Chapter 4 Maulyan District

4-1 Outline of Geology

The district is underlain by sedimentary rocks such as limestone, slate and sandstone of Cambrian to Middle Carboniferous System, which are intruded by dikes (lamprophyre and diabase, etc.) of late Carboniferous to Triassic age and granites of Carboniferous to Permian (Fig.I-3-1, Figs. II-4-1, 2). The sedimentary rocks are metamorphosed into phyllites and schists through low temperature, medium pressure-type metamorphism, and consist of biotite, muscovite, chlorite, staurolite, etc.

These strata are folded along an axis in the WNW-ESE direction and divided in blocks by faults in the WNW-ESE, NE-SW and NW-SE directions. The geologic structure is inferred to have been formed by the Early Paleozoic Caledonian orogeny and Late Paleozoic Hercynian orogeny.

4-2 Mineralization

Ore manifestations mainly of gold in the subject area extend along the WNW-ESE fracture zones forming a part of the Aktau ore zone along the southern side of the Aktau granite bodies. The ore zone, aligned in parallel along the Aktau granite bodies, is inferred to have been formed through mineralization accompanied by the igneous activity of granites. There are gold manifestations such as Maulyan, Beshbulak, Taulyan and Shur. Besides, there is a niobium-tantalum manifestation at Aktau. In light of the findings of the Uzbek trenching survey and the subject Phase II geological survey, the gold manifestations at Beshbulak, Taulyan and Shur are not considered worthy of further exploration, due to the low grades of gold. Among all the gold manifestations in the subject district, the Maulyan manifestation mineralization has relatively high Au grades and spreads over extensive areas. In the manifestation, trenching, drilling, and tunneling surveys are still carried out by the Uzbek side.

So far confirmed are the three ore bodies, 1 m to 4 m wide, i.e., the No.1 ore body, 1,000 m long, the No.2 ore body, 400 m long, and the No.3 ore body 200 m long (Figs.II-4-3, 4). Gold and grade varies substantially from Au 1 g/t to 33.4 g/t.

Samples collected from gold-bearing quartz veins at the Maulyan manifestation are accompanied by ore minerals such as pyrite, goethite, lepidocrocite, arsenopyrite, chalcopyrite and sphalerite, while gold occurs as electrum.

Homogenization temperatures of fluid inclusions at the ore zone mostly fall within the range of 250°C-350°C. The homogenization temperatures of quartz samples grading Au 1.2-2.0 g/t were 221°C-281°C, higher than the general temperature range of gold occurrence, 100°C-250°C (Appendix 5-2). No significant correlation was observed between homogenization temperature and depth at which drilling samples were taken

(Appendix 5-4).

In light of the occurrence of the Aktau granites, characteristics of the surrounding manifestations, drilling results and homogenization temperatures, gold-bearing quartz veins at the subject manifestation are inferred to have been formed under high temperature ambience, which is considered to lack the conditions required for a high-grade, large-scale gold concentration zone.

4-3 Geochemical Survey

In the manifestations situated within the Maulyan district, alteration zones such as silicification, chloritization or pyritization zones develop around quartz veins and silicified veins. It was anticipated that, around such alteration zones, anomalous haloes of Au, Ag, As, Hg, etc. might develop and these could possibly be extracted by microanalysis of rocks.

4-3-1 Methods of the survey

In the Phase II survey, rock samples of 200 pieces were collected by the Uzbek geologists at a rate of 4 pieces per km^2 in the Maulyan district. They were crushed at the Samarkandgeology and analyzed, of 23 elements, by Chemex Labs. Ltd., Canada.

4-3-2 Survey findings

Correlation coefficients between respective elements are indicated in Table II-4-1, and scatter plots (logarithmic) of analysis values between some elements are indicated in Figs.II-4-5 through -8. Geochemical anomaly distribution map was drawn of the 11 elements (Figs.II-4-9, 10).

Combinations of elements whose correlation coefficients are no less than 0.5 nor more than 0.7 are Cd-Sb, V-Ag, V-Cd, Cr-Ni, Mo-Ag, Mo-Cd, Mo-V, Li-Co, Li-Cr, Li-Be, Ta-Be and P-Ta. Combinations of elements whose correlation coefficients are more than 0.7 are Co-Ni, Cr-Co and Mo-Sb. Au, As and Hg showed neither significant correlation nor dominantly negative correlation with any other elements.

Anomalous points of Au are scattered in the southern part of the Maulyan manifestation, in the vicinity of the Taulyan manifestation and in the southern part of the Shur manifestation, but they are poor in continuity. Distribution of anomalous values of Au and As are relatively concordant in the vicinity of the Taulyan manifestation, which presumably suggests a high correlation between the two elements in that area. Anomalous points of Nb and Ta are spotted, though small in number, in the Aktau manifestation and in areas where granite occurs; correlation of anomalous points of the two elements is high. The subject geochemical survey did not result in extraction of clear continuation of anomalous points of Au, however, all the anomalous values of Au

have been located in the vicinity of the known manifestation areas.

4-4 Drilling Survey

Drilling survey aimed at verifying and describing stratigraphy and occurrence of ore deposits, and sampling and confirming the ore reserves was carried out in the Maulyan manifestation.

4-4-1 Drilling work summary

With the personnel and equipment arranged by the Samarkandgeology, drilling work of 22 drillholes totaling 984.1 m was performed. Locations of the respective drillholes are shown in Appendix 3.

Two Russian-made SKB-41 drilling machines were used, capable of drilling of 300 m for a 76 mm dia. hole and 500 m for a 59 mm dia. hole.

The drilling operation was conducted in three 8-hour shifts for one machine and two 12-hour shifts for the other, with one foreman and one operator per unit.

Two bulldozers were used for the transportation of drilling rigs and supplies, road construction, drill site leveling and preparations.

For the drilling operation, the regular method was employed.

For the surface soil drilling, 93 mm-dia. metallic bits were used. After drilling reached the rock, 89 mm-dia. casing pipes were inserted and installed, and drilling operation was completed with 76 mm-dia. diamond and metal bits. Mud water was not prepared at the drilling site but at the Zarmitan Expedition base's mud water plant and transported to the drilling site by a $4m^3$ tank truck.

The drilling operation is outlined in Table II-4-2.

4-4-2 Results of the drilling survey

The major mineralization showings confirmed by the drilling survey are listed in Table II-4-3. The survey results are displayed in the geological cross sections along the drillholes (Appendix 4-1～22).

During the Phase II, drilling was performed at two drillholes (MJML-1, -2), aimed at the lower extension of the No.3 and No.2 ore bodies, intersected various parts of pyrite-bearing quartz veins and veinlets between 100 m to 135 m under the surface. They, however, only confirmed small size and low-grade mineralization (true width 0.2 m and 0.34 m; Au 2.0 g/t and 1.6 g/t) (Appendix 4-1, 2).

The Uzbek drilling survey independently confirmed, between 16 m and 90 m under the surface, the continuity of the No.1 ore body (1.2 m to 1.5 m wide; Au 2 g/t to 8 g/t) at drillholes C-3, C-7, C-8 and C-10, and continuity of the No.2 ore body (1.7 m to 1.8 m wide; Au 5 g/t to 7 g/t) at the drillholes C-6 and C-9 (Fig.II-4-11, 12).

Twenty drillholes (MJML-3～-22) of the Phase III drilling survey were aimed to examine mineralization of shallow portion of the No.1 and No.2 ore body, between 10 m and 15 m under the surface, and also examine the feasibility of open pit mining. Among the thirteen drillholes, aimed to examine mineralization of lower portion of the No.1 ore body, four drillholes discovered low-grade gold mineralization (true width 0.4-1.9 m; Au 1.7-5.8 g/t) (Fig.II-2-2-22). Among the seven drillholes, aimed to examine mineralization of the No.2 ore body, three drillholes confirmed weak gold mineralization (true width 0.4-1.1 m; Au 1.8-9.6 g/t) (Appendix 4-3～22, Fig.II-4-11, 12). However, analyses of ore samples collected from another thirteen drillholes indicated Au grade lower than 1.0 g/t.

4-5 Ore Reserves Estimation of the Maulyan Manifestation

The ore bodies in the Maulyan manifestation have varied shapes, sizes and grade distribution, as the survey findings indicate. The exploration so far conducted is not sufficient for clarification in detail of the ore bodies nor for accurate estimation of ore reserves, therefore, tentative calculation was made for rough estimation of ore reserves and grade.

4-5-1 Calculation method

(1) Ore body of estimation

Among the ore bodies with the WNW-ESE trend occurring in sediments of Ordovician-Silurian System, Nos. 1, 2 and 3 ore bodies constitute the subject ore bodies of this estimation.

(2) Definition of ore zone

Among the ore bodies confirmed by the trenching, drilling and tunneling surveys, the estimation is limited to those that have the horizontal width more than 1 m and Au grade higher than 1 g/t.

(3) Definition of ore block

The extent of ore block is defined by straight lines of max. 30 m in strike and max. 20 m perpendicularly from the center point of respective ore zones caught by the trenching, drilling and tunneling surveys (Figs.II-4-14～16). In case no ore zone is confirmed by trenching or drilling at an extension of an ore body, the extent of ore block is limited only up to the median point.

(4) Specific gravity

The specific gravity of the ore is assumed to be 2.7 that are determined for the ore of Maulyan manifestation by the Zarmitan Expedition.

(5) Ore reserves by ore block

Ore reserves of respective blocks are calculated by the following formula:

$$V = L \times H \times HT \times SG \times 0.75$$

where, L: Length (m) of ore body
H: Height (m) of ore body
HT: Horizontal thickness (m) of ore body
SG: Specific gravity (2.7)
0.75; Existence possibility of ore

The existence possibility of ore is assumed to be 75 %, because grade distribution of the ore bodies in Maulyan manifestation varies remarkably.

(6) Grade of ore block

For the grade of an ore block, the length-weighted average (by the sampling length) of the ore-zone grade was applied.

4-5-2 Results of estimation

The tentative estimation indicated the total ore reserves of No.1, No.2 and No.3 ore bodies combined are 252,000 t, grading 4.2 g/t Au, or approximately 1.1 t of Au in terms of metal content (Table II-4-4). While those of No.1, No.2 and No.3 ore bodies are 149,000 t, grading 3.8 g/t Au (0.6 t of Au content), 87,000 t, grading 5.0 g/t Au (0.4 t of Au content) and 16,000 t, grading 4.2 g/t Au (0.07 t of Au content), respectively.

Table Ⅱ-4-1 Correlation among 23 Elements in Geochemical Samples

	Au	Ag	Hg	Sb	As	Pb	Zn	Cd	Cu	Bi	V	Ni	Co	Cr	Mo	W	Be	Li	Nb	Ta	Te	Mn	P
Au	1.00	−0.02	−0.01	0.04	0.04	0.04	0.03	0.19	0.11	−0.03	0.02	0.07	0.07	−0.04	0.02	−	−0.02	0.04	−0.02	−0.06	−0.02	0.20	−0.10
Ag		1.00	0.08	0.34	−0.01	0.00	0.04	0.27	0.12	−0.09	0.61	0.03	−0.19	0.08	0.58	−	0.05	0.02	−0.05	−0.04	−0.03	−0.06	−0.09
Hg			1.00	0.01	−0.02	−0.07	−0.04	−0.01	0.04	−0.01	0.03	−0.06	−0.11	−0.03	0.18	−	−0.04	−0.04	−0.03	−0.11	−0.02	0.07	−0.10
Sb				1.00	0.41	0.11	0.16	0.51	0.20	−0.06	0.46	0.34	−0.03	0.03	0.73	−	0.21	−0.04	−0.05	−0.04	−0.02	−0.05	0.24
As					1.00	−0.03	−0.01	0.05	−0.02	−0.05	0.01	−0.02	−0.03	0.05	0.02	−	0.04	−0.01	0.00	0.05	−0.01	−0.01	0.07
Pb						1.00	0.02	0.06	−0.09	−0.13	0.02	0.18	0.15	0.10	0.06	−	0.09	0.06	−0.05	−0.03	0.03	0.10	0.10
Zn							1.00	0.15	0.09	−0.06	0.10	0.16	0.09	0.09	0.10	−	0.06	0.02	−0.04	0.03	−0.02	−0.01	0.08
Cd								1.00	0.23	0.02	0.54	0.32	0.01	0.07	0.57	−	0.19	0.00	−0.02	0.04	0.06	−0.09	0.09
Cu									1.00	0.14	0.33	0.28	0.18	0.20	0.25	−	0.11	0.14	−0.05	−0.07	0.13	0.19	−0.14
Bi										1.00	−0.11	−0.17	−0.17	−0.20	0.00	−	−0.21	−0.26	−0.04	−0.10	0.09	−0.13	−0.12
V											1.00	0.37	0.11	0.43	0.67	−	0.23	0.19	−0.08	0.18	0.02	−0.06	0.15
Ni												1.00	0.80	0.69	0.16	−	0.33	0.45	−0.13	0.19	0.05	0.37	0.43
Co													1.00	0.72	−0.22	−	0.28	0.50	−0.11	0.29	−0.02	0.39	0.36
Cr														1.00	−0.04	−	0.36	0.60	−0.15	0.45	−0.05	0.16	0.31
Mo															1.00	−	0.09	−0.13	−0.04	−0.09	0.04	−0.12	0.00
W																−	−	−	−	−	−	−	−
Be																	1.00	0.66	0.43	0.54	−0.03	0.16	0.39
Li																		1.00	0.11	0.45	0.01	0.24	0.19
Nb																			1.00	0.45	0.00	0.05	0.21
Ta																				1.00	0.13	0.02	0.51
Te																					1.00	0.14	−0.12
Mn																						1.00	0.04
P																							1.00

Table II-4-2 Results of Drilling Works in the Maulyan District (1)

Item		MJMI-1	MJMI-2	MJMI-3	MJMI-4	MJMI-5	MJMI-6	Sub total
Period of drilling								
Started date		Aug.10,'98	July 21,'98	Aug.11,'99	Aug.16,'99	Aug.18,'99	Aug. 6,'99	
Finished date		Sept.25,'98	Sept.21,'98	Aug.17,'99	Aug.20,'99	Aug.23,'99	Aug.12,'99	
Total day		47.0	63.0	6.67	4.33	6.00	6.33	
Drilling machine		SKB-41	SKB-41	SKB-41	SKB-41	SKB-41	SKB-41	
Direction		S20° W	S20° W	S20° W	S20° W	S20° W	S20° W	
Inclination		-75°	-75°	-75°	-75°	-75°	-75°	
Drilled length (m)		201.10	183.00	30.00	30.00	30.00	30.00	504.1
Length of core (m)		168.90	155.30	26.10	25.10	25.10	25.50	426.0
Core recovery (%)		84.0	84.9	87.0	83.7	83.7	85.0	84.5
Bit	φ93mm	-	-	-	-	-	-	
	φ76mm	201.10m	183.00m	30.00m	30.00m	30.00m	30.00m	
	φ59mm	-	-	-	-	-	-	
Casing	φ89mm	20.00m	15.00m	3.00m	3.00m	3.00m	3.00m	
	φ73mm	-	-	-	-	-	-	
Drilling (day)*		35.40	43.30	6.67	4.33	6.00	6.33	102.03
Drilling (day)**		47.00	63.00	6.67	4.33	6.00	6.33	133.33
Efficiency (m/day)*		5.70	3.72	4.50	6.93	5.00	4.74	4.94
Efficiency (m/day)**		4.28	2.90	4.50	6.93	5.00	4.74	3.78

* working days

** including no working days for recovery from accident and others

Table II-4-2 Results of Drilling Works in the Maulyan District (2)

Item		MJML-7	MJML-8	MJML-9	MJML-10	MJML-11	MJML-12	Sub total
Period of drilling								
Started date		July 25,'99	Aug.21,'99	July 22,'99	Aug.21,'99	Aug.17,'99	Aug.14,'99	
Finished date		Aug. 5,'99	Aug.27,'99	July 26,'99	Aug.26,'99	Aug.23,'99	Aug.19,'99	
Total day		11.67	6.67	5.00	6.00	6.50	6.00	
Drilling machine		SKB-41	SKB-41	SKB-41	SKB-41	SKB-41	SKB-41	
Direction		S20° W	S20° W	S20° W	S20° W	S20° W	S20° W	
Inclination		-75°	-75°	-75°	-75°	-75°	-75°	
Drilled length (m)		30.00	30.00	30.00	30.00	30.00	30.00	180.00
Length of core (m)		24.70	25.10	24.90	28.00	28.00	27.10	157.80
Core recovery (%)		82.3	83.7	83.0	93.3	93.3	90.3	87.7
Bit	φ93mm	-	-	-	-	-	-	
	φ76mm	30.00m	30.00m	30.00m	30.00m	30.00m	30.00m	
	φ59mm	-	-	-	-	-	-	
Casing	φ89mm	3.00m	3.00m	3.00m	3.00m	3.00m	3.00m	
	φ73mm	-	-	-	-	-	-	
Drilling (day)*		11.67	6.67	4.50	6.00	6.50	6.00	41.34
Drilling (day)**		11.67	6.67	5.00	6.00	6.50	6.00	41.84
Efficiency (m/day)*		2.57	4.50	6.67	5.00	4.62	5.00	4.35
Efficiency (m/day)**		2.57	4.50	6.00	5.00	4.62	5.00	4.30

* working days

** including no working days for recovery from accident and others

Table II-4-2 Results of Drilling Works in the Maulyan District (3)

Item		MJML-13	MJML-14	MJML-15	MJML-16	MJML-17	MJML-18	Sub total
Period of drilling								
Started date		Aug. 5,'99	July 30,'99	July 25,'99	July 23,'99	July 21,'99	July 20,'99	
Finished date		Aug.14,'99	Aug. 6,'99	July 31,'99	July 27,'99	July 25,'99	July 24,'99	
Total day		9.67	8.00	7.00	5.00	5.00	4.67	
Drilling machine		SKB-41	SKB-41	SKB-41	SKB-41	SKB-41	SKB-41	
Direction		S20° W	S20° W	S20° W	S20° W	S20° W	S20° W	
Inclination		-75°	-75°	-75°	-75°	-75°	-75°	
Drilled length (m)		30.00	30.00	30.00	30.00	30.00	30.00	180.00
Length of core (m)		26.10	26.10	26.20	26.10	25.30	24.40	154.20
Core recovery (%)		87.0	87.0	87.3	87.0	84.3	81.3	85.7
Bit	φ93mm	-	-	-	-	-	-	
	φ76mm	30.00m	30.00m	30.00m	30.00m	30.00m	30.00m	
	φ59mm	-	-	-	-	-	-	
Casing	φ89mm	3.00m	3.00m	3.00m	3.00m	3.00m	3.00m	
	φ73mm	-	-	-	-	-	-	
Drilling (day)*		9.67	8.00	7.00	5.00	5.00	4.67	39.34
Drilling (day)**		9.67	8.00	7.00	5.00	5.00	4.67	39.34
Efficiency (m/day)*		3.10	3.75	4.29	6.00	6.00	6.42	4.58
Efficiency (m/day)**		3.10	3.75	4.29	6.00	6.00	6.42	4.58

* working days

** including no working days for recovery from accident and others

Table II-4-2 Results of Drilling Works in the Maulyan District (4)

Item		MJML-19	MJML-20	MJML-21	MJML-22		Sub total	Grand total
Period of drilling								
Started date		July 16,'99	July 13,'99	July 19,'99	July 8,'99			
Finished date		July 22,'99	July 20,'99	July 23,'99	July 21,'99			
Total day		6.33	7.33	4.50	14.00			
Drilling machine		SKB-41	SKB-41	SKB-41	SKB-41			
Direction		S20° W	S20° W	S20° W	S20° W			
Inclination		-75°	-75°	-75°	-75°			
Drilled length (m)		30.00	30.00	30.00	30.00		120.00	984.1
Length of core (m)		25.10	24.60	25.10	27.60		102.40	840.4
Core recovery (%)		83.7	82.0	83.7	92.0		85.3	85.4
Bit	φ93mm	-	-	-	-			
	φ76mm	30.00m	30.00m	30.00m	30.00m			
	φ59mm	-	-	-	-			
Casing	φ89mm	3.00m	3.00m	3.00m	3.00m			
	φ73mm	-	-	-	-			
Drilling (day)*		6.33	7.33	4.50	14.00		32.16	214.90
Drilling (day)**		6.33	7.33	4.50	14.00		32.16	246.70
Efficiency (m/day)*		4.74	4.09	6.67	2.14		3.73	4.58
Efficiency (m/day)**		4.74	4.09	6.67	2.14		3.73	3.99

* working days

** including no working days for recovery from accident and others

Table II-4-3 Major Mineralization Zones Revealed by Drillings in the Maulyan District

Hole No.	Depth (m)	True width (m)	Au (g/t)	Ag (g/t)	As (%)	Remarkas
MJML-1	104.15～104.50 (0.35)	0.20	2.0	<1.0	0.02	No.3 Ore Body
MJML-2	159.70～160.30 (0.60)	0.34	1.6	<1.0	0.02	No.2 Ore Body
MJML-3	6.70～ 9.80 (3.10)	1.06	2.1	<1.0	-	No.2 Ore Body
	9.80～10.40 (0.60)	0.21	0.8	<1.0	-	No.2 Ore Body
MJML-5	4.70～ 5.60 (0.90)	0.38	9.6	2.0	-	No.2 Ore Body
	15.20～16.90 (1.70)	0.72	1.0	<1.0	-	No.2 Ore Body
MJML-6	5.90～ 6.80 (0.90)	0.38	0.5	<1.0	-	No.2 Ore Body
MJML-8	2.60～ 3.80 (1.20)	0.41	0.6	<1.0	-	No.2 Ore Body
	24.80～26.30 (1.50)	0.51	1.8	1.8	-	No.2 Ore Body
	27.20～28.20 (1.00)	0.34	0.5	<1.0	-	No.2 Ore Body
MJML-11	2.20～ 6.70 (4.50)	1.90	1.7	2.2	-	No.1 Ore Body
MJML-15	14.60～15.20 (0.60)	0.28	0.8	<1.0	-	No.1 Ore Body
	28.00～29.70 (1.70)	0.80	0.5	<1.0	-	No.1 Ore Body
MJML-16	0.00～ 3.00 (3.00)	1.27	1.7	<1.0	-	No.1 Ore Body
	26.00～26.90 (0.90)	0.38	0.5	8.0	-	No.1 Ore Body
MJML-18	10.10～10.90 (0.80)	0.34	0.8	1.6	-	No.1 Ore Body
MJML-19	22.90～23.80 (0.90)	0.35	5.8	<1.0	-	No.1 Ore Body
MJML-20	5.00～ 6.10 (1.10)	0.52	0.6	<1.0	-	No.1 Ore Body
	16.80～17.80 (1.00)	0.47	2.0	<1.0	-	No.1 Ore Body
	20.70～21.30 (0.60)	0.28	0.8	<1.0	-	No.1 Ore Body
MJML-21	14.40～15.40 (1.00)	0.47	0.6	<1.0	-	No.1 Ore Body
	16.40～18.50 (2.10)	0.99	0.6	<1.0	-	No.1 Ore Body
	27.20～28.40 (1.20)	0.56	0.6	<1.0	-	No.1 Ore Body

Table Ⅱ-4-4(1) Ore Reserves Calculation of Maulyan Ore Manifestation (No. 1 Ore Body)

Ore Body	Ore Block	Area			Horizontal Thickness	Volume (m^3)	Specific Gravity	Existence Possibility	Tonnage (t)	Grade		Metal Content		Note
		Length(m)	Height(m)	Area(m^2)						Au(g/t)	Ag(g/t)	Au(kg)	Ag(kg)	
No. 1	Ⅰ-1	64	max.103	6,176	1.78	10,993	2.70	0.75	22,261	2.4	1.1	53.4	24.5	
	Ⅰ-2	104	max.71	6,579	1.17	7,697	2.70	0.75	15,587	3.8	1.6	59.2	24.9	
	Ⅰ-3	306	max.96	24,462	1.87	45,744	2.70	0.75	92,631	4.1	1.0	379.8	92.6	
	Ⅰ-4	184	max.56	7,536	1.22	9,194	2.70	0.75	18,618	3.6	0.6	67.0	11.2	
Total				44,753	1.65	73,629	2.70	0.75	149,098	3.8	1.0	559.5	153.2	

Table Ⅱ-4-4(2) Ore Reserves Calculation of Maulyan Ore Manifestation (No. 2 Ore Body)

Ore Body	Ore Block	Area			Horizontal Thickness	Volume (m^3)	Specific Gravity	Existence Possibility	Tonnage (t)	Grade		Metal Content		Note
		Length(m)	Height(m)	Area(m^2)						Au(g/t)	Ag(g/t)	Au(kg)	Ag(kg)	
No. 2	Ⅱ-1	202	max.100	18,575	1.29	23,962	2.70	0.75	48,523	5.8	1.1	281.4	53.4	
	Ⅱ-2	167	max.80	11,059	1.72	19,021	2.70	0.75	38,518	3.9	2.2	150.2	84.7	
Total				29,634	1.45	42,983	2.70	0.75	87,041	5.0	1.6	431.7	138.1	

Table Ⅱ-4-4(3) Ore Reserves Calculation of Maulyan Ore Manifestation (No. 3 Ore Body)

Ore Body	Ore Block	Area			Horizontal Thickness	Volume (m^3)	Specific Gravity	Existence Possibility	Tonnage (t)	Grade		Metal Content		Note
		Length(m)	Height(m)	Area(m^2)						Au(g/t)	Ag(g/t)	Au(kg)	Ag(kg)	
No. 8	Ⅲ-1	145	max.53	7,214	0.63	4,545	2.70	0.75	9,203	5.8	5.7	53.4	52.5	
	Ⅲ-2	47	max.74	3,384	1.00	3,384	2.70	0.75	6,853	2.0	7.2	13.7	49.3	
Total				10,598	0.75	7,929	2.70	0.75	16,056	4.2	6.3	67.1	101.8	

Table Ⅱ-4-4(4) Ore Reserves Calculation of Maulyan Ore Manifestation (Total)

Ore Body	Area Area(m^2)	Horizontal Thickness	Volume (m^3)	Specific Gravity	Existence Possibility	Tonnage (t)	Grade Au(g/t)	Grade Ag(g/t)	Metal Content Au(kg)	Metal Content Ag(kg)
No. 1	44,753	1.65	73,629	2.70	0.75	149,098	3.8	1.0	559.5	153.2
No. 2	29,634	1.45	42,983	2.70	0.75	87,041	5.0	1.6	431.7	138.1
No. 3	10,598	0.75	7,929	2.70	0.75	16,056	4.2	6.3	67.1	101.8
Total	84,985	1.47	124,541	2.70	0.75	252,195	4.2	1.6	1,058.3	393.1

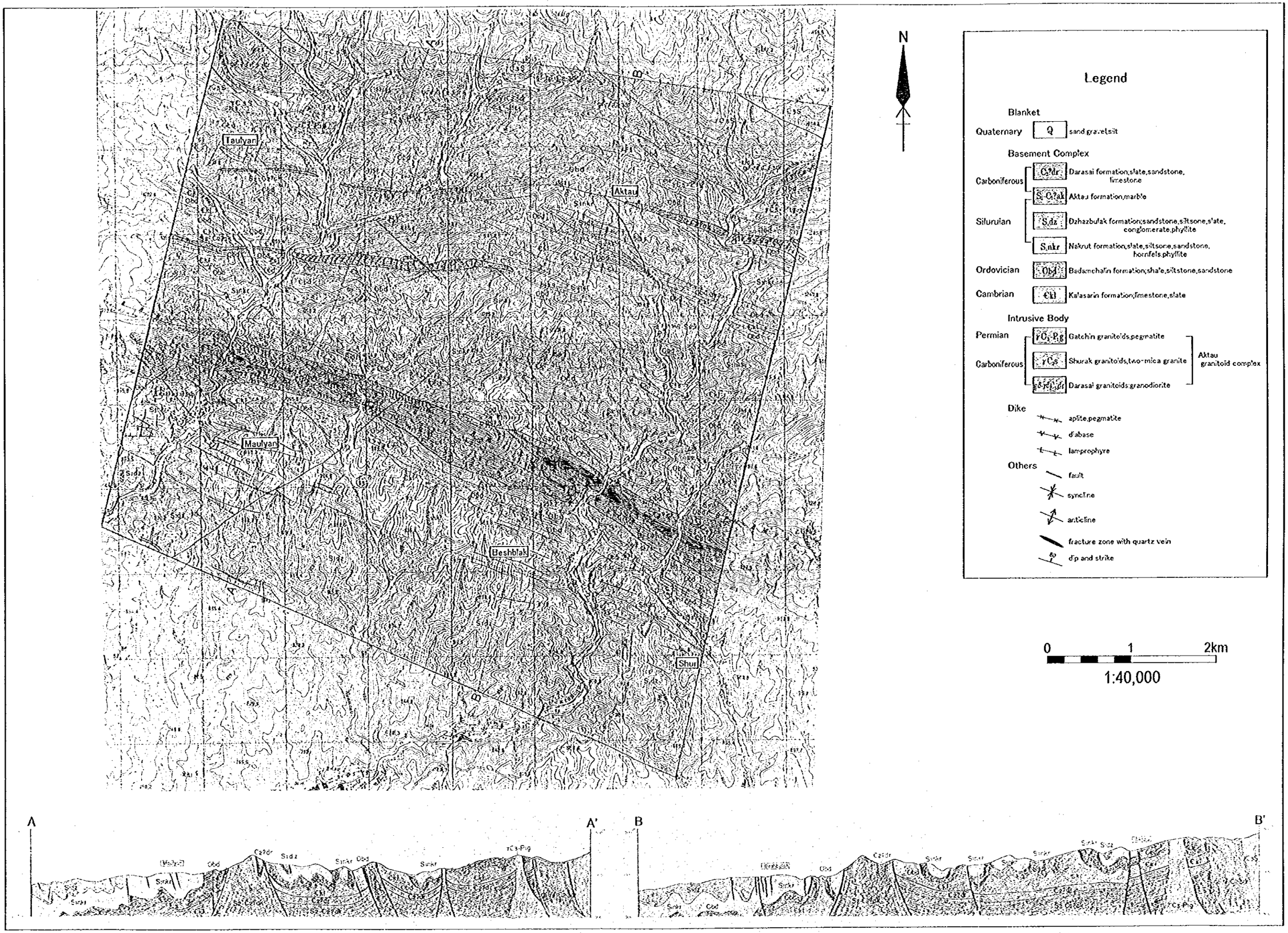


Fig. II-4-1 Geologic Map and Cross Sections of the Maulyan District

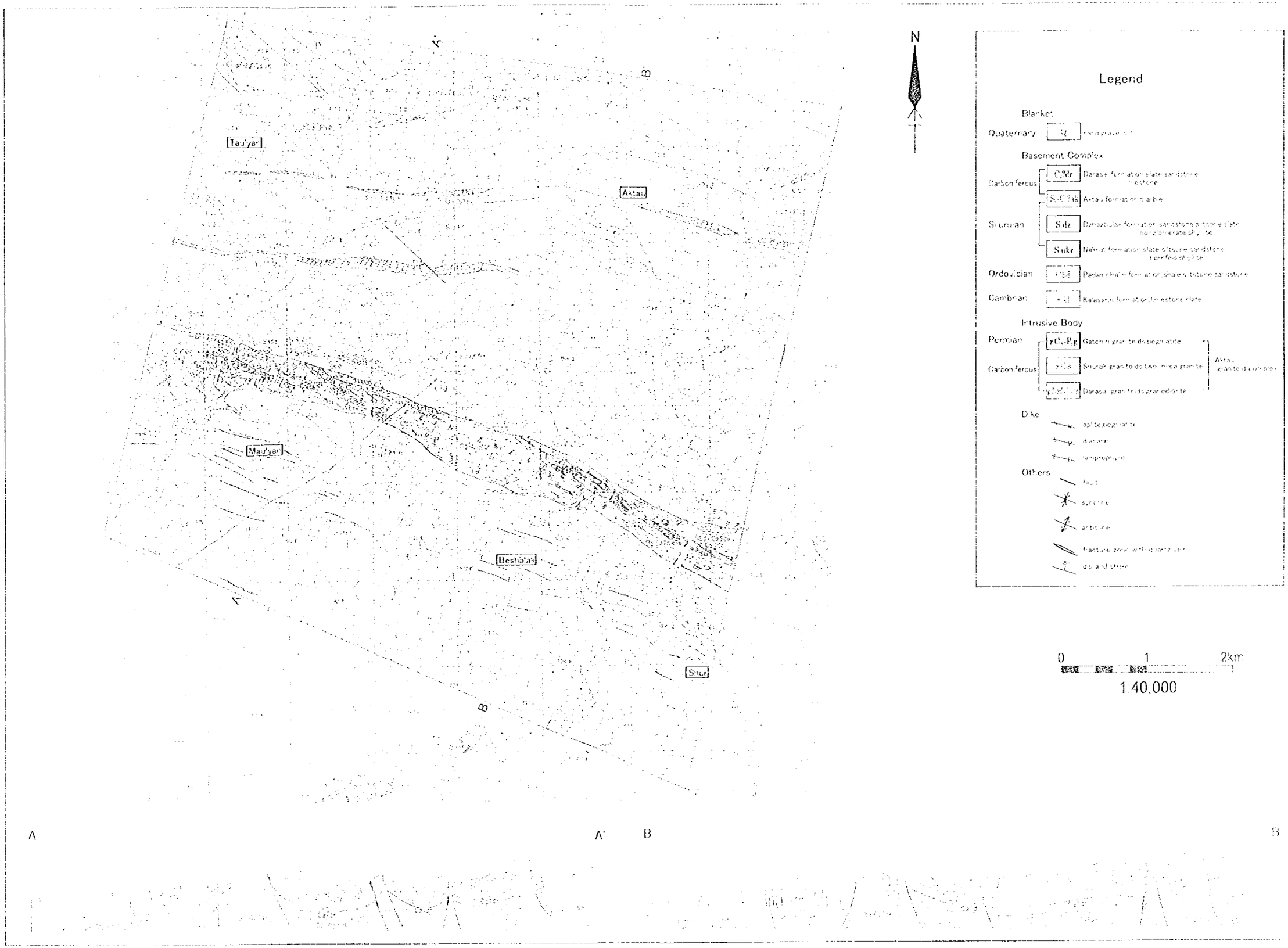


Fig. II-4-1 Geologic Map and Cross Sections of the Maulyan District

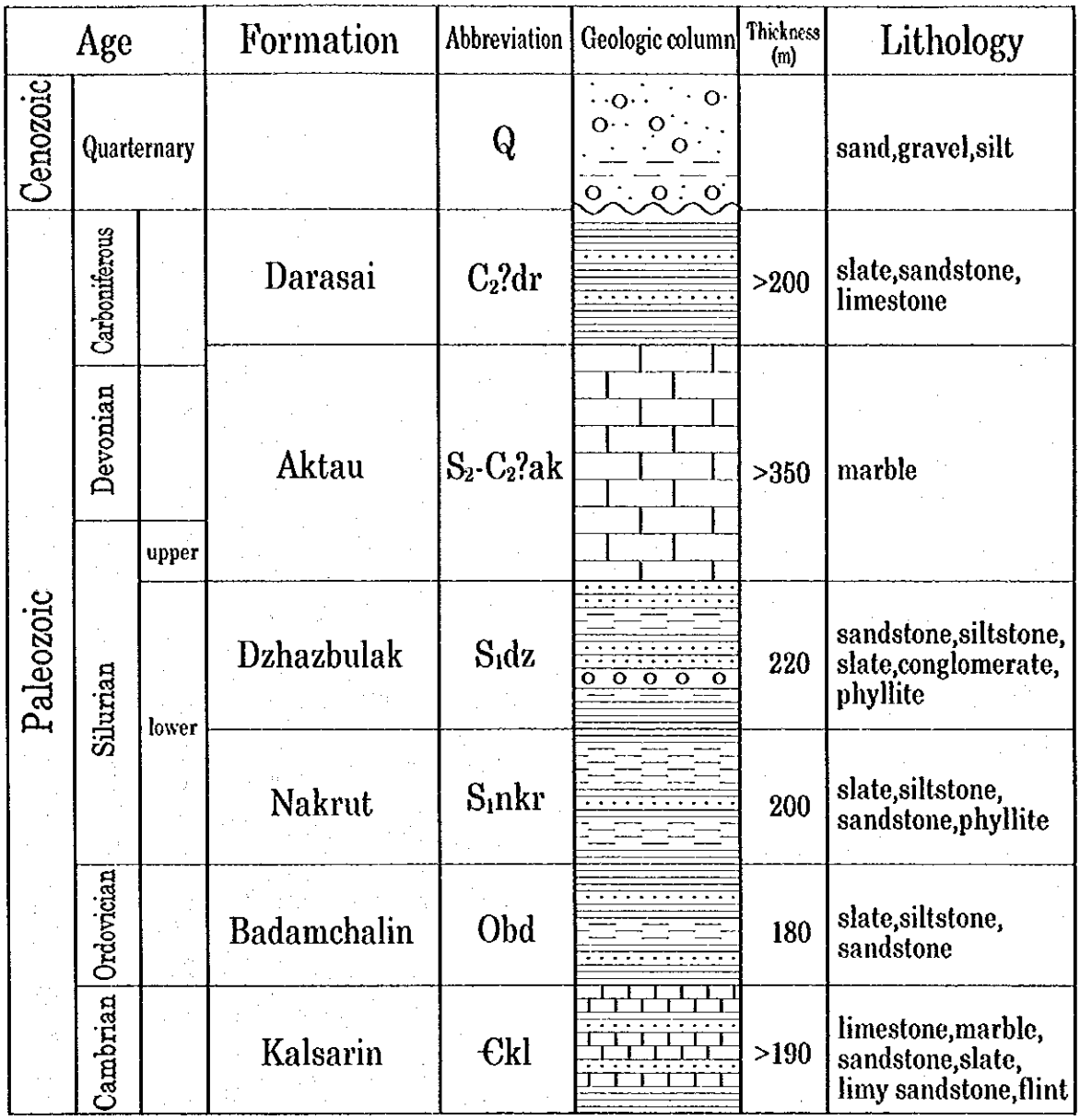


Fig. II-4-2 Schematic Geologic Column of the Maulyan District

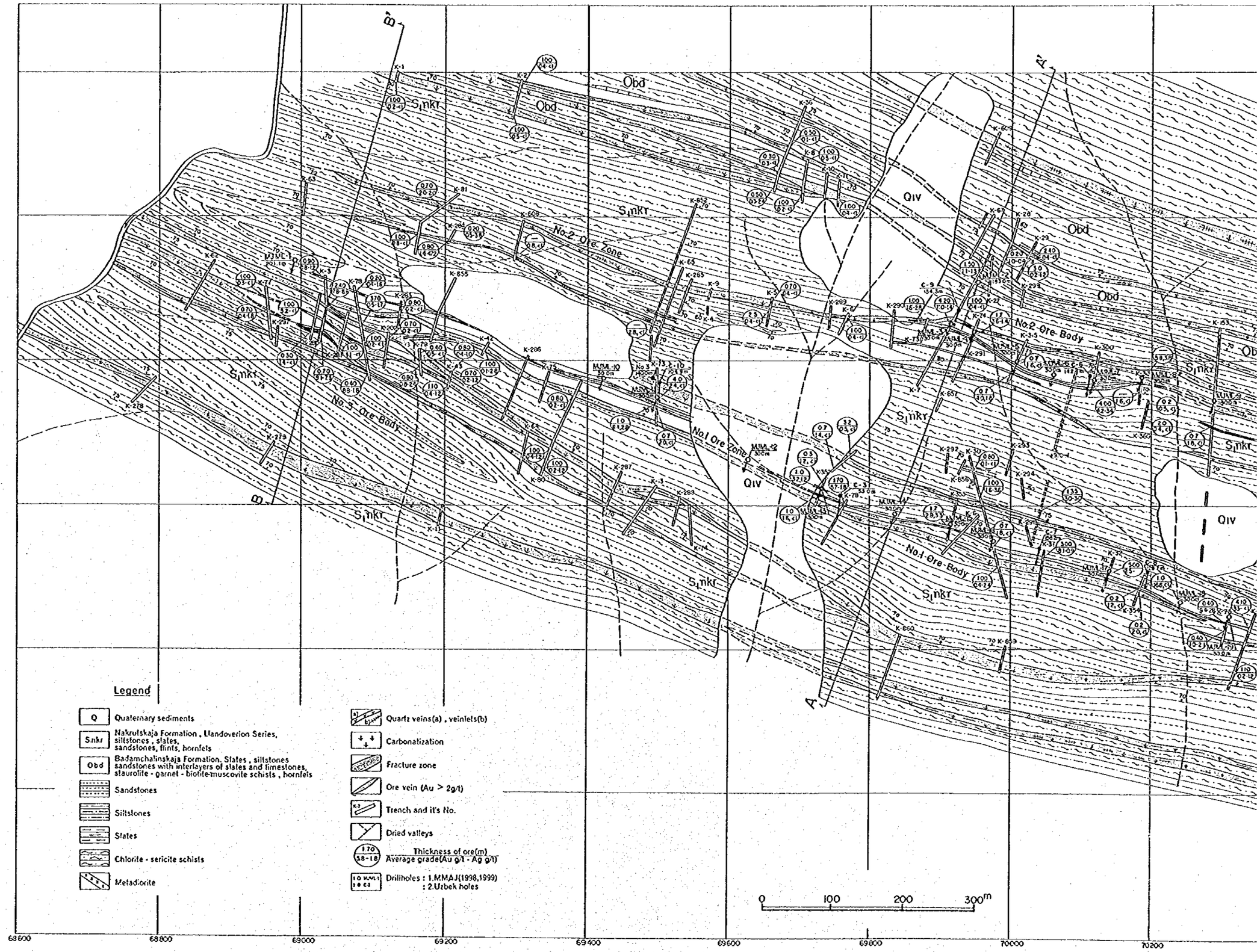
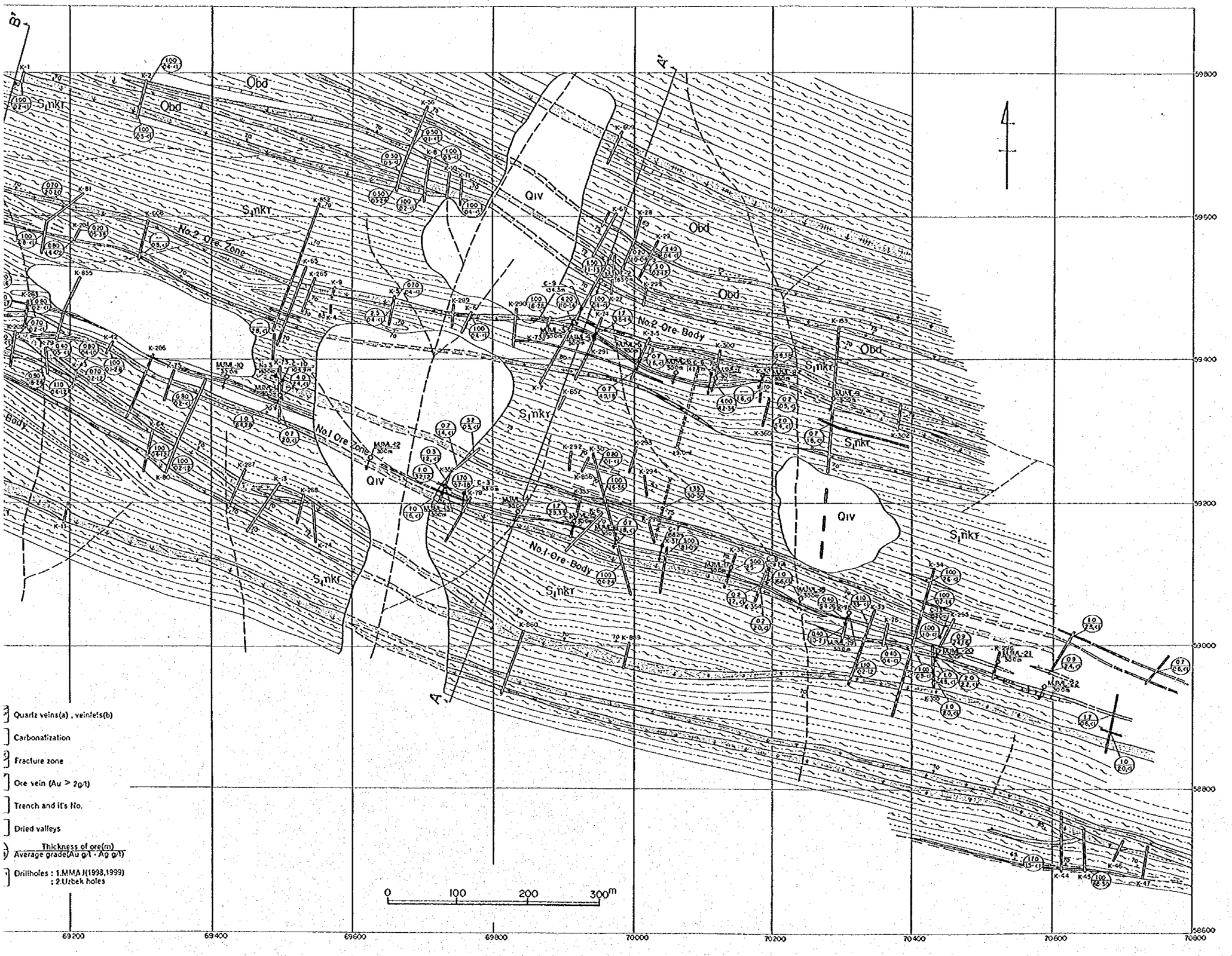
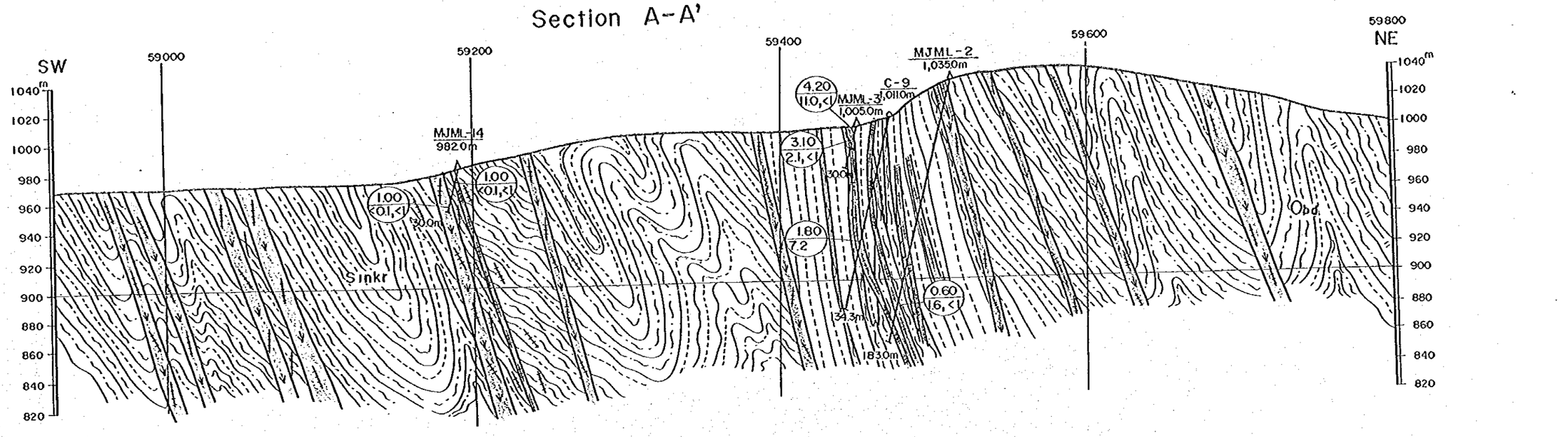


Fig. II-4-3 Geologic Map of the Maulyan Ore Manifestation



(after Zorniton Expedition; 1997, 1998, 1999)

Fig. II-4-3 : Geologic Map of the Maulyan Ore Manifestation



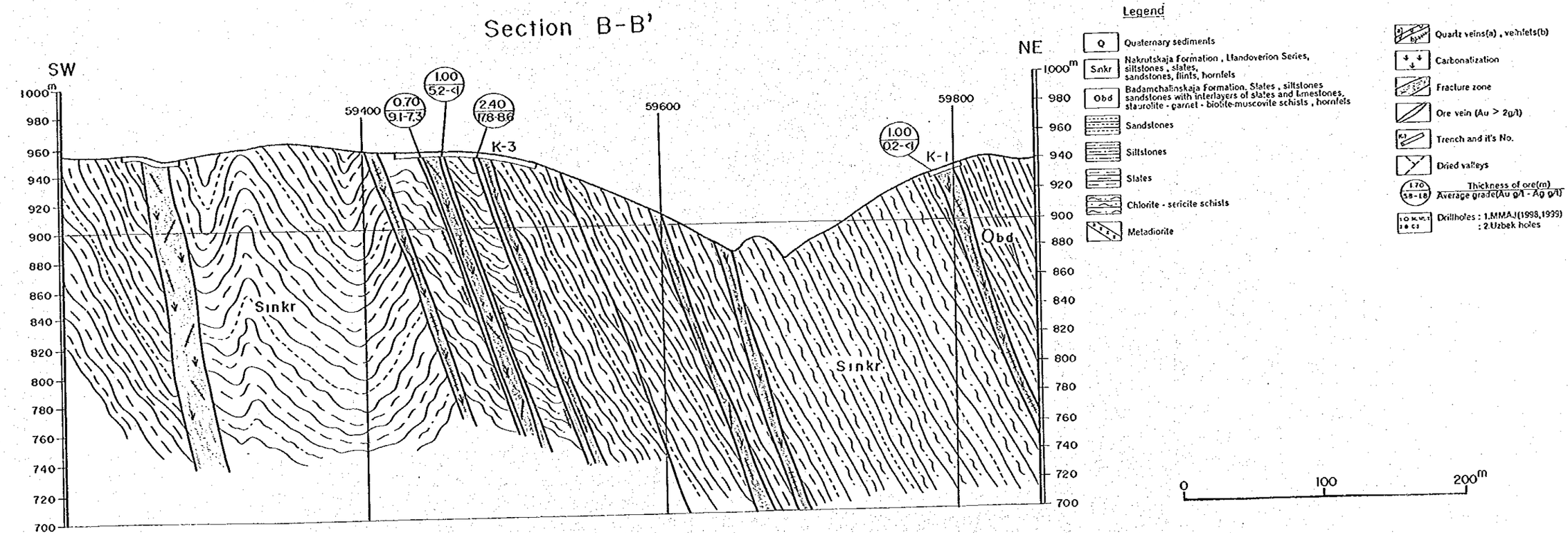


Fig. II-4-4 Geologic Cross Sections of the Maulyan Ore Manifestation

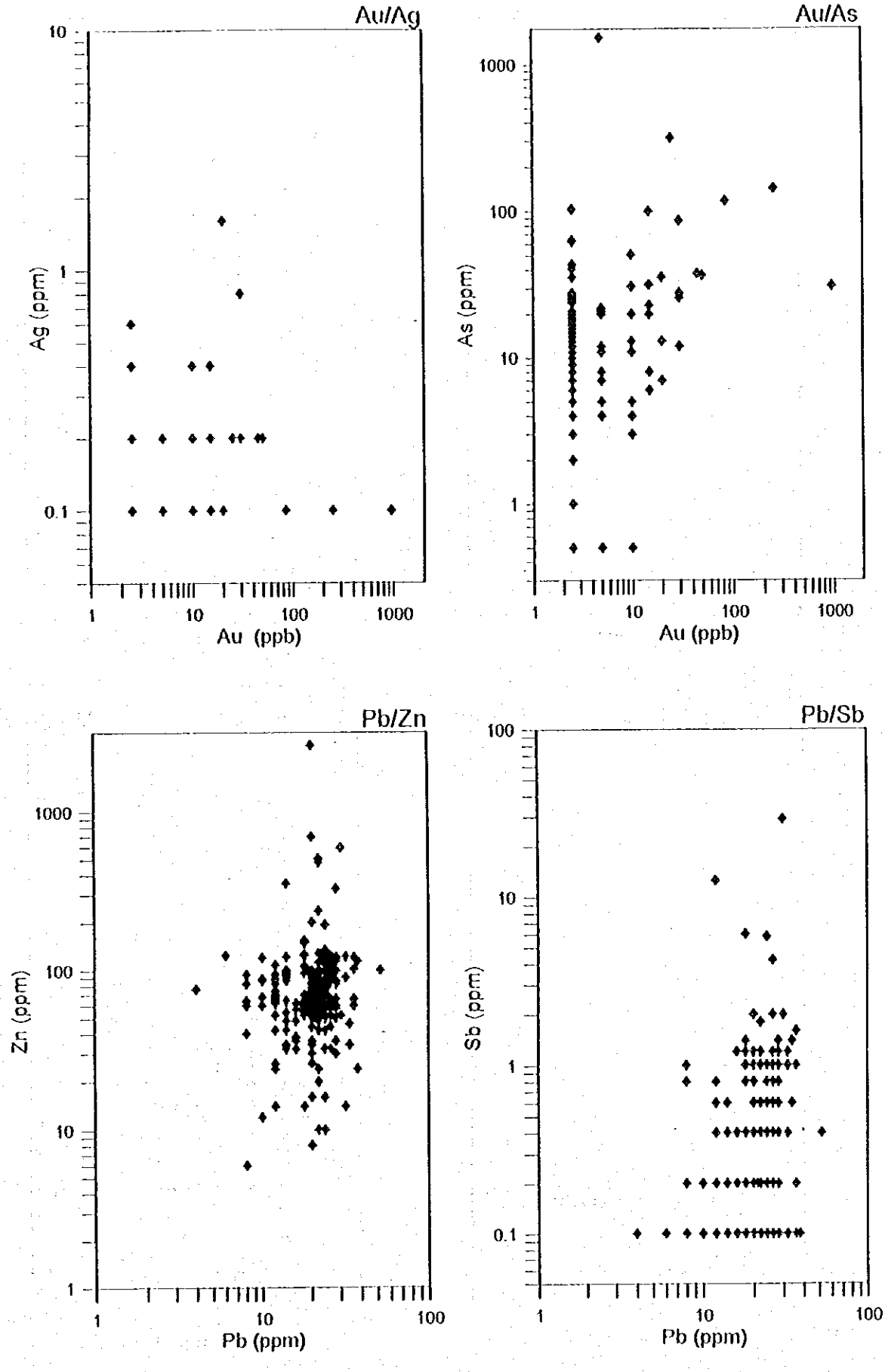


Fig. II-4-5 Scatter Plots (logarithmic) for Geochemical Samples In the Maulyan District (Au-Ag, Au-As, Pb-Zn, Pb-Sb)

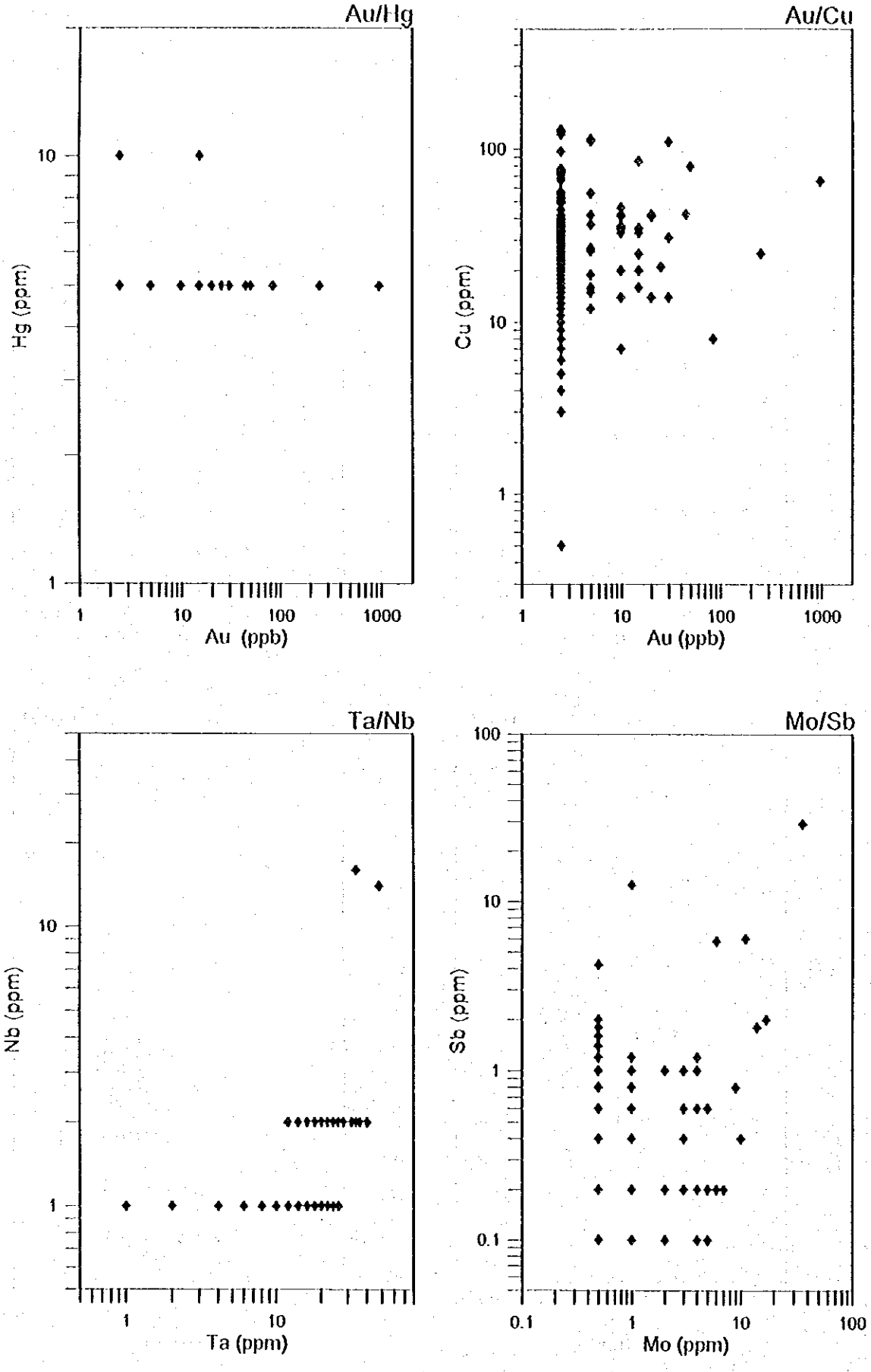


Fig. II-4-6 Scatter Plots (logarithmic) for Geochemical Samples In the Maulyan District (Au-Hg, Au-Cu, Nb-Ta, Sb-Mo)

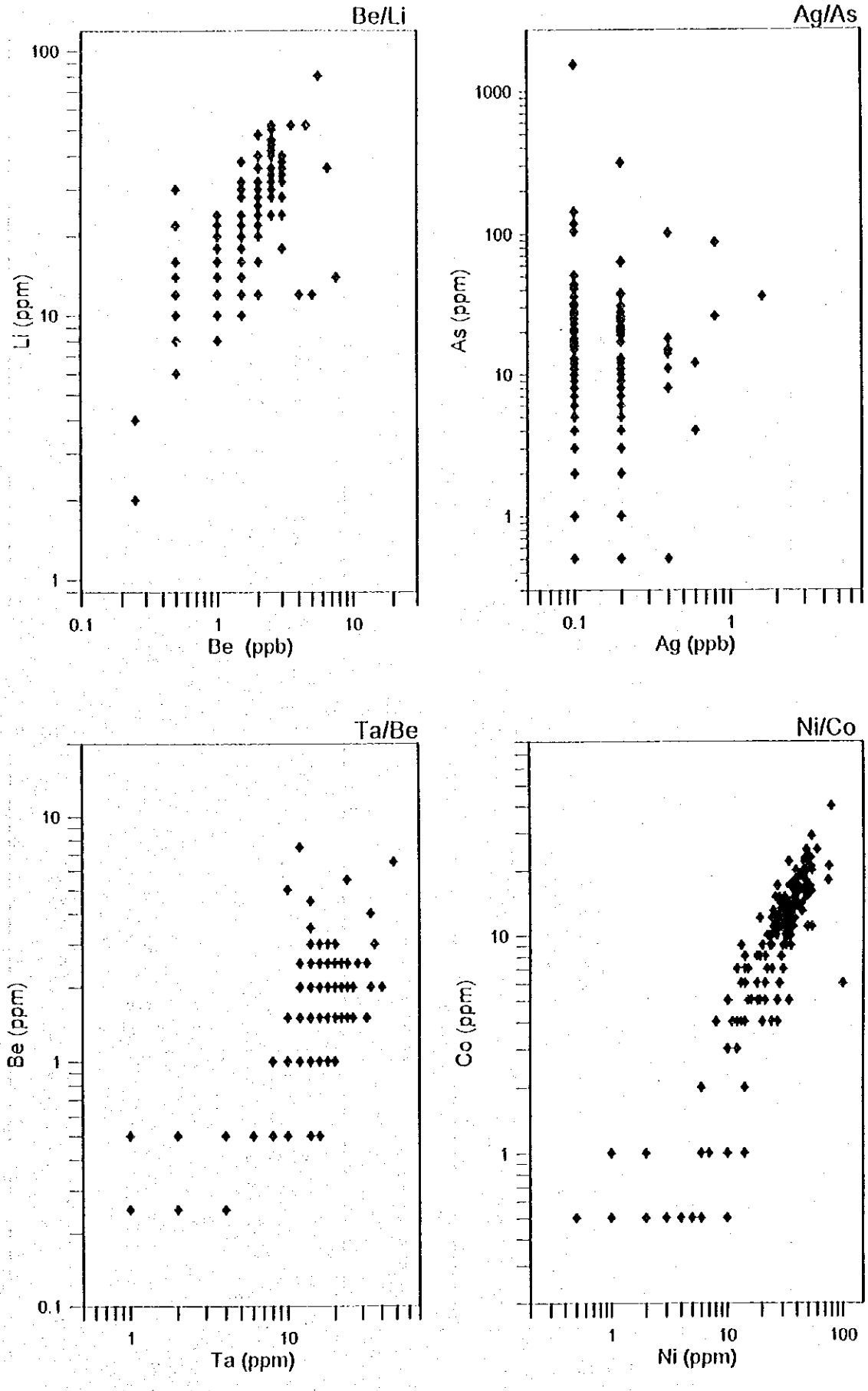


Fig. II-4-7 Scatter Plots (logarithmic) for Geochemical Samples In the Maulyan District (Be-Li, Ag-As, Ta-Be, Ni-Co)

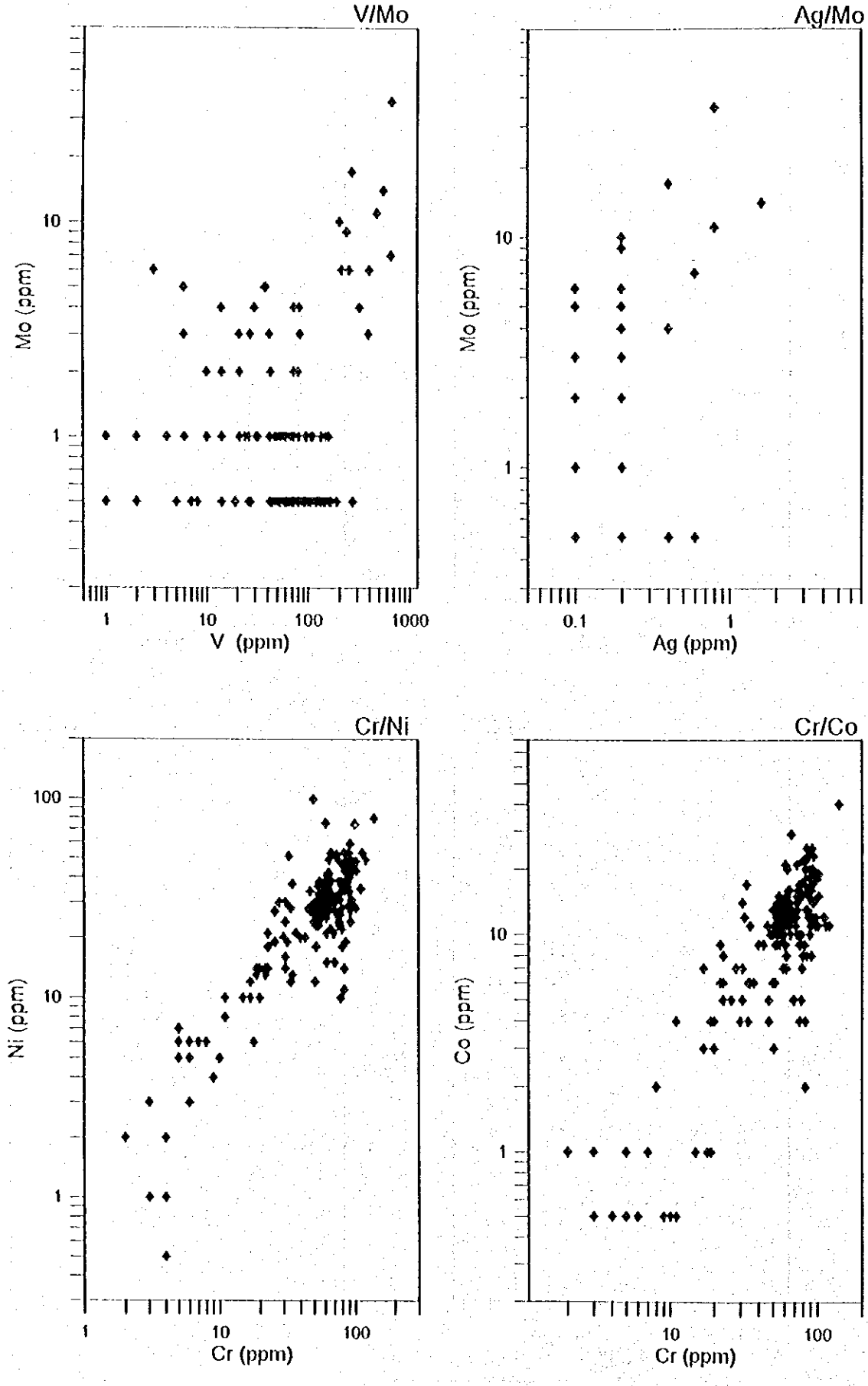


Fig. II-4-8 Scatter Plots (logarithmic) for Geochemical Samples In the Maulyan District (V-Mo, Ag-Mo, Cr-Ni, Cr-Co)

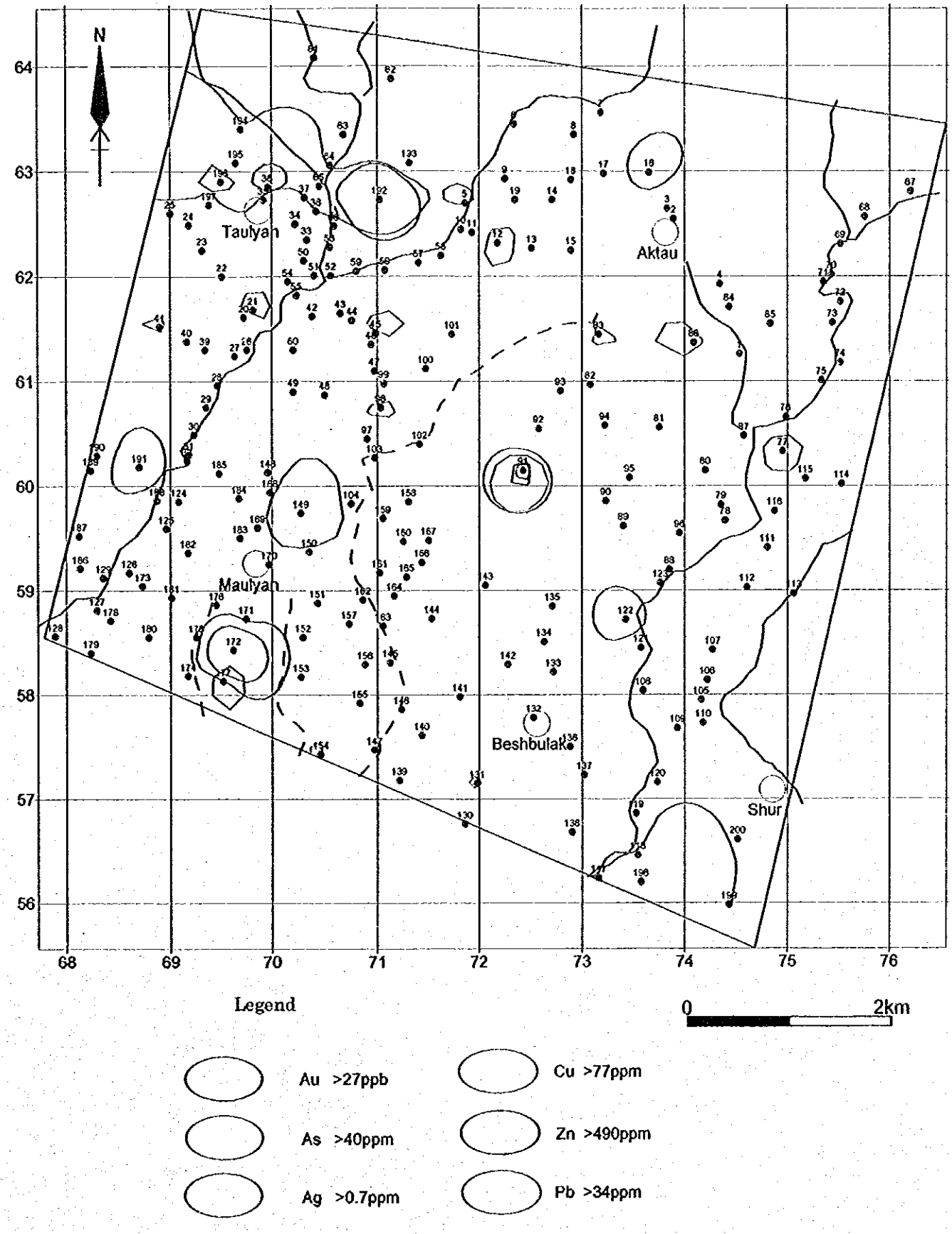


Fig.II-4-9 Geochemical Anomaly Map in the Maulyan District (Au,As,Ag,Cu,Zn,Pb)

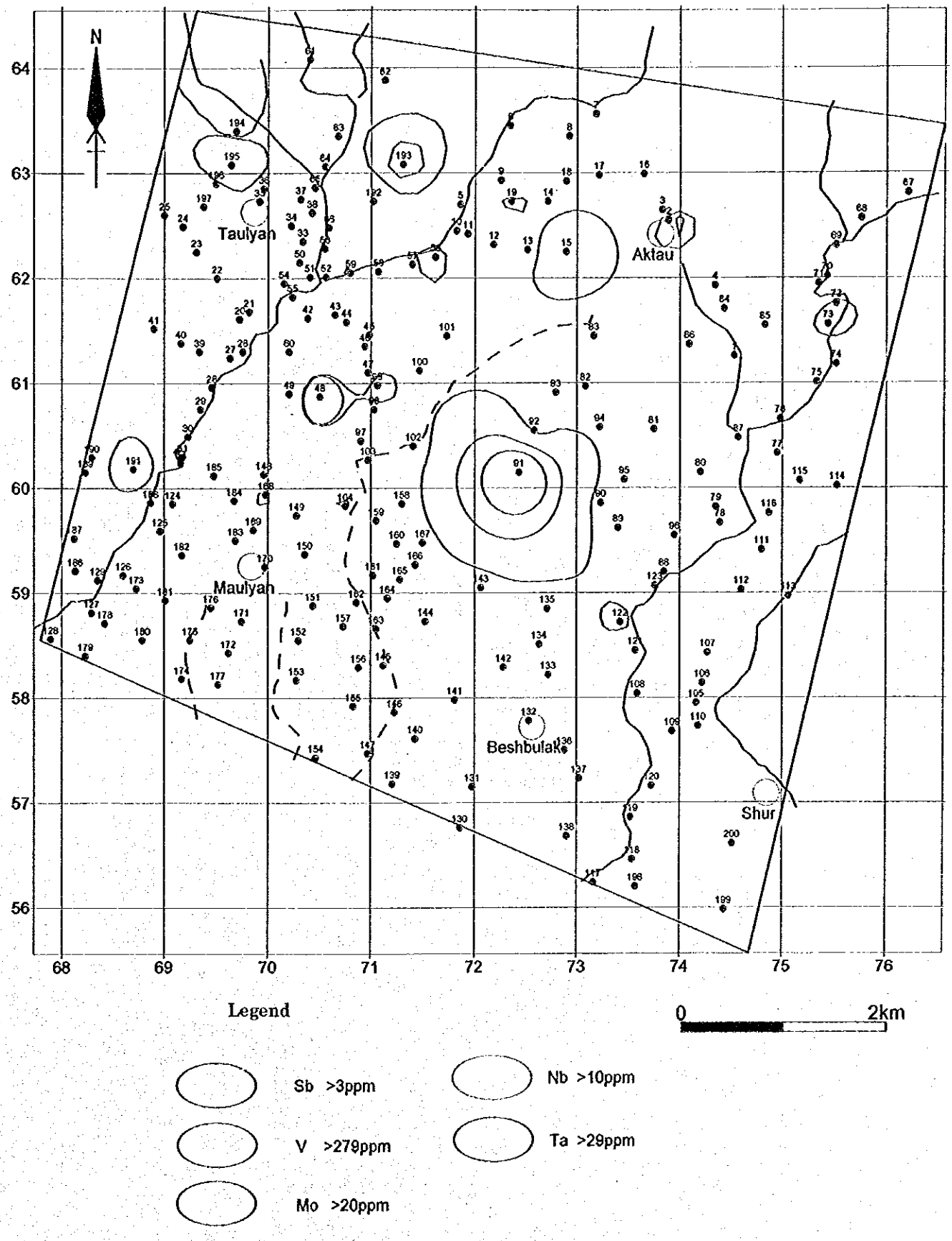


Fig.II-4-10 Geochemical Anomaly Map in the Maulyan District (Sb,V,Mo,Nb,Ta)

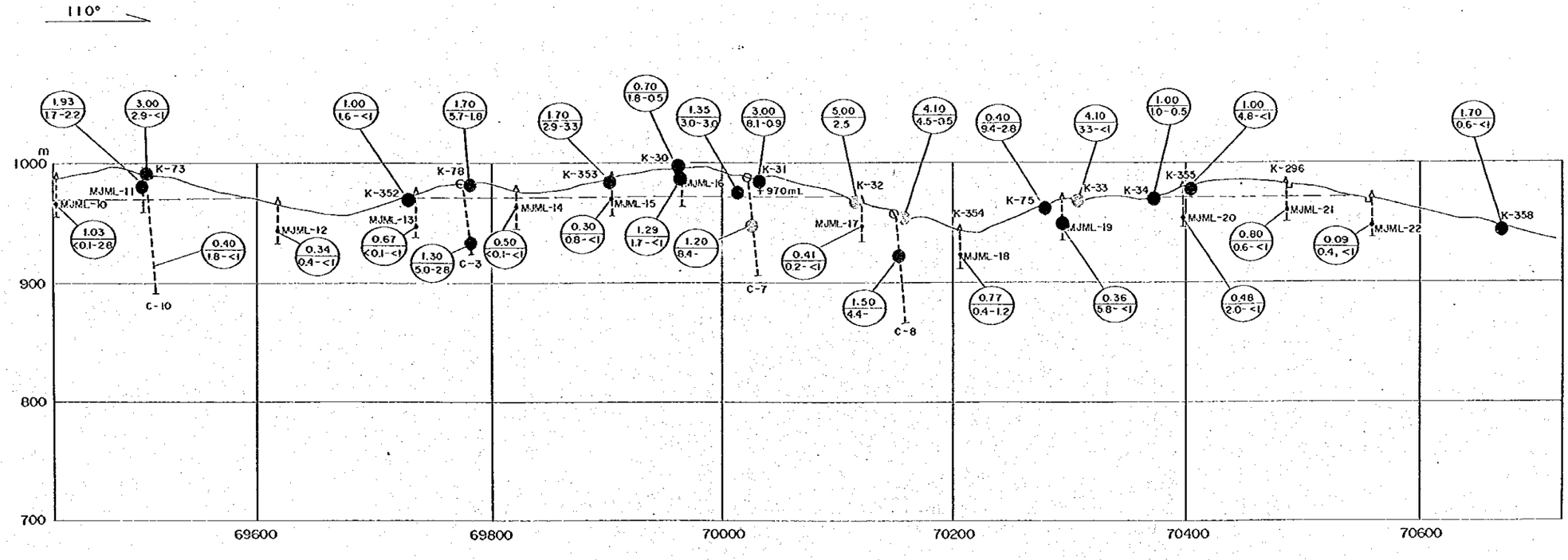


Fig. II-4-11 Perspective Section for Maulyan No.1 Ore Body (No.1 Ore Zone)

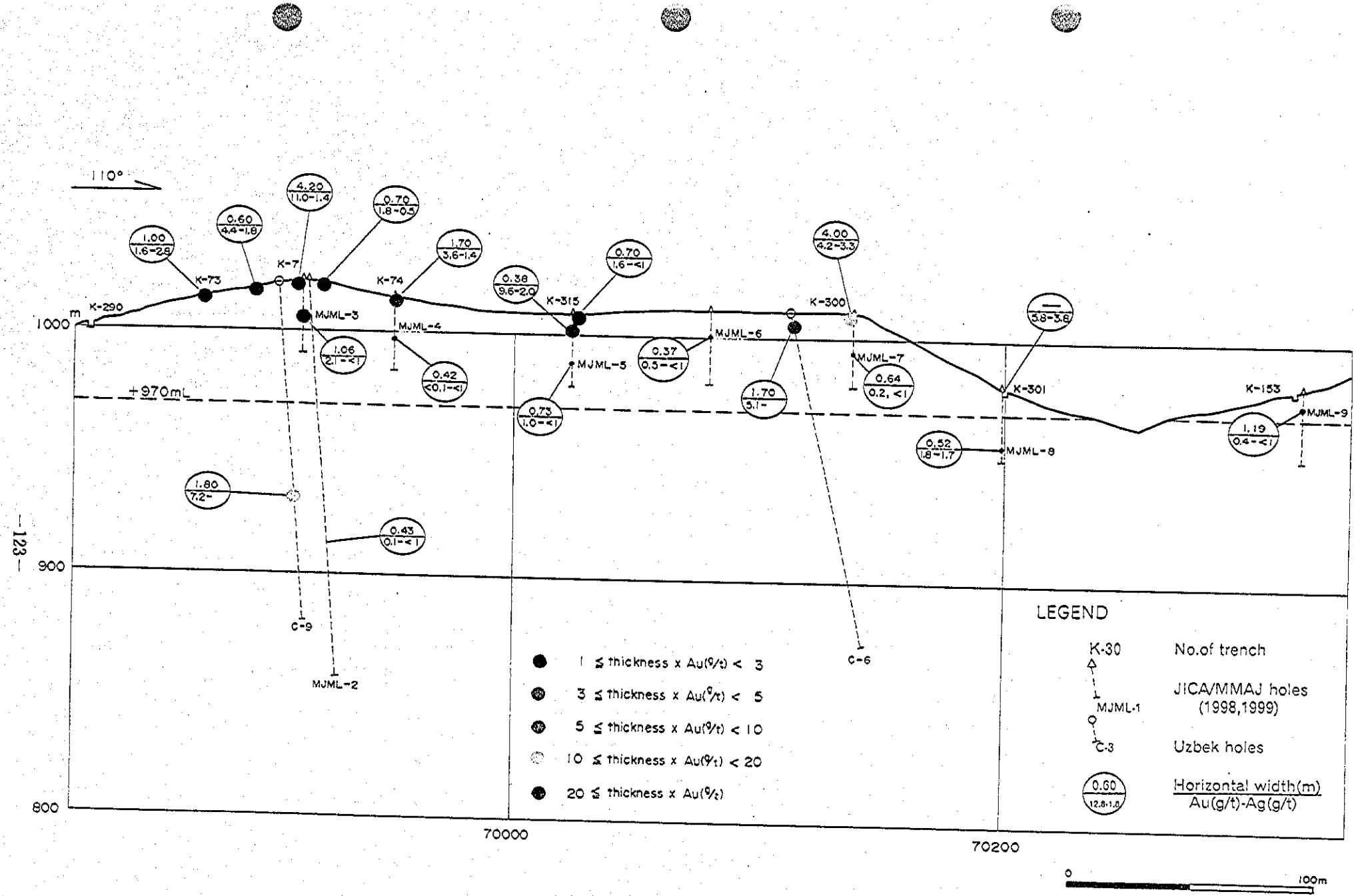


Fig. II-4-12 Perspective Section for Maulyan No.2 Ore Body (No.2 Ore Zone)

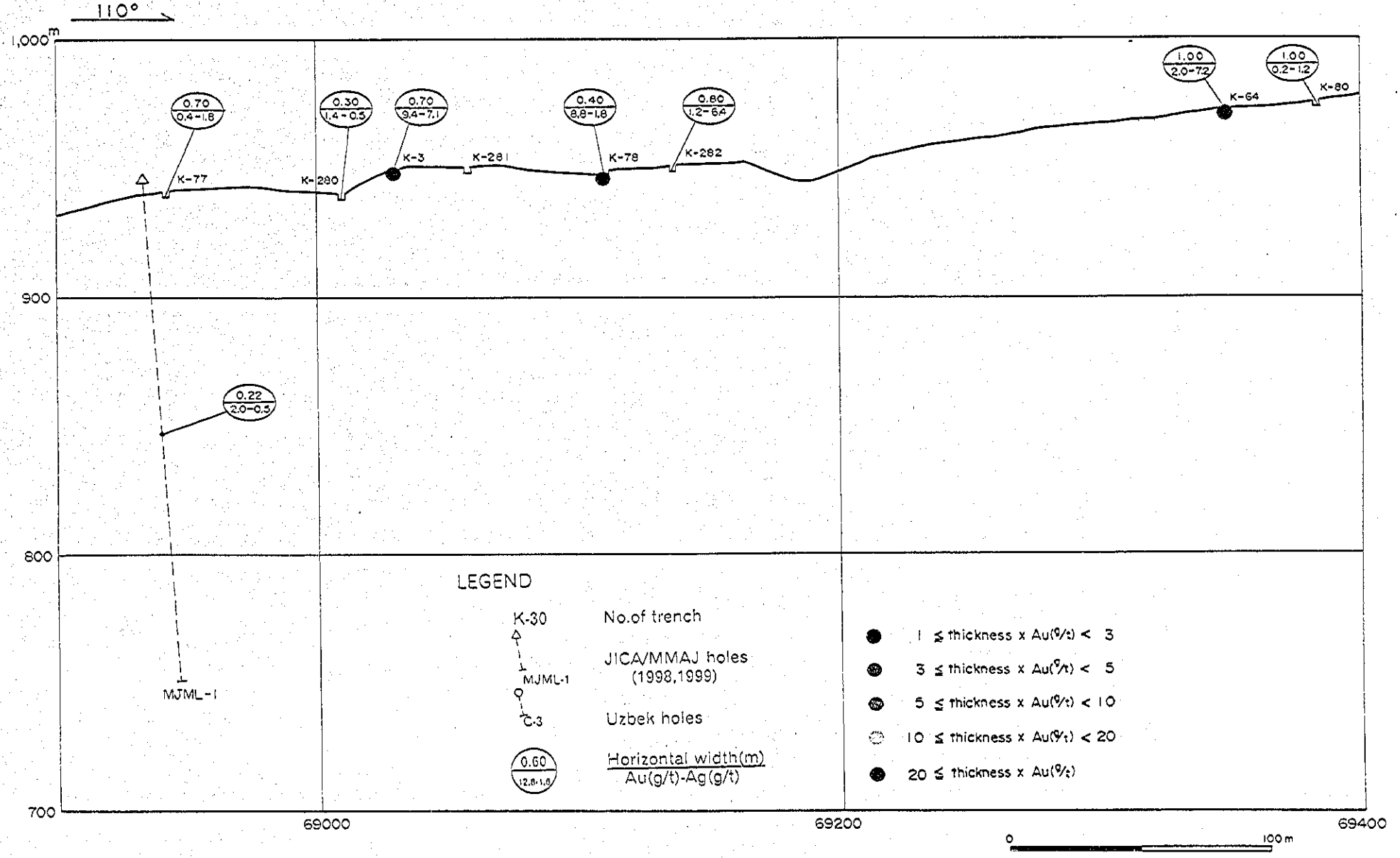
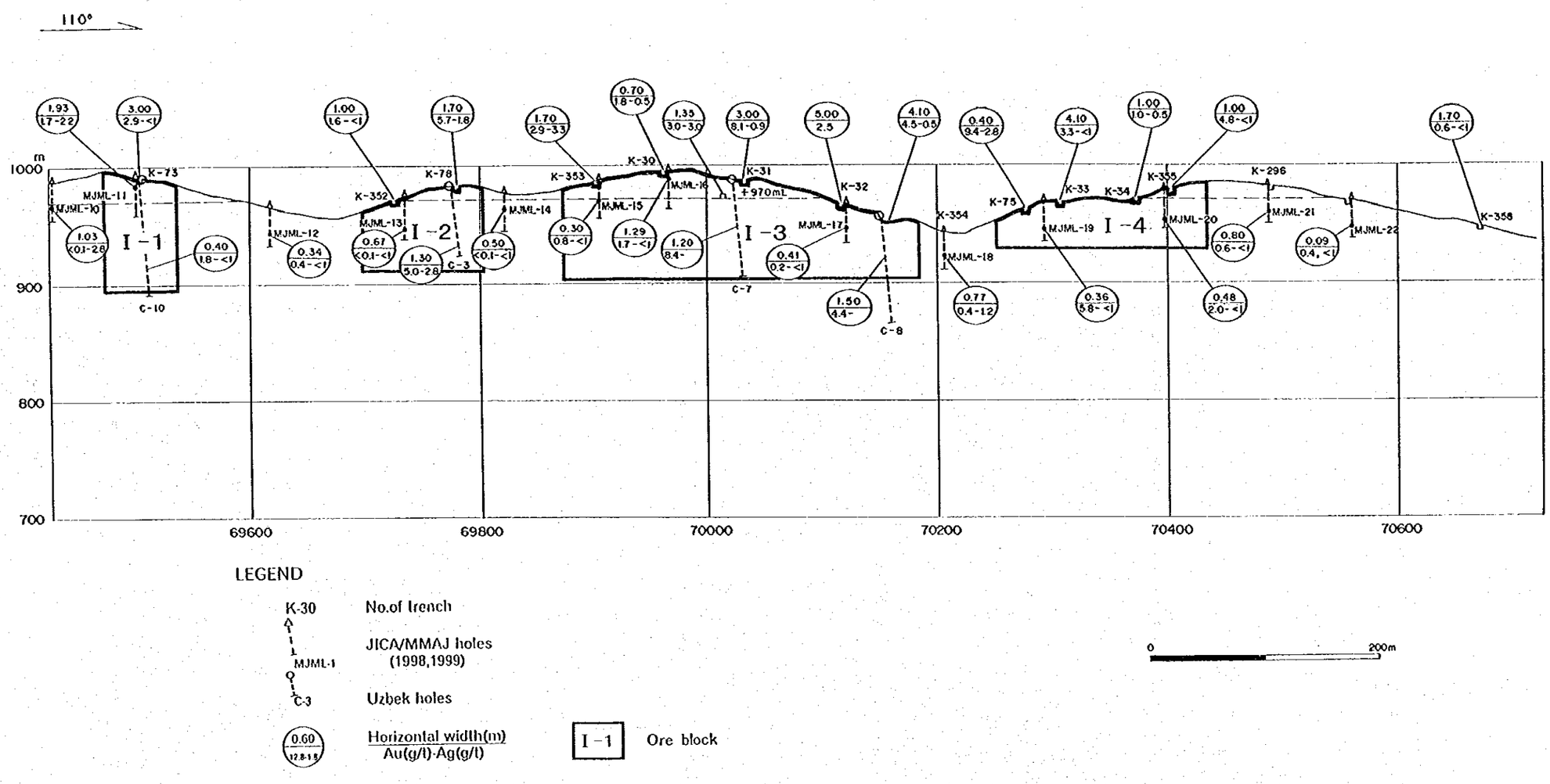


Fig. II-4-13 Perspective Section for Mouluran No.3 Ore Body (No.1 Ore Zone)



LEGEND

K-30 No.of trench

MJML-1 JICA/MMAJ holes (1998,1999)

C-3 Uzbek holes

0.60 / 12.8-1.5 Horizontal width(m) / Au(g/t)·Ag(g/t)

I -1 Ore block

Fig. II-4-14 Perspective Section for Ore Reserves Calculation of Maulyan No.1 Ore Body (No.1 Ore Zone)

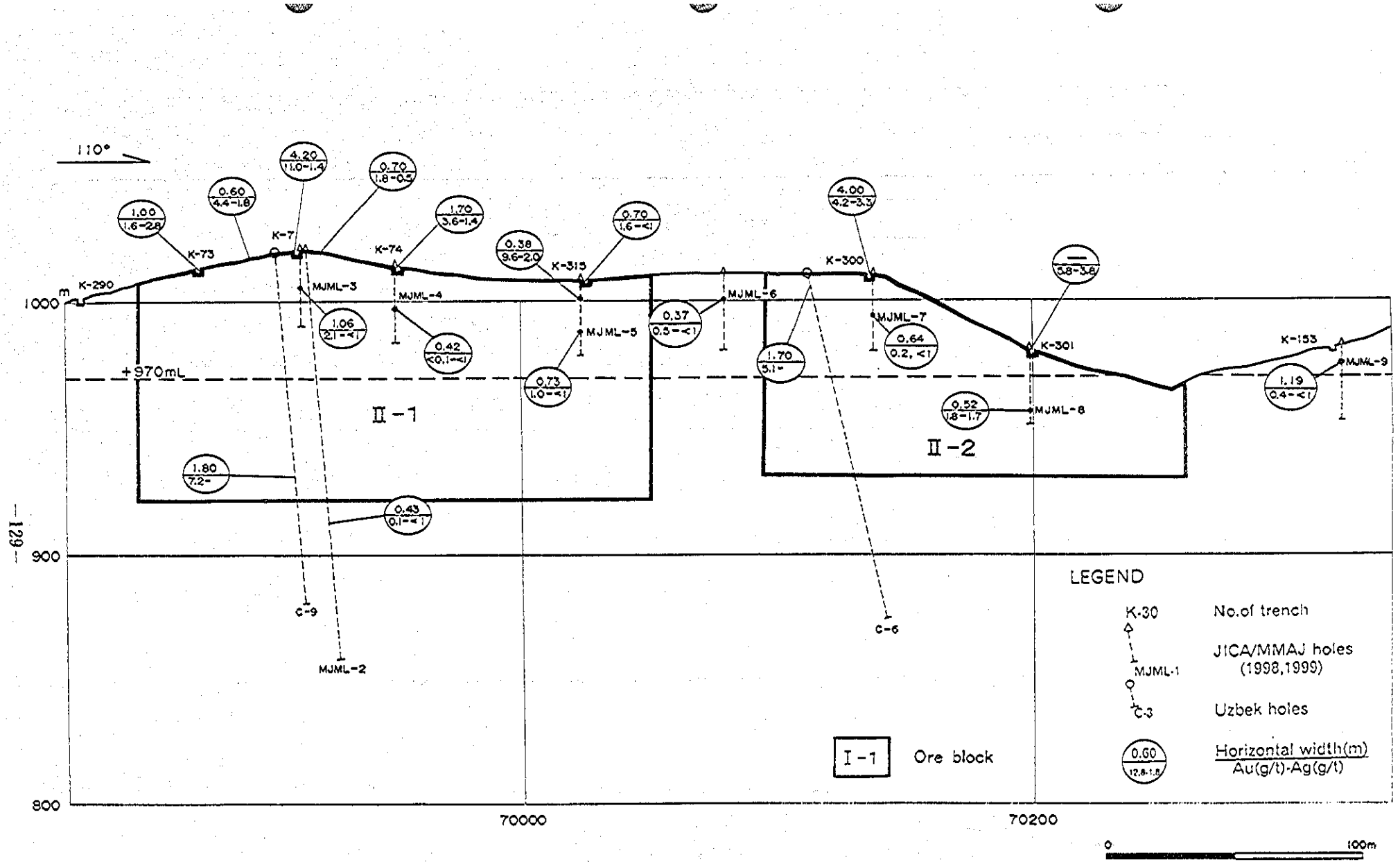


Fig. II-4-15 Perspective Section for Ore Reserves Calculation of Maulyan No.2 Ore Body (No.2 Ore Zone)

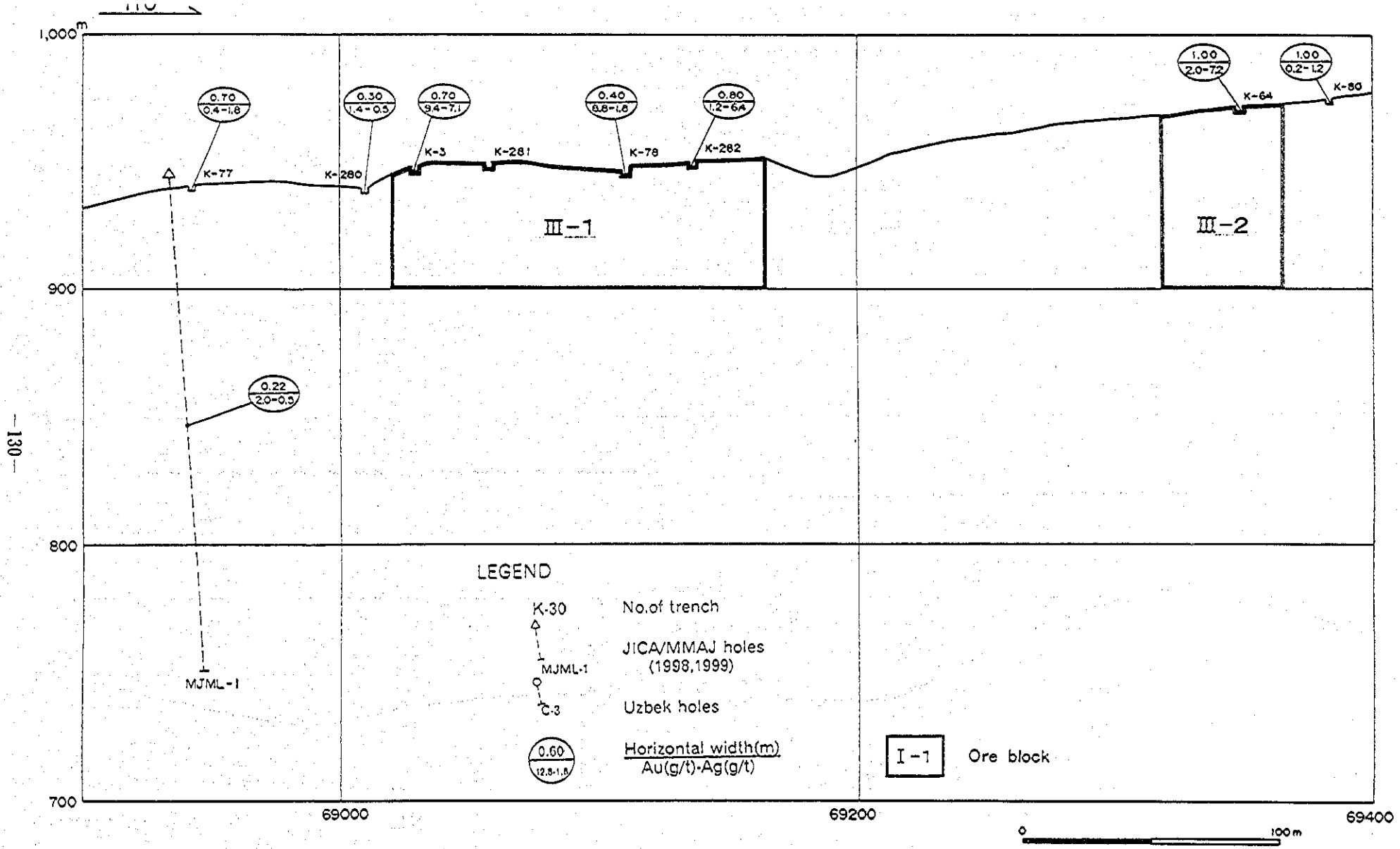


Fig. II-4-16 Perspective Section for Ore Reserves Calculation of Maulyan No.3 Ore Body (No.1 Ore Zone)