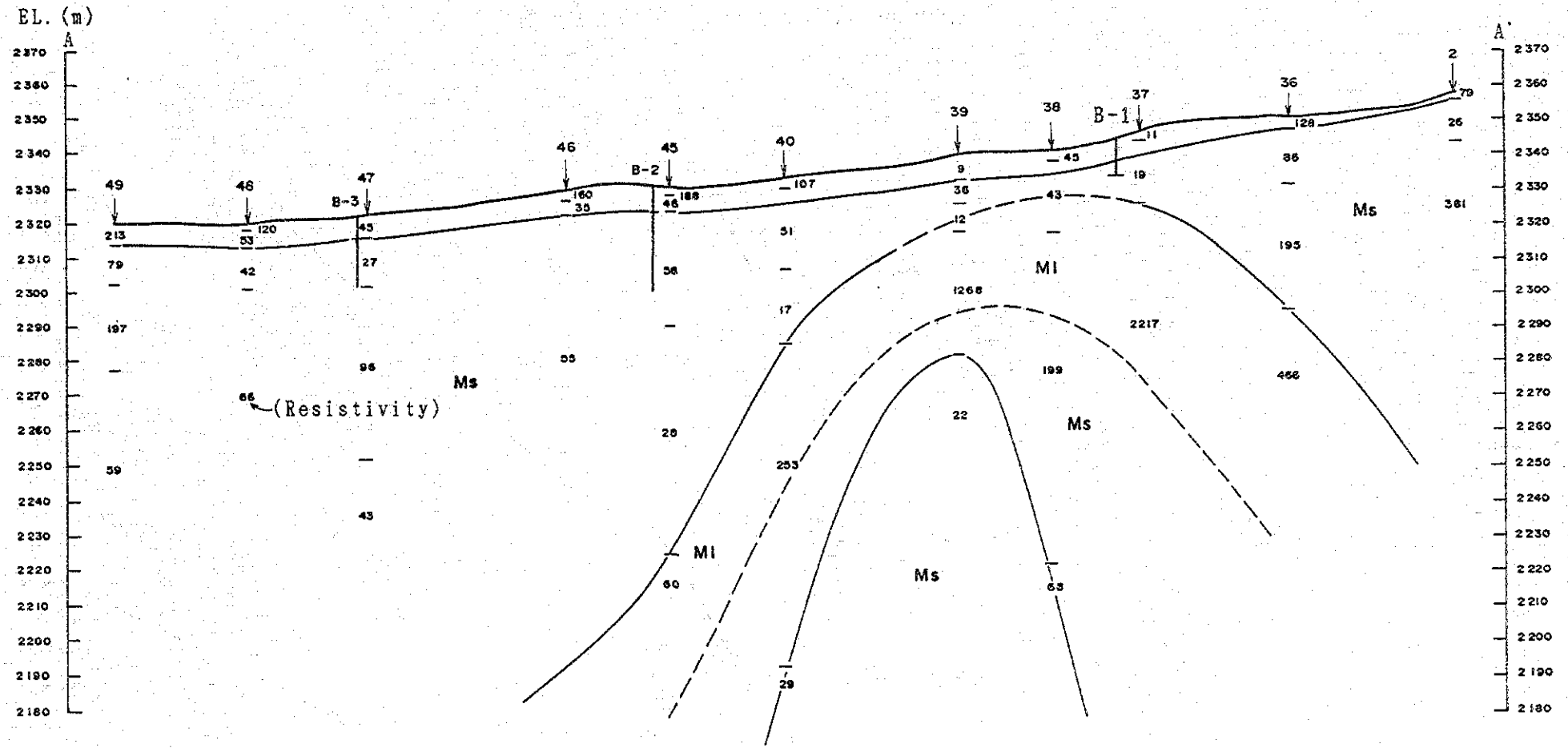


Fig. 3-2-2 Geological Cross Section (1)

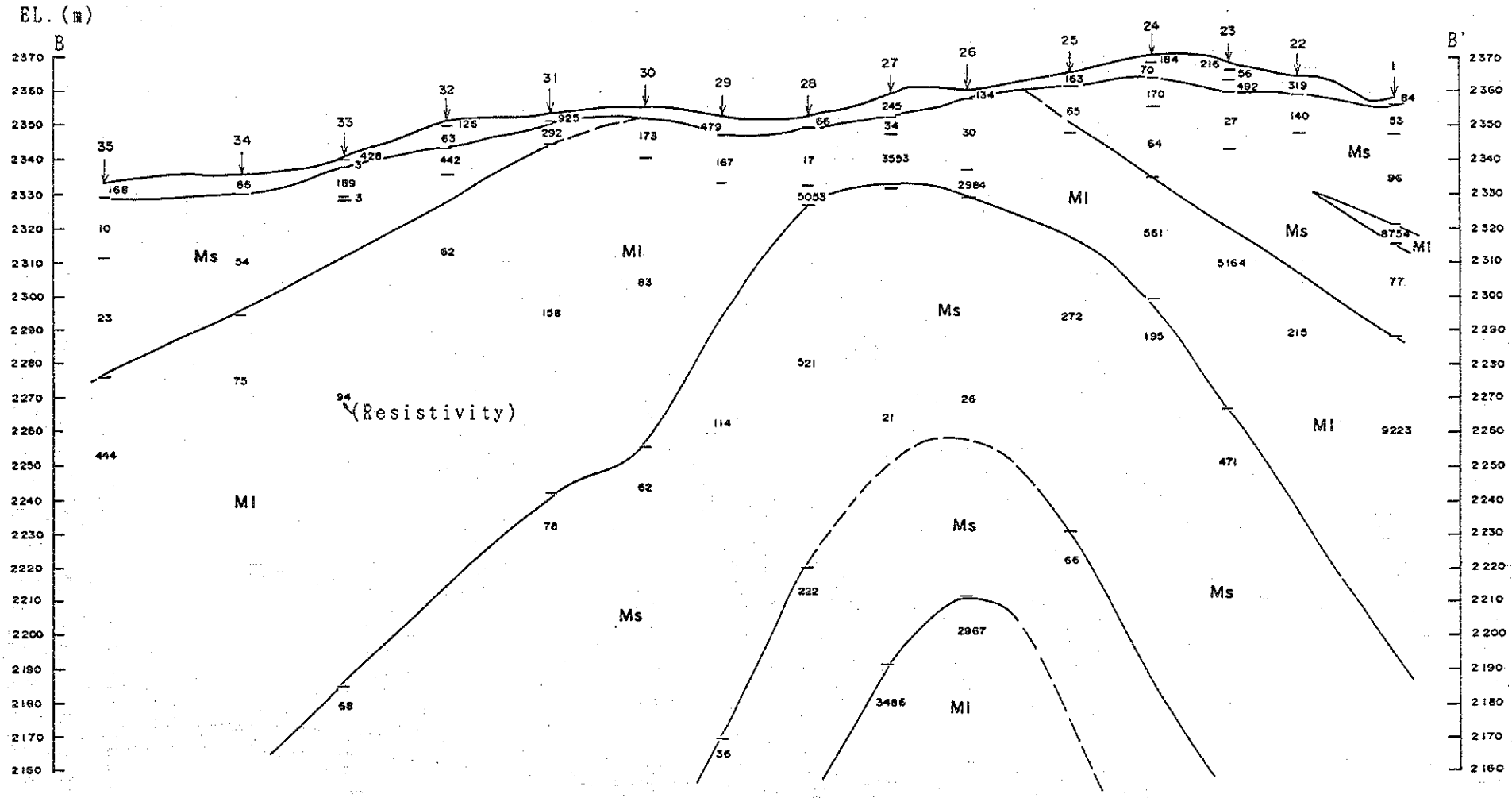


Fig. 3-2-2 Geological Cross Section (El Bote) (2)

(1) El Bote

Geological Age		Symbol	Explanation
Quaternary	Recent	Qr	River deposits
		Qt	Terrace deposits
	Pleistocene	Qf	Old fan deposits
Tertiary	Post-Eocene	——	Vein
		Tr	Rhyolite (dyke)
	Eocene	Ta	Andesite
Triassic		Ms	Slate
		Mq	Quartzite
		Ml	Limestone
		Mc	Sericite schist
		Mp	Phyllite
		——	Fault

Fig. 3-2-3 Geologic Column (El Bote)

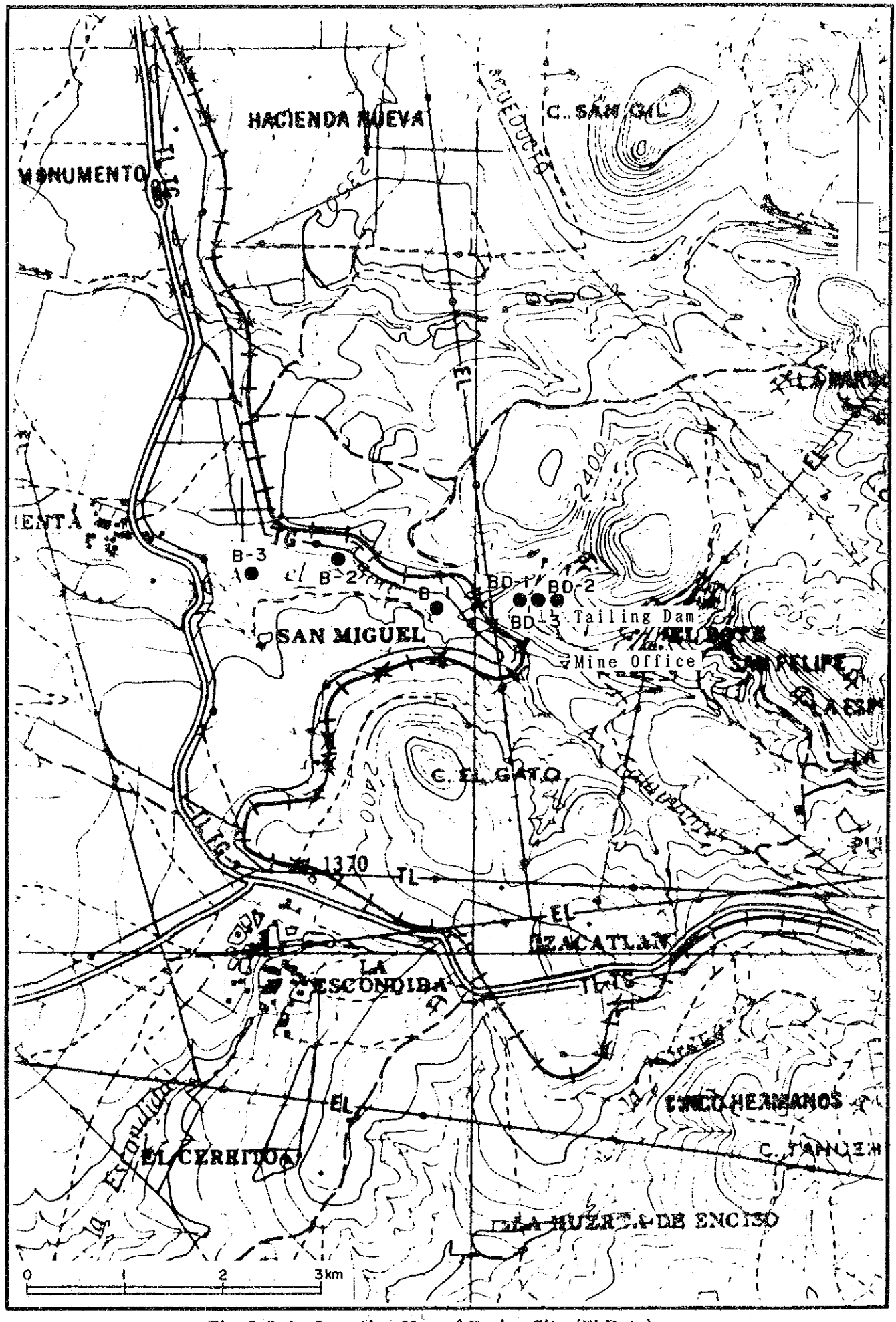


Fig. 3-2-4 Location Map of Boring Site (El Bote)

El Bote B-1

(1)

Depth (m)	Drilling Log	Formation	Lithology	Description	Core Shape >20cm	Core Shape 10-20cm	Core Shape 5-10cm	Core Shape 2mm-5cm	Core Shape >2mm	Water Flow (cm/sec) Dry Season	Water Flow (cm/sec) Rainy Season	Water Level Lost Circulation
0.00		Surface soil	gravelly sand	This layer consists of light grayish brown, poorly sorted, loose and silty sand with gravel.								
0.30			sandy silt	This layer consists of light grayish yellow sandy silt with gravel. The gravel is composed mainly of rounded or subrounded, phyllite, slate and quartzite, which is 0.2 to 0.3cm in the mean diameter and 1cm at the largest.								
2.80		Terrace deposits	medium~coarse grained sand	The sand is brown, poorly sorted and medium to coarse-grained.								
3.70			fine grained sand	The sand is brown, well sorted and fine-grained.								
6.20			medium grained sand	The sand is brown, well sorted and medium-grained.								
6.70			fine grained sand	The sand is brown, well sorted and fine-grained.							0.40 0.40	(8/13) 6.90 m ▽
7.50			gravel	The gravel consists of rounded or subrounded, slate, phyllite, sandstone and quartzite which is 1 to 3cms in the mean diameter and 6cms at the largest.							0.40 0.51	oil (8/15)
8.60		Meta-sediments	weathered slate	This part has undergone sericitification by weathering, so that the slate is gray and fragile.								
9.60			slate	The slate is black and fragile. Lamina has developed densely in it. Pyrite occurs as cubes along the joint. 9.70m Lamina; dip angle 10°.								
10.00												

Fig. 3-2-5 Boring Log (1)

El Bote B-2

(2)

Depth (m)	Drilling Log	Formation	Lithology	Description	Core Shape: >20cm	10-20cm	5-10cm	2mm ~ 5cm	< 2 mm	Water Flow (cm/sec): Dry Season	Rainy Season	Water Level: Lost Circulation
0.00		Surface soil	gravelly sand	This layer consists of light grayish brown, poorly sorted, loose and silty sand with gravel.								
0.50			sandy silt	This layer consists of light grayish brown sandy silt containing few gravels.								
2.00		Terrace deposits	very fine sand	This layer is composed of yellowish brown, well sorted and very fine-grained sand with granule which is 0.1 to 0.3cm in diameter.								
3.70			fine sand	The sand is yellowish brown, well sorted and fine-grained.								
7.40 m ▽												
7.75			gravel	The gravel consists of rounded altered rocks, ranging in size 2 to 5cms.							0.40 0.63	(3/21)
8.00		Meta-sediments	weathered slate	The slate is gray and altered by weathering. Lamina has developed densely in it.						0.40	0.40 0.40	(8/12) (8/15)
10.00			slate	The slate is black. Many calcite veins has occurred along the lamina. Partly, pyrite has occurred in the joint.						0.40 0.40	0.40 1.11 0.51 1.11	
12.00										0.40	0.40 0.40	

Fig. 3-2-5 Boring Log (2)

El Bote B-2

Depth (m)	Drilling Log	Formation	Lithology	Description	Core Shape: >20 cm	10~20cm	5~10cm	2mm ~5cm	>2 mm	Water Flow (cm/sec): Dry Season	Rainy Season	Water Level: Lost Circulation
12.00				This is the same rock above mentioned.								
				12.90m Lamina, dip angle 10°.						0.40	0.40 (8/12) 0.75 (8/15)	
										0.40	0.40 0.51	
										0.40	0.51 0.40	
										0.40	0.40 0.40	
										0.40	0.40 0.40	
				16.90m Lamina; dip angle 10°.						0.40	0.40 0.40	
		Meta-sediments	slate							0.40	0.40 0.40	
18.50				18.50m Quartz vein; 2 to 3cms in width.						0.40	0.40 0.40	
										0.40	0.40 0.40	
										0.45	0.40 0.75	
				21.60m Lamina; dip angle 10°.						0.51	0.40 0.40	
										0.40	0.40 0.40	
										0.45	0.40 0.40	
24.00												

Fig. 3-2-5 Boring Log (3)

El Bote B-2

Depth (m)	Drilling Log	Formation	Lithology	Description	Core Shape <20 cm	10-20 cm	5-10 cm	2 mm ~ 5 cm	> 2 mm	Water Flow (cm/sec) Dry Season	Rainy Season	Water Level Lost Circulation
24.00				This is the same rock above mentioned.								
				24.80m Lamina, dip angle 10°.						0.40	0.40 0.40	(8/12) (8/15)
				25.80~26.60m Many shear joints have developed in parallel with lamina.						0.45	0.40 0.40	
		Meta-sediments	slate							0.57	0.40 0.40	
				28.00~29.50m Many shear joints have developed in parallel with lamina. Striation and slickenside have occurred on the joint surfaces.						0.40	0.40 0.40	
										0.40	0.40 0.40	
30.00												

Fig. 3-2-5 Boring Log (4)

El Bote B-3

Depth (m)	Drilling Log	Formation	Lithology	Description	Core Shape >20cm	Core Shape 10-20cm	Core Shape 5-10cm	Core Shape 2mm-5cm	Core Shape >2 mm	Water Flow (cm/sec) Dry Season	Water Flow (cm/sec) Rainy Season	Water Level Lost Circulation
0.00 0.20		Surface soil	gravelly sand	This layer consists of light grayish brown, poorly sorted, loose and silty sand with gravel.								
		Terrace deposits	sandy silt	This layer consists of pale brown to brown silt with gravel. The gravel is composed of slate and quartzite which is rounded to subangular. And gravels has a general tendency to become much more toward the bottom in this layer.								5.15m ▽
5.10			weathered slate	The slate is pale brown to brown and fragile. Many joints has developed densely, and sandysilt, which derived from upper bed, filled in these joints.						0.75 1.28	0.40 0.40 0.40 0.40 0.40 0.51	(3/21) (8/12) (8/15)
7.90		Meta-sediments	slate	The slate is black and easy to come off along the lamina. Many calcite veins has also occurred along the lamina. Pyrite occurs as cubes in this rock. 9.50m Lamina; dip angle 10°.						0.51 0.40 0.40 0.87	0.87 0.40 0.63 0.77 0.40 0.51 2.17 0.63	
12.00												

Fig. 3-2-5 Boring Log (5)

El Bote B-3

Depth (m)	Drilling Log	Formation	Lithology	Description	Core Shape <20cm	Core Shape 10-20cm	Core Shape 5-10cm	Core Shape 2mm-5cm	Core Shape >2mm	Water Flow (cm/sec) Dry Season	Water Flow (cm/sec) Rainy Season	Water Level Lost Circulation
12.00		Meta-sediments	slate	This is the same rock above mentioned. 12.50m Lamina; dip angle 3°. 13.40m Lamina; dip angle 15°. 15.70m Shear joint; dip angle 10°. The joint has occurred in parallel with lamina, striation has also developed.							1.93 0.63 0.40 1.93 2.17 2.41 0.40 3.47 0.51 2.17 1.46 1.11 0.40 0.51	(8/12) (8/15)
20.00												

Fig. 3-2-5 Boring Log (6)

Soil Columnar Section

Survey Area: El Bote Tailing Dam Elevation: 2,355.19 m Date:

Drilling No.: BD-1 Water Level: 21.0 m

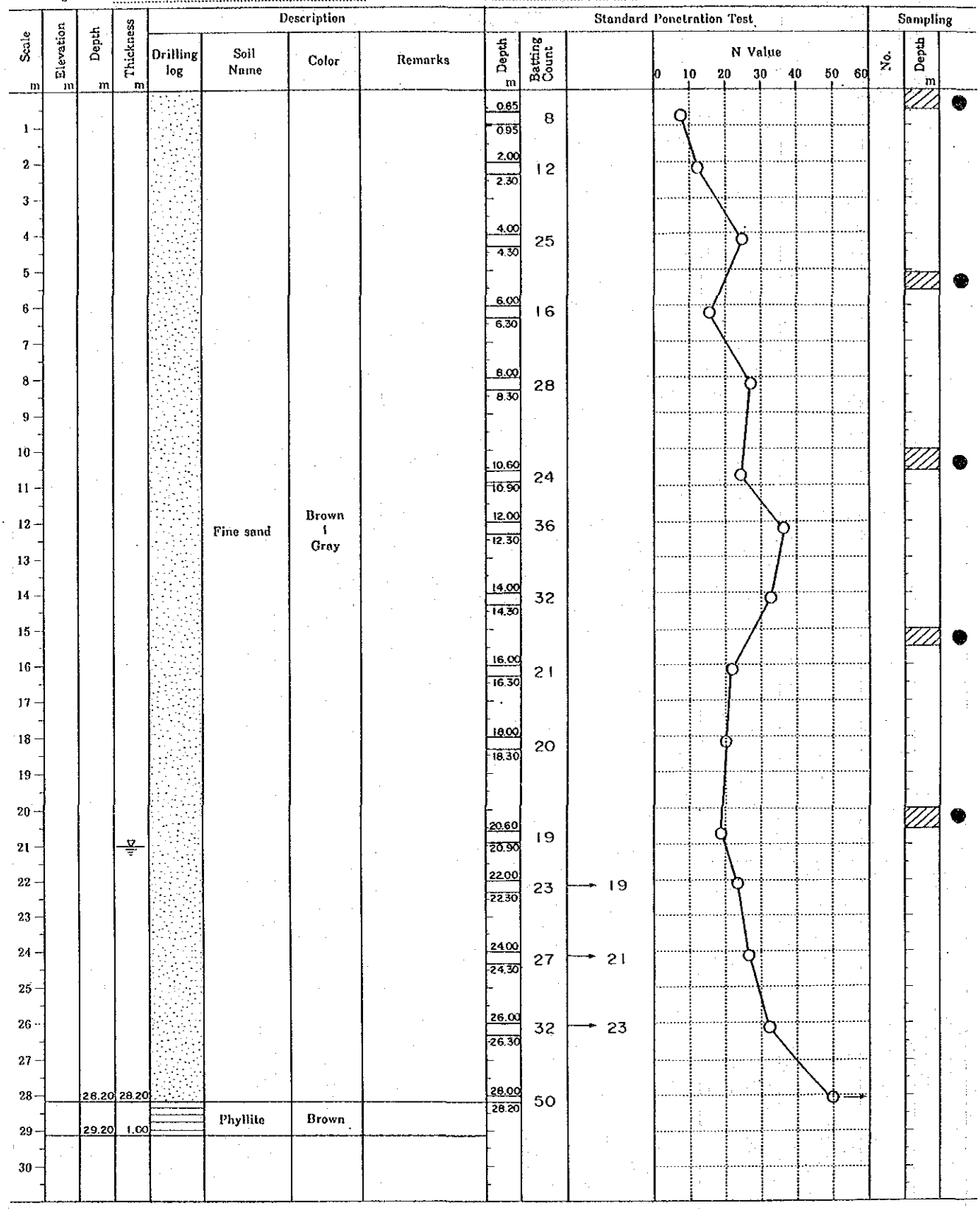


Fig. 3-2-5 Boring Log (7)

Soil Columnar Section

Survey Area: El Bote Tailing Dam Elevation: 2,362.86 m Date:

Drilling No.: BD-2 Water Level: 14.4 m

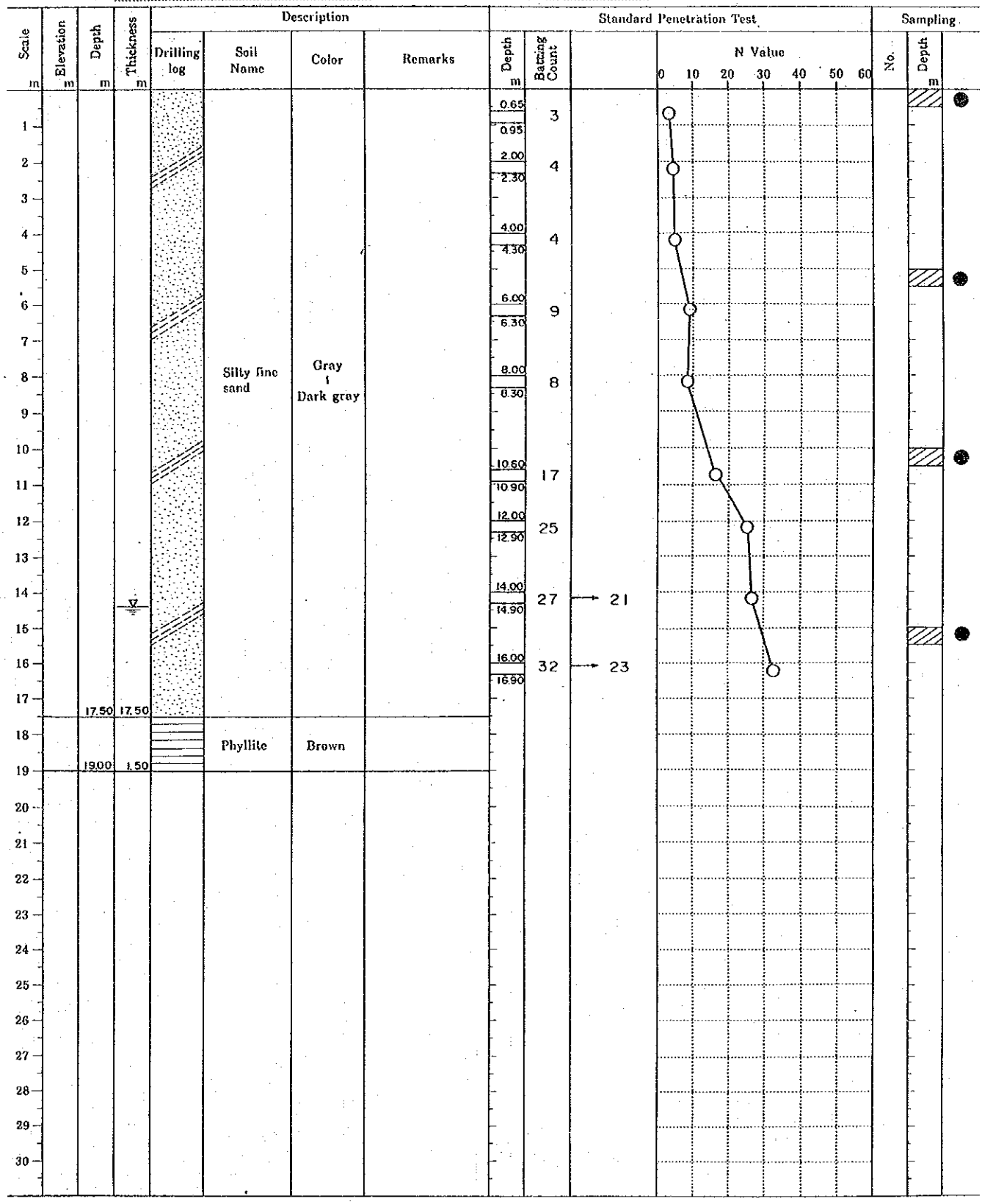


Fig. 3-2-5 Boring Log (8)

Soil Columnar Section

Survey Area: El Bote Tailing Dam Elevation: 2,366.99 m Date:

Drilling No.: BD-3 Water Level: なし m

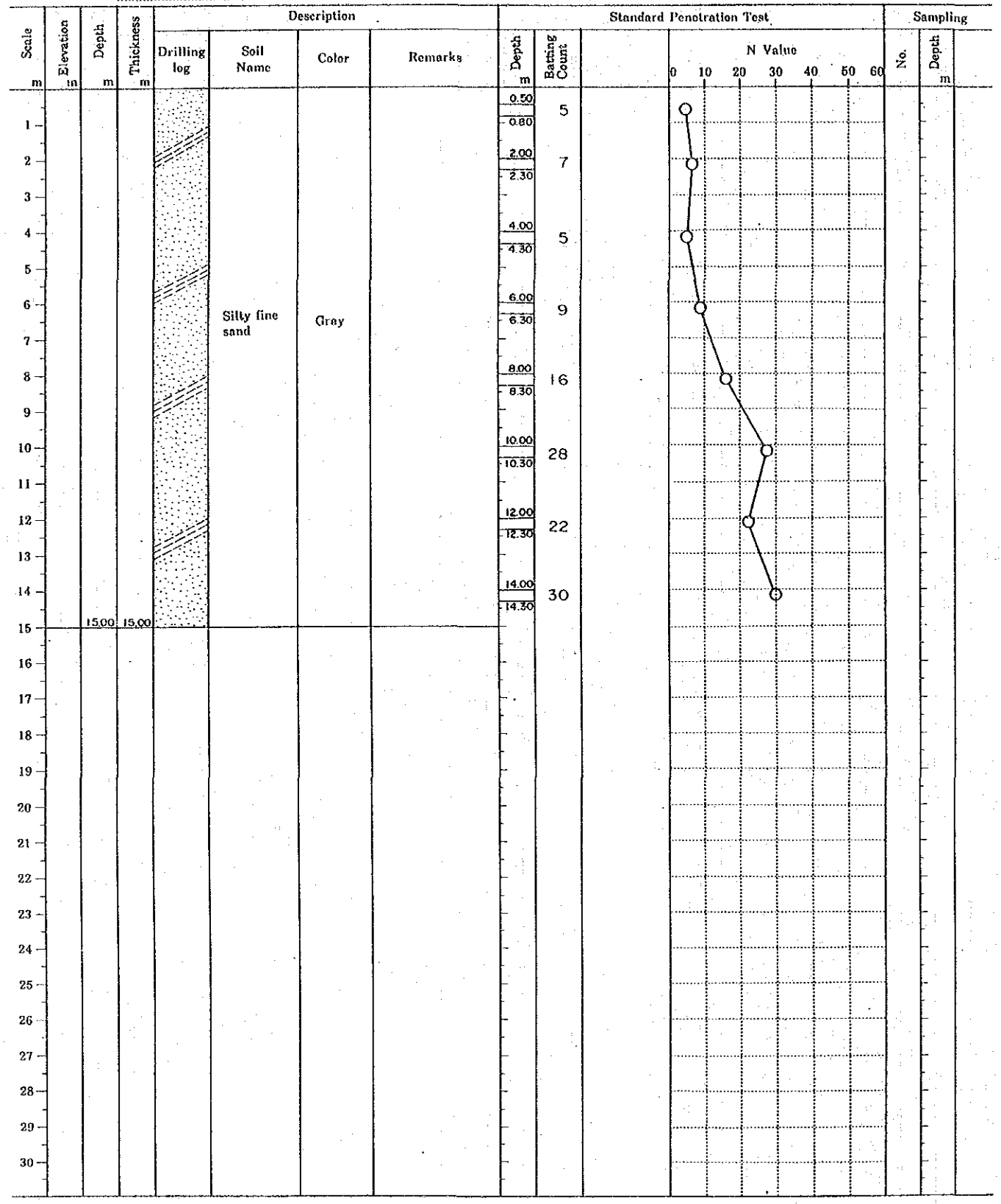


Fig. 3-2-5 Boring Log (9)

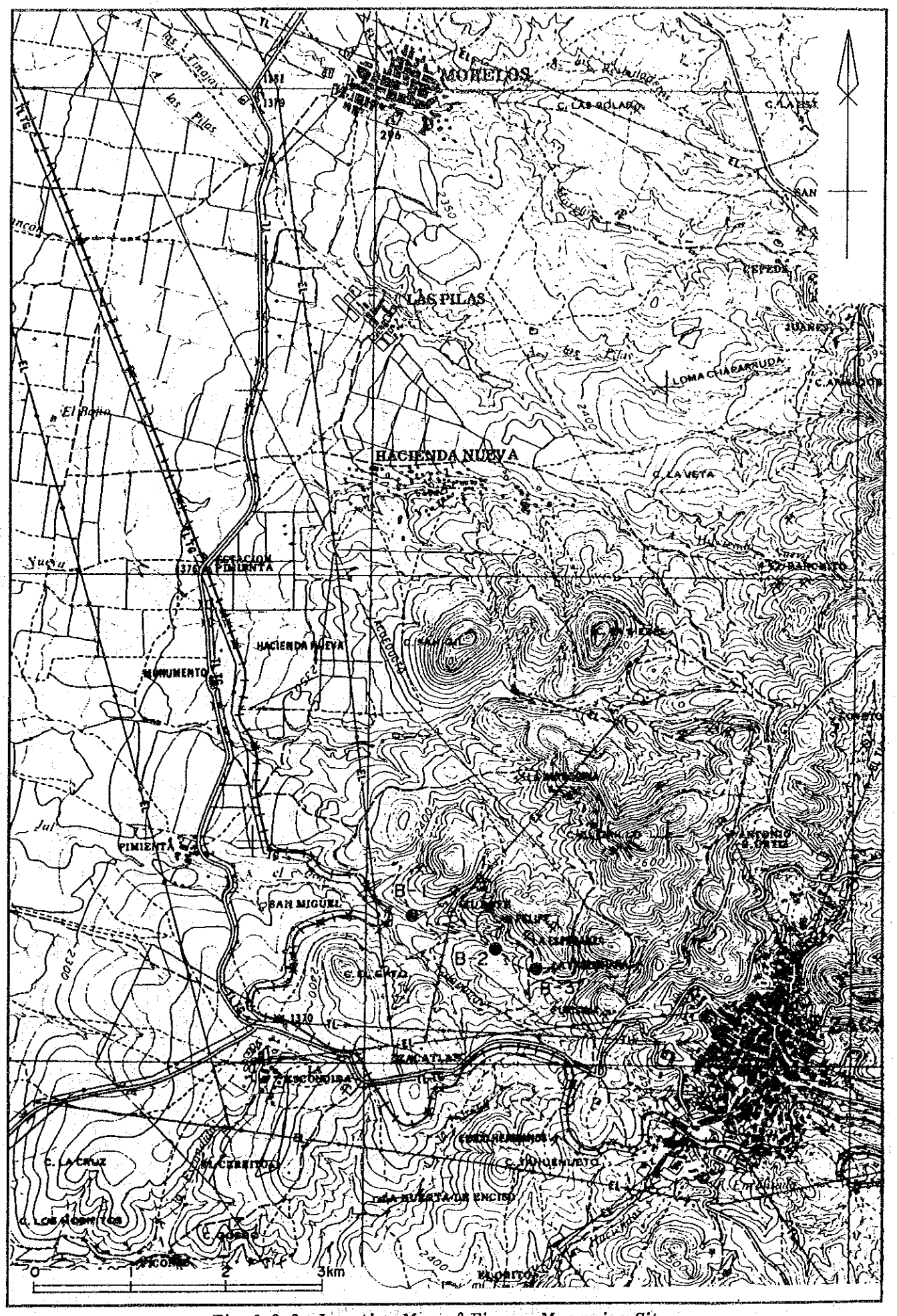


Fig. 3-2-6 Location Map of Fissure Measuring Site

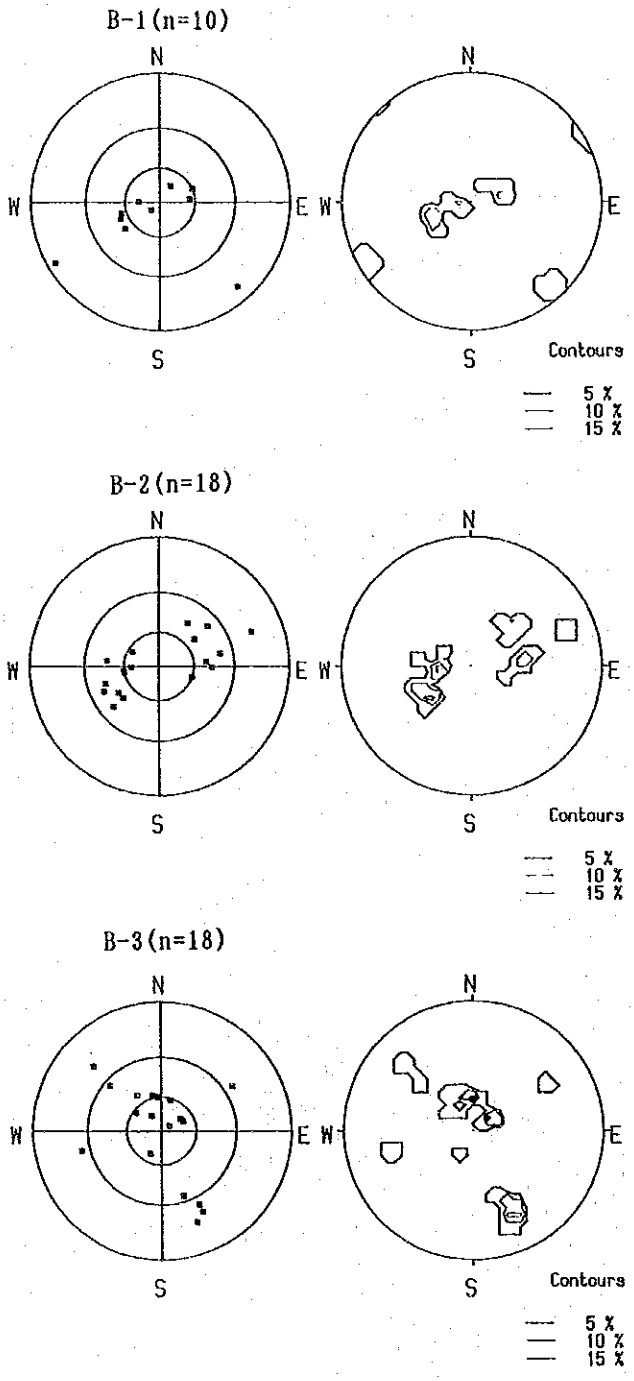


Fig. 3-2-7 Wulff's Net of Fissure Direction

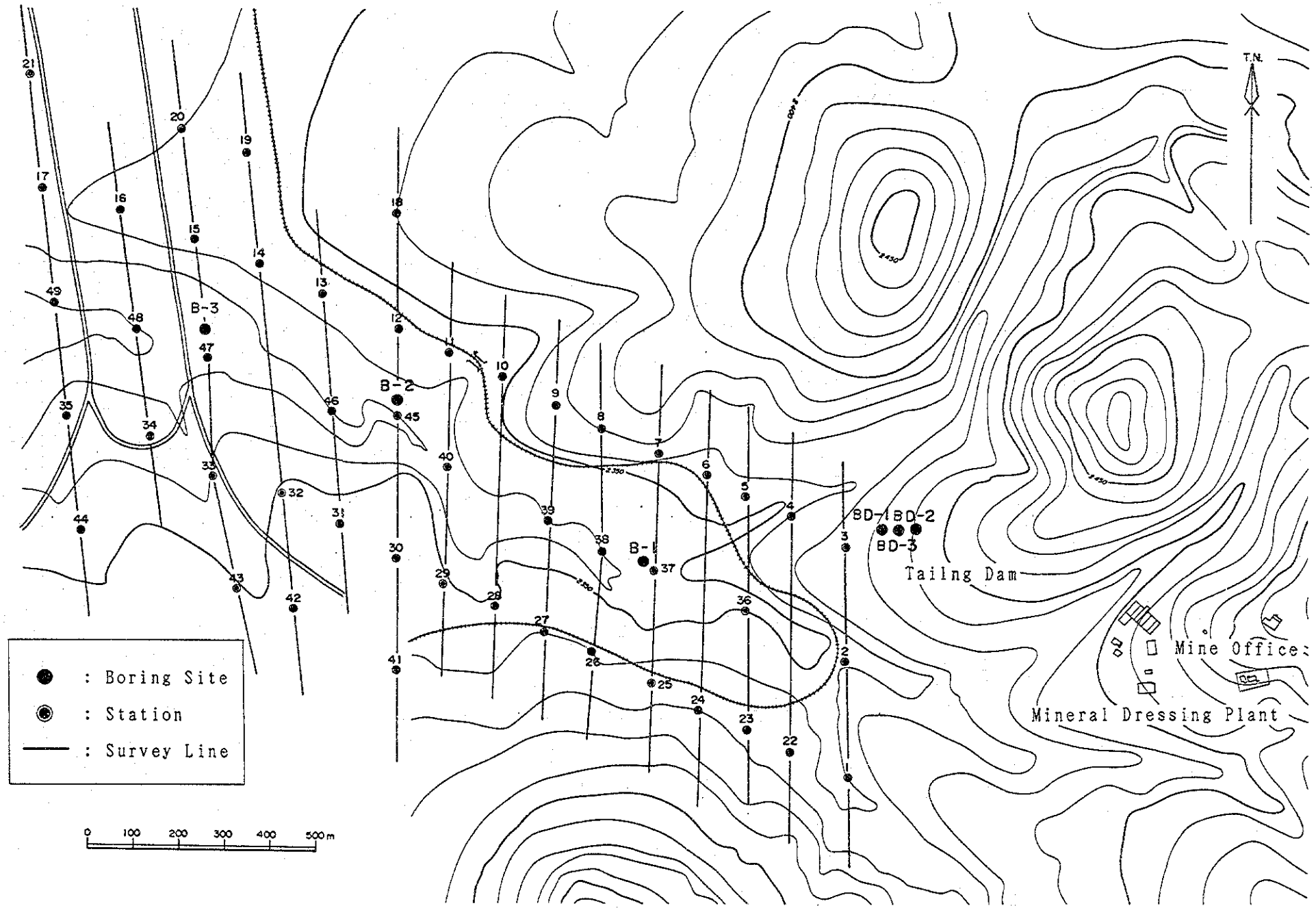


Fig. 3-3-1 Location Map of Electrical Prospecting Station (El Bote)

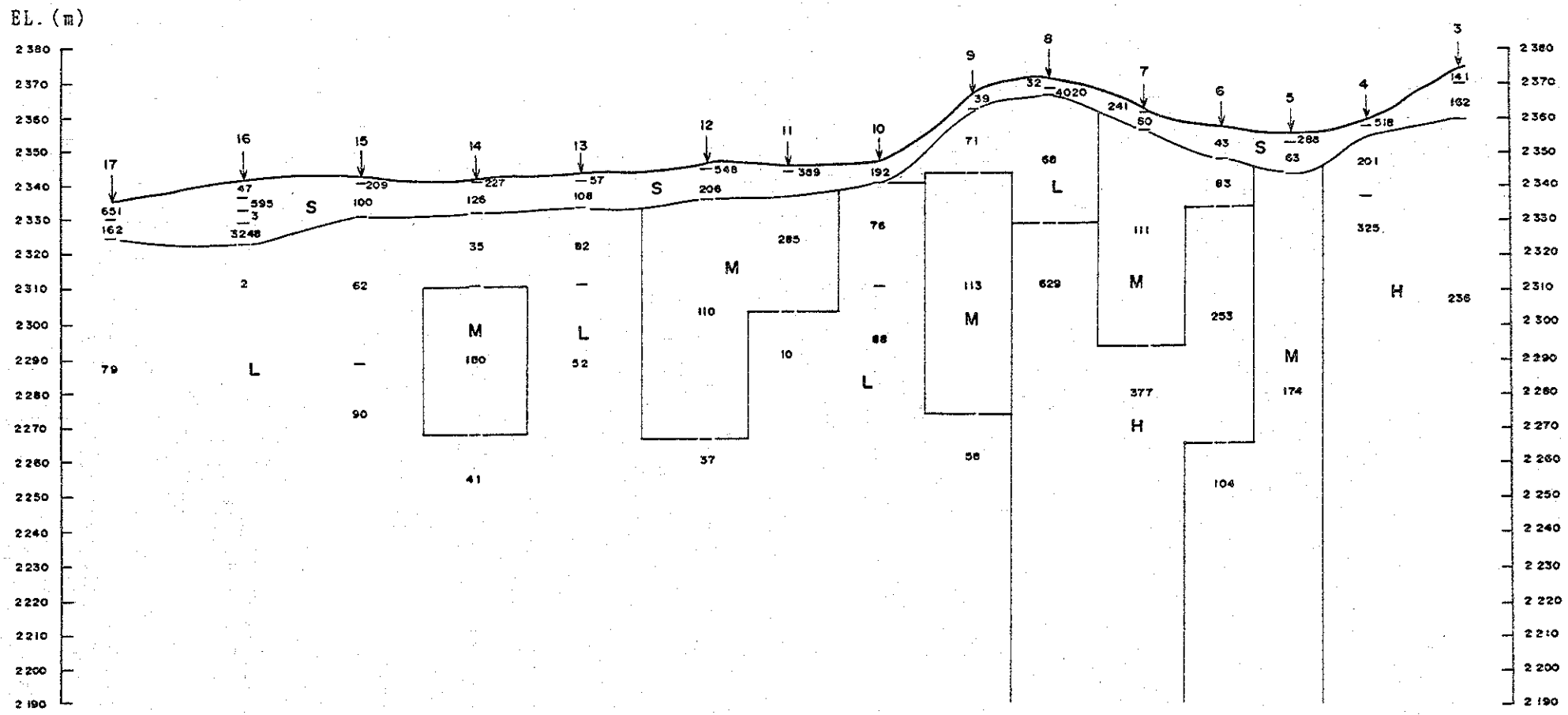


Fig. 3-3-2 Resistivity Cross Section (1) El Bote (1)

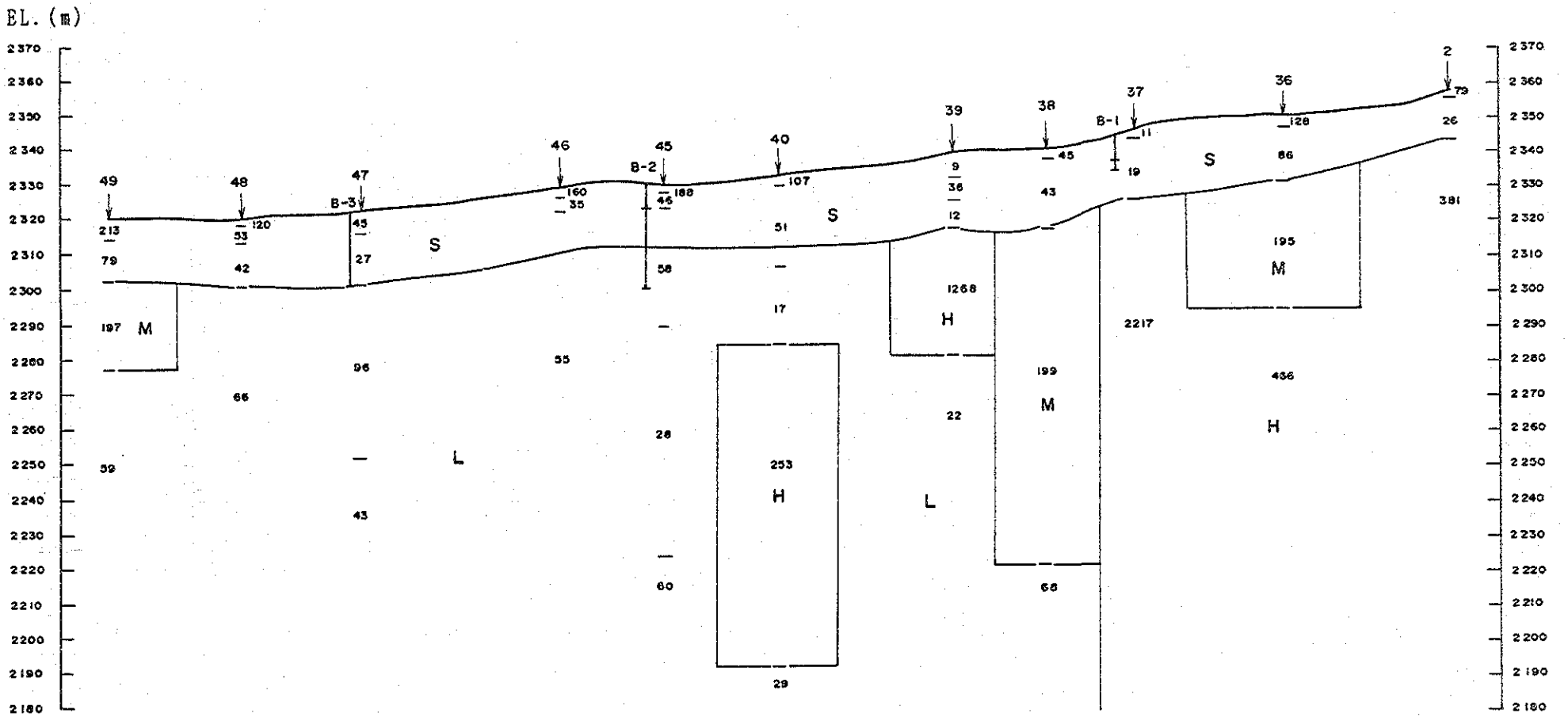


Fig. 3-3-2 Resistivity Cross Section (2) El Bote (2)

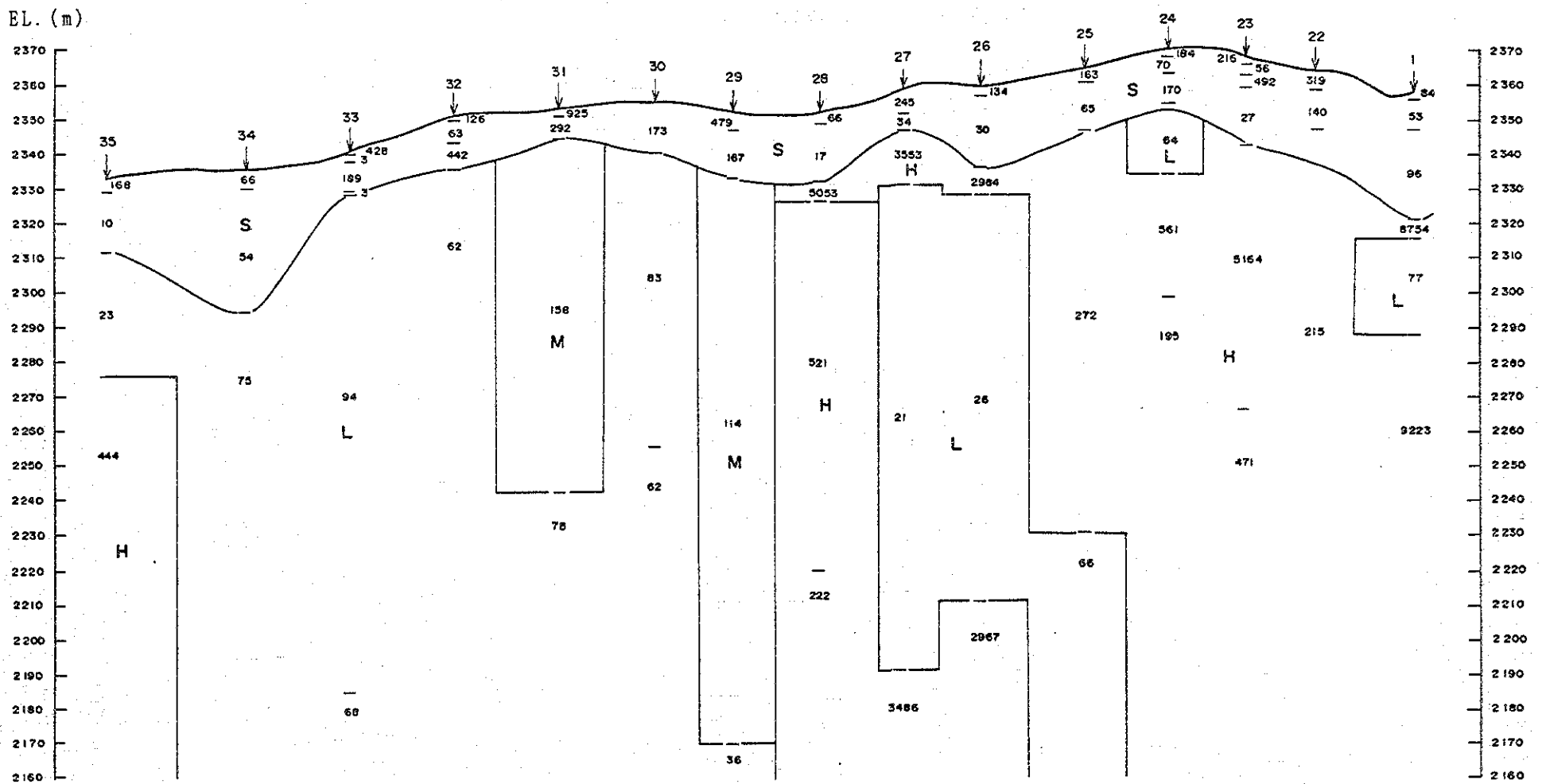


Fig. 3-3-2 Resistivity Cross Section (3) El Bote (3)

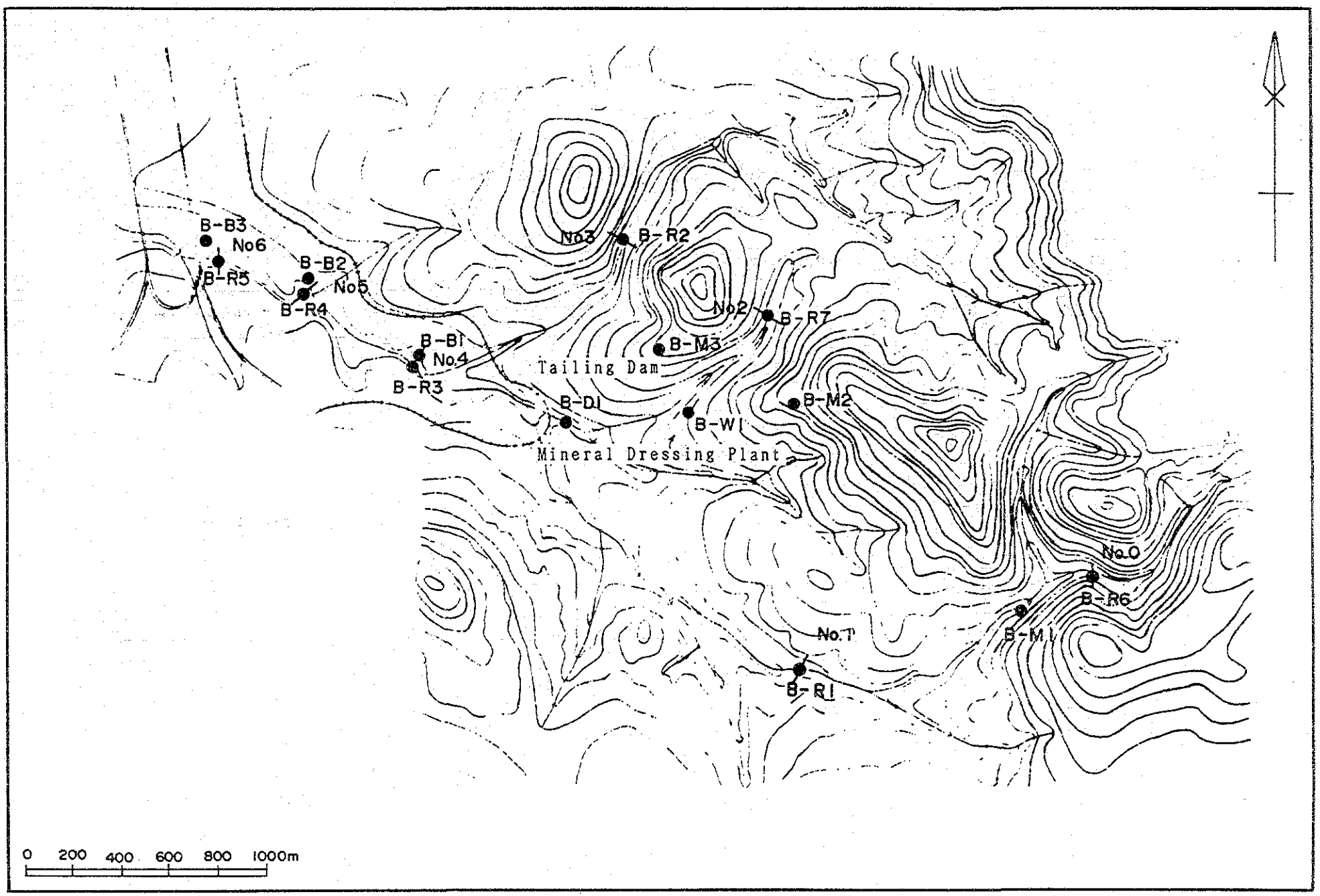


Fig. 3-4-1 Location Map of Flow Rate Measurement and Chemical Analysis of Water

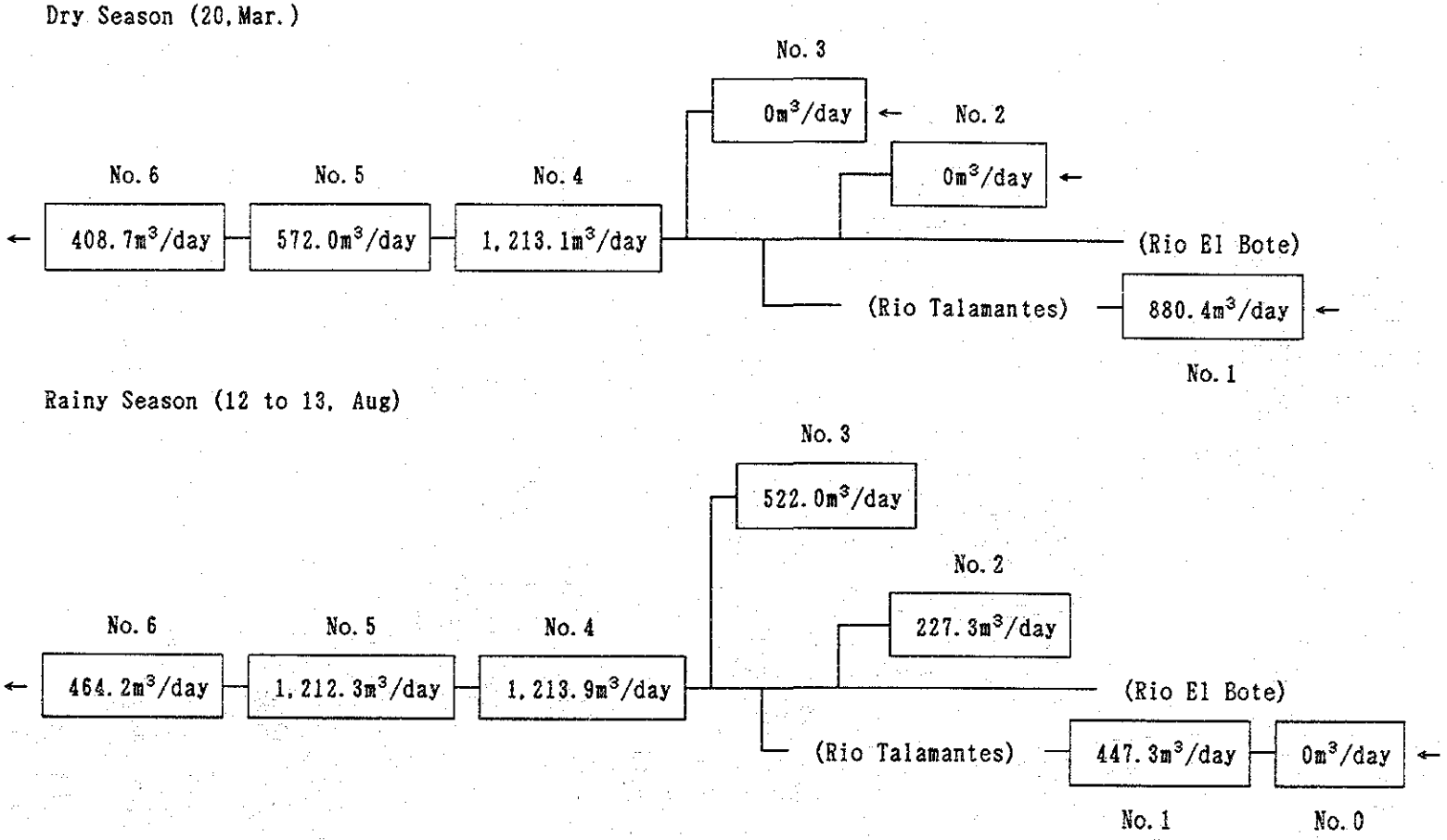


Fig. 3-4-2 Surface Water Balance (El Bote)

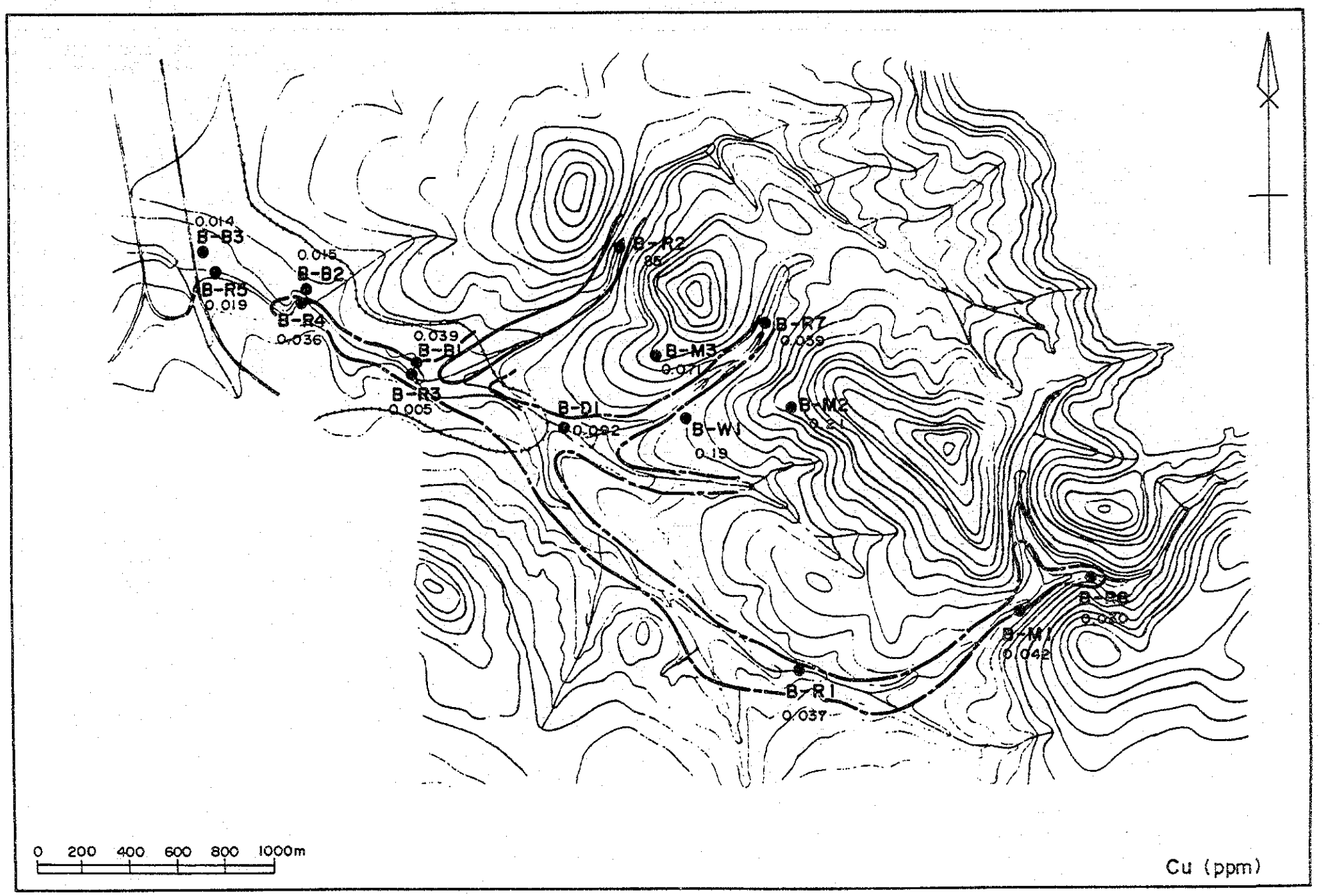


Fig. 3-4-3 Analysis Map of Chemical Data of Water (1)

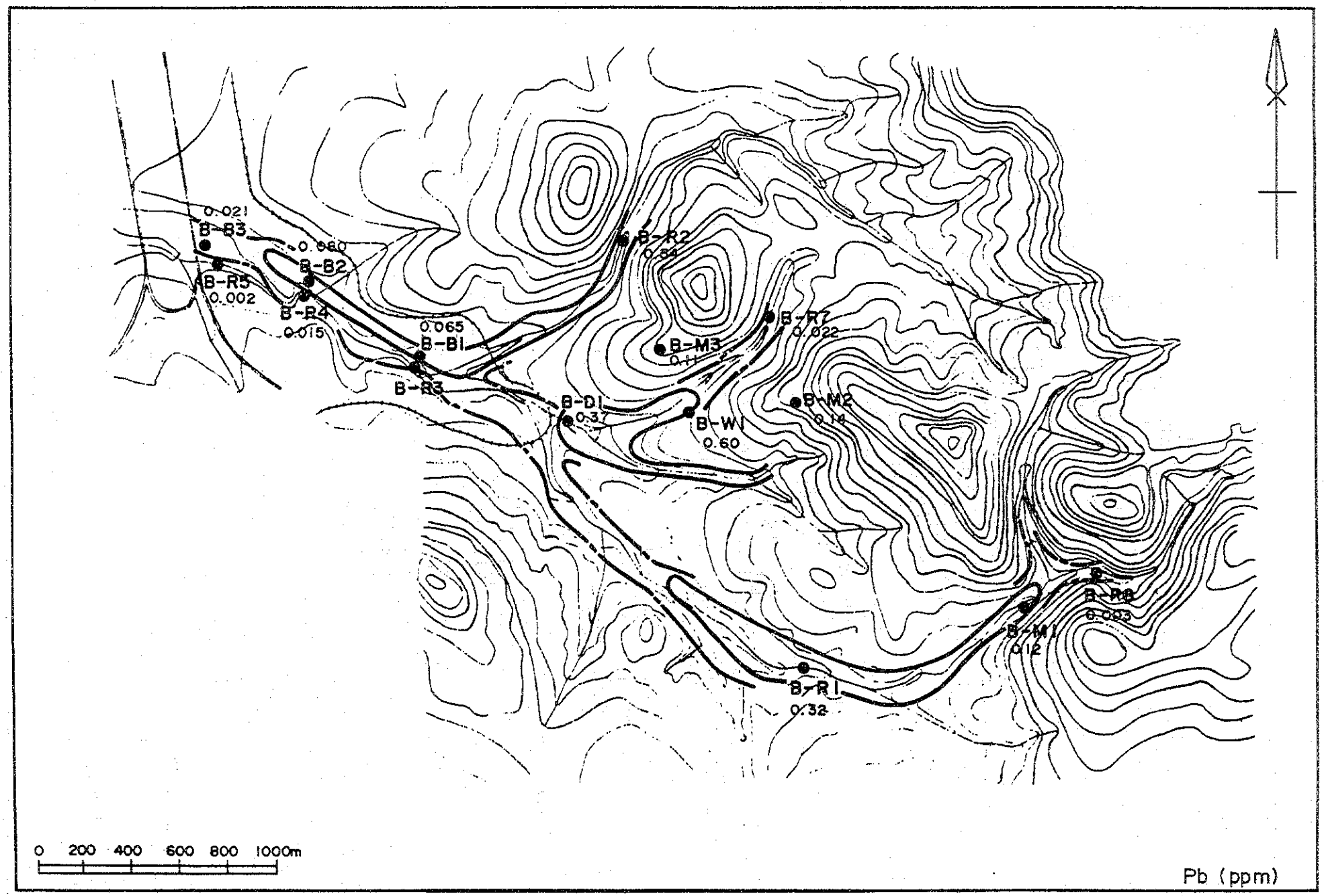


Fig. 3-4-3 Analysis Map of Chemical Data of Water (2)

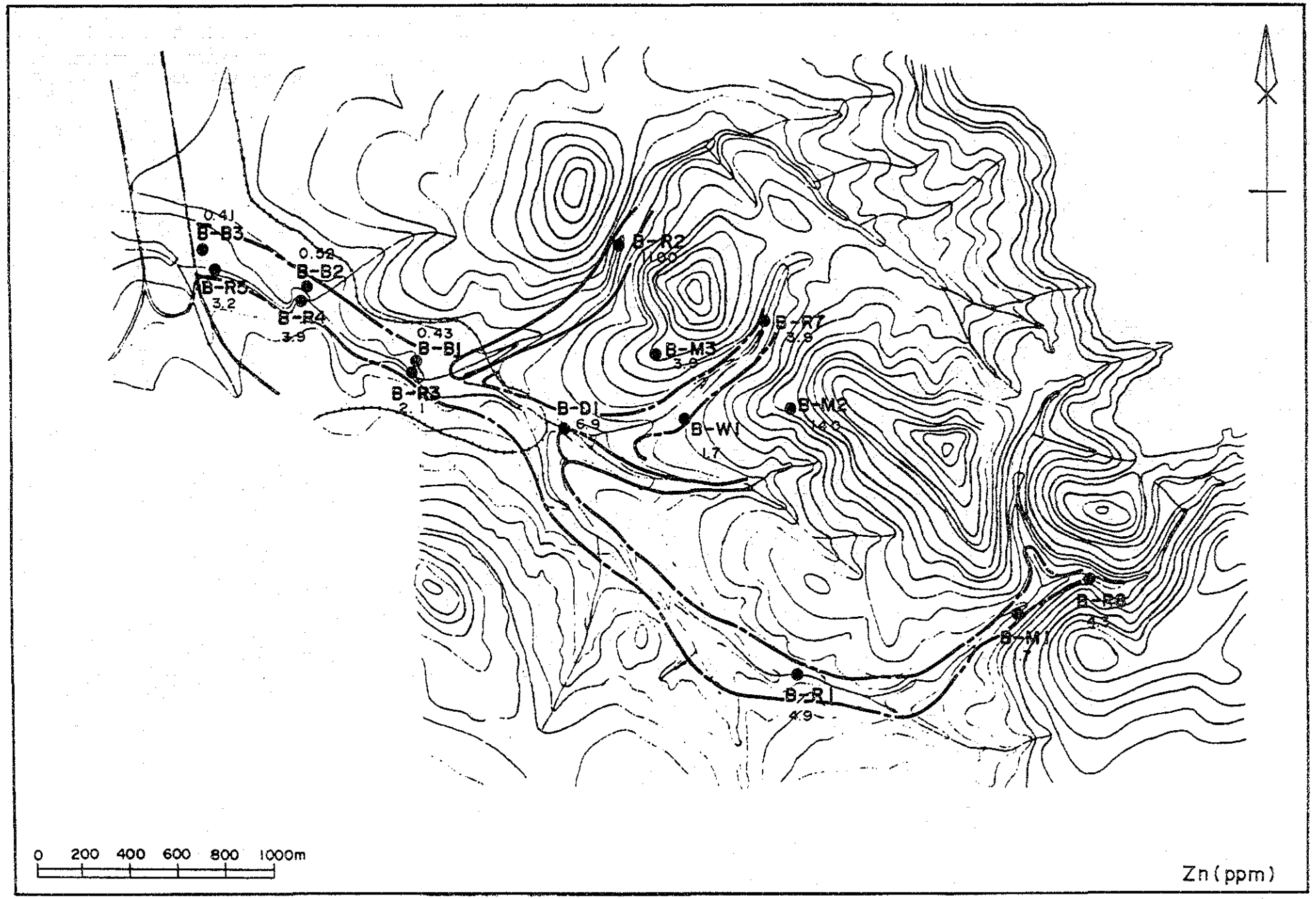


Fig. 3-4-3 Analysis Map of Chemical Data of Water (3)

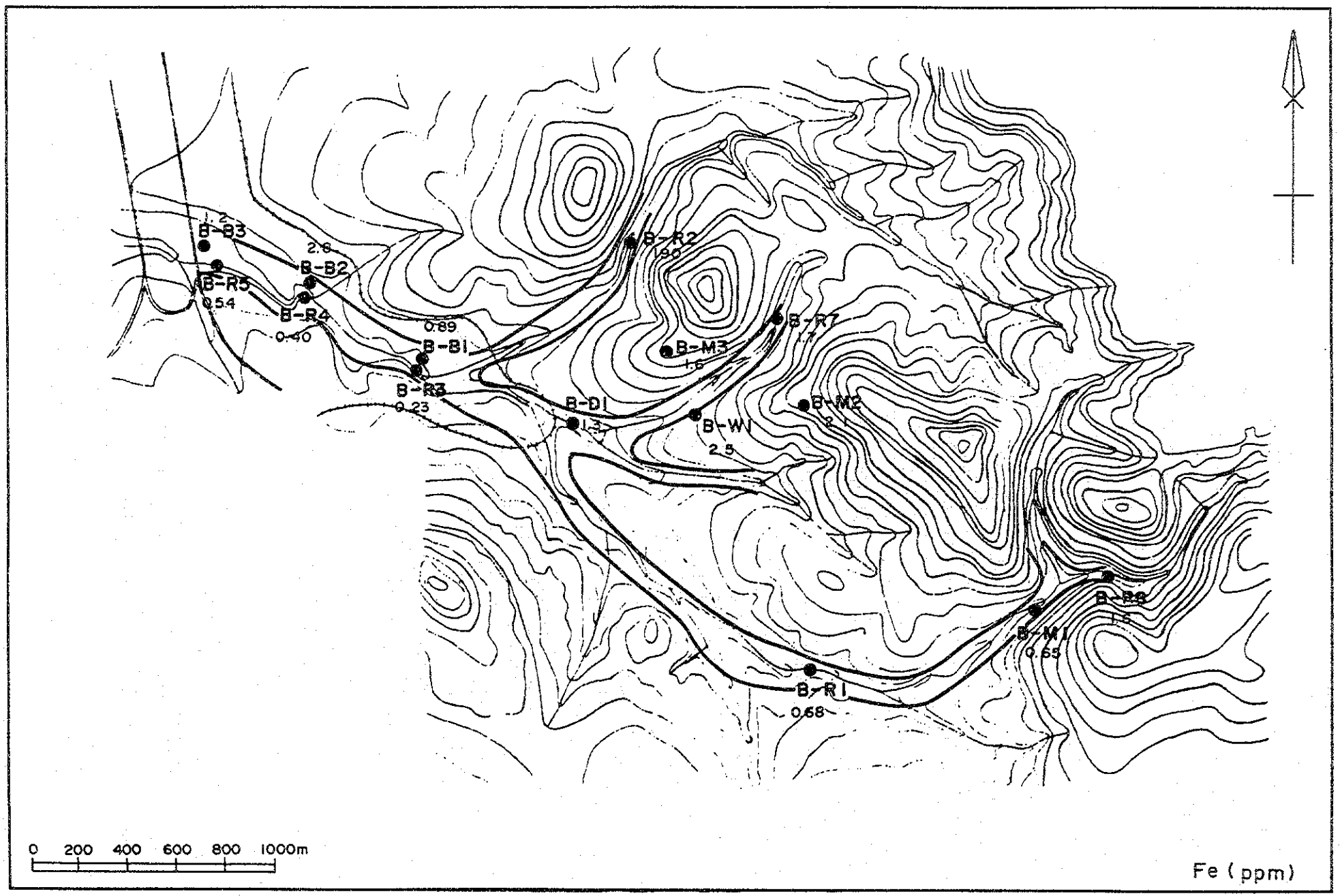


Fig. 3-4-3 Analysis Map of Chemical Data of Water (4)

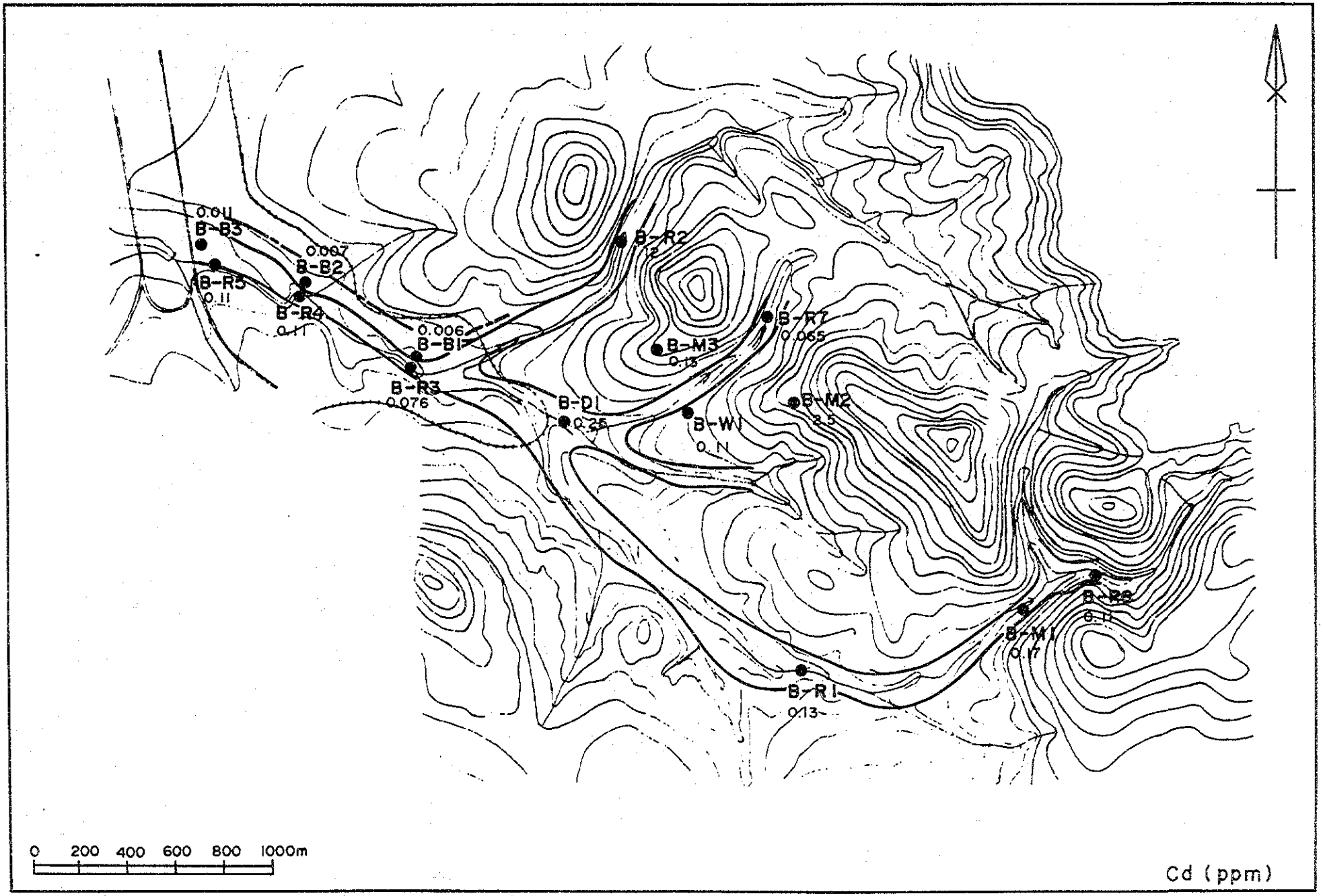


Fig. 3-4-3 Analysis Map of Chemical Data of Water (5)

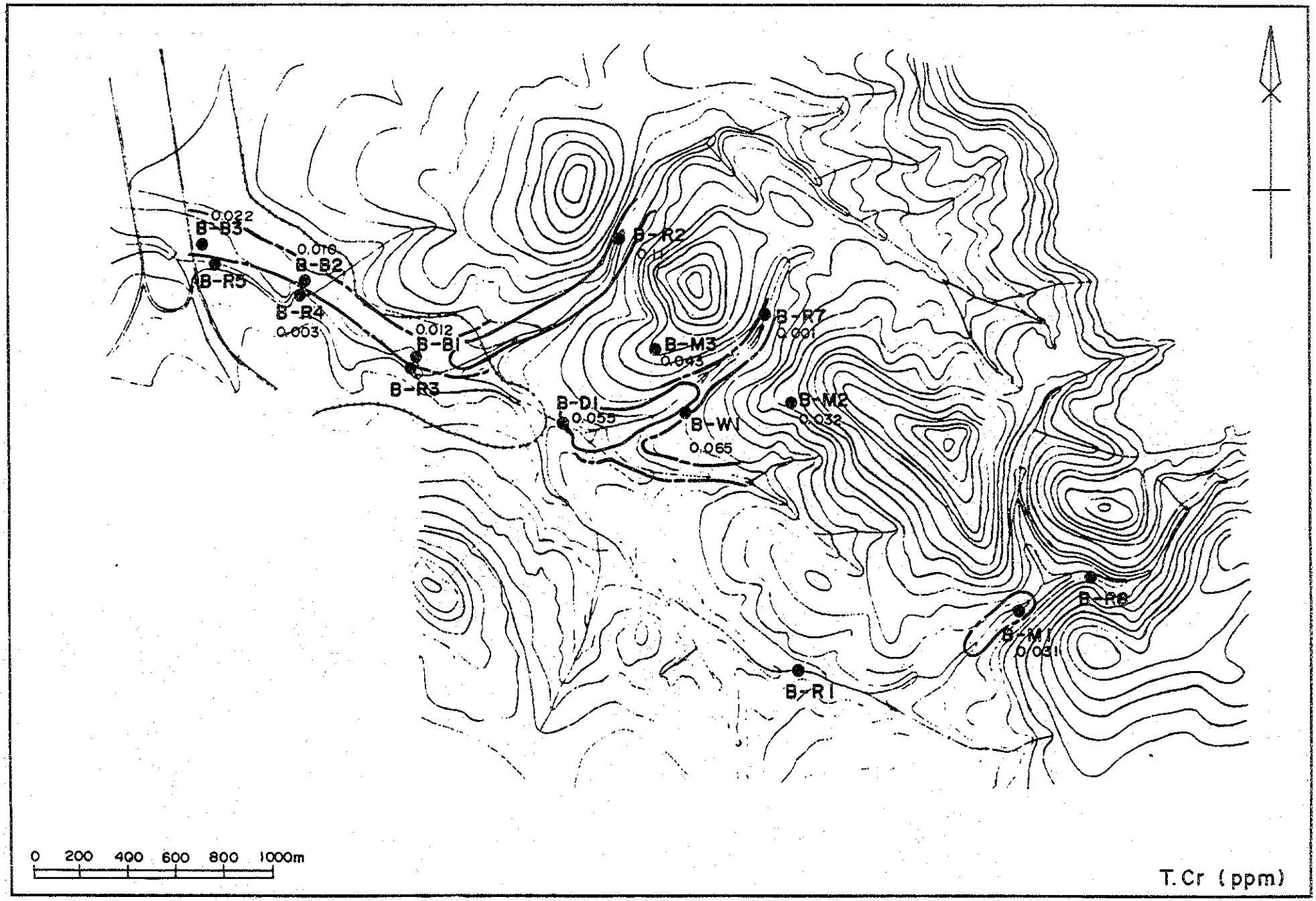


Fig. 3-4-3 Analysis Map of Chemical Data of Water (6)

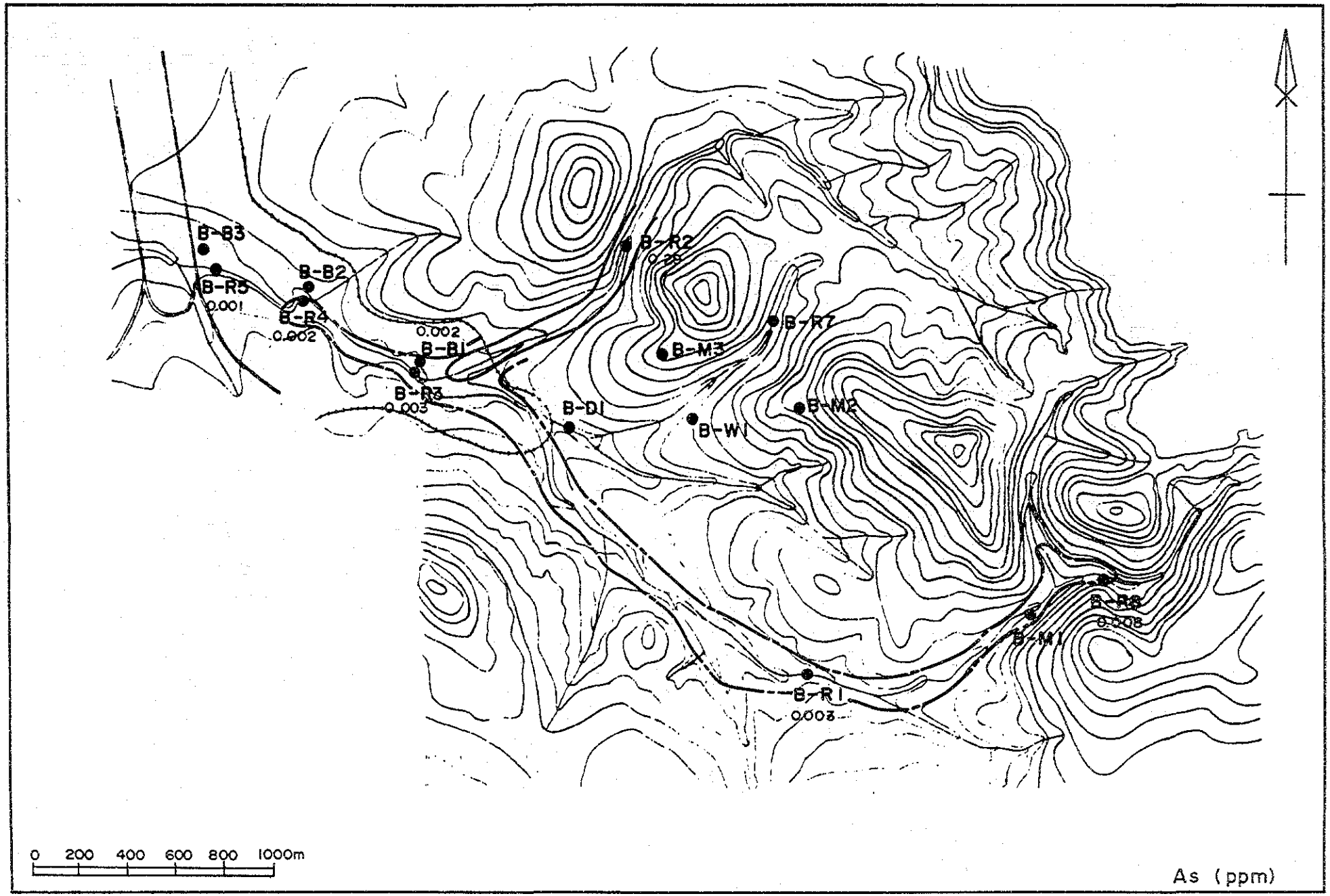


Fig. 3-4-3 Analysis Map of Chemical Data of Water (7)

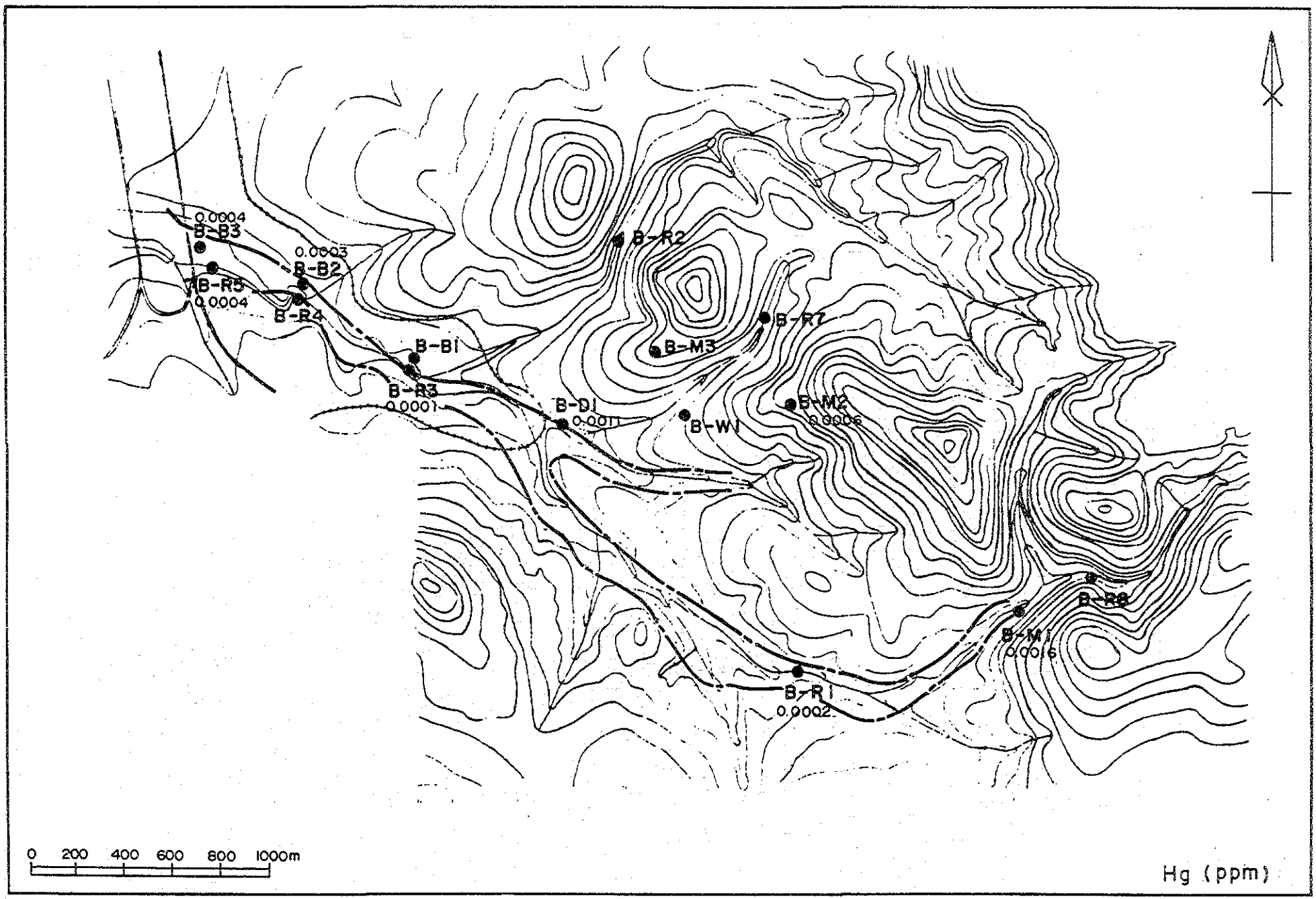
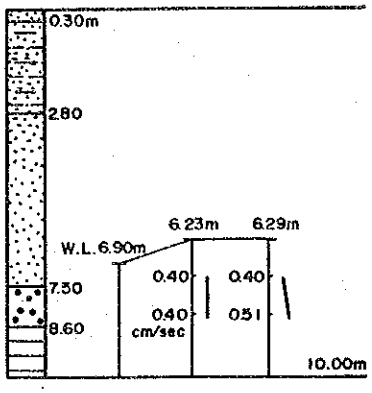


Fig. 3-4-3 Analysis Map of Chemical Data of Water (8)

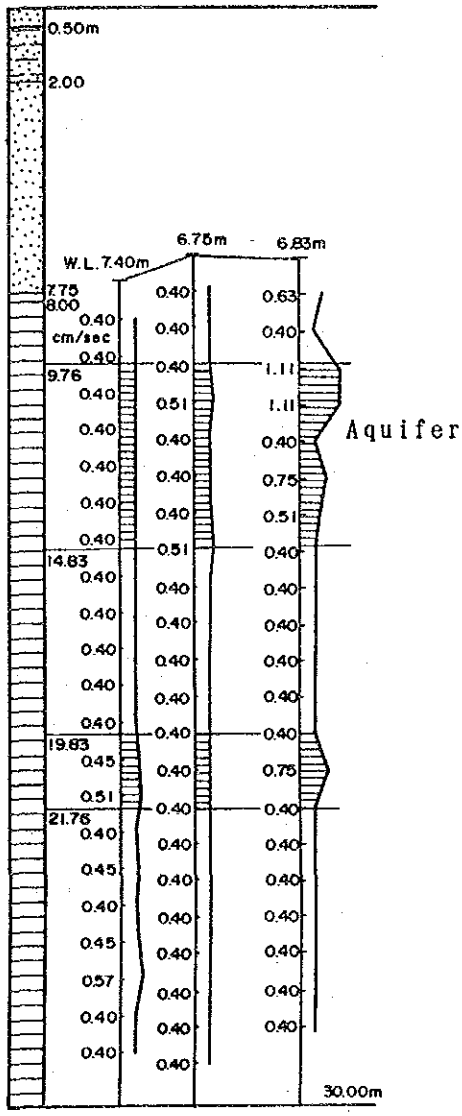
El Bote B-1(EL.2,338.50m)

Date 4/19 8/12 8/15



El Bote B-2(EL.2,329.84m)

Date 4/19 8/12 8/15



El Bote B-3(EL 2,320.41m)

Date 4/19 8/12 8/15

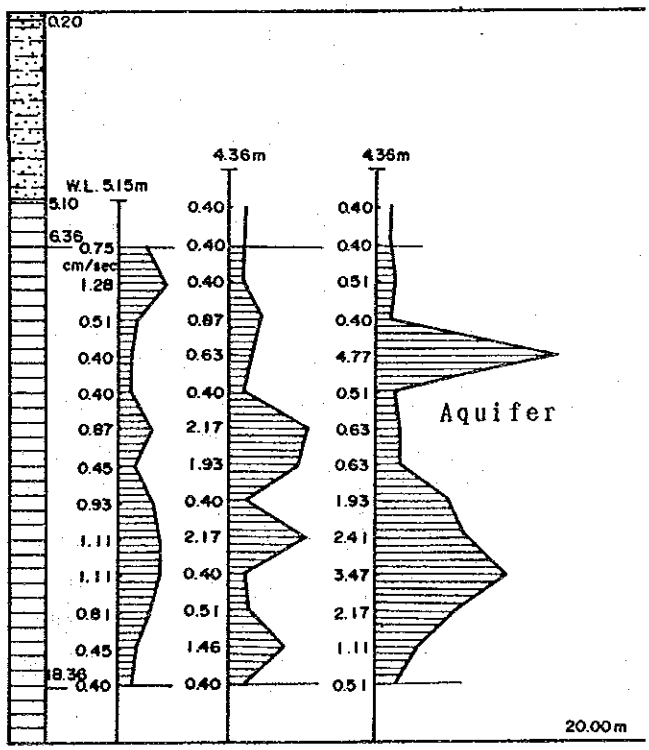


Fig. 3-4-4 Micro Flow Analysis

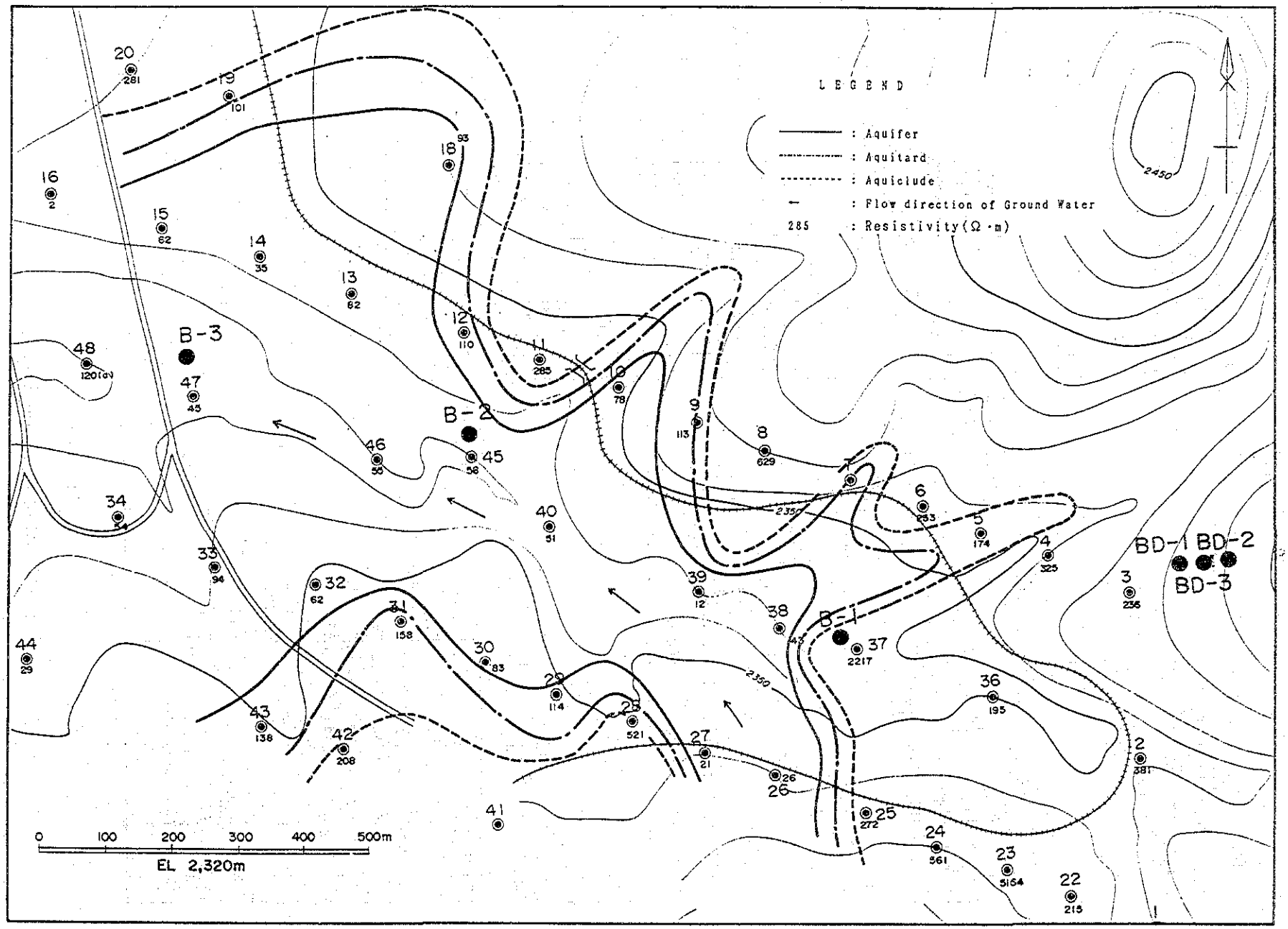


Fig. 3-4-5 Analysis Map of Groundwater Reservoir (El Bote) (1)

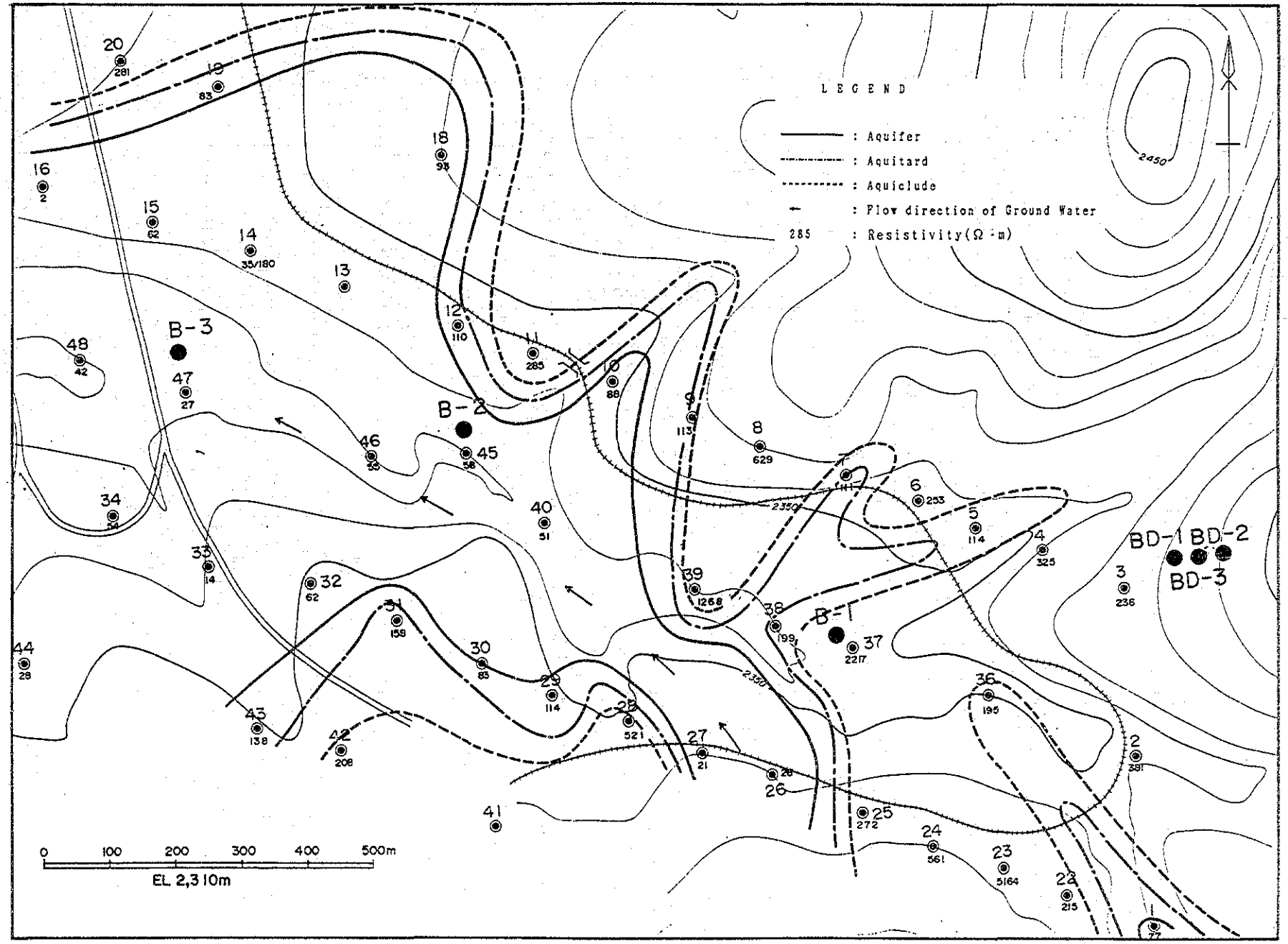
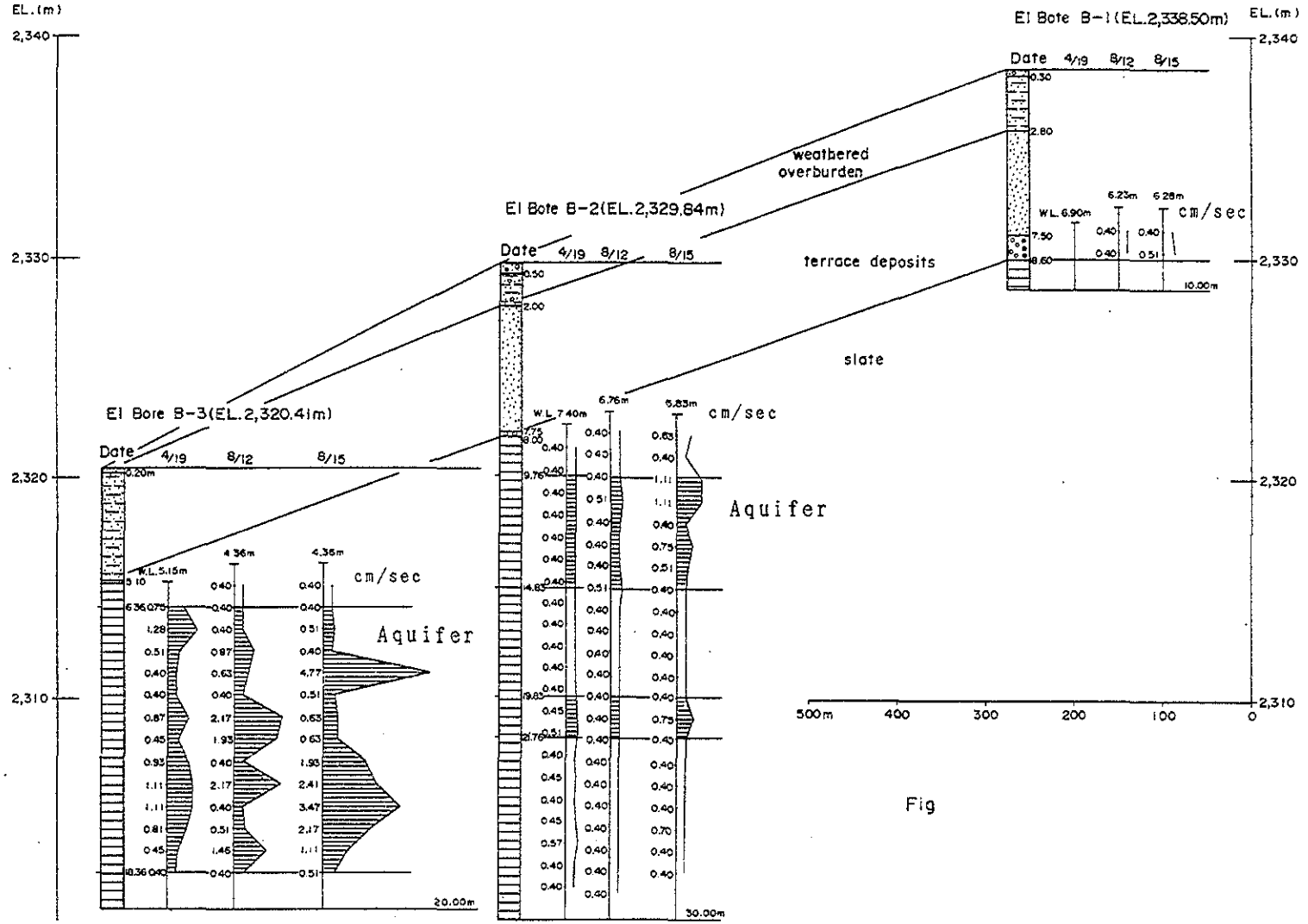


Fig. 3-4-5 Analysis Map of Groundwater Reservoir (El Bote) (2)



Fig

Fig. 3-4-6 Analysis Map of Groundwater Reservoir (Cross Section)

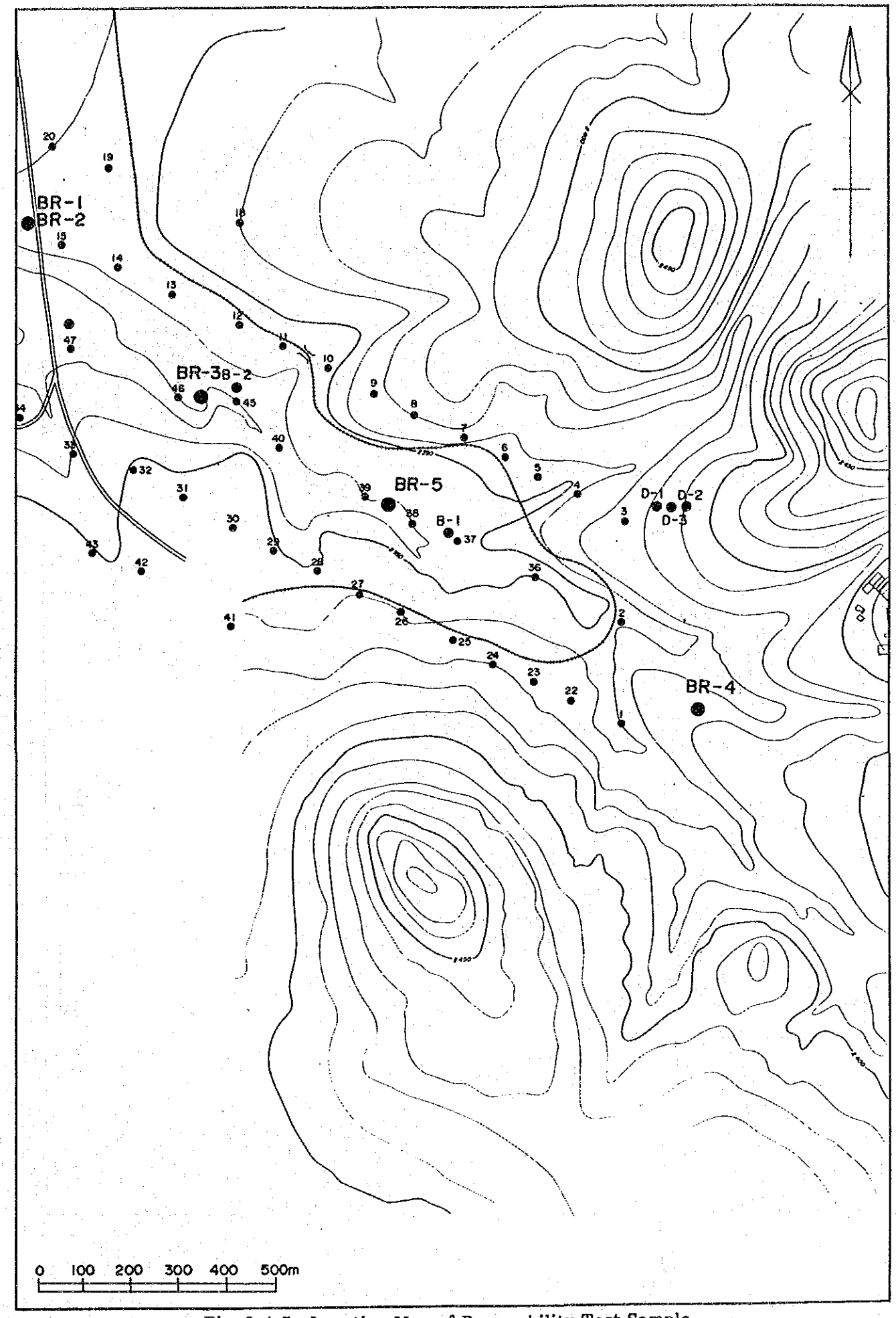


Fig. 3-4-7 Location Map of Permeability Test Sample

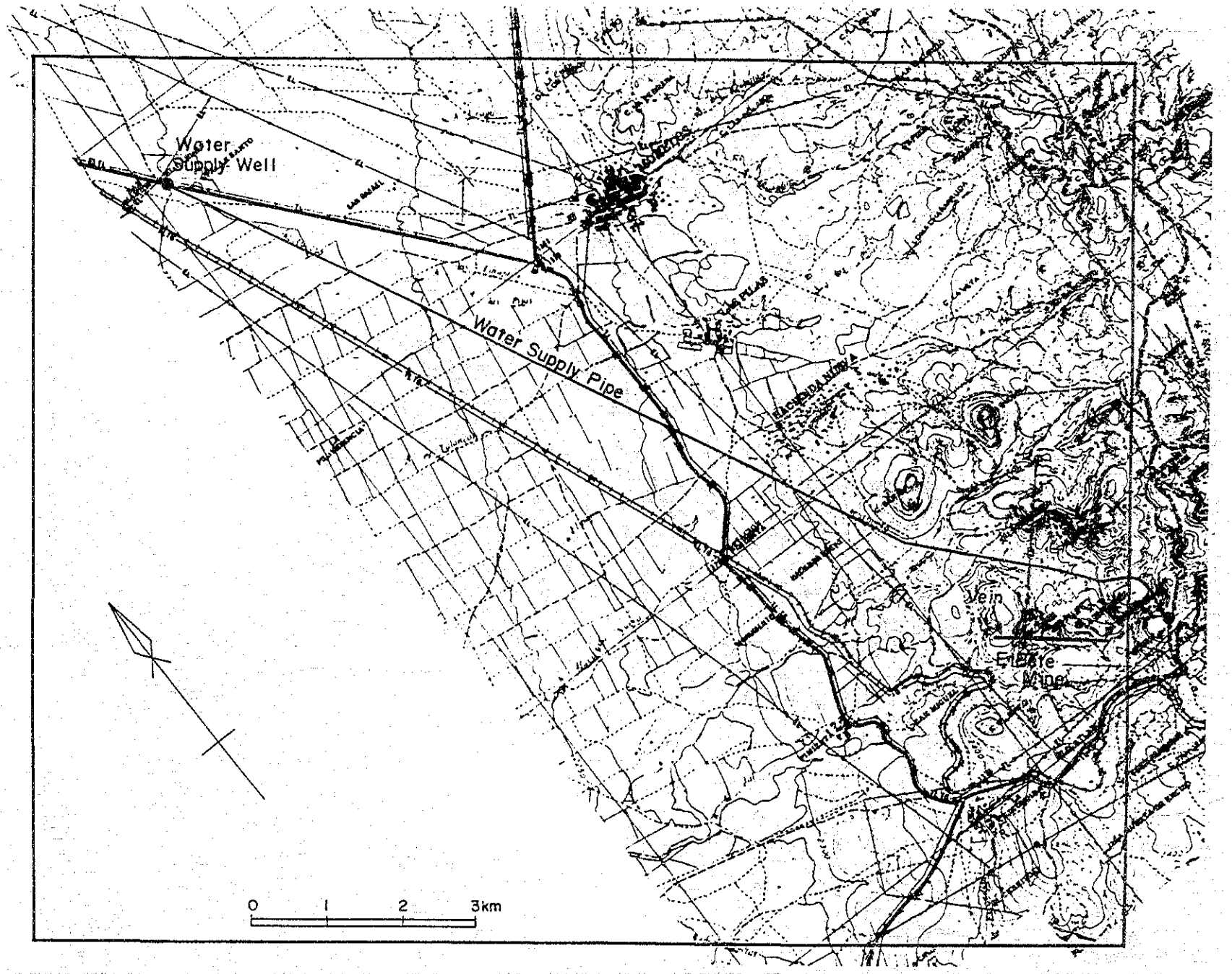


Fig. 3-4-8 Groundwater Simulation Area

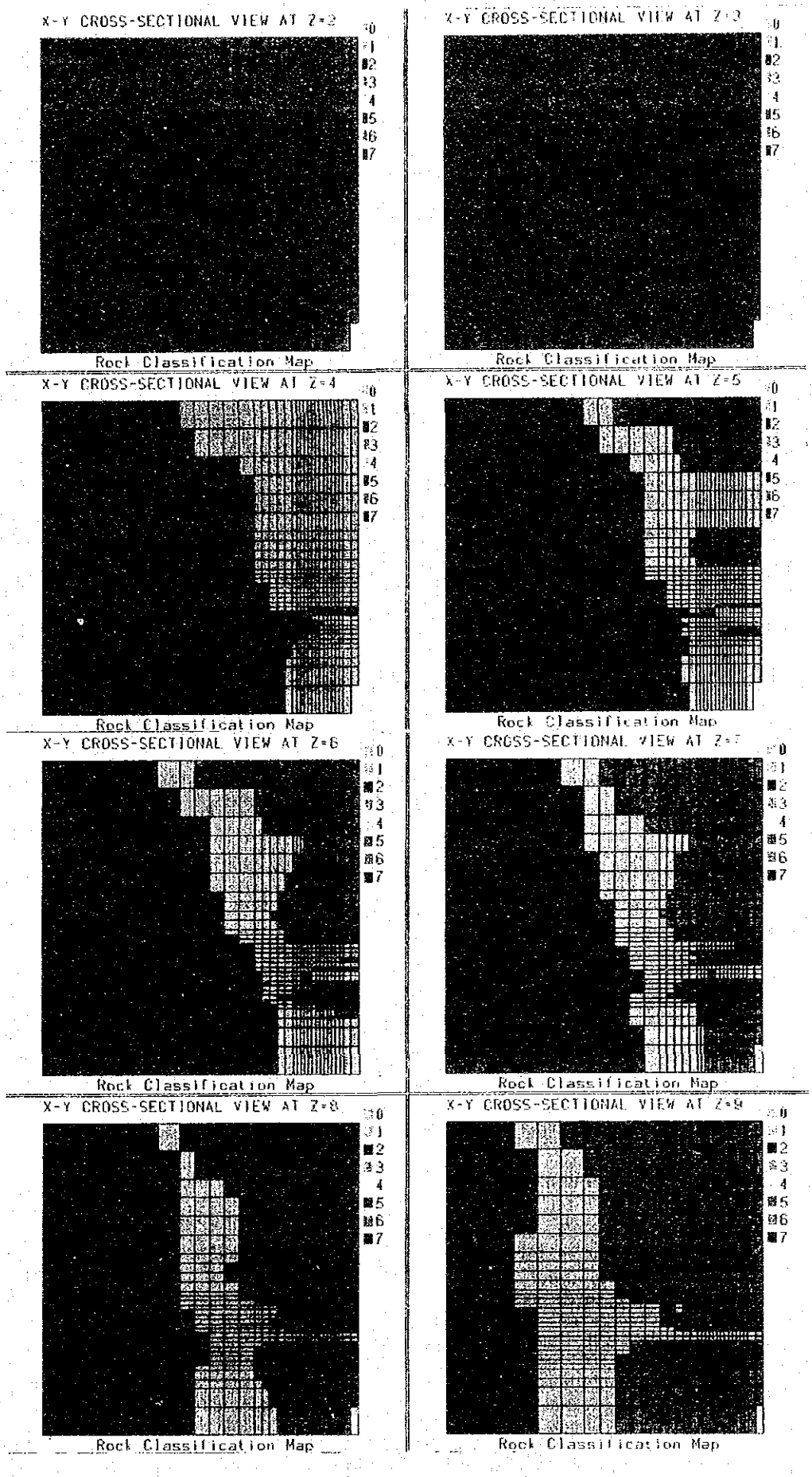


Fig. 3-4-9 Rock Classification Map (1)

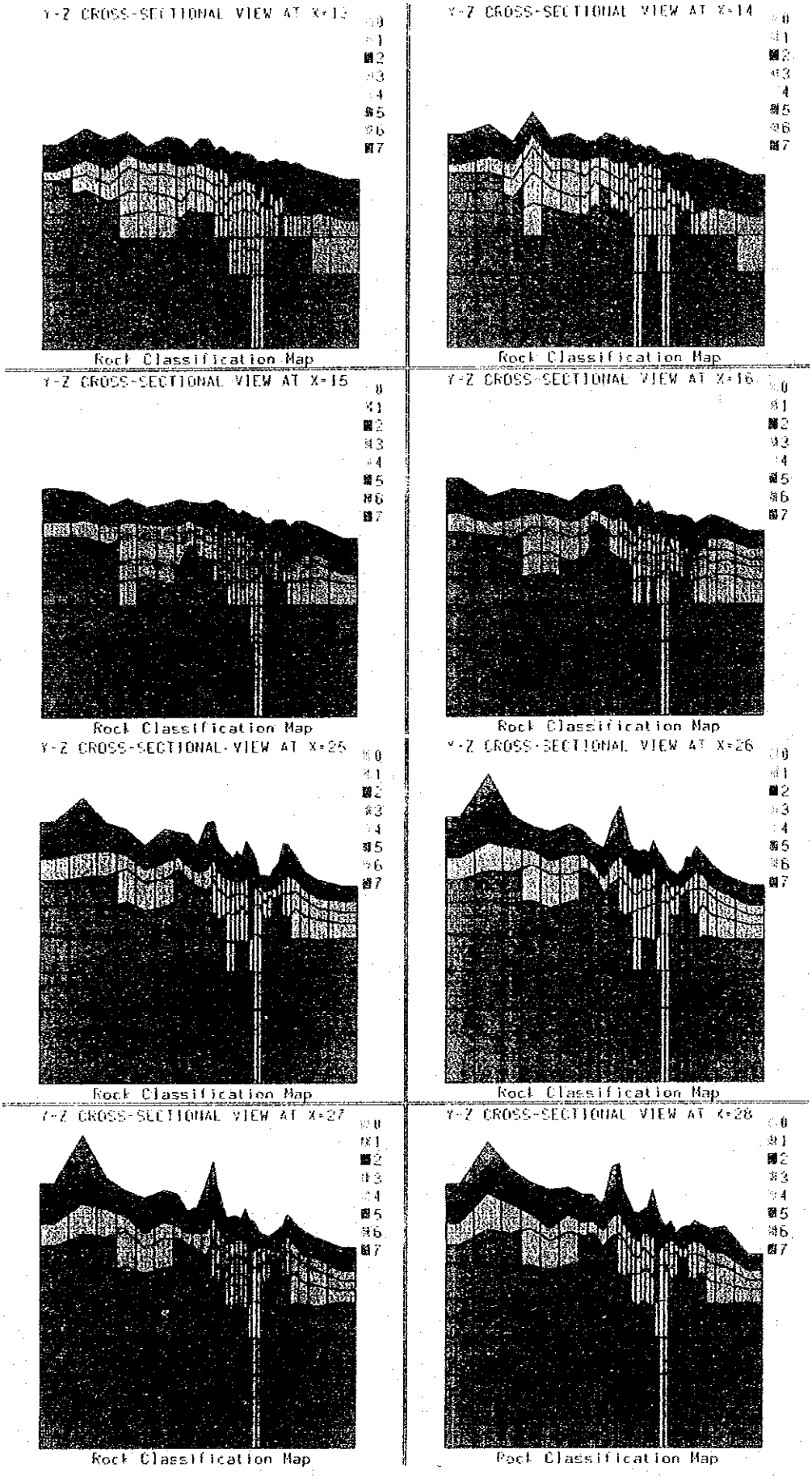


Fig. 3-4-9 Rock Classification Map (2)

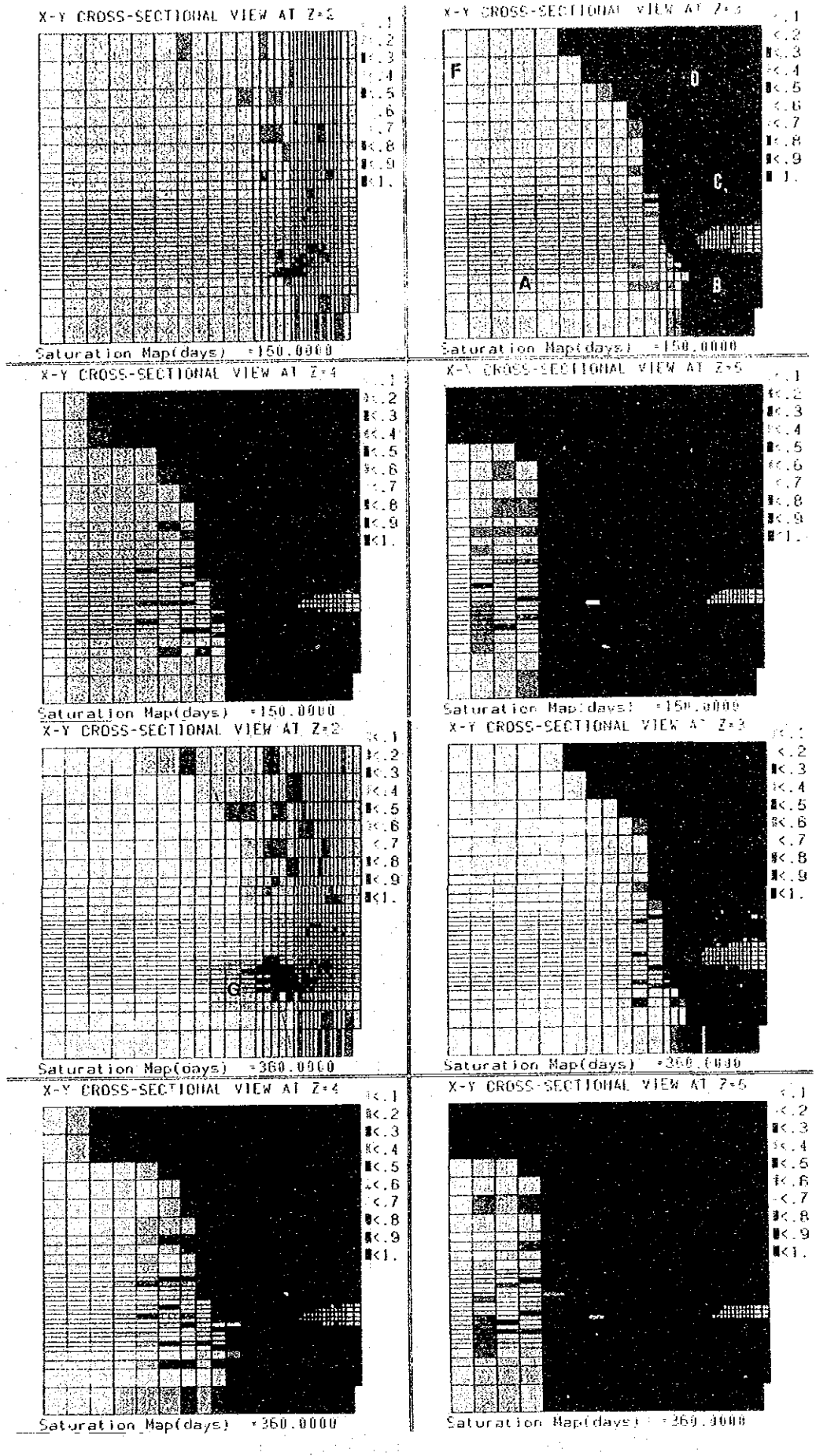
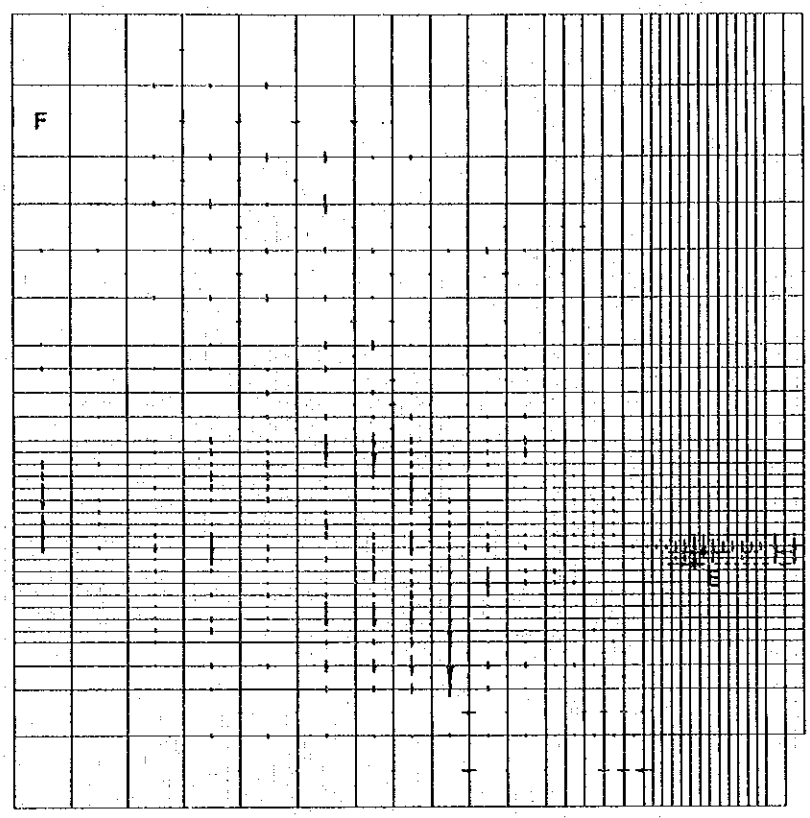


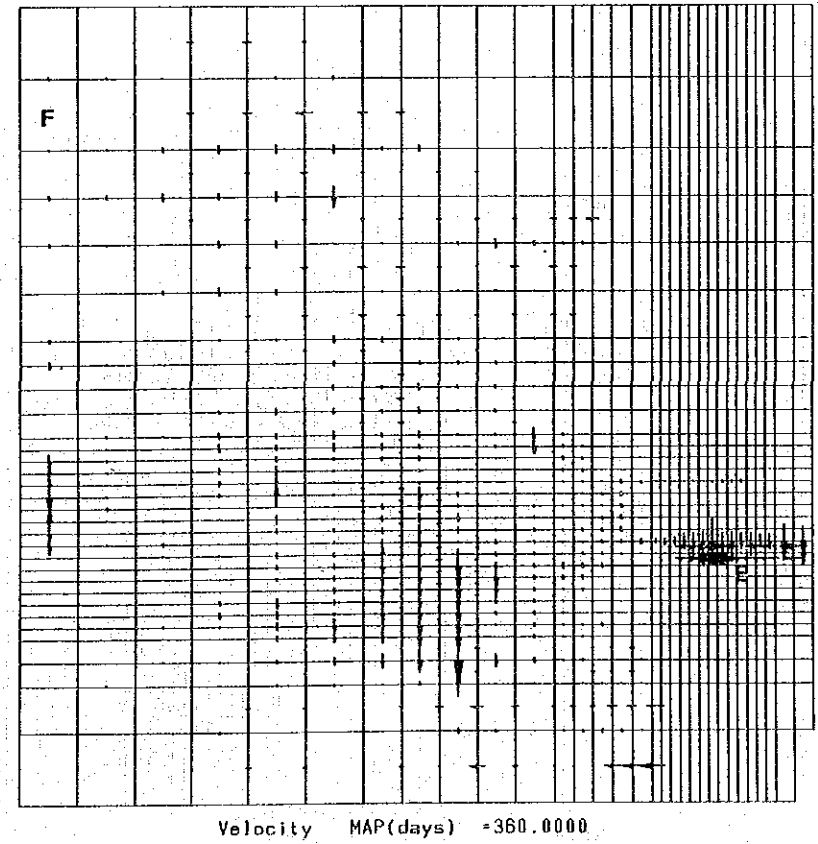
Fig. 3-4-10 Groundwater Saturation Map

X-Y CROSS-SECTIONAL VIEW AT Z=7



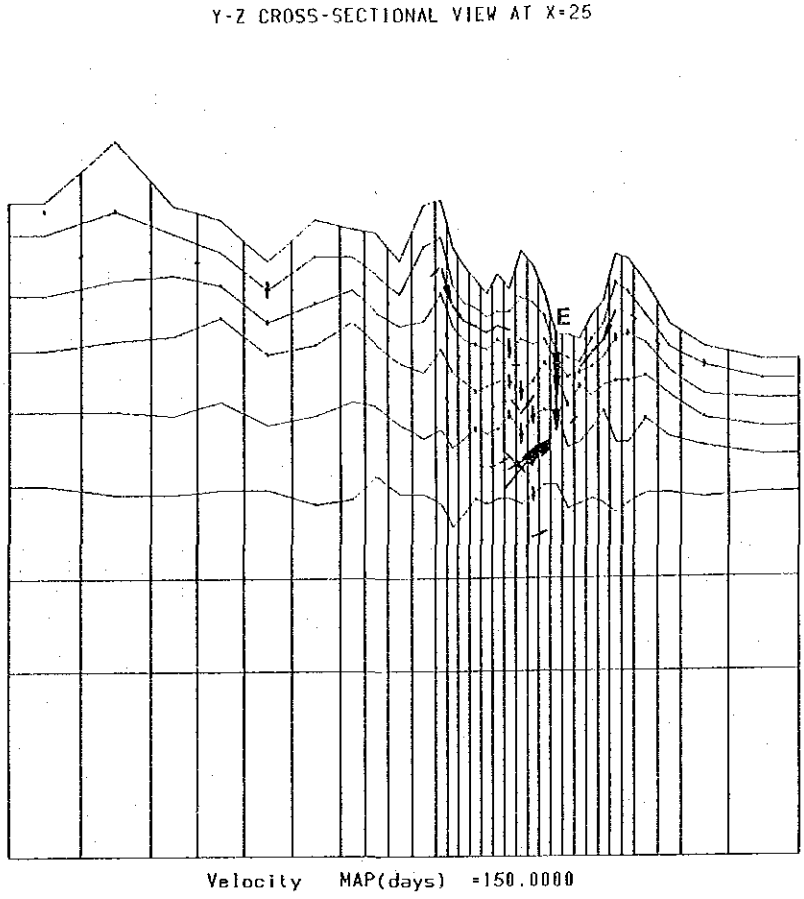
Velocity MAP(days) =150.0000

X-Y CROSS-SECTIONAL VIEW AT Z=7



Velocity MAP(days) =360.0000

Fig.3-4-11 Groundwater Velocity Map (1)



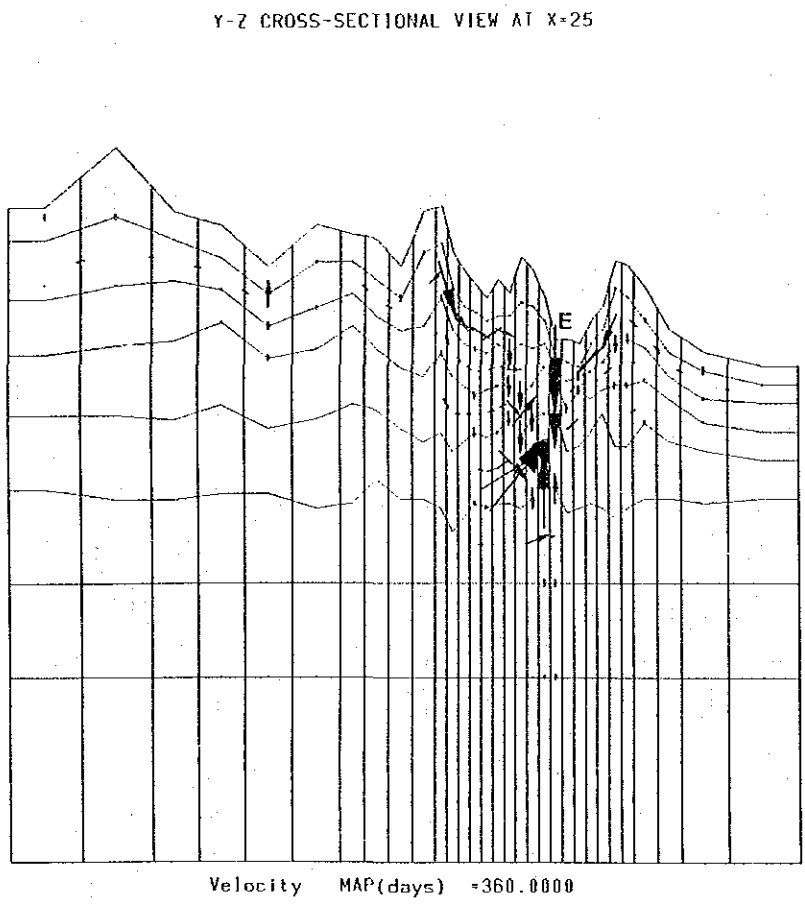


Fig. 3-4-11 Groundwater Velocity Map (2)

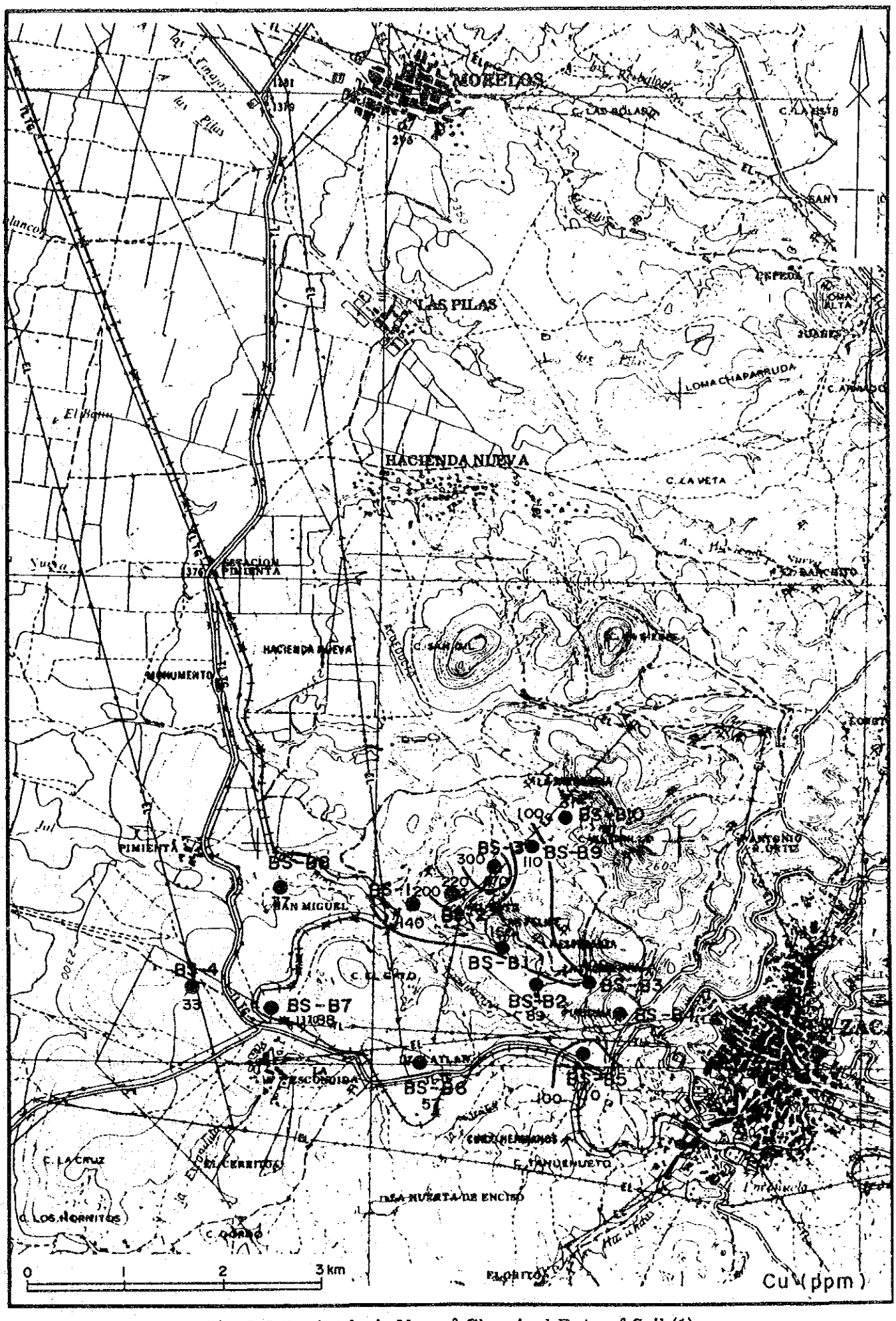


Fig. 3-5-1 Analysis Map of Chemical Data of Soil (1)

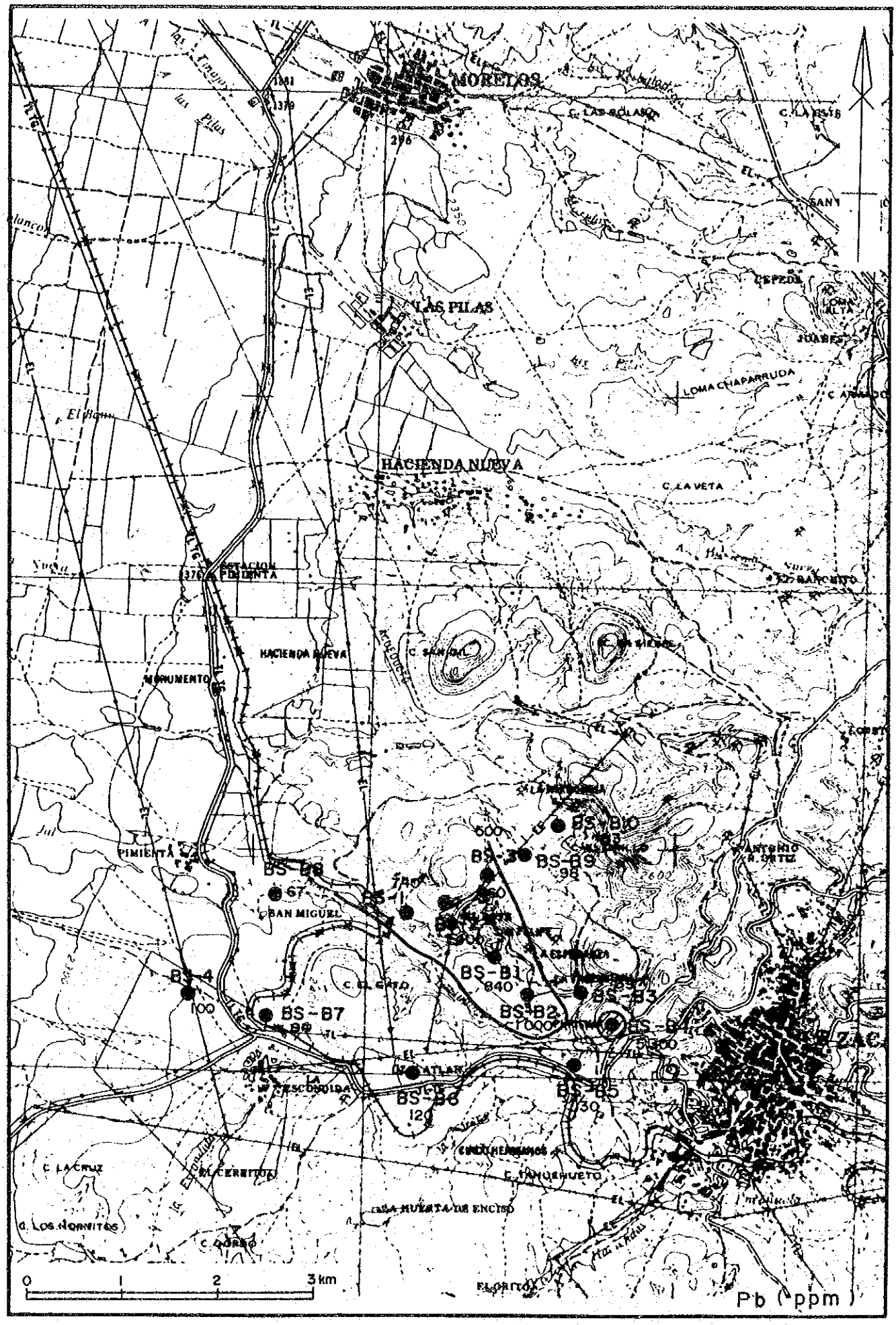


Fig. 3-5-1 Analysis Map of Chemical Data of Soil (2)

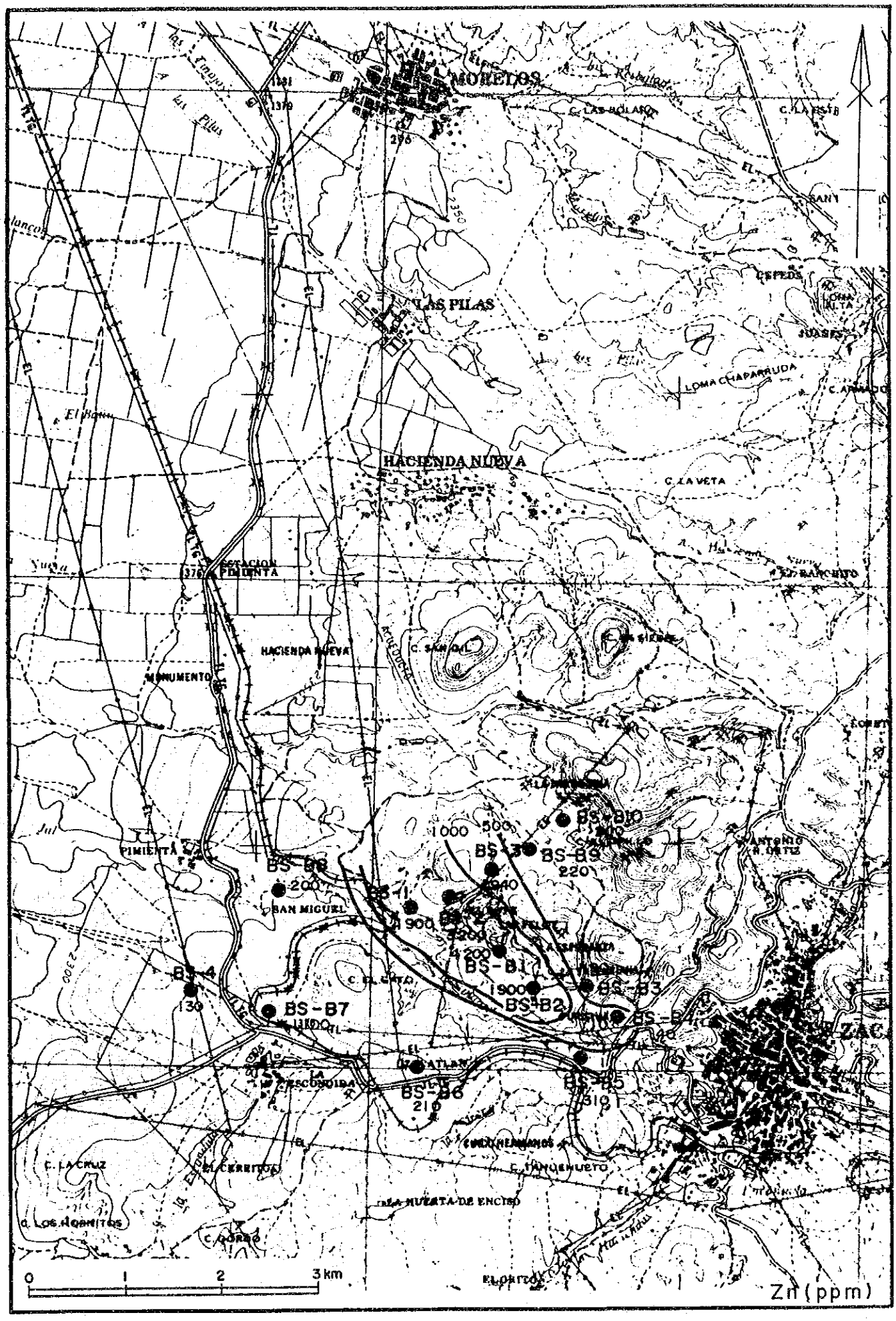


Fig. 3-5-1 Analysis Map of Chemical Data of Soil (3)

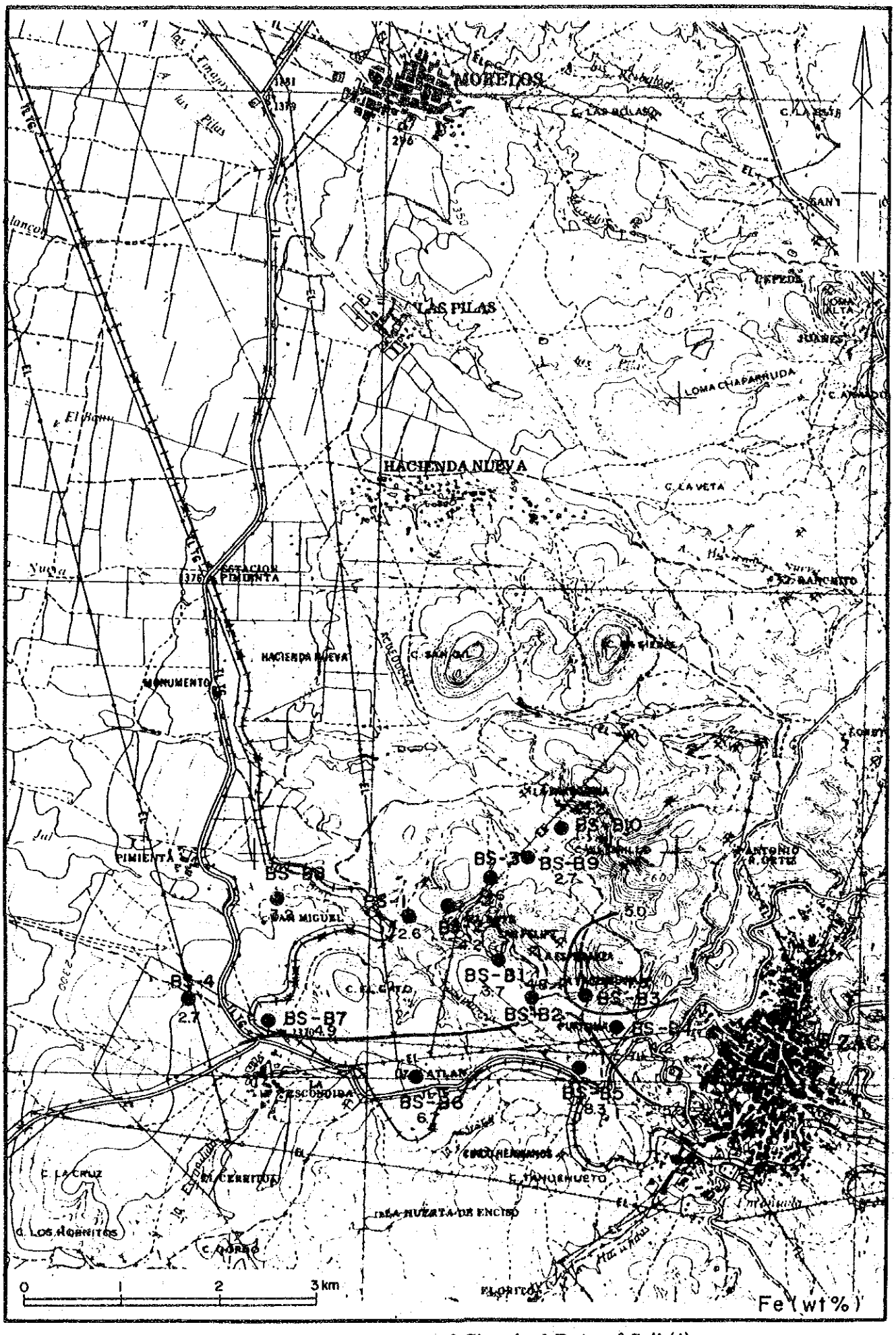


Fig. 3-5-1 Analysis Map of Chemical Data of Soil (4)

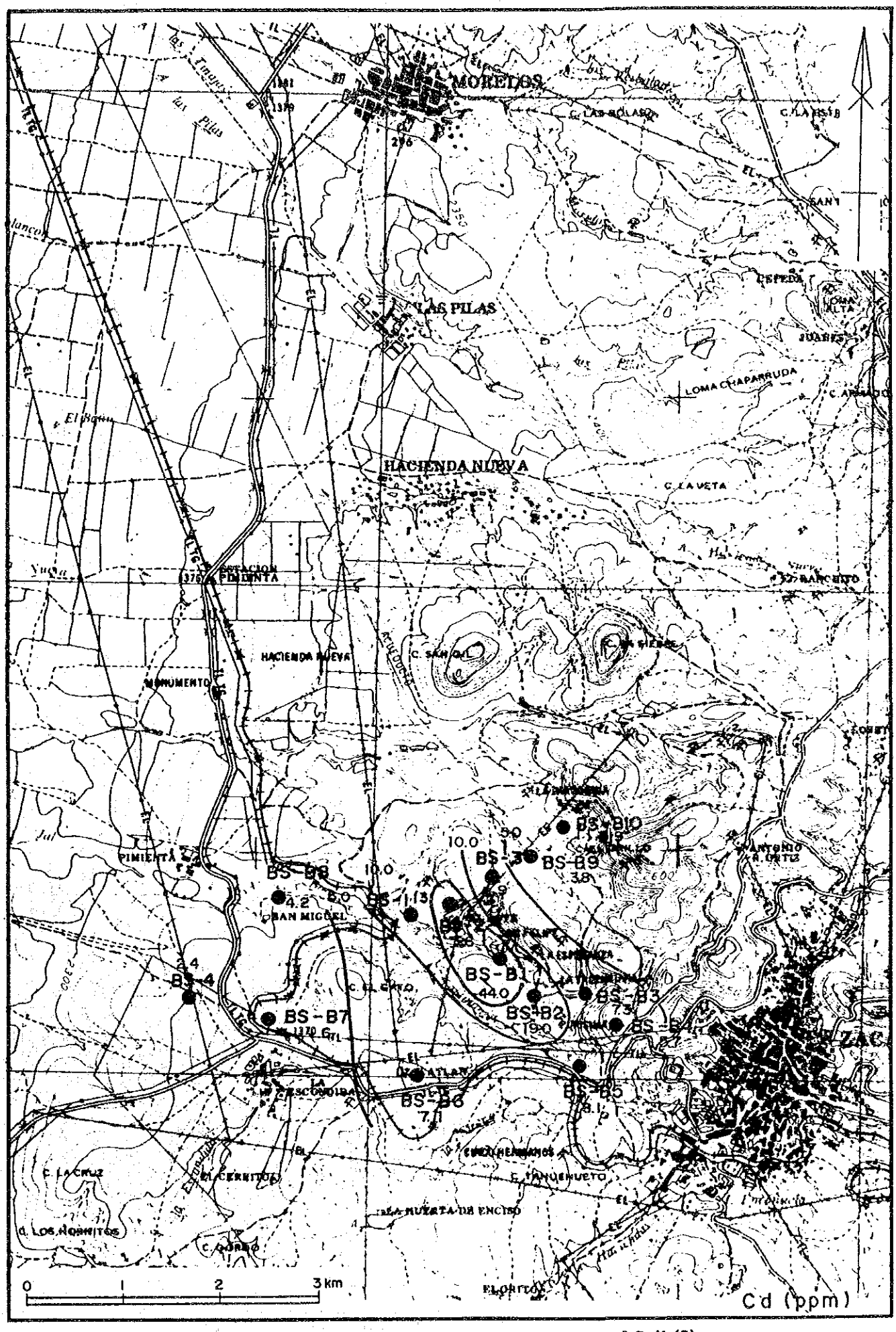


Fig. 3-5-1 Analysis Map of Chemical Data of Soil (5)

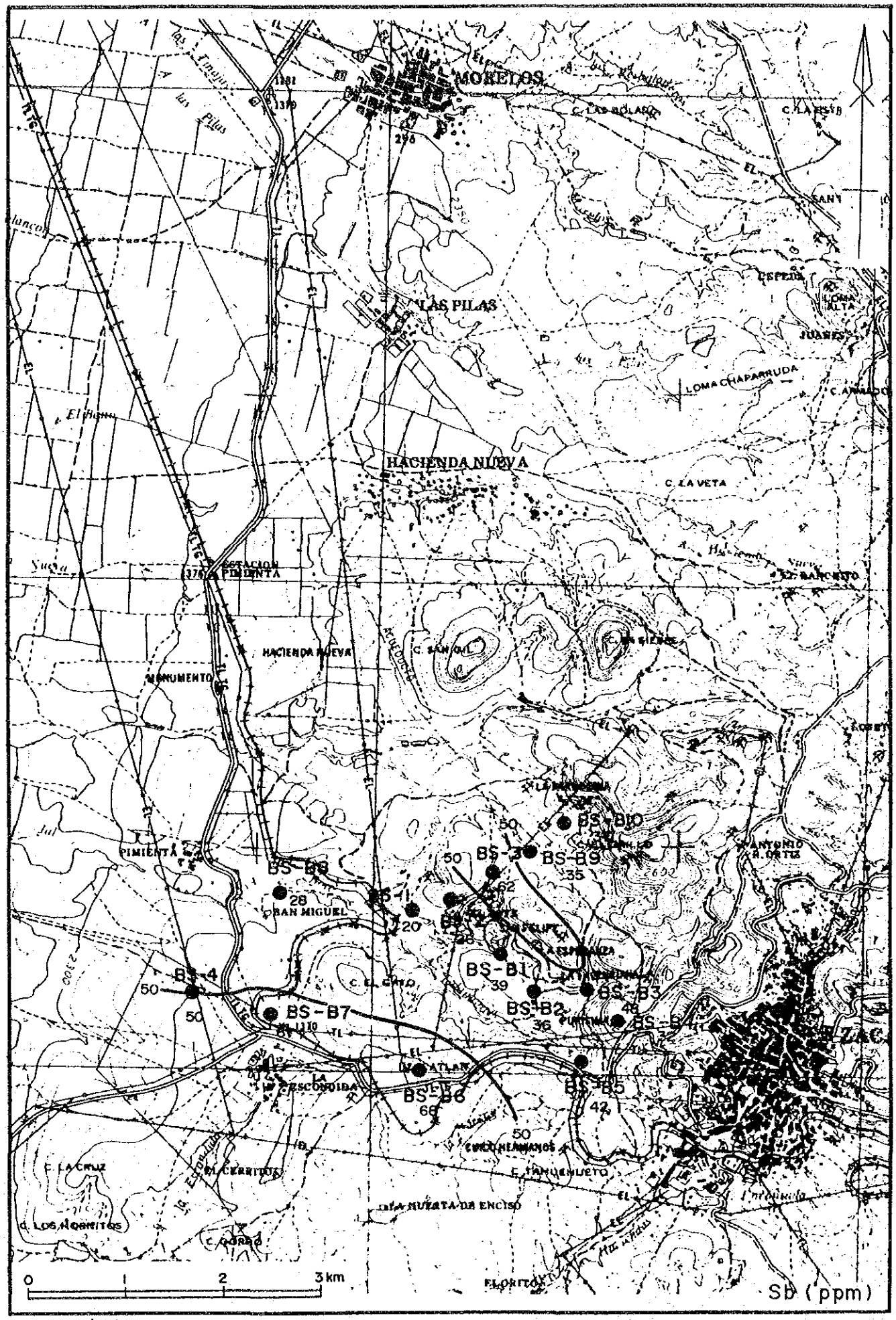


Fig. 3-5-1 Analysis Map of Chemical Data of Soil (6)

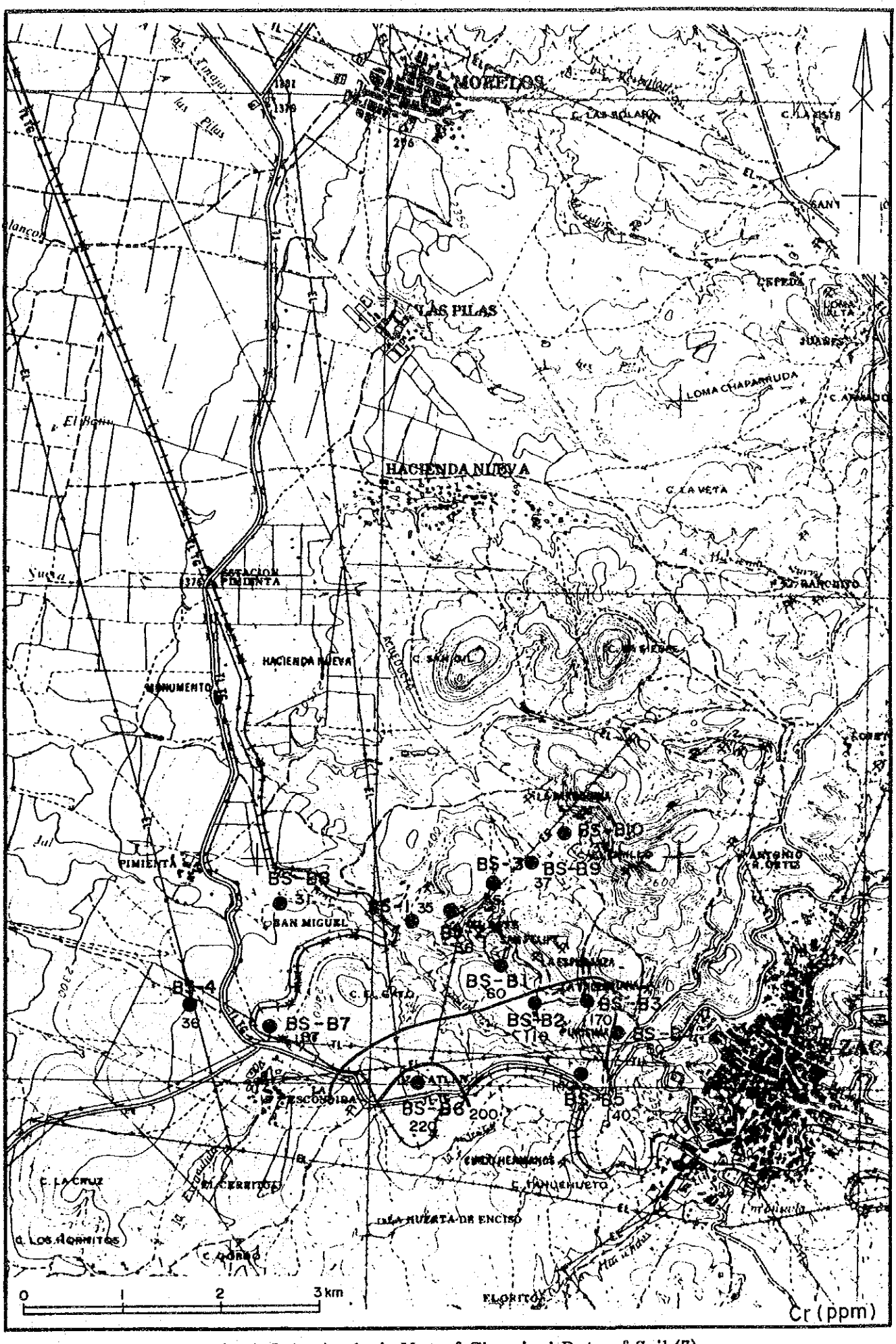


Fig. 3-5-1 Analysis Map of Chemical Data of Soil (7)