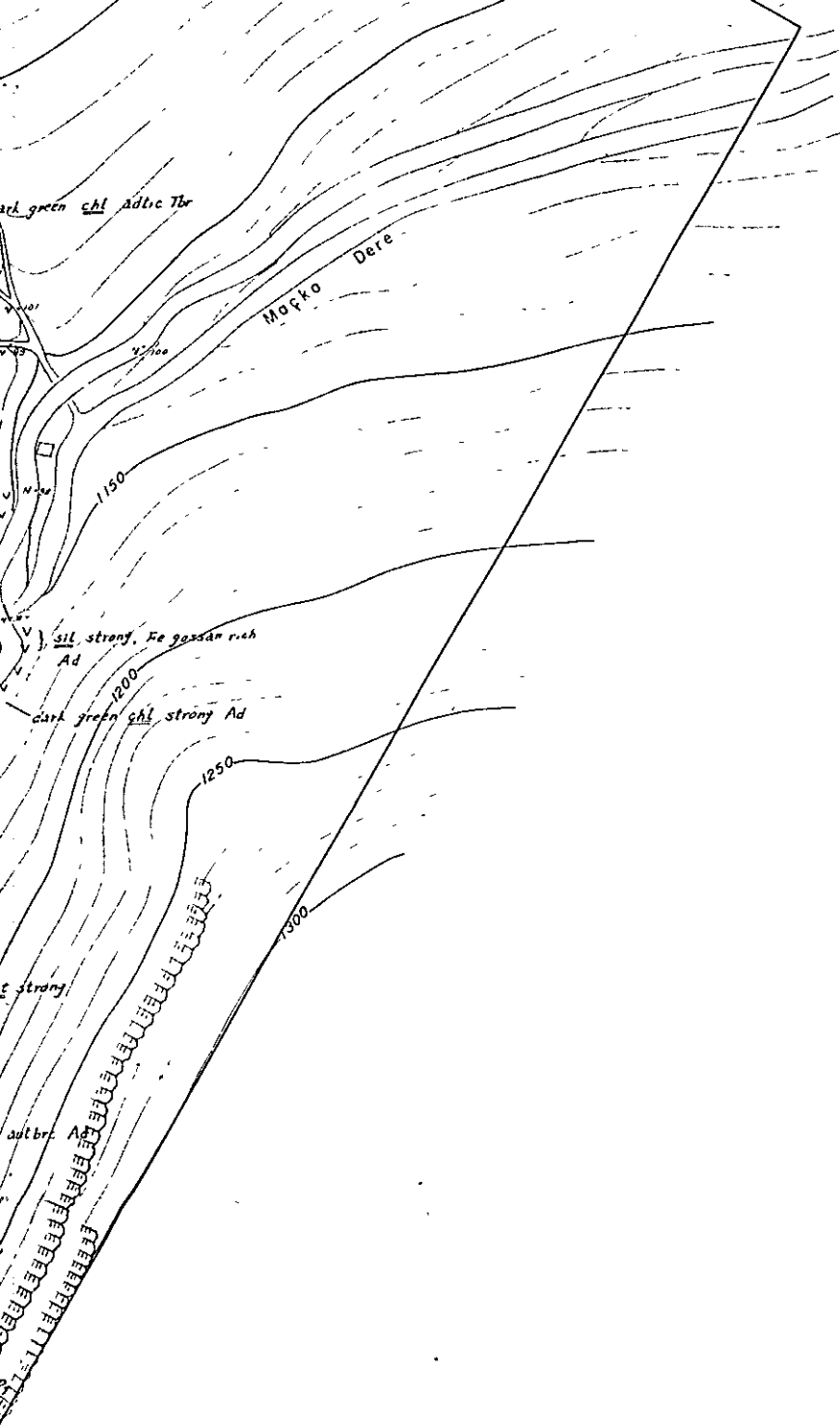
Geological symbol & abbreviation of geological term Jeolojik sembol & jeolojik terim kısaltmaları		Mark	Rock name	
Symbol Sembol		İşaret	Kayaç isimleri	
Sedimentary rocks Sedimanter kayaçlar	[Symbol]	Ls	limestone kireçtaşı	
	[Symbol]	Mr	marl marl	
	[Symbol]	Md	mudstone çamurtaşı	
	[Symbol]	St	siltstone silt taşı	
	[Symbol]	Ss	sandstone kumtaşı	
	[Symbol]	Cg	conglomerate konglomera	
	[Symbol]	Bt	basalt	
	[Symbol]	Ad	andesite andezit	
	[Symbol]	Da	dacite dasit	
	[Symbol]	Rh	rhyolite riyolit	
Volcanic & pyroclastic rocks Volkanik piroklastik kayaçlar	(basalt) (bazalt)	Tf	fine-coarse tuff ince-iri tuf	
	(andesite) (andezit)	Lptf	lapilli tuff lapilli tuf	
	(dacite) (dasit)	Tbr	tuff breccia tuf breş	
	(rhyolite) (riyolit)	Volbrc	volcanic breccia volkanik breş	
		Agg	agglomerate aglomera	
		Volcg	volcanic conglomerate volkanik konglomera	
		Gr	granite granit	
		Gd	granodiorite granodiorit	
		Dp	diorite porphyrite diorit porfir	
		Qd	quartz diorite kuvars diorit	
Plutonic & hypabyssal rocks Derinlik hipabisal kayaçlar		Po	porphyrite porfir	
		Op	quartz porphyry kuvars porfir	
		Gp	granite porphyry granit porfir	
		Qdp	quartz diorite porphyrite kuvars diorit porfir	
		Dt	diorite diorit	

[Symbol]	strike & dip doğrultu & eğim
[Symbol]	strike & dip of joint kırıkların doğrultu eğimi
[Symbol]	flow structure akma yapısı
[Symbol]	strike & dip of geological boundary doküman doğrultu eğimi ve eğim
[Symbol]	fault

Mark İşaret	Word Kelime	Mark İşaret	Word Kelime
(Lithology) adtic	andesitic andezitik	Hb	hornblende hornblend
aggtic	agglomeratic agglomeratik	Ht	hematite hematit
btic	basaltic bazaltik	k-Fld	potash feldspar potas-feldspat
		Kaol	kaoline kaolin
			pillow yastık yapısı
			poritic porfiritik
			viet veinlet







strike & dip  
*doğrultu & eğim*

strike & dip of joint  
*kırıkların doğrultu eğimi*

flow structure  
*akma yapısı*

strike & dip of geological boundary  
*dokanak doğrultu doğrultu ve eğimi*

fault  
*fay*

fault showing direction of dislocation  
*atım yönünü gösteren fay*

fault & sheared zone  
*fay & makaslama zonu*

anticline  
*antiklinal*

syncline  
*senklinal*

dissemination  
*diseminasyon*

veinlets  
*damarcıklar*

vein  
*damar*

massive, bedded ore  
*masif, tabakalı cevher*

adit  
*galeri*

working mine  
*çalışan maden*

old mine  
*eski maden*

float  
*döküntü*

position of rock sample  
*kayaç numunelerinin durumu*

Y-1 ⊕ for Microscopic observation of thin section  
*İnce kesit mikroskopik araştırma için*

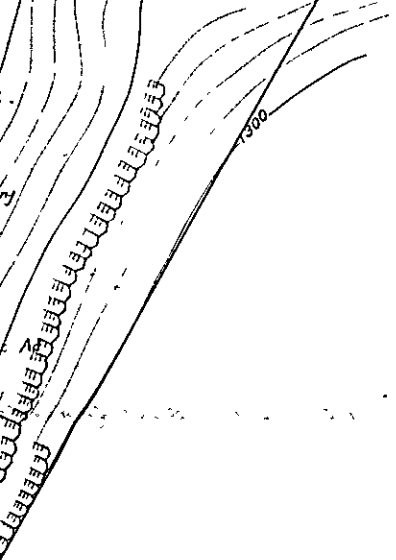
Y-2 ⊕ for Microscopic observation of polish section  
*Parlak kesit mikroskopik araştırma için*

Y-3 ⊕ for Chemical analysis  
*Kimyasal analiz için*

Y-4 ⊕ for X-ray diffractive analysis  
*X-ışını difraktif analizi için*

Mark Isaret	Word Kelime	Mark Isaret	Word Kelime	Mark Isaret	Word Kelime
(Lithology) (Litoloji)		Hb	hornblende <i>hornblend</i>	pillow	pillow structure <i>yastık yapısı</i>
adtc	andesitic <i>andezitik</i>	Ht	hematite <i>hematit</i>	por tic	porphyritic <i>porfiritik</i>
agg tic	agglomeratic <i>aglomeratik</i>	k-Fld	potash-feldspar <i>potas-feldspat</i>	vlet	veinlet <i>damarcık</i>
btic	basaltic <i>bazaltik</i>	Kaol	kaoline <i>kaolin</i>	(Alteration) (Alterasyon)	
calc	calcareous <i>kalkereh</i>	Lim	limonite <i>limonit</i>	altr	altered <i>altere olmuş</i>
datc	dacitic <i>dasitik</i>	Malct	malachite <i>malakit</i>	alb	albitized <i>albitleşmiş</i>
grtic	granitic <i>granitik</i>	Mt	magnetite <i>manyetit</i>	argl	argillaceous <i>kil</i>
mdy	mudy <i>çamurlu</i>	Mont	montmorillonite <i>montmorillonit</i>	carb	carbonitized <i>karbonatlaşmış</i>
pmc	pumiceous <i>piimsiz</i>	Oi	olivine <i>olivin</i>	chl	chloritized <i>kloritleşmiş</i>
rhtic	rhyolitic <i>riyolitik</i>	Pl	plagioclase <i>plajoklas</i>	epi	epidotized <i>epidotlaşmış</i>
sdv	sandy <i>kumlu</i>	Py	Pyrite <i>pirit</i>	ht	hematitized <i>hematitleşmiş</i>
sil	siliceous <i>silisli</i>	Pyr	Pyroxene <i>proksen</i>	kaol	kaolinized <i>kaolinleşmiş</i>
sty	silty <i>siltili</i>	Qtz	quartz <i>kuars</i>	lim	limonitized <i>limonitleşmiş</i>
tfc	tuffaceous <i>tüflü</i>	Ser	sericite <i>serizit</i>	mont	montmorillonized <i>montmorillonitleşmiş</i>
xeno	xenolith <i>kxenolit</i>	Spc	Specularite <i>Spekularit</i>	ser	sericitized <i>serizitleşmiş</i>
(Minerals) (Mineraler)		Sph	sphalerite <i>sfalerit</i>	sil	silicified <i>silisleşmiş</i>
Arag	aragonite <i>aragonit</i>	Zeo	zeolite <i>zeolit</i>	(Others) (Diğerleri)	
Ba	barite <i>barit</i>	(Texture) (Tekstür)		aver	average <i>ortalama</i>
Biot	biotite <i>biyotit</i>	altn	alternation <i>munavebe</i>	dia	diameter <i>çap</i>
Cal	calcite <i>kalsit</i>	aphtic	aphanitic <i>ajamitik</i>	diss	dissemination <i>diseminasyon</i>
Carb	carbonates <i>karbonat</i>	autbrc	autobrecciated structure <i>otobreşleşmiş</i>	max	maximum <i>maksimum</i>
Chl	chlorite <i>klorit</i>	brc	breccia (structure) <i>breşik (yapı)</i>	strong	strong, strongly <i>kuvvetli, kuvvetli</i>
Cpy	Chalcopyrite <i>kalkopirit</i>	flow	flow structure <i>akıntılı yapı</i>	weak	weak, weakly <i>zayıf, zayıfca</i>
Epi	epidote <i>epidot</i>	frag	fragment <i>tane</i>	wd	width <i>genişlik</i>
Fld	feldspar <i>feldspat</i>	grad	gradually <i>tedrici</i>	U	upper <i>üst</i>
Ga	galena <i>galen</i>	Intc	intercalation <i>arakatlı</i>	M	middle <i>orta</i>
		jt	joint <i>kirik</i>	L	lower <i>alt</i>
		mtx	matrix <i>hamur</i>	f-	fine <i>ince</i>
		onion	onion structure <i>soğan yapısı</i>	m	medium <i>orta</i>
		pheno	phenocryst <i>fenkrist</i>	c-	coarse <i>iri</i>
				dom	dominant





- X working mine  
çalışan maden
- X old mine  
eski maden
- △ float  
döküntü
- y100 position of rock sample  
kayaç numunelerinin durumu
- Y-1 ⊕ for Microscopic observation of thin section  
İnce kesit mikroskopik araştırma için
- Y-2 ⊕ for Microscopic observation of polish section  
Parlak kesit mikroskopik araştırma için
- Y-3 ⊕ for Chemical analysis  
Kimyasal analiz için
- Y-4 ⊕ for X-ray diffractive analysis  
X-ışın difraktif analizi için

- Biot biotite  
biyit
- Cal calcite  
kalsit
- Carb carbonates  
karbonat
- Chl chlorite  
klorit
- Cpy Chalcopyrite  
kalkopirit
- Epid epidote  
epidot
- Fld feldspar  
feldspat
- Ga galena  
galen

- (Tekstür)  
altn
- aphitic
- autbrc
- brc
- flow
- frag
- grad
- Intc
- jt
- mtx
- onion
- pheno

- alternation  
münavebe
- aphanitic  
afanitik
- autobrecciated structure  
otobreşleşmiş  
breccia(structure)
- flow structure  
akıntılı yapı
- fragment  
tane
- gradually  
tedrici
- intercalation  
aralktı
- joint  
kırık
- matrix  
hamur
- onion structure  
soğan yapısı
- phenocryst  
fenokrist

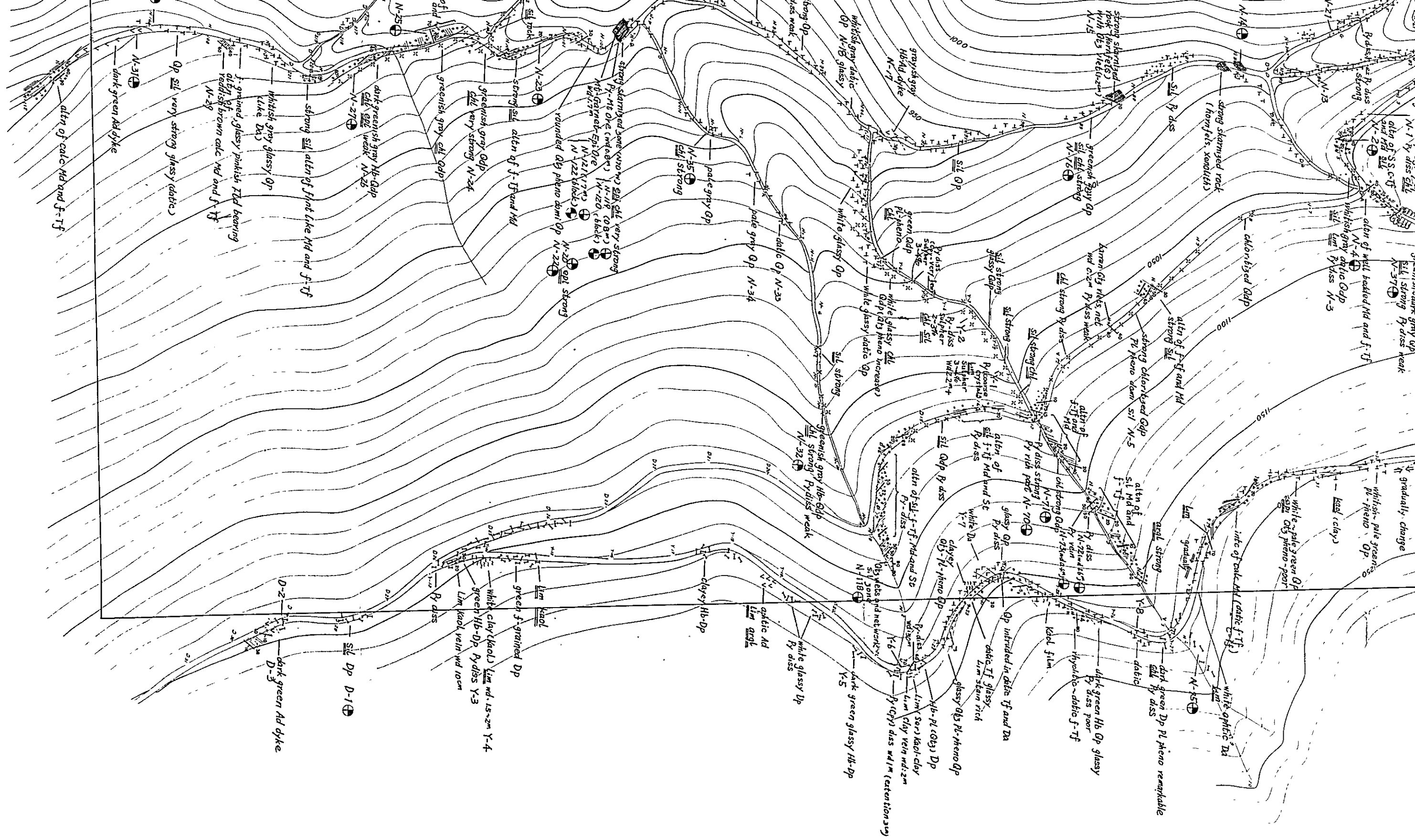
- aver  
ortalama
- dia  
diameter
- diss  
dissemination
- max  
maximum
- strong  
maksimum
- strong, strongly  
strong, strongly
- weak  
weak, weakly
- wd  
width
- U  
genişlik
- U  
upper
- M  
middle
- L  
lower
- f  
alt
- f  
fine
- m  
medium
- c  
coarse
- domi  
dominant

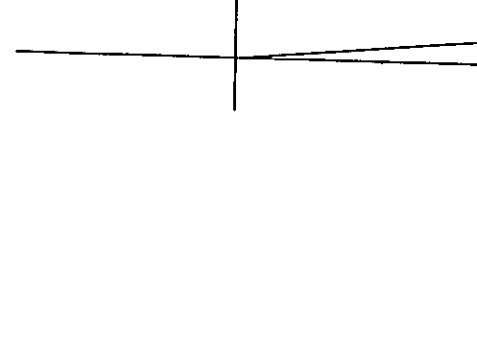
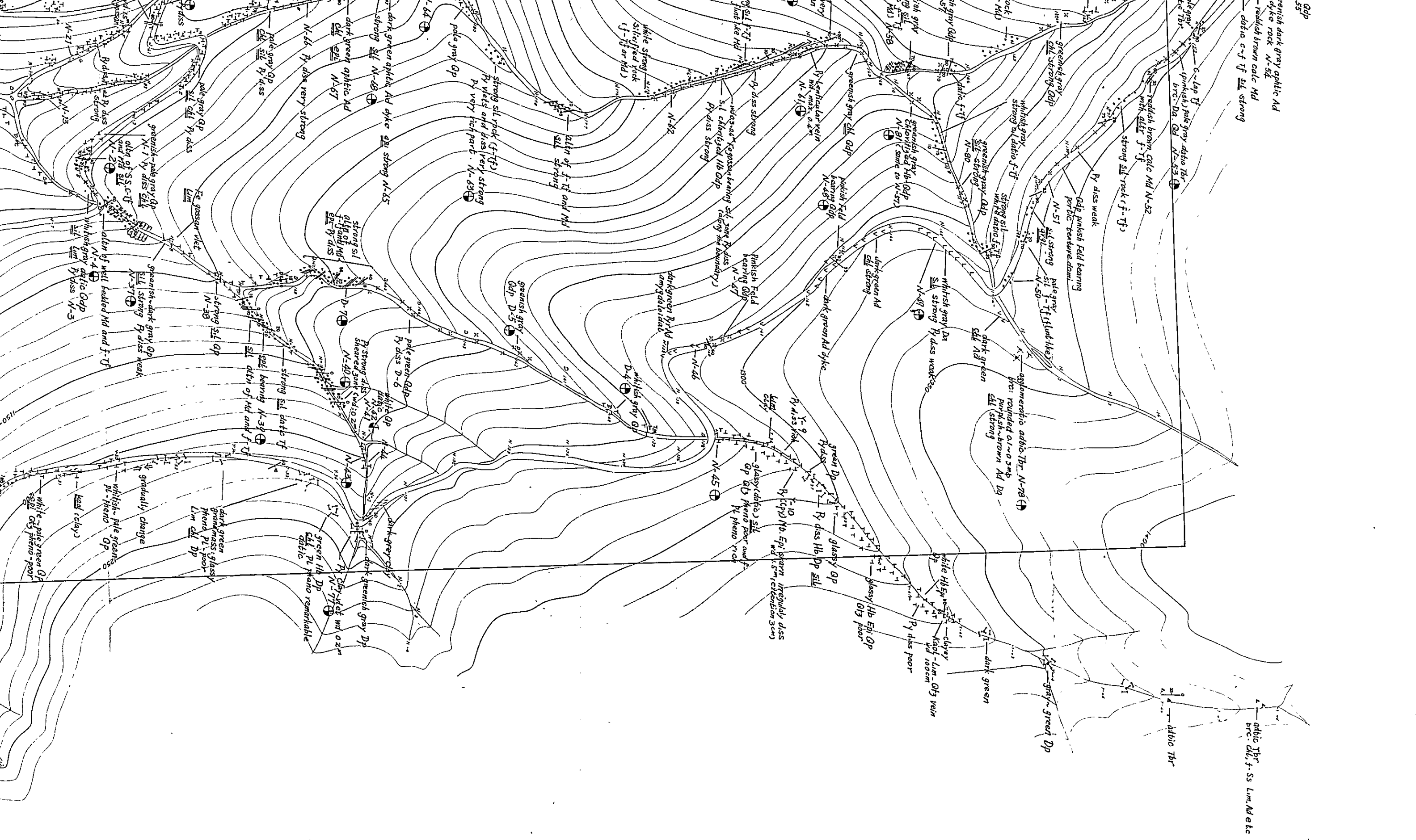


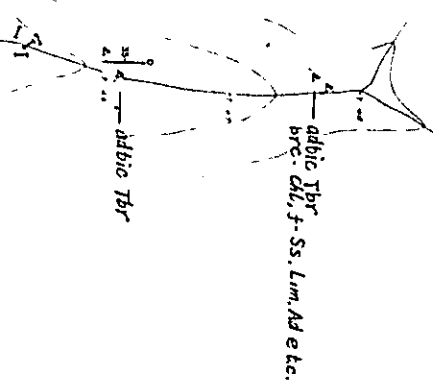
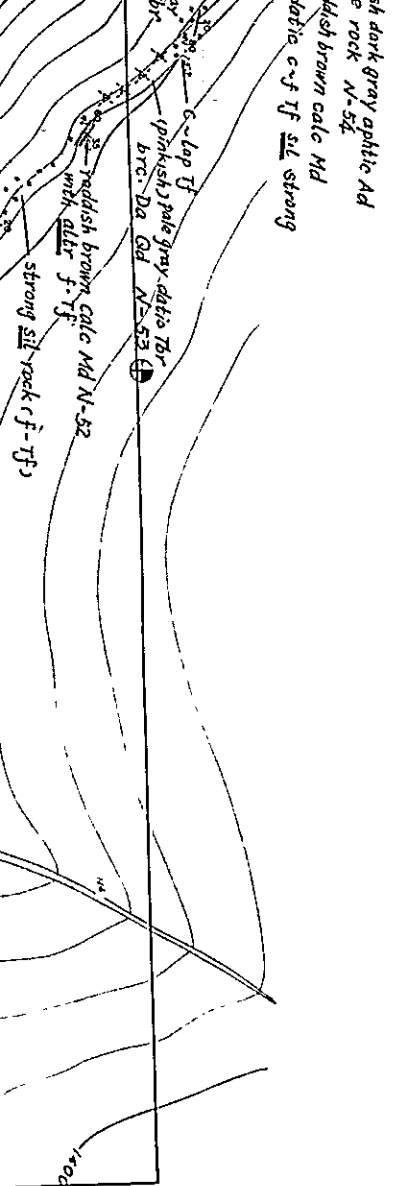












- strike & dip  
*doğrultu & eğim*
- strike & dip of joint  
*kırıkların doğrultu eğimi*
- flow structure  
*akma yapısı*
- strike & dip of geological boundary  
*dokuman doğrultu doğrultu ve eğimi*
- fault  
*fay*
- fault showing direction of dislocation  
*atım yönünü gösteren fay*
- fault & sheared zone  
*fay & makaslama zonu*
- anticline  
*antiklinal*
- syncline  
*senklinal*
- dissemination  
*disseminasyon*
- veinlets  
*damarcıklar*
- vien  
*damar*
- massive, bedded ore  
*masif, tabakalı cevher*
- adit  
*gçleri*
- working mine  
*çalışan maden*
- old mine  
*eski maden*
- float  
*döküntü*
- position of rock sample  
*kayaç numunelerinin durumu*
- for Microscopic observation of thin section  
*İnce kesit mikroskopik araştırma için*
- for Microscopic observation of polish section  
*Parlak kesit mikroskopik araştırma için*
- for Chemical analysis  
*Kimyasal analiz için*
- for X-ray diffractive analysis  
*X-ışın difraktif analizi için*

Mark Isaret	Word Kelime	Mark Isaret	Word Kelime	Mark Isaret	Word Kelime
(Lithology)		Hb	hornblende <i>hornblend</i>	pillow	pillow structure <i>yastık yapısı</i>
adtic	andesitic <i>andezitik</i>	Ht	hematite <i>hematit</i>	portic	porphyritic <i>porfiritik</i>
aggtic	agglomeratic <i>agglomeratik</i>	k-Fld	potash-feldspar <i>potas-feldspat</i>	vlet	veinlet <i>damarcık</i>
btic	basaltic <i>bazaltik</i>	Kaol	kaoline <i>kaolin</i>	(Alteration)	
calc	calcareous <i>kalkere</i>	Lim	limonite <i>limonit</i>	(Alterasyon)	
datc	dacitic <i>dasitik</i>	Malct	malachite <i>malakit</i>	<u>altr</u>	altered <i>altere olmuş</i>
grtic	granitic <i>granitik</i>	Mt	magnetite <i>manyetit</i>	<u>alb</u>	albitized <i>albitleşmiş</i>
mdy	muddy <i>çamurlu</i>	Mont	montmorillonite <i>montmorillonit</i>	<u>argl</u>	argillaceous <i>kil</i>
pmc	pumiceous <i>piims</i>	OI	olivine <i>olivin</i>	<u>carb</u>	carbonitized <i>karbonatlaşmış</i>
rhtic	rhyolitic <i>ryolitik</i>	Pl	plagioclase <i>plajoklas</i>	<u>chl</u>	chloritized <i>kloritleşmiş</i>
sdv	sandy <i>kumlu</i>	Py	pyrite <i>pirit</i>	<u>epi</u>	epidotized <i>epidotlaşmış</i>
sil	siliceous <i>silisli</i>	Pyr	pyroxene <i>piroksen</i>	<u>ht</u>	hematitized <i>hematitleşmiş</i>
sty	silty <i>silili</i>	Qtz	quartz <i>kuvvars</i>	<u>kaol</u>	kaolinized <i>kaolinleşmiş</i>
tfc	tuffaceous <i>tüflü</i>	Ser	sericite <i>serisit</i>	<u>lim</u>	limonitized <i>limonitleşmiş</i>
xeno	xenolith <i>ksenolit</i>	Spc	specularite <i>Spekularit</i>	<u>mont</u>	montmorillonized <i>montmorillonitleşmiş</i>
(Minerals)		Sph	sphalerite <i>sfelearit</i>	<u>ser</u>	sericitized <i>serisitleşmiş</i>
Arag	aragonite <i>aragonit</i>	Zeo	zeolite <i>zeolit</i>	<u>sil</u>	silicified <i>silisleşmiş</i>
Ba	barite <i>barit</i>	(Texture)		(Others)	
Biot	biotite <i>biyotit</i>	(Tekstür)		aver	average <i>ortalama</i>
Cal	calcite <i>kalsit</i>	altn	alternation <i>munavebe</i>	dia	diameter <i>çap</i>
Carb	carbonates <i>karbonat</i>	aphtic	aphanitic <i>afanitik</i>	diss	dissemination <i>disseminasyon</i>
Chl	chlorite <i>klorit</i>	autbrc	autobrecciated structure <i>otobreleşmiş</i>	max	maximum <i>maksimum</i>
Cpy	Chalcopyrite <i>kalkopirit</i>	brc	breccia(structure) <i>breşik (yapı)</i>	strong	strong, strongly <i>kuvvetli-kuvvetlice</i>
Epi	epidote <i>epidot</i>	flow	flow structure <i>akıntılı yapı</i>	weak	weak, weakly <i>zayıf-zayıfca</i>
Fld	feldspar <i>feldspat</i>	frag	fragment <i>tane</i>	wd	width <i>genişlik</i>
Ga	galena <i>galen</i>	grad	gradually <i>tedrici</i>	U	upper <i>üst</i>
		Intc	intercalation <i>arakatlı</i>	M	middle <i>orta</i>
		jt	joint <i>kirik</i>	L	lower <i>alt</i>
		mtx	matrix <i>hamur</i>	f.	fine <i>ince</i>
		onion	onion structure <i>soğan yapısı</i>	m	medium <i>orta</i>
		pheno	phenocryst <i>fenokrist</i>	c.	coarse <i>iri</i>
				dom	dominant

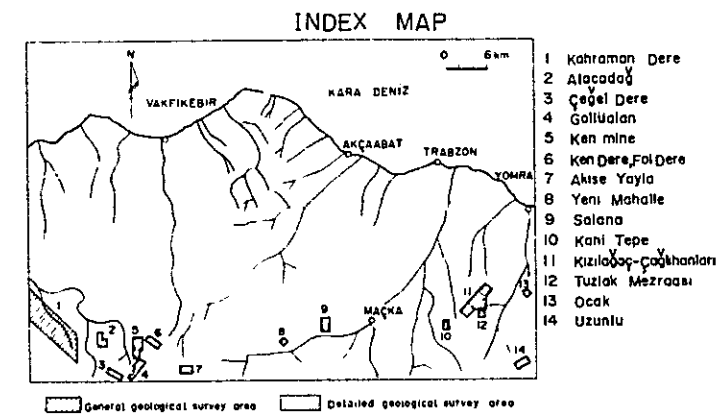
TIN PLAN





MINERAL RESEARCH AND EXPLORATION INSTITUTE  
 GEOLOGICAL SURVEY  
 OF  
 TRABZON AREA, NORTHEASTERN TURKEY  
 PHASE III

ROUTE MAP WITH LOCALITIES OF ROCK  
 SAMPLES AROUND KANI TEPE AREA  
 KANI TEPE SAHASININ  
 GÜZERGAH HARİTASI VE NUMUNE YERLERİ



Scale 1:2,000  
 Ölçek 1/2000

METAL MINING AGENCY OF JAPAN  
 JAPAN INTERNATIONAL COOPERATION AGENCY  
 FEBRUARY 1977

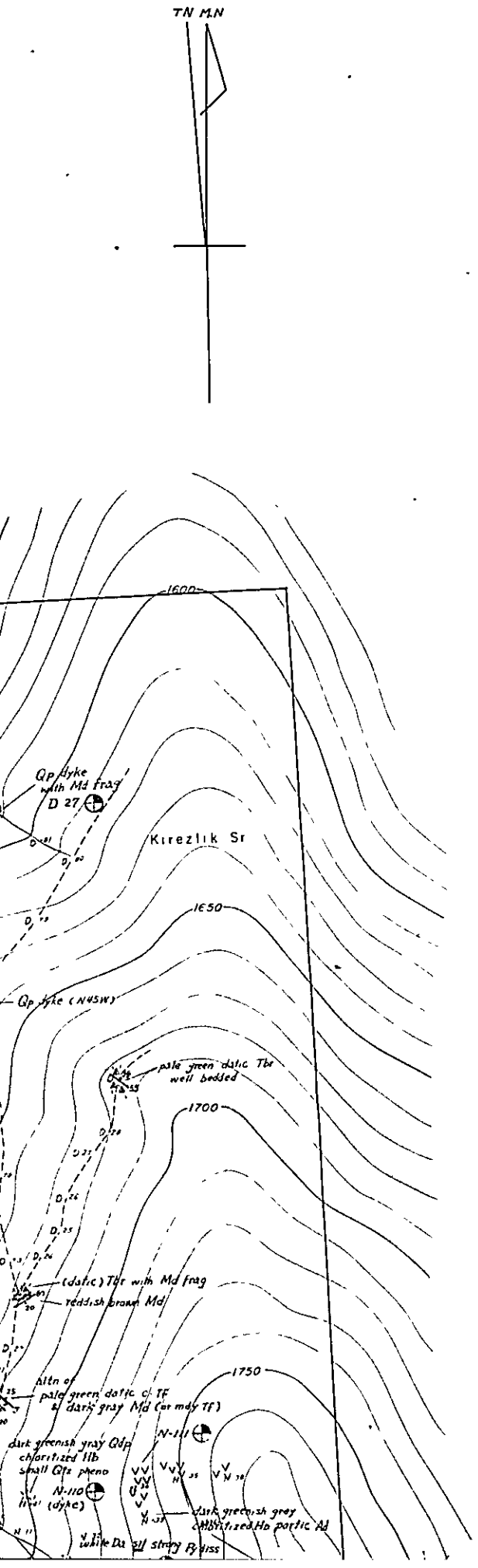
Prepared by Nikko Exploration & Development Co. Ltd

LEGEND  
 LEJAND

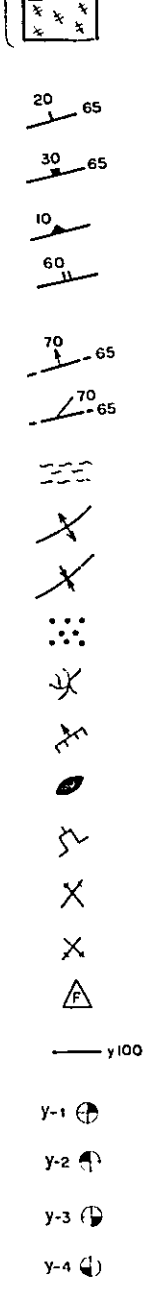
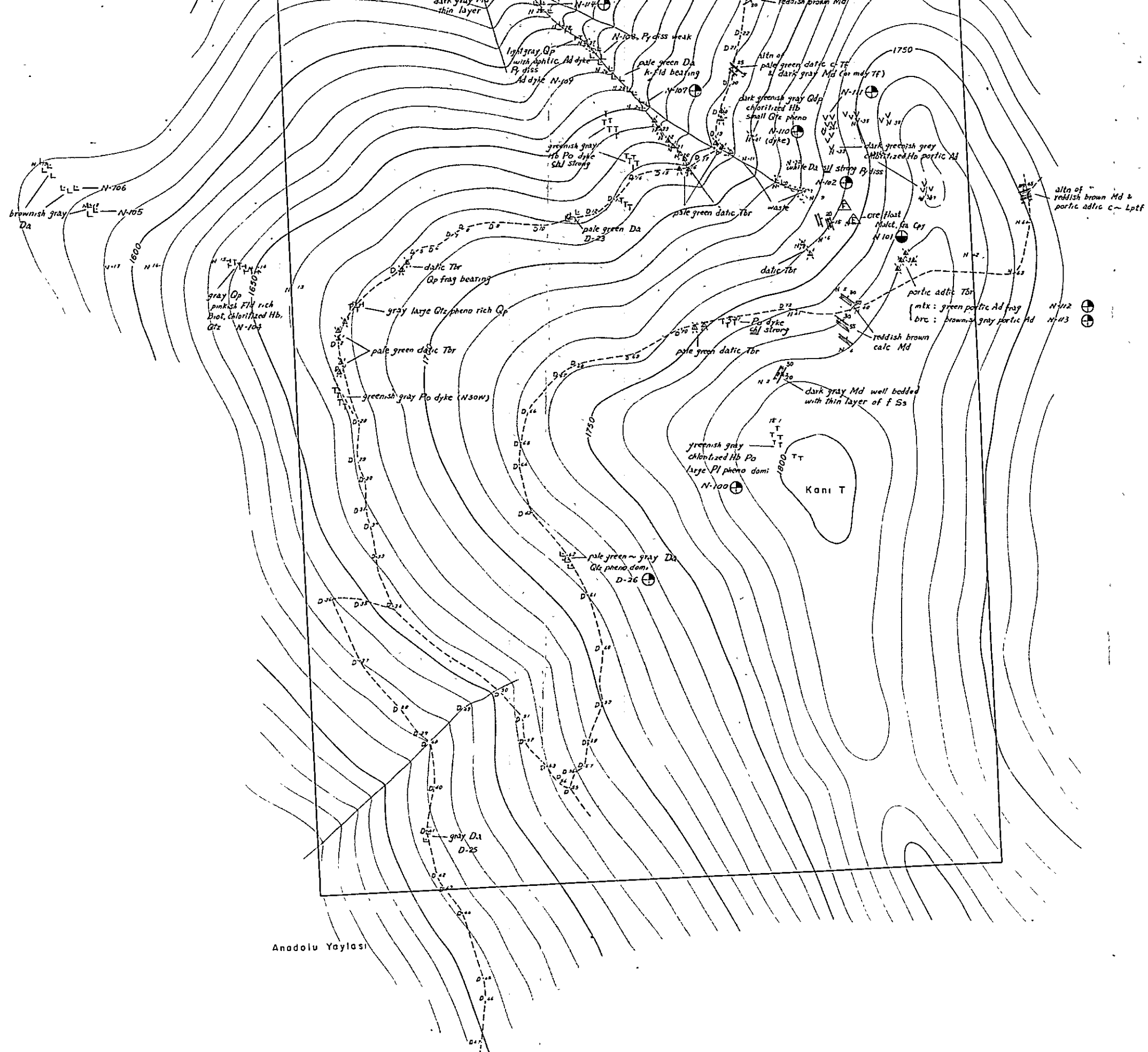
Geological symbol & abbreviation of geological term  
 Jeolojik sembol & jeolojik terim kısaltmaları

	Symbol Sembol	Mark İşaret	Rock name Kayaç isimleri
Sedimentary rocks Sedimanter kayalar		Ls	limestone kireçtaşı
		Mr	marl marı
		Md	mudstone çamurtaşı
		St	siltstone silt taşı
		Ss	sandstone kumtaşı
		Cg	conglomerate konglomera
		Bt	basalt
		Ad	andesite
		Da	dacite
		Rh	rhyolite riyolit
Volcanic & pyroclastic rocks Volkanik piroklastik kayalar		(basalt) (bazalt)	
		(andesite) (andezit)	
		(dacite) (dasit)	
		(rhyolite) (riyolit)	
		Tf	fine-coarse tuff ince-iri tüf
		Lptf	lapilli tuff lapilli tüf
		Tbr	tuff breccia tüf breş
		Volbrc	volcanic breccia volkanik breş
		Agg	agglomerate aglomera
		Volcg	volcanic conglomerate volkanik konglomera
Plutonic & hypabyssal rocks Derinlik hipabisal kayalar		Gr	granite granit
		Gd	granodiorite granodiorit
		Dp	diorite porphyrite diorit porfir
		Qd	quartz diorite kuvars diorit
		Po	porphyrite porfir
		Qp	quartz porphyry kuvars porfiri
		Gp	granite porphyry granit porfiri
		Qdp	quartz diorite porphyrite kuvars diorit porfiri
		Di	diorite diorit
			20 65
		30 65	strike & dip of joint kırıkların doğrultu eğimi
		10	flow structure akma yapısı
		60	strike & dip of geological boundary dokamak doğrultu doğrultu ve eğimi

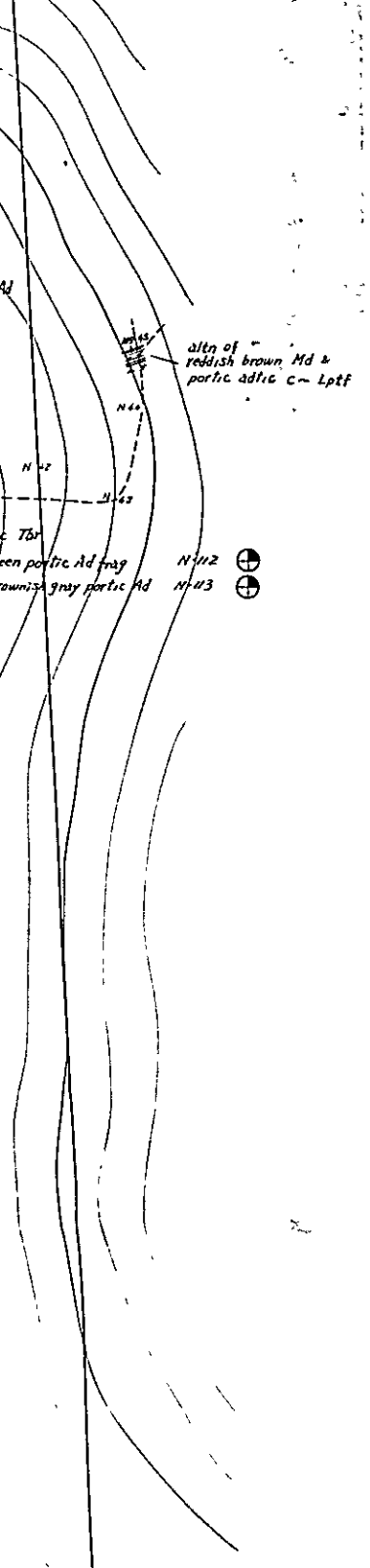
Mark İşaret	Word Kelime	Mark İşaret	Word Kelime	Mark İşaret	Word Kelime
(Lithology) (Litoloji)	adtic	Hb	hornblende hornblend	pillow	pillow structure yastık yapısı
aggtic	agglomeratic agglomeratik	Ht	hematite	portic	porphyritic porfiritik
htic	basaltic	k-Fld	potash-feldspar potas-feldspat	vlet	veinlet damarcık
		Kaol	kaoline		







Anadolu Yaylasi



- 20 65  
strike & dip  
doğrultu & eğim
- 30 65  
strike & dip of joint  
kırıkların doğrultu eğimi
- 10  
flow structure  
akma yapısı
- 60  
strike & dip of geological boundary  
doküman doğrultu eğim ve eğimi
- 70 65  
fault  
fay
- 70 65  
fault showing direction of dislocation  
atım yönünü gösteren fay
- fault & sheared zone  
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- anticline  
antiklinal
- syncline  
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damarcıklar
- vien  
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- massive, bedded ore  
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İnce kesit mikroskopik araştırma için
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Kimyasal analiz için
- for X ray diffractive analysis  
X-ışını difraktif analizi için

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datc	dacitic dasitik	Malct	malachite malakit	alb	albitized albitleşmiş
grtic	granitic granitik	Mt	magnetite magnetit	argl	argillaceous kil
mdy	mudy çamurlu	Mont	montmorillonite montmorillonit	carb	carbonitized karbonatlaşmış
pmc	pumiceous pümsü	Oi	olivine olivin	chl	chloritized kloritleşmiş
rhtic	rhyolitic riyolitik	Pl	plagioclase plajoklas	epi	epidotized epidotlaşmış
sdv	sandy kumlu	Py	pyrite pirit	ht	hematitized hematitleşmiş
sil	siliceous silisli	Pyr	pyroxene pirokсен	kaol	kaolinized kaolinleşmiş
sty	silty siltli	Qtz	quartz kuvars	lim	limonitized limonitleşmiş
tfc	tuffaceous tuflü	Ser	sericite serisit	mont	montmorillonitized montmorillonitleşmiş
xeno	xenolith ksenolit	Spc	specularite Spekularit	ser	sericitized serisitleşmiş
(Minerals) (Mineraller)		Sph	sphalerite sfalerit	sil	silicified silisleşmiş
Arag	aragonite aragonit	Zeo	zeolite zeolit	(Others) (Diğerleri)	
Ba	barite barit	(Texture) (Tekstür)		aver	average ortalama
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Cal	calcite kalsit	aplhtic	aplanitic afanitik	diss	dissemination diseminasyon
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Fld	feldspar feldspat	grad	gradually tedrici	U	upper üst
Ga	galena galen	Intc	intercalation arakatlı	M	middle orta
		it	joint kırık	L	lower alt
		mtx	matrix hamur	f-	fine ince
		onion	onion structure soğan yapısı	m-	medium orta
		pheno	phenocryst fenokrist	c	coarse iri
				domu	dominant