



LEGEND

RECENT

 **Riverine Deposit** : Consisting mainly of boulders of fine grained sandstone and shale in a matrix of sand. Found mainly along rivers and side streams.

OLIGOCENE - MIOCENE


Setap Shale

 **Shale Unit** : Consisting mainly slaty hard shale with very little amount of sandstone intercalation (3%). Thinly bedded (2 to 3 cm thick), regionally metamorphosed, folded, faulted and fractured with infilling quartz veins





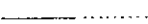
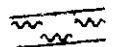
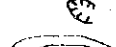
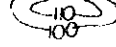

 **Sandstone Unit**

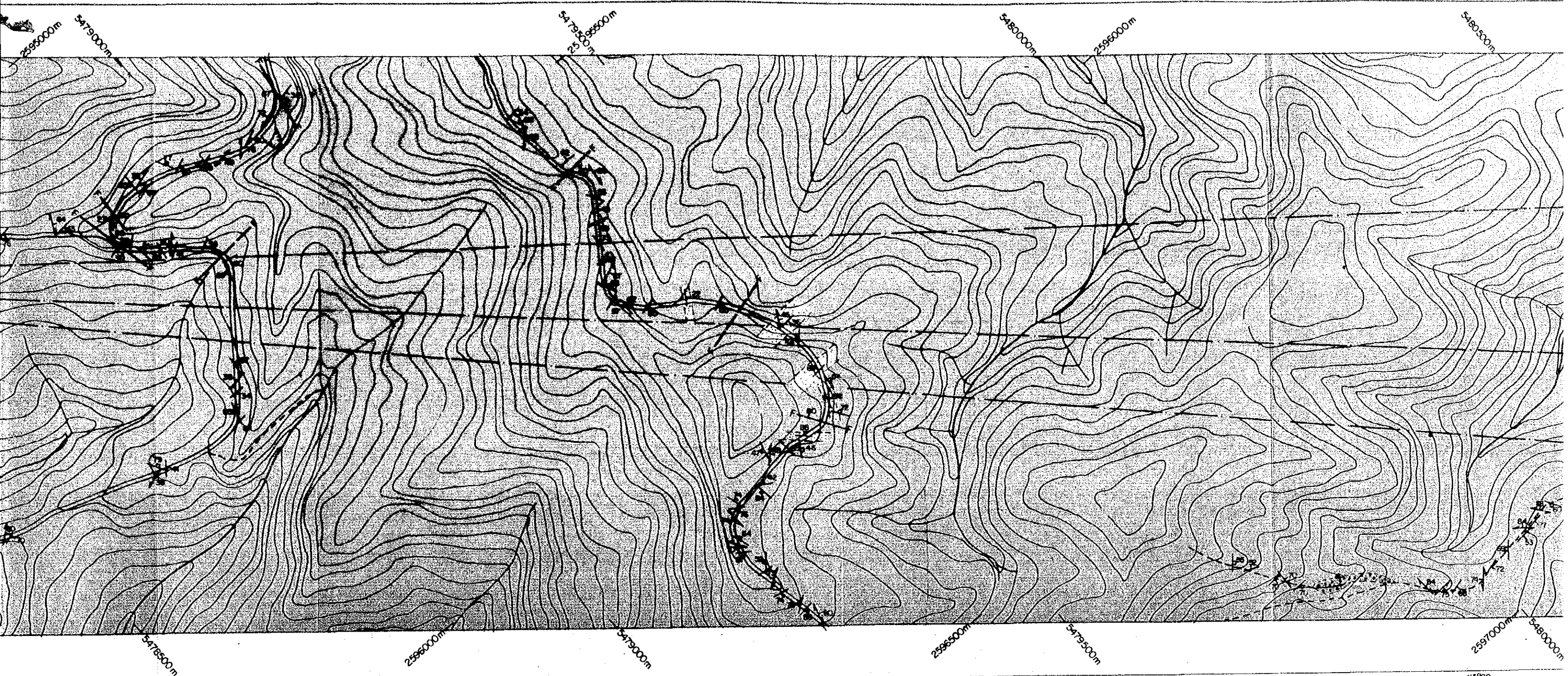
Consisting of hard, fine grained, dark grey sandstone. Thickly bedded, slightly metamorphosed, faulted, fractured and slightly folded. Quartz veins are commonly infill cracks within the

EOCENE - MIOCENE

 **Melinau Limestone** : Argillaceous, fossiliferous, thickly bedded (about 1 m), faulted and fractured with infilling calcite veins.

sandstone. Occurs as thick lenses (about 30m) at the proposed dam site. Friable soft, light yellow, fine grained sandstone lenses (10-20m thick) found in the central part of the area.

-  80m Altitude of beds
-  60m Altitude of cleavages
-  70m Altitude of joints
-  F—F, F---F Altitude of faults, inferred faults
-  Geological boundary, defined
-  Fault zone
-  Landslide
-  Contour at 10m interval
-  Logging road

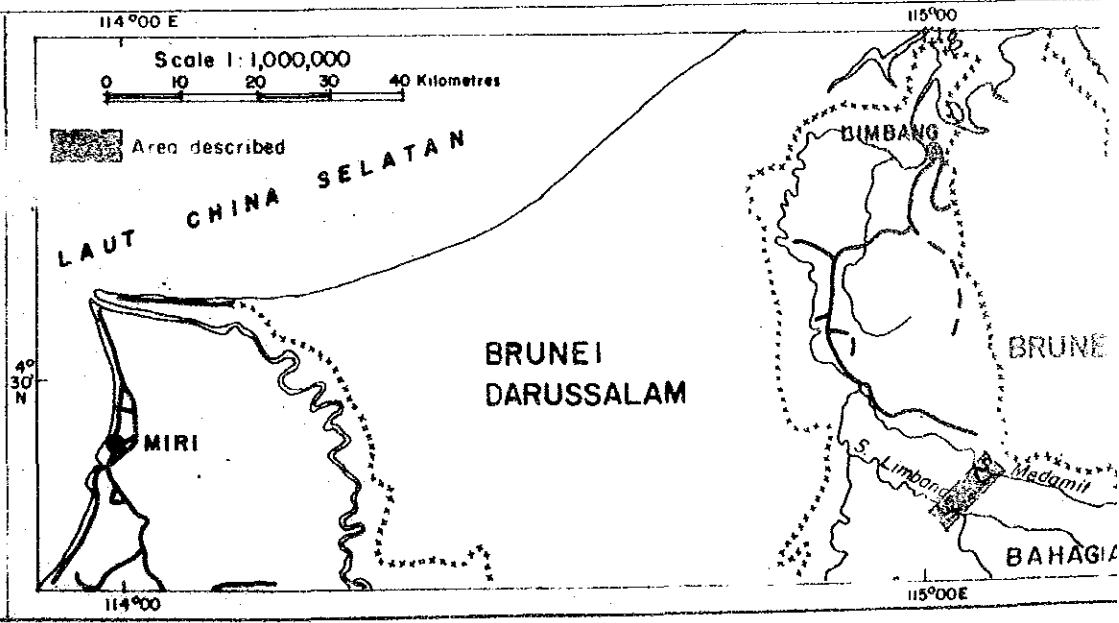
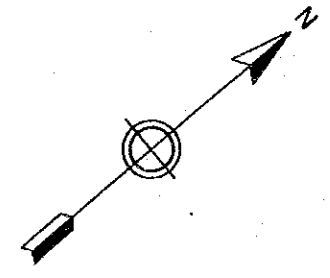


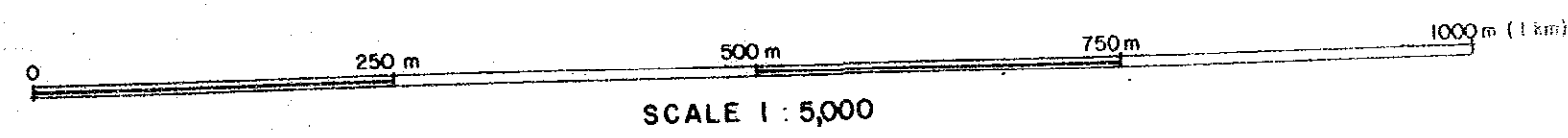
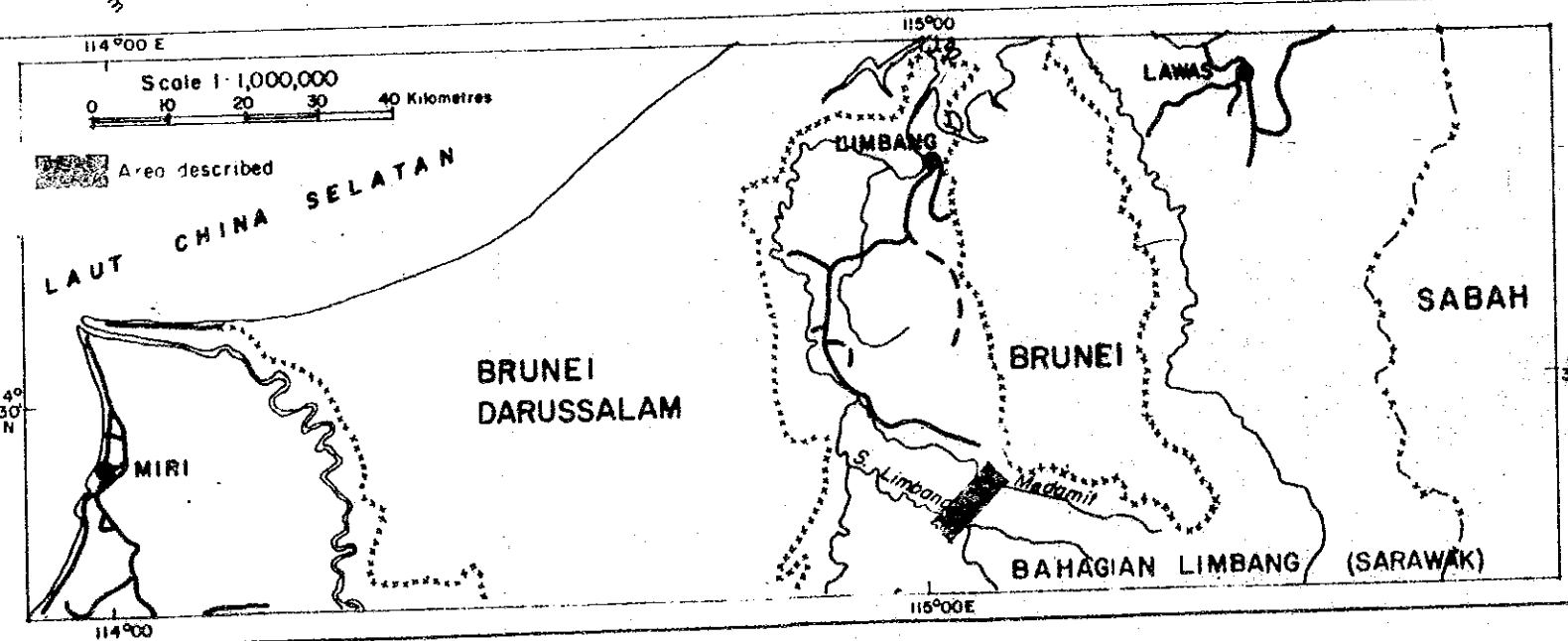
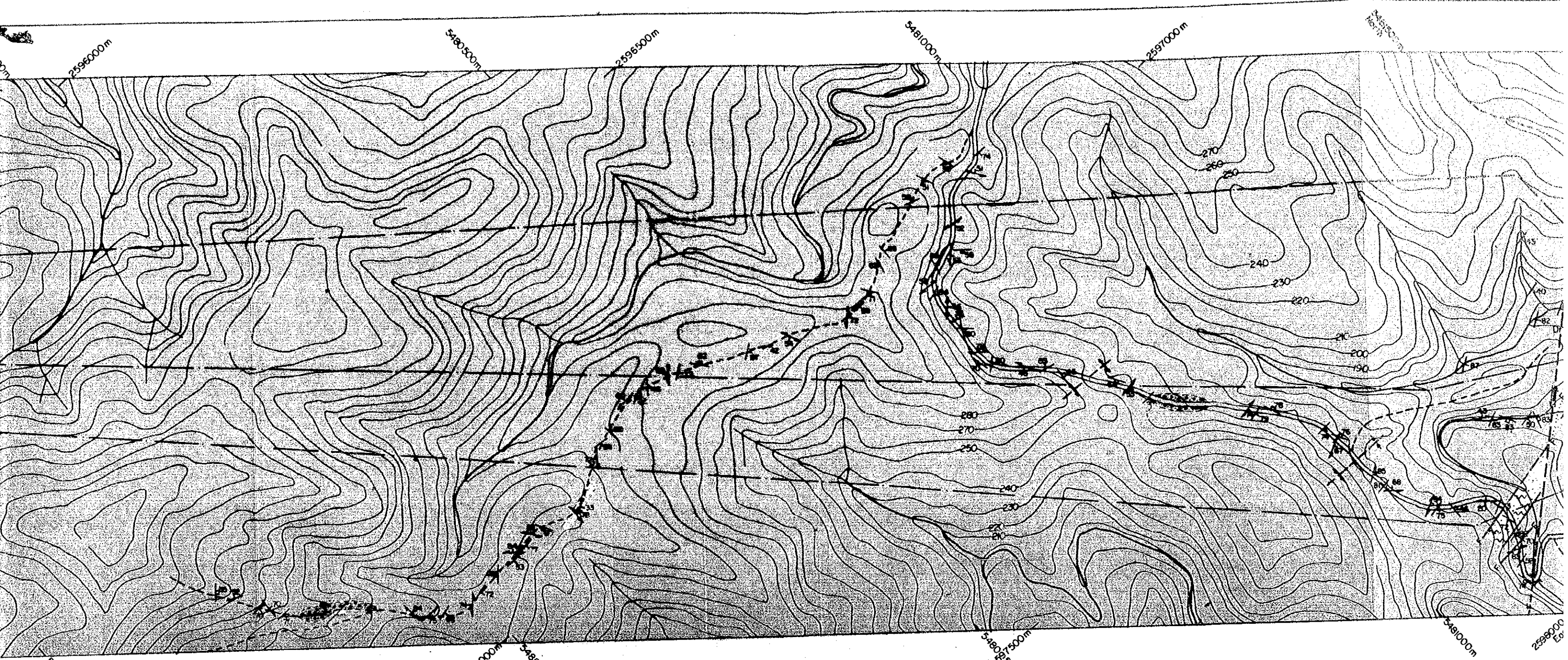
lenses (about 30m) at the proposed
 at yellow, fine grained sandstone
 and in the central part of the area

thickly bedded (about 1 m), faulted
 of calcite veins.

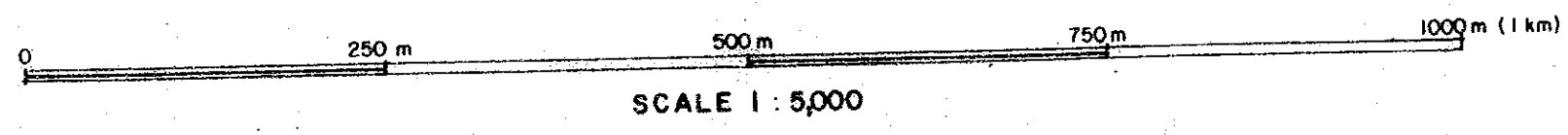
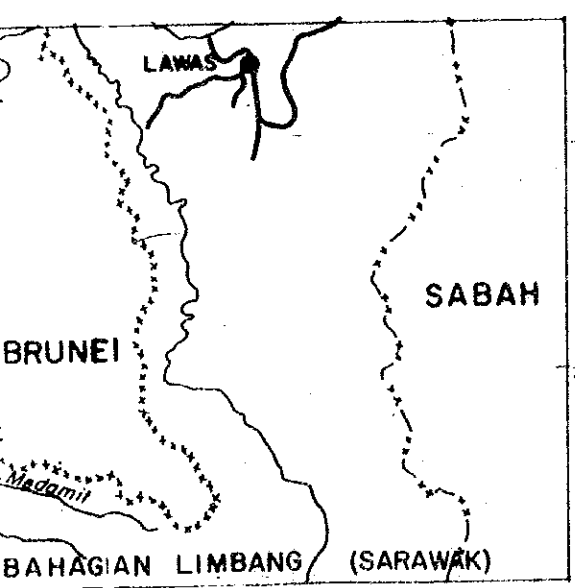
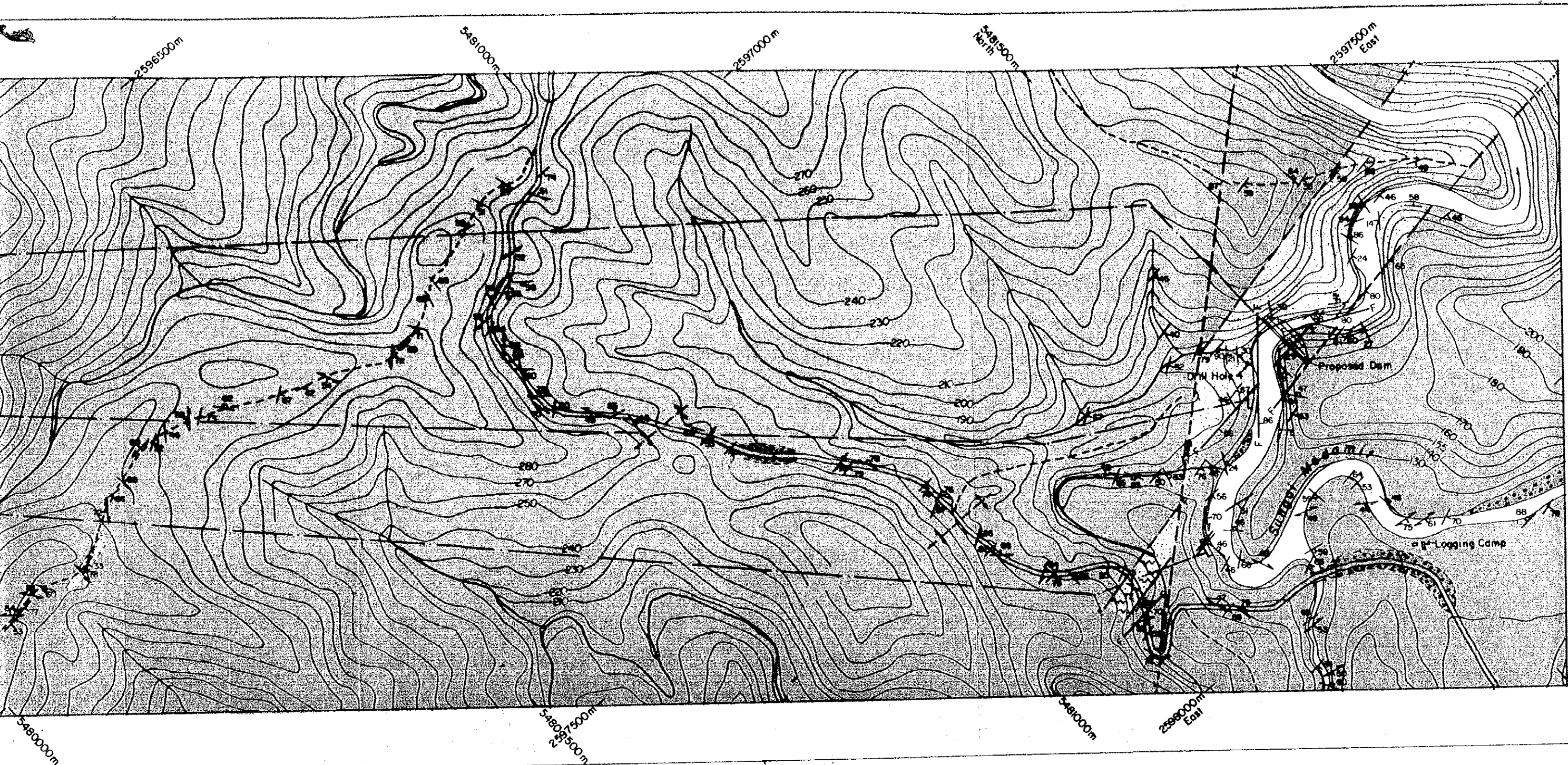
- Attitude of beds
- Attitude of cleavages
- Attitude of joints
- Attitude of faults, inferred fault
- Geological boundary, defined, inferred.
- Fault zone
- Landslide
- Contour at 10m interval
- Logging road

- River flow direction
- Timber tracks



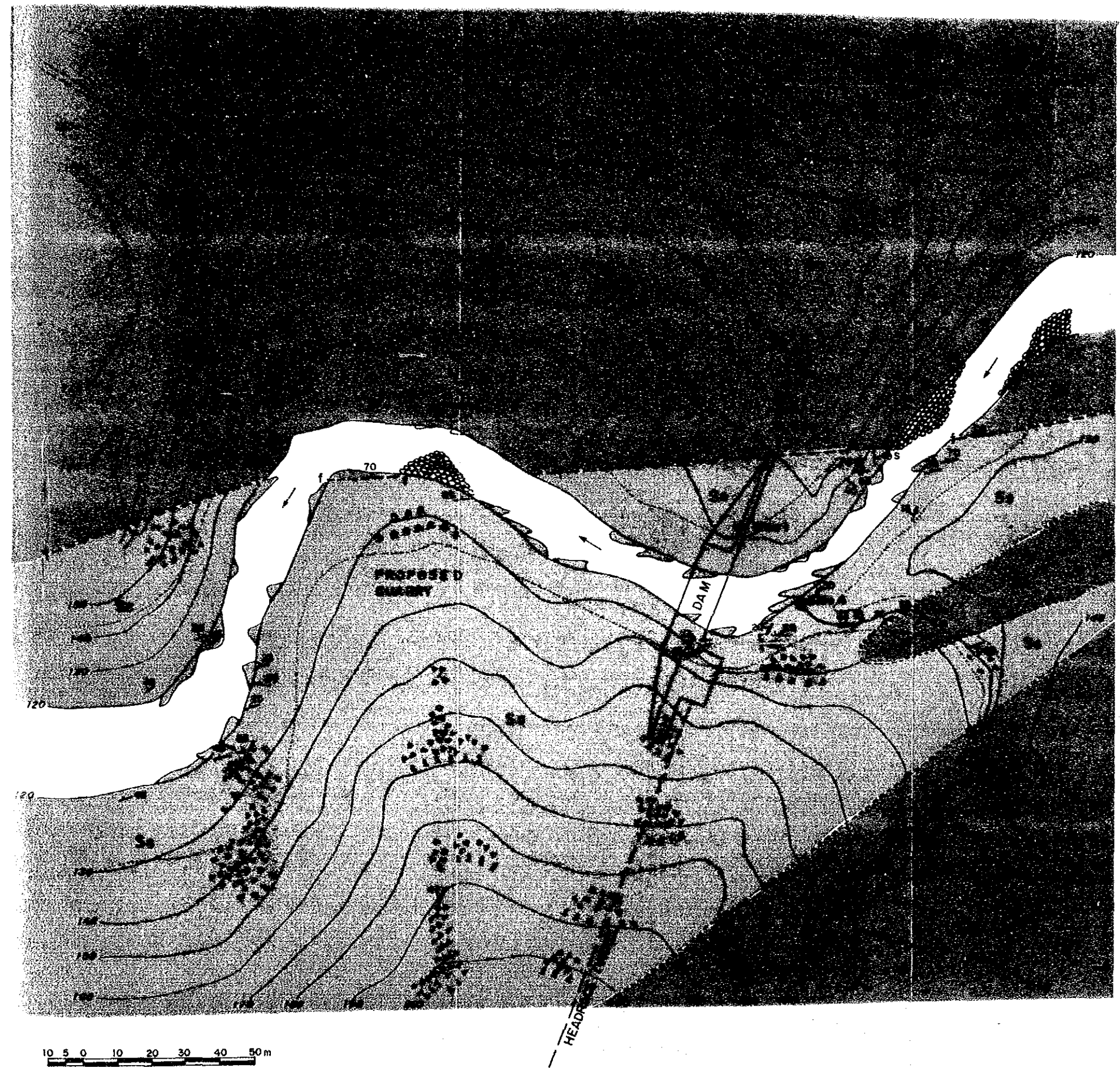


図I-2 ムダミット-2地




















図I-2 ムダミット-2地点周辺の地質図

GOVERNMENT OF MALAYSIA
 FEASIBILITY STUDY
 SMALL SCALE HYDROELECTRIC POWER PROJECT IN SARAWAK
 JAPAN INTERNATIONAL COOPERATION AGENCY



LEGEND

-  Sandstone, fine to medium grained, slightly metamorphosed faulted, fractured and slightly folded Quartz veins are common
 -  Shale (Setap Shale - Consisting mostly slaty shale with very little (thin bed) amount of sandstone intercolation 3%)
 -  Slopwash deposit, angular to subangular sandstone pebbles predominant.
 -  Slopwash deposit, angular to subangular shale pebbles predominant.
 -  Riverbank gravel deposit, mostly well rounded from 1 cm to 50 cm diameter sandstone origin predominant.
 -  Slopwash material moving direction (Collapse Area)
 -  Landslide
 -  Cave
 -  Strike & dip.
 -  Joint orientation & dipping angle.
 -  Cleavage orientation and dipping angle.
 -  Fault
 -  Timber track
 -  Geological boundary
 -  Area of outcrop
 -  River flow direction
 -  Borehole location
- CONTOUR IN 10m INTERVALS

図I-3 ムダミット-2地点の地質図(1/2)



- LEGEND**
- Lm** Limestone very fine grained
 - Sh** Shale (Setap shale - consisting mostly slaty shale with very little (thin bed) amount of sandstone intercolation 3%)
 - Stopwash deposit, angular to subangular Shale pebbles predominant
 - Stopwash materials moving direction
 - Landslide
 - Sinkhole
 - Cavity
 - Unconformity
 - Inferred Unconformity
 - Geological Boundary
 - Area of Outcrop
 - River gravel deposit, mostly well rounded Sandstone
 - Striking orientation and dipping angle of the bedding
 - Joint orientation and dipping angle
 - Cleavage orientation dipping angle
 - Borehole location
- CONTOUR IN 1 m INTERVALS

図 I-3 ムダミット-2 地点の地質図 (2/2)



GOVERNMENT OF MALAYSIA
 FEASIBILITY STUDY
 SMALL SCALL HYDROELECTRIC POWER PROJECT IN SARAWAK
 JAPAN INTERNATIONAL COOPERATION AGENCY

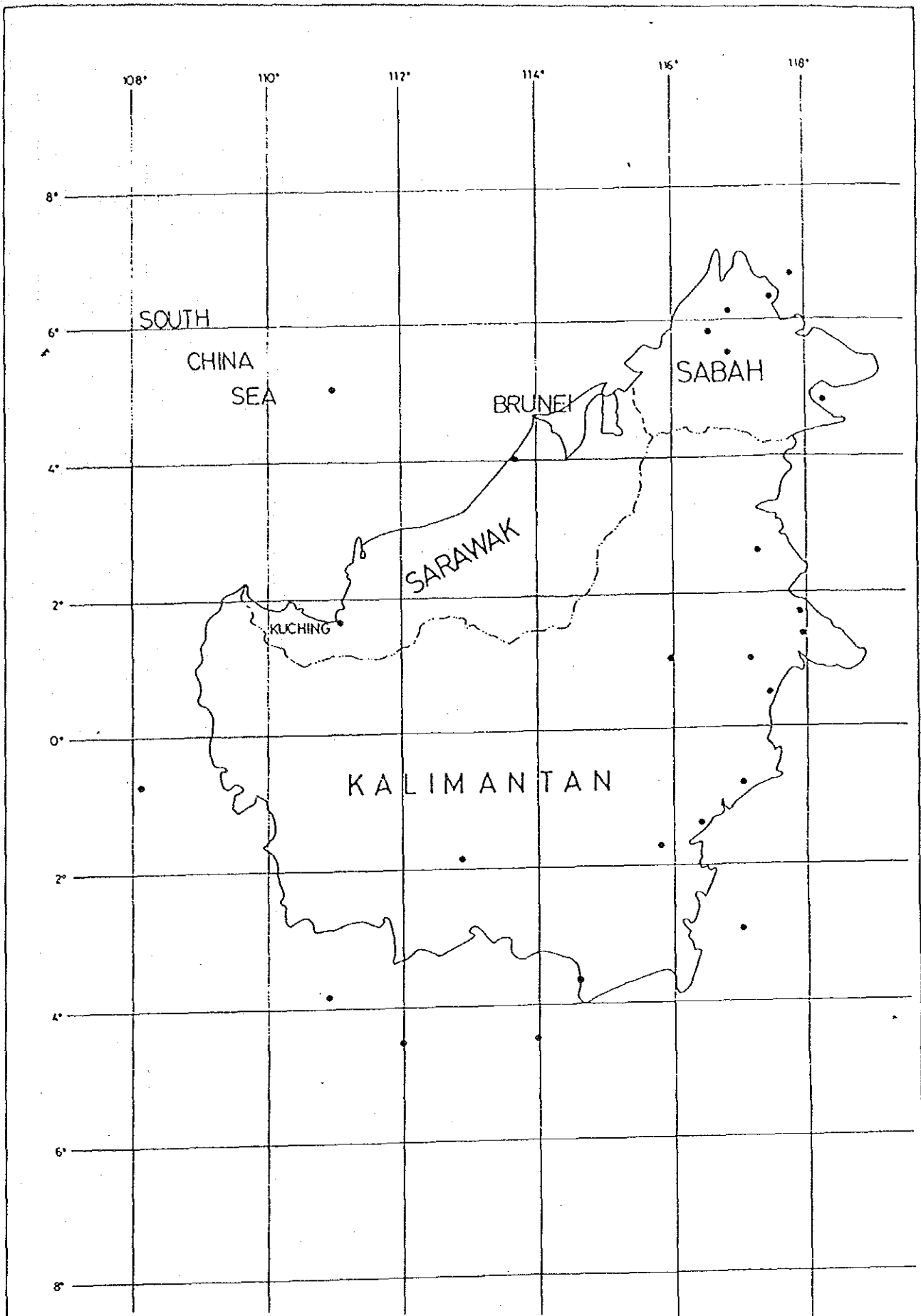
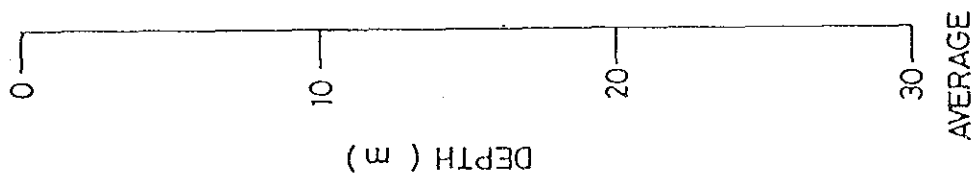


図 I-4 サラワク・サバにおける震源位置図

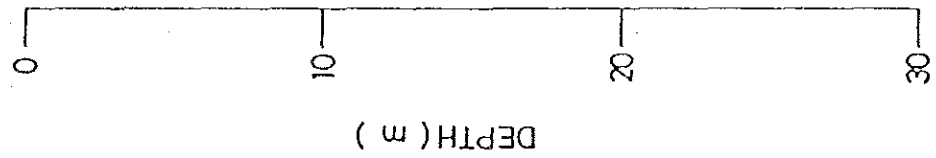
GOVERNMENT OF MALAYSIA
 FEASIBILITY STUDY
 SMALL SCALE HYDROELECTRIC POWER PROJECT IN SARAWAK
 JAPAN INTERNATIONAL COOPERATION AGENCY

BME-1		BME-2		BME-4		BME-7	
Lu. Value	P.C.	Lu. Value	P.C.	Lu. Value	P.C.	Lu. Value	P.C.
5.	1.589×10^{-5}			0.6	1.091×10^{-6}	(129)	
(32.5)	9.925×10^{-5}	1	3.461×10^{-6}	82	7.168×10^{-6}		
11.7	3.776×10^{-5}	2.4	3.141×10^{-6}	3.2	2.624×10^{-6}		



Note : P.C. = Permeability Coefficient

図 I-5 ムダミット-2 地点のルジオン試験結果

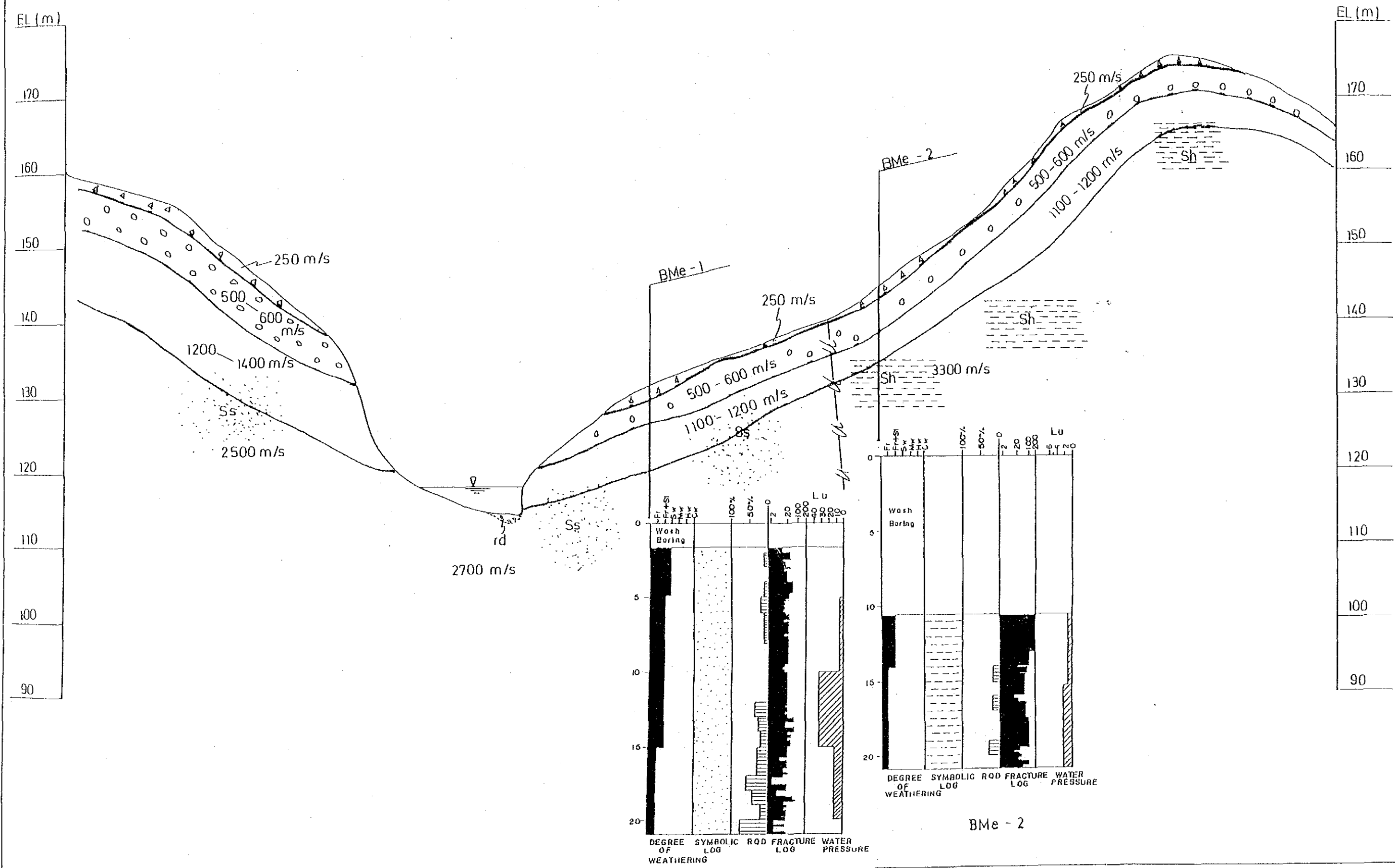


BMK-1	BMK-2	BMK-3	BMK-5	BMK-6	BMK-7
50/1	3/30	7/30	9/30	8/30	1/30
	6/30	9/30	24/30	10/30	3/30
	50/15	50/20	27/30	12/30	4/30
	50/20	50/10	23/30	14/30	50/10
	50/19		16/30	50/20	
	50/17		27/30	39/30	
	50/5		11/30	19/30	
			13/30	25/30	
			27/30	26/30	
			18/30	51/20	
			25/30	52/20	
			22/30	61/20	
			27/30	78/5	
			27/30		
			50/17		
			50/17		
			50/9		
			50/6		

NOTE: 1) SPT. is the abbreviation of Standard Penetration Test.

2) Figures before and after slash are shown in the number of blows (times) and the penetrated length (cm) respectively.

図 I-6 ムダミットー 2 地点の標準貫入試験結果



LEG



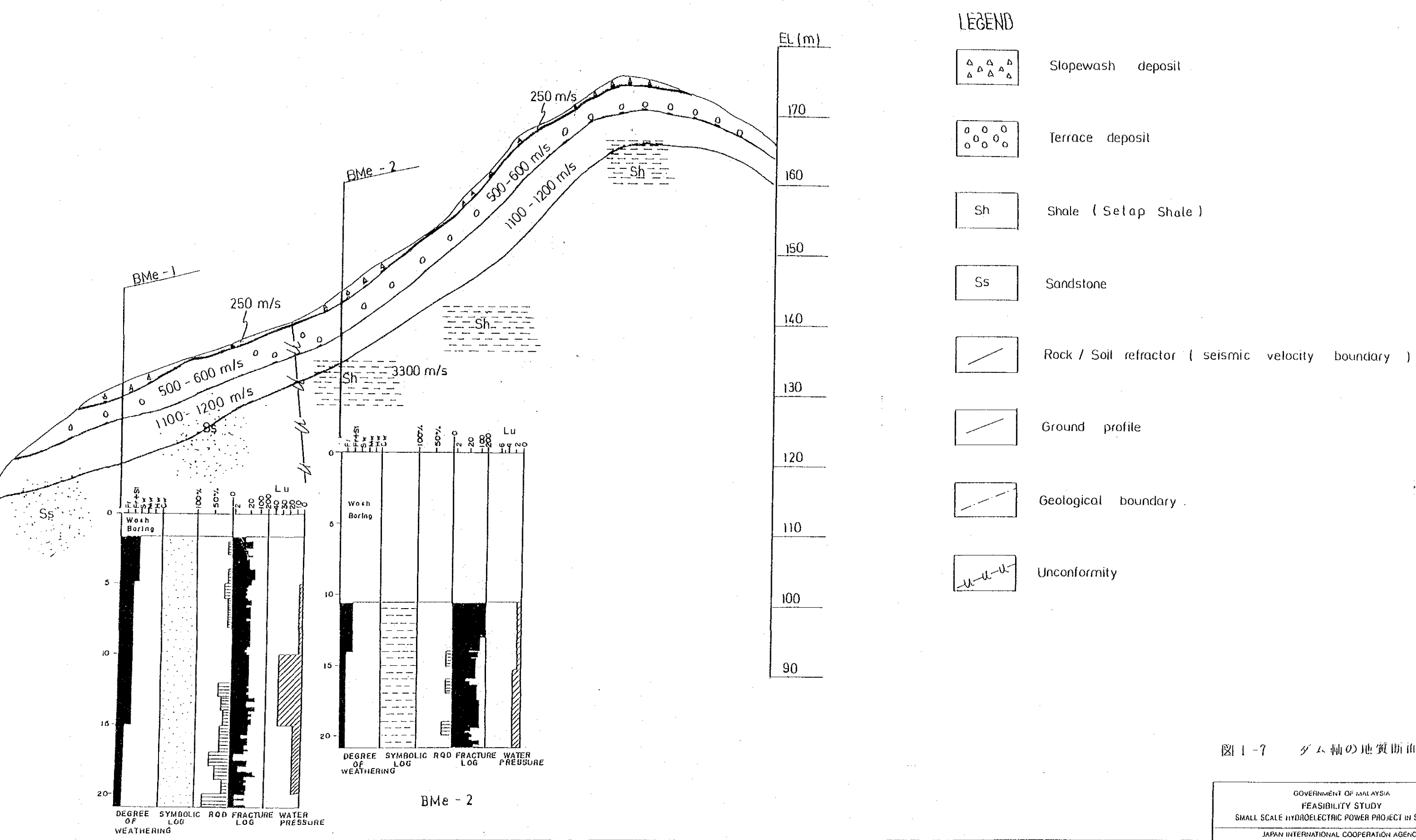
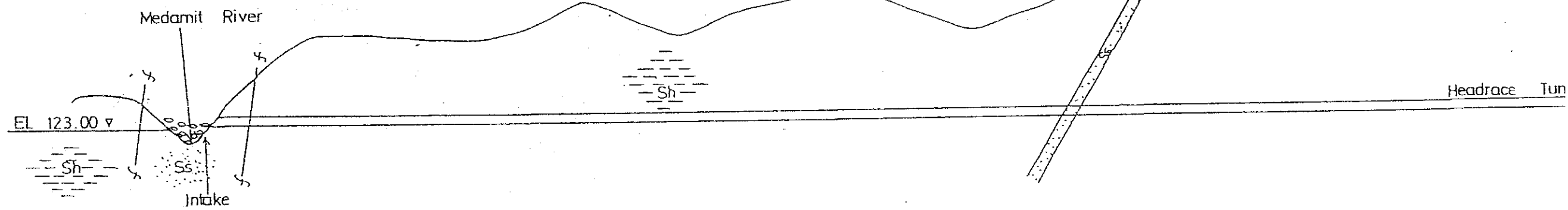
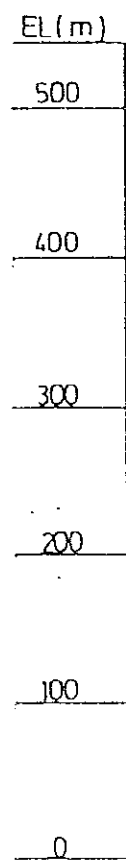
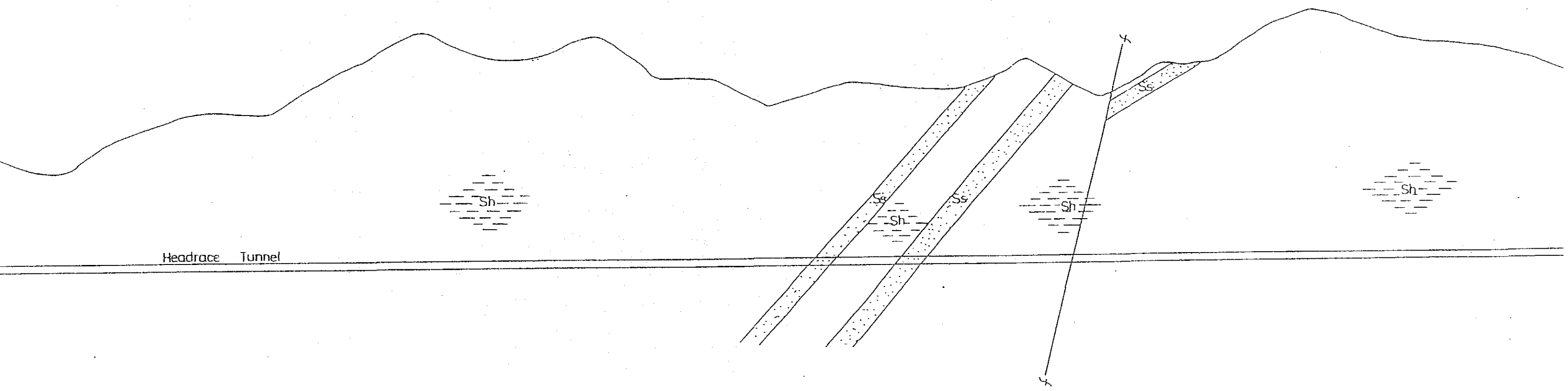
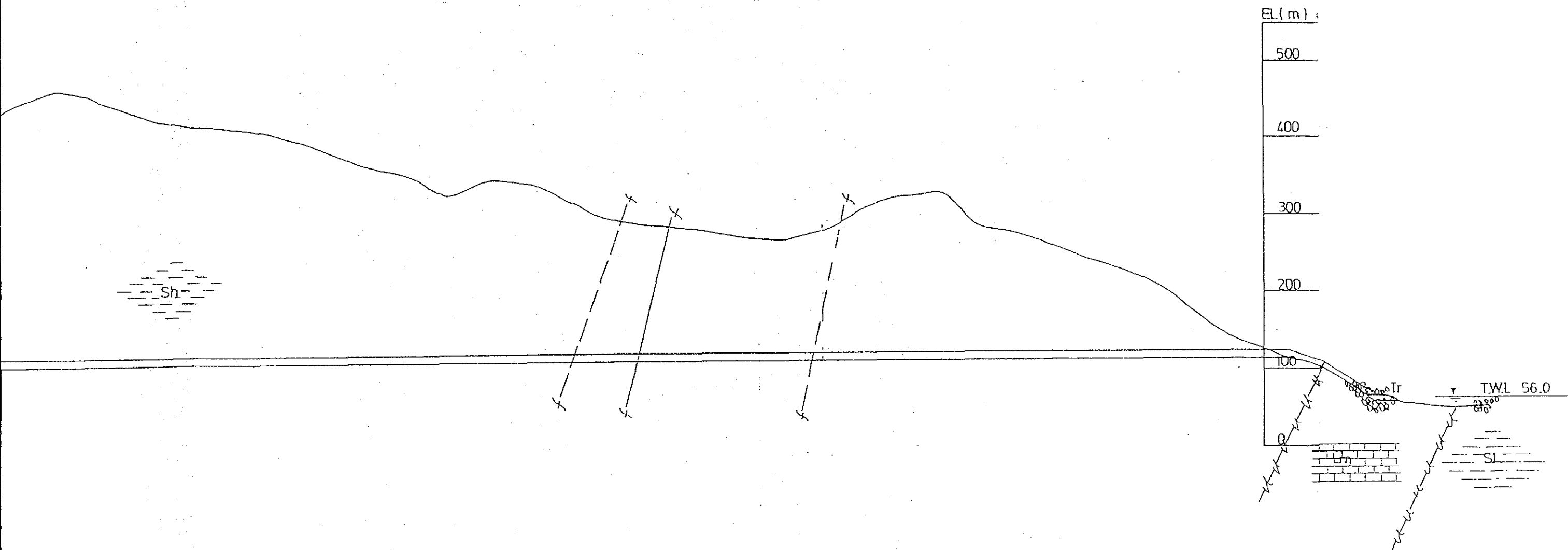


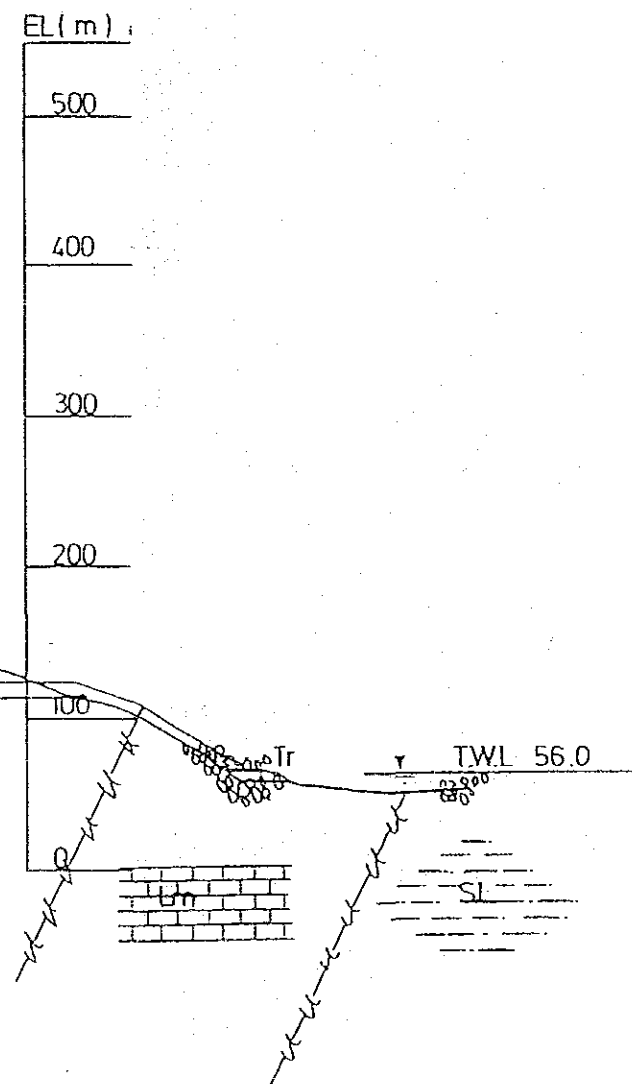
図 1-7 ゴム軸の地質断面図

GOVERNMENT OF MALAYSIA
 FEASIBILITY STUDY
 SMALL SCALE HYDROELECTRIC POWER PROJECT IN SARAWAK
 JAPAN INTERNATIONAL COOPERATION AGENCY









LEGEND

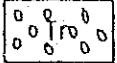
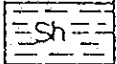
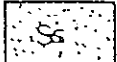
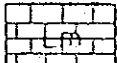
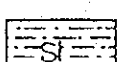
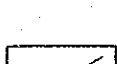
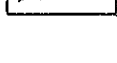
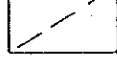
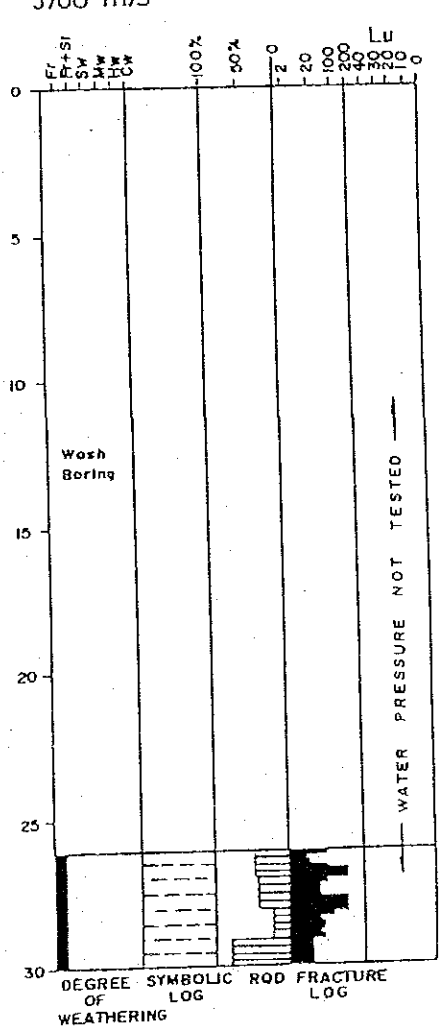
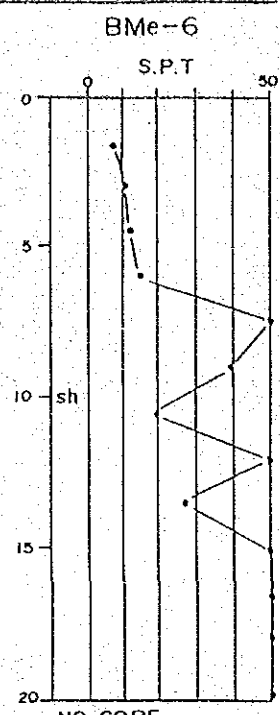
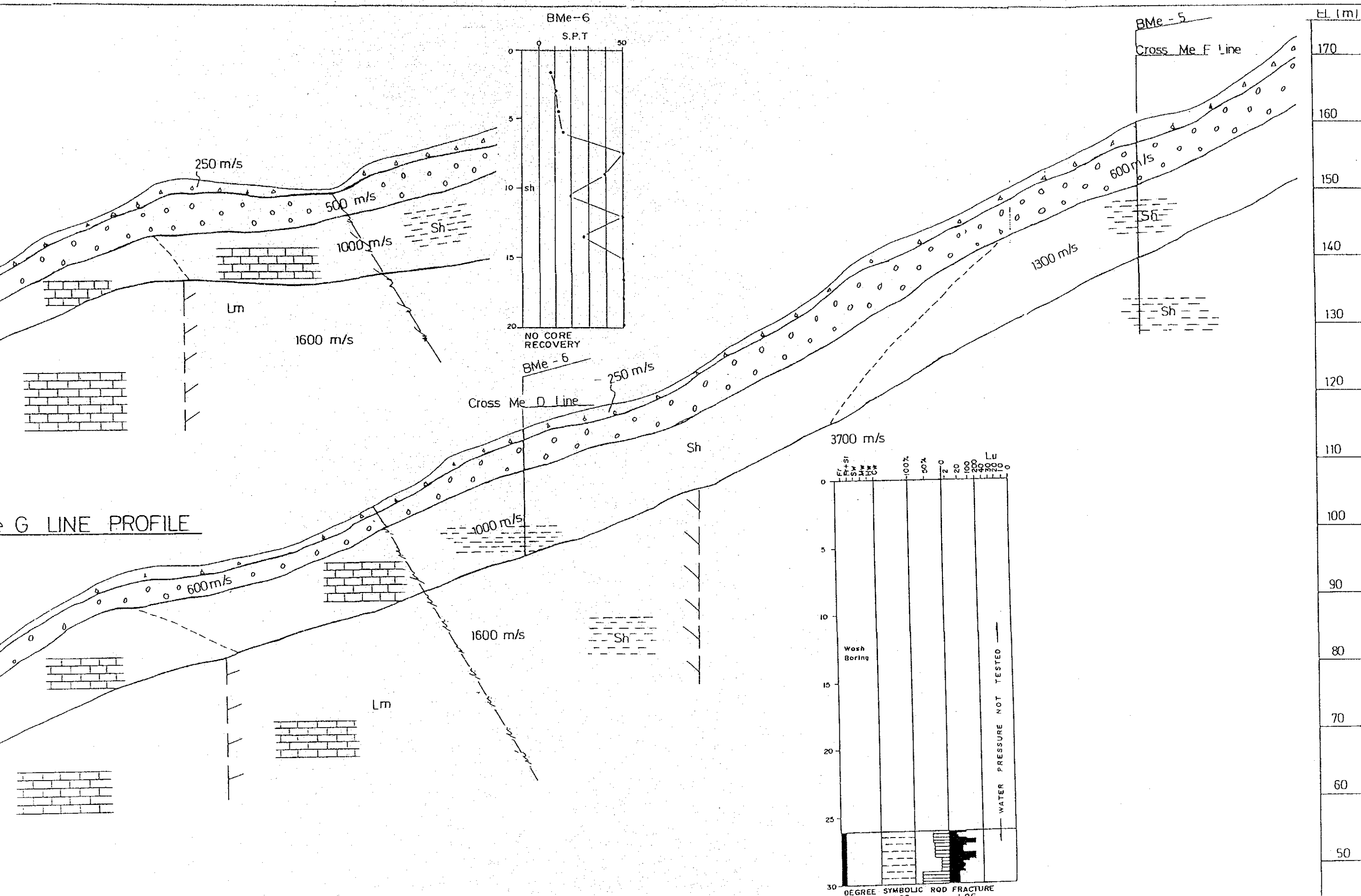
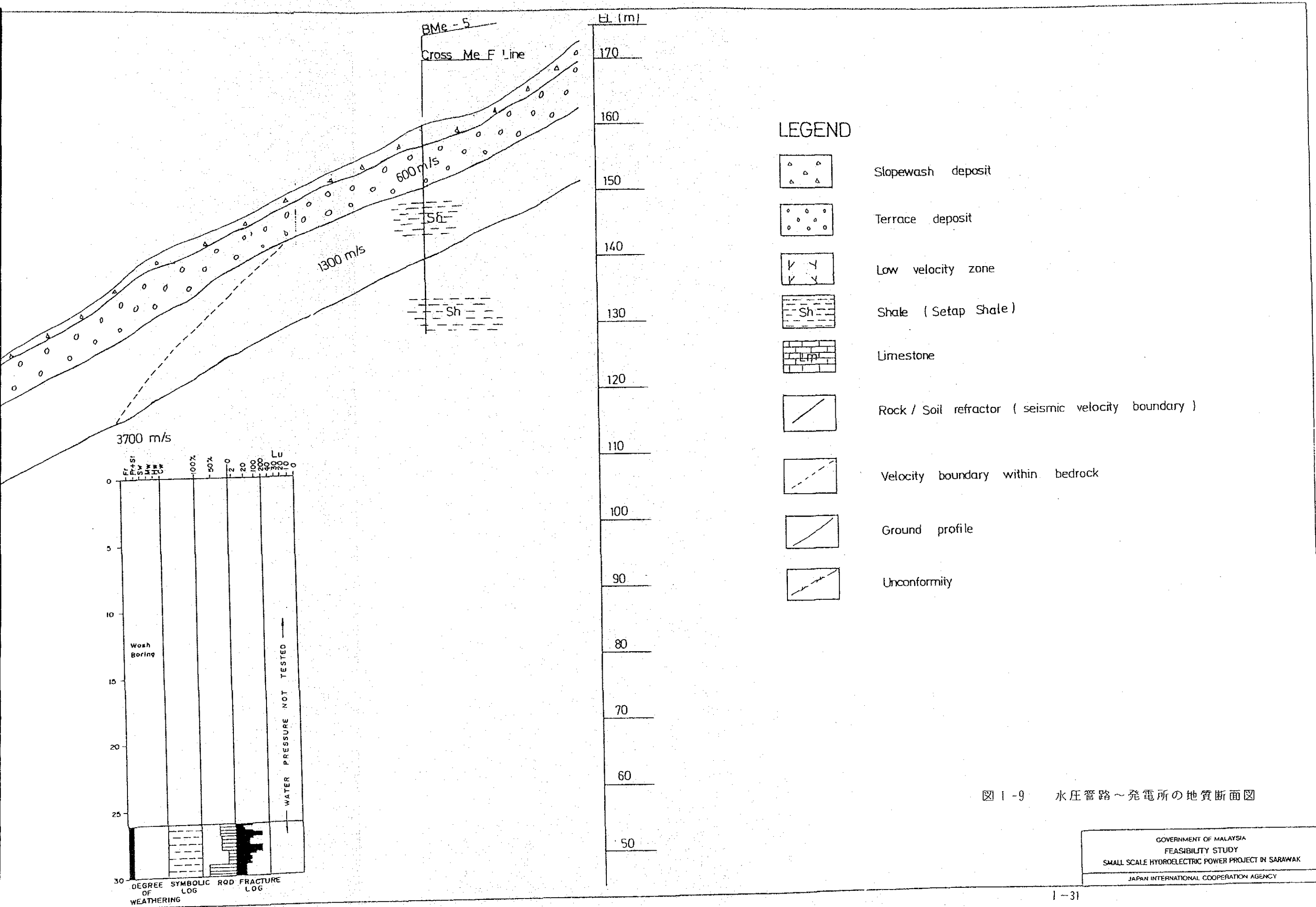
-  Terrace deposit
-  Shale (Setap shale) - consisting mostly slaty shale with very little (thin bed) amount of sandstone intercolation 3%.
-  Sandstone, hard, fine to medium grained slightly metamorphosed faulted fractured and slightly folded. Quartry veins are common.
-  Limestone (Melinau Limestone)
-  Slate - shale
-  Fault
-  Inferred fault
-  Unconformity



図 1-8 水路沿いの地質断面図





LEGEND

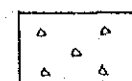
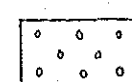
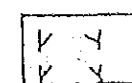
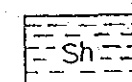

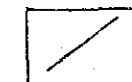


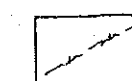
-  Slopewash deposit
-  Terrace deposit
-  Low velocity zone
-  Shale (Setap Shale)
-  Limestone
-  Rock / Soil refractor (seismic velocity boundary)
-  Velocity boundary within bedrock
-  Ground profile
-  Unconformity

图 1-9 水圧管路～発電所の地質断面図

