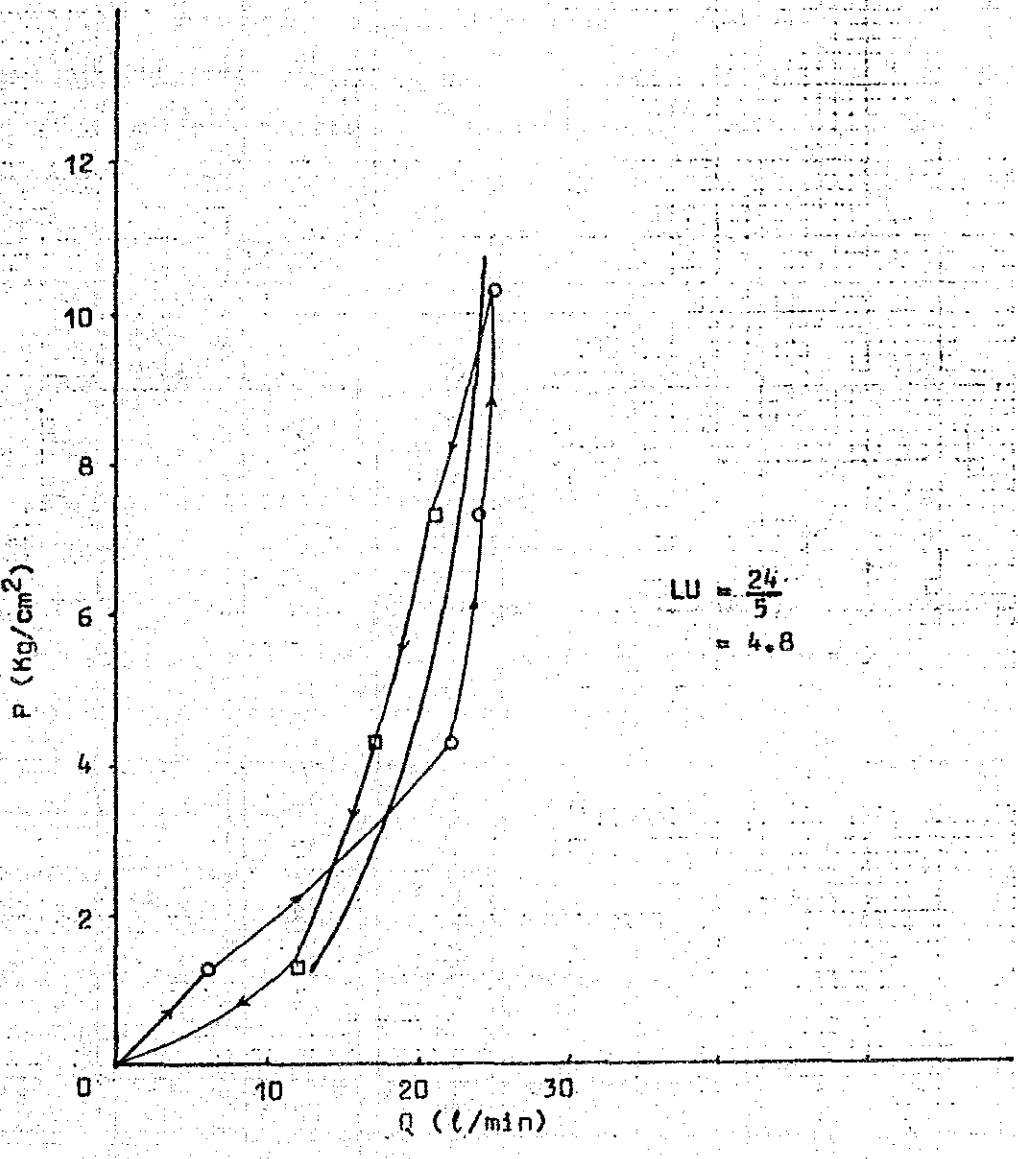
Project: Small Hydro Study For Medamit

Job No: KSI/87(J18)

Type of Test: Water Pressure Test in drill hole

Test No: BME-1/Test 1 (5.60 - 10.60m)



Remarks:-

→○→ Discharge of increasing pressure

←□← Discharge of decreasing pressure

——— Average

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WATER PRESSURE TEST IN DRILL HOLE

Hole No: BME-1 (Test 1)

Project: Small Hydro Study For Medamit

Date of Test: 1.8.1987

Reporter: B.J.O.

Job No: KSI/87(J18)

Stage No:

Depth of Packer (m): 5.60

Depth of hole bottom (m): 10.60

Test Length (m): 5.00

Time			Gauge Pressure	Effective Pressure	Integrated	Water pumped-in		Lugeon Value	Remarks
Hr.	Min	Elapsed (min)	Kg/cm^2	Kg/cm^2	ℓ/min	Sectional ℓ/min	Constant rate ℓ/min		(Average)
		1	1	1.36		0	0	8.82	6
		1	1			0	0		
		1	1			5	5		
		1	1			6	6		
		1	1			10	10		
		1	1			8	8		
		1	1			8	8		
		1	1			9	9		
		1	1			7	7		
		1	1			11	11		
		1	4	4.36		22	22	10.09	22
		1	4			25	25		
		1	4			10	10		
		1	4			28	28		
		1	4			31	31		
		1	4			31	31		
		1	4			18	18		
		1	4			17	17		
		1	4			18	18		
		1	4			19	19		
		1	7	7.36		32	32	6.52	24
		1	7			24	24		
		1	7			21	21		
		1	7			24	24		
		1	7			20	20		
		1	7			26	26		
		1	7			34	34		
		1	7			20	20		
		1	7			18	18		
		1	7			18	18		

WATER PRESSURE TEST IN DRILL HOLE

Hole No: BME-1 (Test 1)

Project: Small Hydro Study For Medamit

Date of Test: 1.8.1987

Job No: KSI/87(J18)

Reporter: B.J.O.

Stage No:

Depth of Packer (m): 5.60

Depth of hole bottom (m): 10.60

Test Length (m): 5.00

Time			Gauge Pressure	Effective Pressure	Integrated	Water pumped-in		Lugeon Value	Remarks
Hr.	Min	Elapsed (min)	Kg/cm^2	Kg/cm^2	ℓ/min	Sectional ℓ/min	Constant rate ℓ/min		(Average)
		1	10	10.36		26	26	4.83	25
		1	10			31	31		
		1	10			29	29		
		1	10			31	31		
		1	10			18	18		
		1	10			22	22		
		1	10			21	21		
		1	10			22	22		
		1	10			24	24		
		1	10			22	22		
		1	7	7.36		14	14	5.71	21
		1	7			21	21		
		1	7			20	20		
		1	7			19	19		
		1	7			13	13		
		1	7			13	13		
		1	7			25	25		
		1	7			27	27		
		1	7			29	29		
		1	7			29	29		
		1	4	4.36		18	18	7.80	17
		1	4			16	16		
		1	4			16	16		
		1	4			18	18		
		1	4			15	15		
		1	4			18	18		
		1	4			15	15		
		1	4			17	17		
		1	4			17	17		
		1	4			16	16		

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WATER PRESSURE TEST IN DRILL HOLE

Hole No: BME-1 (Test 1)

Project: Small Hydro Study For Medamit

Date of Test: 1.8.1987

Reporter: B.J.D.

Job No: KSI/87(J18)

Stage No:

Depth of Packer (m): 5.60

Depth of hole bottom (m): 10.60

Test Length (m): 5.00

Time			Gauge Pressure	Effective Pressure	Integrated	Water pumped-in		Lugeon Value	Remarks
Hr.	Min	Elapsed (min)	Kg/cm^2	Kg/cm^2	ℓ/min	Sectional ℓ/min	Constant rate ℓ/min		(Average)
		1	1	1.36		11	11	17.65	12
		1	1			14	14		
		1	1			13	13		
		1	1			11	11		
		1	1			10	10		
		1	1			16	16		
		1	1			9	9		
		1	1			10	10		
		1	1			11	11		
		1	1			10	10		

GEOTECHNIQUE EAST MALAYSIA SDN. BHD.
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WATER PRESSURE TEST IN DRILL HOLE	HOLE NO.: BME-1 (Test 2)

Project: Small Hydro Study For Medemit — Coordinates:

Location: Medamit — Date of Test: 3.8.1987

Job No : KSI/87(J18) — Reporter: B.J.O.

Borehole	Elevation C. D. (m):			Diameter (mm): 75
	Dip Angle (o): 90°			Bearing (o):
Test Section	Stage No:			GEOLOGY: Moderately weathered grey strong fine-grained SANDSTONE (Greywacke, probably metamorphic)
	Depth	Packer (m)	10.60	
		Hole Bottom (m)	15.60	
	Elev.	Packer (m)		
		Hole Bottom (m)		
	Length, L (m): 5.00			

Height of Gauge (m): 0.40

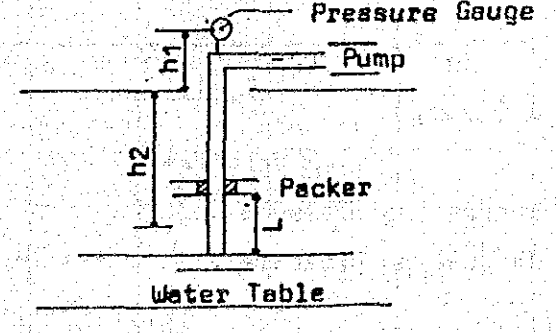
Water Head (m): 8.00 — Temp. of Injected Water °C: 26

Pump	Model, Type: SP 408	Flow Meter	Type:
	Max. Discharge (l/min): 105		Min. Precision (l): 1 Litre
	Max. Pressure (g/cm²): 40,000	Pressure Gauge	Min. Reading (g/cm²): 500
Type of Packer	Hydraulically inflated single packer		Max. Reading (g/cm²): 20,000

*Effective Pressure (Kg/cm²) $P = Pa + 1/10\ (h - h\ell)$
where, $h = h_1 + h_2$ $h\ell$ = head loss

** Lugeon Value (l/min/m/10kg/cm²) = Lu = 100/PL

Unsaturated Strata:



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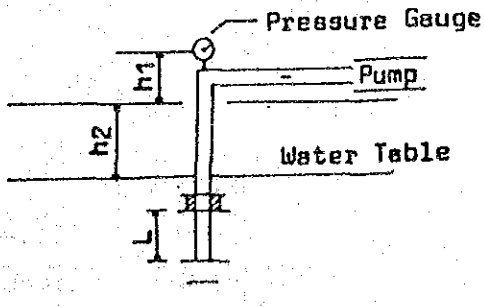


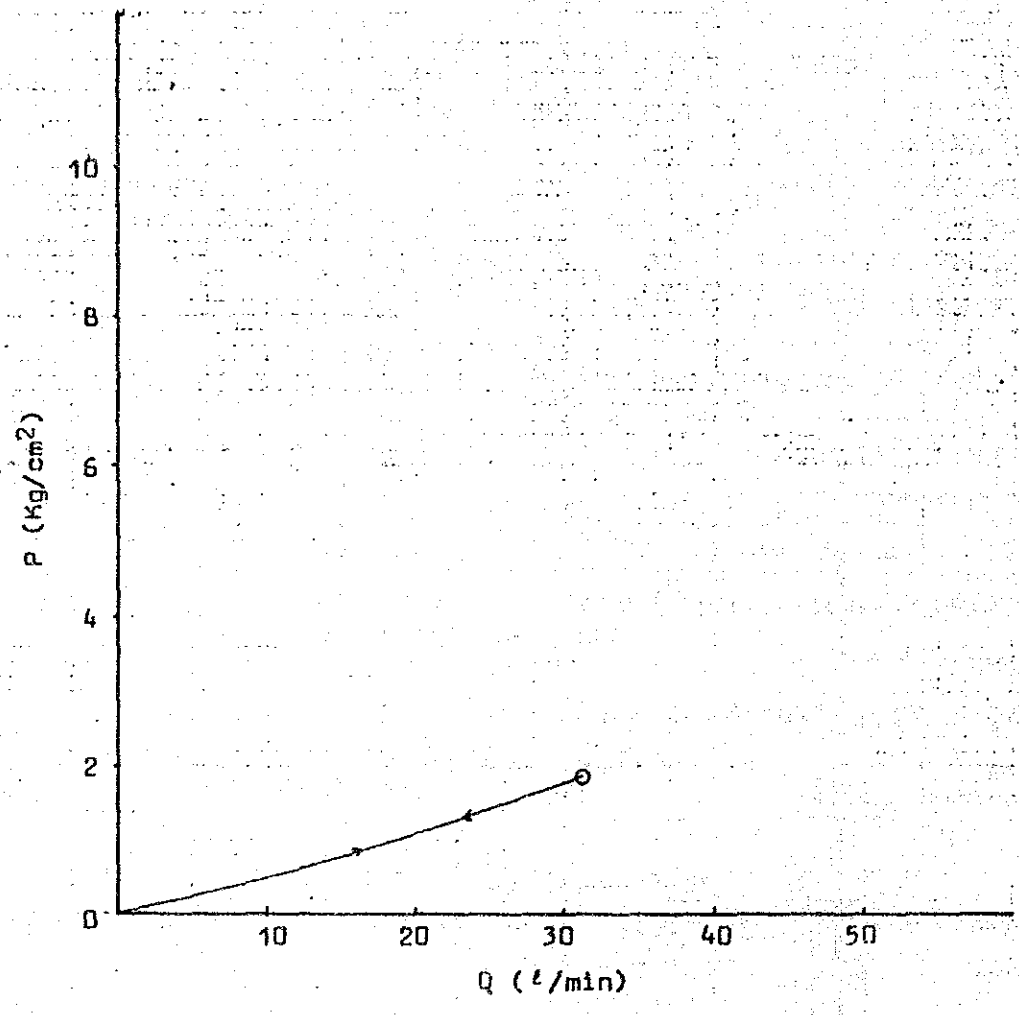
Project: Small Hydro Study For Medamit

Job No: KSI/87(J18)

Type of Test: Water Pressure Test in drill hole

Test No: BME-1/Test 2 (10.60 - 15.60m)

(Test Failed)



Remarks:-

→○→ Discharge of increasing pressure

←□← Discharge of decreasing pressure

——— Average

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WATER PRESSURE TEST IN DRILL HOLE									Hole No: BME-1 (Test 2)
Project: Small Hydro Study For Medamit									Date of Test: 3.8.1987
Job No: KSI/87(J18)									Reporter: B.J.O.
Stage No:			Depth of Packer (m): 10.60						Test Length (m): 5.00
			Depth of hole bottom (m): 15.60						
Time			Gauge Pressure	Effective Pressure	Integrated	Water pumped-in			Remarks
Hr.	Min	Elapsed (min)	Kg/cm^2	Kg/cm^2	ℓ/min	Sectional ℓ/min	Constant rate ℓ/min	Lugeon Value	(Average)
16	30	1	1	1.84		35	35	33.7	31
		1	1			32	32		
		1	1			31	31		
		1	1			32	32		
		1	1			32	32		
		1	1			32	32		
		1	1			34	34		
		1	1			28	28		
		1	1			28	28		
		1	1			26	26		

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WATER PRESSURE TEST IN DRILL HOLE	HOLE NO.: BME-1 (Test 3)

Project: Small Hydro Study For Medamit
Coordinates:

Location: Medamit
Date of Test: 5.8.1987

Job No : KSI/87(J18)
Reporter: B.J.O.

Borehole	Elevation C. D. (m):			Diameter (mm): 75
	Dip Angle (o): 90°			Bearing (o):
Test Section	Stage No:			GEOLOGY: Moderately weathered grey strong fine-grained SANDSTONE (Greywacke, probably metemorphic)
	Depth	Packer (m)	16.00	
		Hole Bottom (m)	21.10	
	Elev.	Packer (m)		
		Hole Bottom (m)		
	Length, L (m): 5.10			
Height of Gauge (m): 0.40				

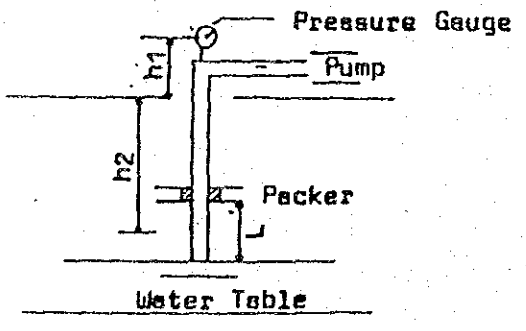
Water Head (m): 13.80
Temp. of Injected Water °C: 26

Pump	Model, Type: SP 408	Flow Meter	Type:
	Max. Discharge (l/min): 105		Min. Precision (l): 1 Litre
	Max. Pressure (g/cm²): 40,000	Pressure Gauge	Min. Reading (g/cm²): 500
Type of Packer	Hydraulically inflated single packer		Max. Reading (g/cm²): 20,000

*Effective Pressure (Kg/cm²) P = Pa + 1/10 (h-ht)
where, h = h1+h2 ht = head loss

** Lugeon Value (l/min/m/10kg/cm²) = Lu = 100/PL

Unsaturated Strata:



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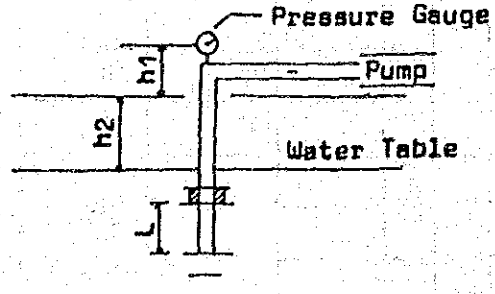


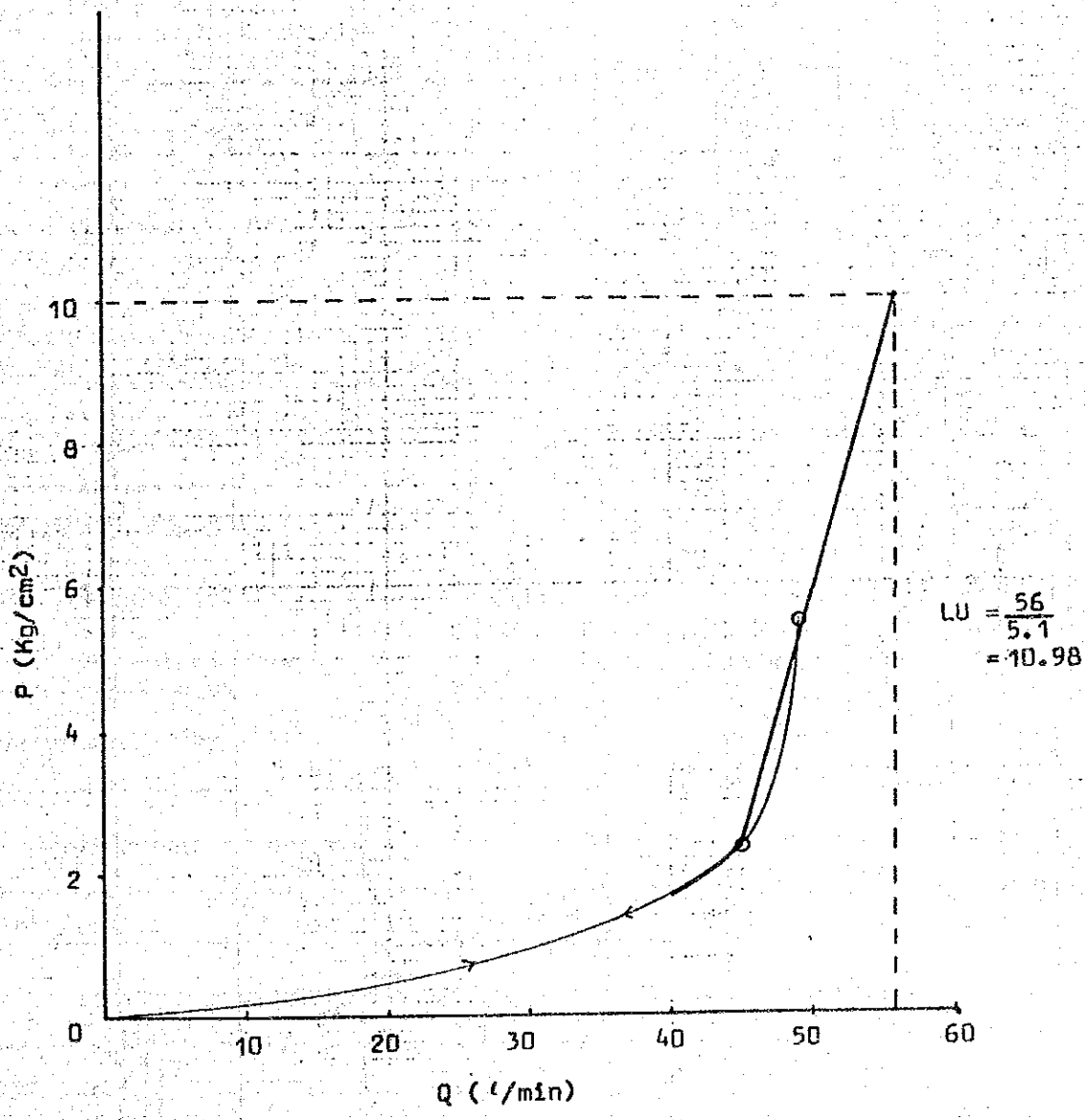
Project: Small Hydro Study For Medamit

Job No : KSI/87(J18)

Type of Test: Water Pressure Test in drill hole

Test No: BME-1/Test 3 (16.00 - 21.10m)

(Test Failed)



Remarks:-

→—○—→ Discharge of increasing pressure

←—□—← Discharge of decreasing pressure

——— Average

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WATER PRESSURE TEST IN DRILL HOLE

Hole No: BME-1 (Test 3)

Project: Small Hydro Study For Medamit

Date of Test: 5.8.1987

Reporter: B.J.O.

Job No: KSI/87(J18)

Stage No:

Depth of Packer (m): 16.00

Depth of hole bottom (m): 21.10

Test Length (m): 5.10

Time			Gauge Pressure	Effective Pressure	Integrated	Water pumped-in		Lugeon Value	Remarks (Average)
Hr.	Min	Elapsed (min)	Kg/cm^2	Kg/cm^2	ℓ/min	Sectional ℓ/min	Constant rate ℓ/min		
19	30	1	1	2.42		42	42	36.5	45
		1	1			46	46		
		1	1			43	43		
		1	1			45	45		
		1	1			45	45		
		1	1			45	45		
		1	1			45	45		
		1	1			45	45		
		1	1			45	45		
		1	1			45	45		
		1	1			45	45		
		1	4	5.42		40	40	18.1	49
		1	4			51	51		
		1	4			50	50		
		1	4			50	50		
		1	4			50	50		
		1	4			50	50		
		1	4			50	50		
		1	4			50	50		
		1	4			50	50		

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WATER PRESSURE TEST IN DRILL HOLE	HOLE NO.: BME-2 (Test 1)

Project: Small Hydro Study for Medamit — Coordinates:

Location: Medamit — Date of Test: 3.8.1987

Job No : KSI/87(J18) — Reporter: B.J.O.

Borehole	Elevation C. D. (m):			Diameter (mm): 75
	Dip Angle (o): 90°			Bearing (o):
Test Section	Stage No:			GEOLOGY:
	Depth	Packer (m)	10.60	Moderately weathered dark grey thinly bedded moderately strong fractured slaty SHALE (Partings along bedding plane due to coring, bedding plane 40° to 60°)
		Hole Bottom (m)	15.60	
	Elev.	Packer (m)		
		Hole Bottom (m)		
	Length, L (m):			
Height of Gauge (m): 0.40				

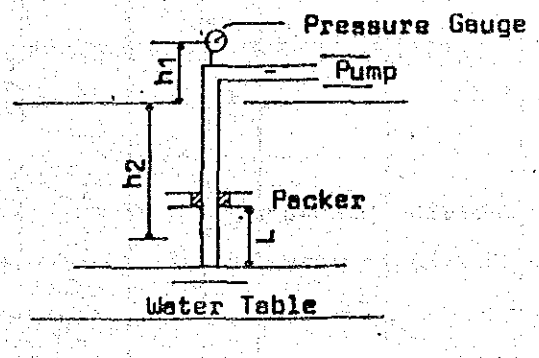
Water Head (m): 8.60 — Temp. of Injected Water °C:

Pump	Model, Type: SP 408	Flow Meter	Type:
	Max. Discharge (l/min): 105		Min. Precision (l): 1 Litre
	Max. Pressure (g/cm²): 40,000	Pressure Gauge	Min. Reading (g/cm²): 500
Type of Packer	Hydraulically inflated single packer		Max. Reading (g/cm²): 20,000

*Effective Pressure (Kg/cm²) P = Pa + 1/10 (h-ht)
where, h = h1+h2 ht = head loss

** Lugeon Value (l/min/m/10kg/cm²) = Lu = 10Q/PL

Unsaturated Strata:



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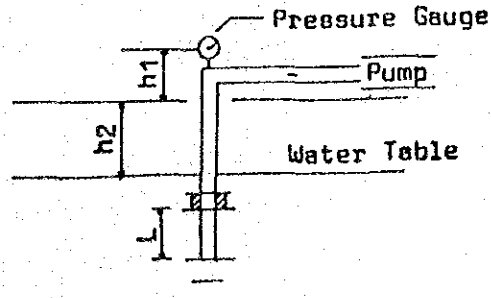
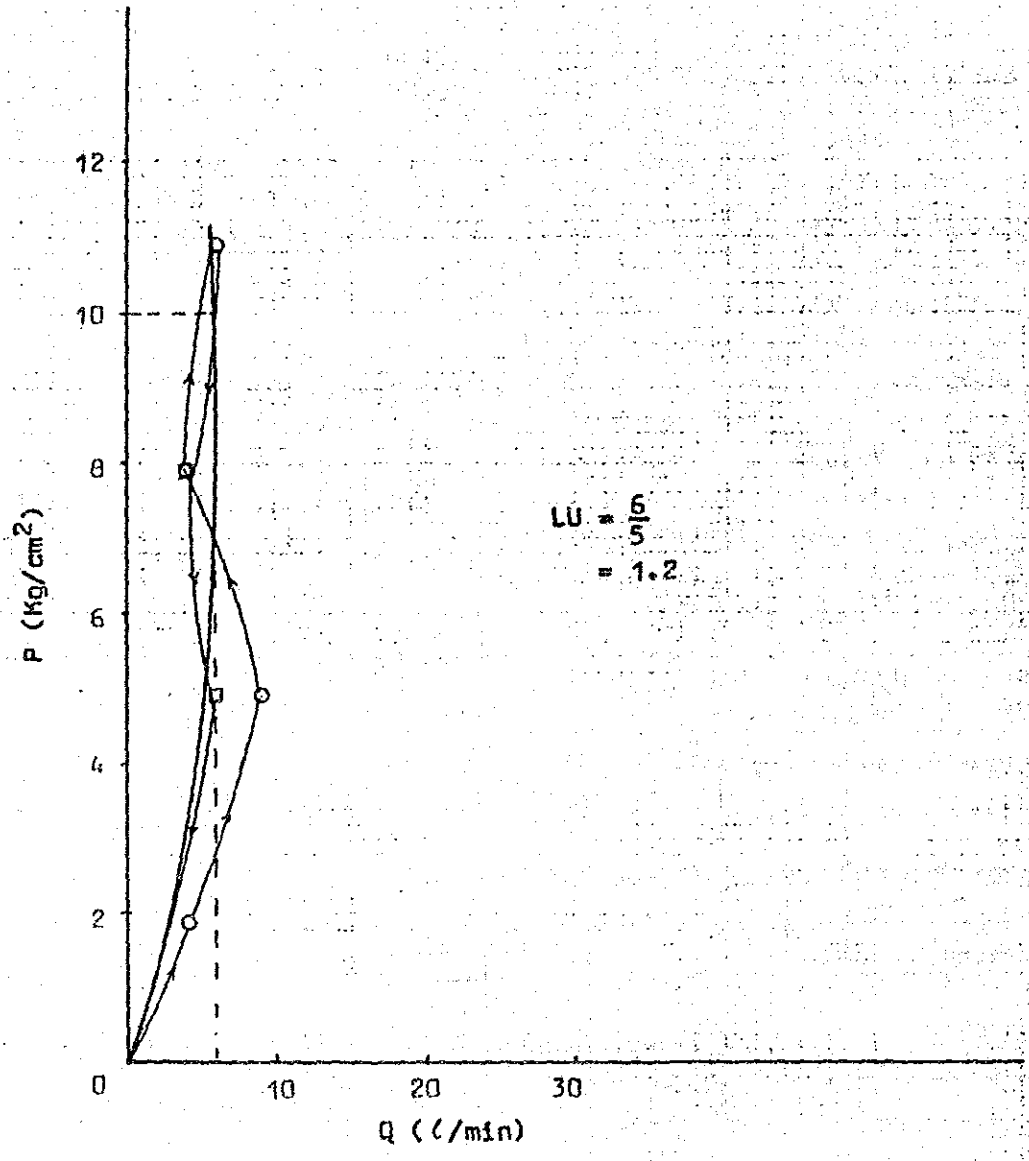


Project: Small Hydro Study For Medamit

Job No: KSI/87(J18)

Type of Test: Water Pressure Test in drill hole

Test No: BME-2/Test 1 (10.50 - 15.60m)



Remarks :-

→○→ Discharge of increasing pressure

←□← Discharge of decreasing pressure

——— Average

GEOTECHNIQUE EAST MALAYSIA SDN. BHD.
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WATER PRESSURE TEST IN DRILL HOLE									Hole No: BME-2 (Test 1)
Project: Small Hydro Study for Medamit									Date of Test: 3.8.1987
Job No: KSI/87(J18)									Reporter: B.J.O.
Stage No:				Depth of Packer (m): 10.60 Depth of hole bottom (m): 15.60					Test Length (m): 5.00
Time			Gauge Pressure	Effective Pressure	Integrated	Water pumped-in		Lugeon Value	Remarks (Average)
Hr.	Min	Elapsed (min)	Kg/cm²	Kg/cm²	ℓ/min	Sectional ℓ/min	Constant rate ℓ/min		
12	30	1	1	1.90		3	3	4.21	4
		1	1			4	4		
		1	1			5	5		
		1	1			5	5		
		1	1			4	4		
		1	1			6	6		
		1	1			4	4		
		1	1			4	4		
		1	1			4	4		
		1	1			4	4		
		1	4	4.90		4	4	3.67	9
		1	4			8	8		
		1	4			11	11		
		1	4			9	9		
		1	4			9	9		
		1	4			9	9		
		1	4			9	9		
		1	4			9	9		
		1	4			9	9		
		1	4			9	9		
		1	7	7.90		7	7	1.01	4
		1	7			6	6		
		1	7			5	5		
		1	7			2	2		
		1	7			4	4		
		1	7			1	1		
		1	7			2	2		
		1	7			4	4		
		1	7			3	3		
		1	7			3	3		

WATER PRESSURE TEST IN DRILL HOLE

Hole No: BME-2 (Test 1)

Project: Small Hydro Study for Medamit

Date of Test: 3.8.1987

Reporter: B.J.O.

Job No: KSI/87(J18)

Stage No:

Depth of Packer (m):

Depth of hole bottom (m):

Test Length (m): 5.00

Time			Gauge Pressure	Effective Pressure	Integrated	Water pumped-in		Lugeon Value	Remarks
Hr.	Min	Elapsed (min)	Kg/cm^2	Kg/cm^2	ℓ/min	Sectional ℓ/min	Constant rate ℓ/min.		(Average)
		1	10	10.90		5	5	1.10	6
		1	10			5	5		
		1	10			7	7		
		1	10			14	14		
		1	10			7	7		
		1	10			5	5		
		1	10			5	5		
		1	10			5	5		
		1	10			5	5		
		1	10			5	5		
		1	7	7.90		2	2	1.01	4
		1	7			4	4		
		1	7			2	2		
		1	7			6	6		
		1	7			5	5		
		1	7			4	4		
		1	7			6	6		
		1	7			5	5		
		1	7			5	5		
		1	7			5	5		
		1	4	4.90		5	5	2.45	6
		1	4			5	5		
		1	4			3	3		
		1	4			6	6		
		1	4			6	6		
		1	4			6	6		
		1	4			6	6		
		1	4			6	6		
		1	4			6	6		
		1	4			6	6		

GEOTECHNIQUE EAST MALAYSIA SDN. BHD.
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WATER PRESSURE TEST IN DRILL HOLE								Hole No: BME-2 (Test 1)	
Project: Small Hydro Study for Medemit								Date of Test: 3.8.1987	
Job No: KSI/87(J18)								Reporter: B.J.D.	
Stage No:			Depth of Packer (m):					Test Length (m): 5.00	
			Depth of hole bottom (m):						
Time			Gauge Pressure	Effective Pressure	Integrated	Water pumped-in		Lugeon Value	Remarks (Average)
Hr.	Min	Elapsed (min)	Kg/cm^2	Kg/cm^2	ℓ/min	Sectional ℓ/min	Constant rate ℓ/min		
		1	1	1.90		4	4	3.16	3
		1	1			4	4		
		1	1			2	2		
		1	1			3	3		
		1	1			4	4		
		1	1			5	5		
		1	1			3	3		
		1	1			3	3		
		1	1			3	3		
		1	1			3	3		

GEOTECHNIQUE EAST MALAYSIA SDN. BHD.
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Sheet 1 of 1

WATER PRESSURE TEST IN DRILL HOLE	HOLE NO.: BME-2 (Test 2)

Project: Small Hydro Study For Medamit
Coordinates:

Location: Medamit
Date of Test: 3.8.1987

Job No : KSI/87(J18)
Reporter: B.J.O.

Borehole	Elevation C. D. (m):			Diameter (mm): 75
	Dip Angle (o): 90°			Bearing (o):
Test Section	Stage No:			GEOLOGY:
	Depth	Packer (m)	15.60	Moderately weathered dark grey moderately strong fractured thinly bedded slaty SHALE (Quartz vein laminated occasionelly, partings along bedding plane due to coring, bedding plane 40° to 60°)
		Hole Bottom (m)	20.95	
	Elev.	Packer (m)		
		Hole Bottom (m)		
	Length, L (m): 5.35			
Height of Gauge (m): 0.40				

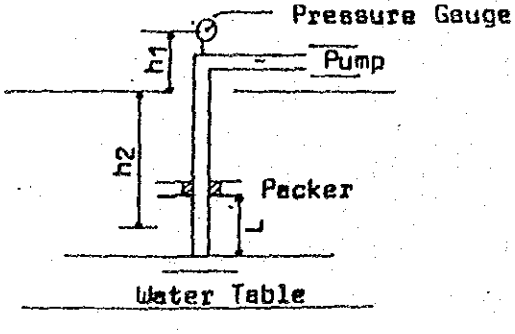
Water Head (m): 7.05
Temp. of Injected Water °C: 26

Pump	Model, Type: SP 40B	Flow Meter	Type:
	Max. Discharge (l/min): 105		Min. Precision (l): 1 Litre
	Max. Pressure (g/cm²): 40,000	Pressure Gauge	Min. Reading (g/cm²): 500
Type of Packer	Hydraulically inflated single packer		Max. Reading (g/cm²): 20,000

*Effective Pressure (Kg/cm²) P = Pa + 1/10 (h-ht)
where, h = h1+h2 ht = head loss

** Lugeon Value (l/min/m/10kg/cm²) = Lu = 10Q/PL

Unsaturated Strata:



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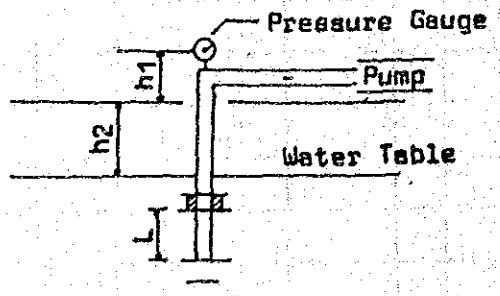
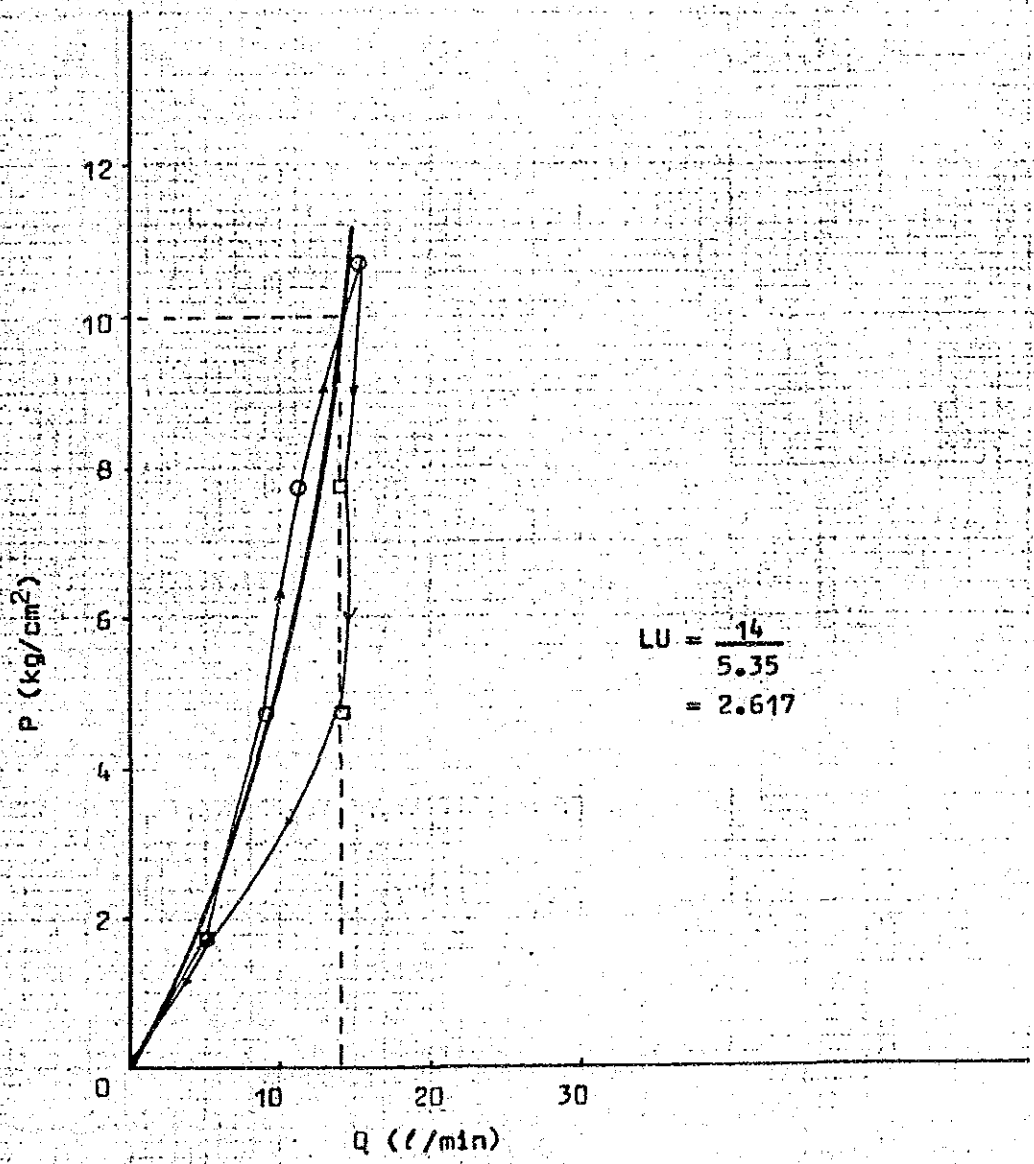


Project: Small Hydro Study For Medamit

Job No: KSI/87(J18)

Type of Test: Water Pressure Test in drill hole

Test No: BME-2/Test 2 (15.60 - 20.95m)



$$LU = \frac{14}{5.35} = 2.617$$

Remarks :-

→○→ Discharge of increasing pressure

←□← Discharge of decreasing pressure

——— Average

GEOTECHNIQUE EAST MALAYSIA SDN. BHD.
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WATER PRESSURE TEST IN DRILL HOLE									Hole No: BME-2(Test 2)	
Project: Small Hydro Study For Medamit									Date of Test: 5.8.1987 Reporter: B.J.O.	
Job No: KSI/87(J18)										
Stage No:				Depth of Packer (m): 15.60 Depth of hole bottom (m): 20.95					Test Length (m): 5.35	
Time			Gauge Pressure	Effective Pressure	Integrated	Water pumped-in				Remarks
Hr.	Min	Elapsed (min)	Kg/cm^2	Kg/cm^2	ℓ/min	Sectional ℓ/min	Constant rate ℓ/min	Lugeon Value		(Average)
		1	1	1.745		6	6	5.36		5
		1	1			6	6			
		1	1			6	6			
		1	1			4	4			
		1	1			4	4			
		1	1			6	6			
		1	1			5	5			
		1	1			5	5			
		1	1			4	4			
		1	1			5	5			
		1	4	4.745		9	9	3.55		9
		1	4			7	7			
		1	4			9	9			
		1	4			7	7			
		1	4			9	9			
		1	4			12	12			
		1	4			8	8			
		1	4			7	7			
		1	4			9	9			
		1	4			8	8			
		1	7	7.745		10	10	2.65		11
		1	7			10	10			
		1	7			10	10			
		1	7			12	12			
		1	7			11	11			
		1	7			12	12			
		1	7			11	11			
		1	7			12	12			
		1	7			10	10			
		1	7			11	11			

WATER PRESSURE TEST IN DRILL HOLE

Hole No: BME-2 (Test 2)

Project: Small Hydro Study For Medamit

Date of Test: 5.8.1987

Job No: KSI/87(J18)

Reporter: B.J.O.

Stage No:

Depth of Packer (m): 15.60

Depth of hole bottom (m): 20.95

Test Length (m): 5.35

Time			Gauge Pressure	Effective Pressure	Integrated	Water pumped-in		Lugeon Value	Remarks (Average)
Hr.	Min	Elapsed (min)	Kg/cm^2	Kg/cm^2	ℓ/min	Sectional ℓ/min	Constant rate ℓ/min		
		1	10	10.745		17	17	2.61	15
		1	10			15	15		
		1	10			15	15		
		1	10			17	17		
		1	10			15	15		
		1	10			15	15		
		1	10			15	15		
		1	10			15	15		
		1	10			15	15		
		1	10			15	15		
		1	7	7.745		16	16	3.38	14
		1	7			18	13		
		1	7			17	13		
		1	7			17	14		
		1	7			17	14		
		1	7			18	14		
		1	7			17	14		
		1	7			17	14		
		1	7			17	14		
		1	7			17	14		
		1	4	4.745		14	14	5.52	14
		1	4			14	14		
		1	4			13	13		
		1	4			13	13		
		1	4			15	15		
		1	4			15	15		
		1	4			15	15		
		1	4			14	14		
		1	4			14	14		
		1	4			14	14		

GEOTECHNIQUE EAST MALAYSIA SDN. BHD.
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WATER PRESSURE TEST IN DRILL HOLE									Hole No: BME-2 (Test 2)	
Project: Small Hydro Study For Medamit									Date of Test: 5.8.1987 Reporter: B.J.O.	
Job No: KSI/87(J18)										
Stage No:				Depth of Packer (m): 15.60 Depth of hole bottom (m): 20.95					Test Length (m): 5.35	
Time			Gauge Pressure	Effective Pressure	Integrated	Water pumped-in				
Hr.	Min	Elapsed (min)	Kg/cm^2	Kg/cm^2	ℓ/min	Sectional ℓ/min	Constant rate ℓ/min		Lugeon Value	Remarks (Average)
		1	1	1.745		4	4		5.36	5
		1	1			3	3			
		1	1			5	5			
		1	1			5	5			
		1	1			6	6			
		1	1			7	7			
		1	1			5	5			
		1	1			5	5			
		1	1			5	5			
		1	1			5	5			

GEOTECHNIQUE EAST MALAYSIA SDN. BHD.
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WATER PRESSURE TEST IN DRILL HOLE

HOLE NO.: BME-4 (Test 1)

Project: Small Hydro Study For Medemit

Coordinates:

Location: Medemit

Date of Test: 20.7.1987

Job No : KSI/87(J18)

Reporter: B.J.O.

Borehole

Elevation C. D. (m):

Diameter (mm): 75

Dip Angle (o): 90°

Bearing (o):

Test Section

Stage No:

Depth	Packer (m)	6.00
	Hole Bottom (m)	11.20
Elev.	Packer (m)	
	Hole Bottom (m)	

Length, L (m): 5.20

Height of Gauge (m): 0.40

GEOLOGY:

Slightly weathered to fresh grey strong SANDSTONE (Greywacke, probably metamorphic) occasional quartz vein laminated, bedded structure, sub-horizontal planes, occasional partings along bedding planes due to coring

Water Head (m): 0.30

Temp. of Injected Water °C: 26

Pump

Model, Type: SP 408

Max. Discharge (l/min): 105

Max. Pressure (g/cm²): 40,000

Type of Packer:

Flow Meter

Type:

Min. Precision (l): 1 Litre

Pressure Gauge

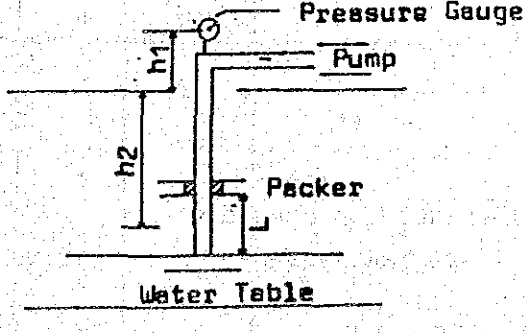
Min. Reading (g/cm²): 500

Max. Reading (g/cm²): 20,000

*Effective Pressure (Kg/cm²) P = Pa + 1/10 (h-hl)
where, h = h1+h2 hl = head loss

** Lugeon Value (l/min/m/10kg/cm²) = Lu = 10Q/PL

Unsaturated Strata:



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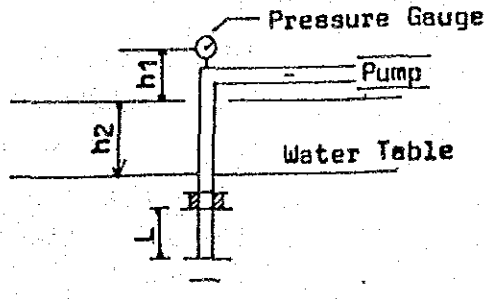
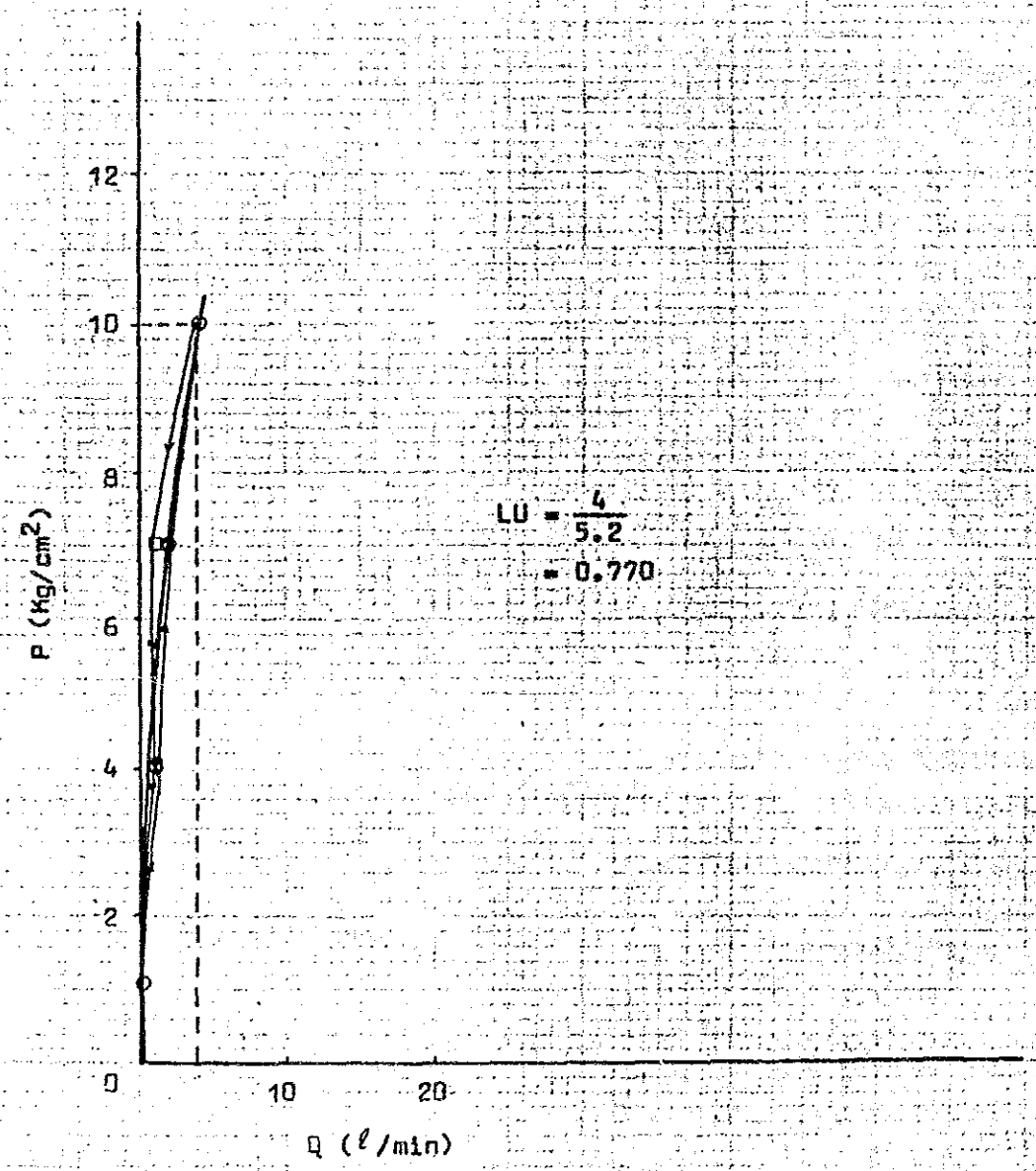


Project: Small Hydro Study For Medamit

Job No: KSI/87(J18)

Type of Test: Water Pressure Test in drill hole

Test No: BME-4/Test 1 (6.00 - 11.20m)



Remarks:

→—○—→ Discharge of increasing pressure

←—□—← Discharge of decreasing pressure

——— Average

GEOTECHNIQUE EAST MALAYSIA SDN. BHD.
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WATER PRESSURE TEST IN DRILL HOLE									Hole No: BME-4 (Test 1)	
Project: Small Hydro Study For Medamit									Date of Test: 20.7.1987	
Job No: KSI/87(J18)									Reporter: B.J.D.	
Stage No:				Depth of Packer (m): 6.00 Depth of hole bottom (m): 11.20					Test Length (m): 5.20	
Time			Gauge Pressure	Effective Pressure	Integrated	Water pumped-in				
Hr.	Min	Elapsed (min)	Kg/cm^2	Kg/cm^2	ℓ/min	Sectional ℓ/min	Constant rate ℓ/min	Lugeon Value	Remarks (Average)	
		1	1	1.07		0	0	0	0	
		1	1			0	0			
		1	1			0	0			
		1	1			0	0			
		1	1			1	1			
		1	1			0	0			
		1	1			0	0			
		1	1			0	0			
		1	4	4.07		3	3	0.47	1	
		1	4			0	0			
		1	4			0	0			
		1	4			2	2			
		1	4			0	0			
		1	4			1	1			
		1	4			0	0			
		1	7	7.07		0	0	0.54	2	
		1	7			2	2			
		1	7			2	2			
		1	7			0	0			
		1	7			0	0			
		1	7			3	3			
		1	10	10.07		4	4	0.76	4	
		1	10			3	3			
		1	10			4	4			
		1	10			3	3			
		1	7	7.07		0	0	0.27	1	
		1	7			1	1			
		1	7			3	3			
		1	7			1	1			
		1	4	4.07		1	1	0.47	1	

WATER PRESSURE TEST IN DRILL HOLE

Hole No: BME-4 (Test 1)

Project: Small Hydro Study For Medamit

Date of Test: 20.7.1987

Reporter: B.J.D.

Job No: KSI/87(J18)

Stage No:

Depth of Packer (m): 6.00

Depth of hole bottom (m): 11.20

Test Length (m): 5.20

Time			Gauge Pressure	Effective Pressure	Integrated	Water pumped-in		Lugeon Value	Remarks
Hr.	Min	Elapsed (min)	Kg/cm^2	Kg/cm^2	ℓ/min	Sectional ℓ/min	Constant rate ℓ/min		(Average)
		1	4			2	2		1
		1	4			0	0		
		1	4			0	0		
		1	1			3	3	0	1
		1	1			0	0		
		1	1			0	0		

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WATER PRESSURE TEST IN DRILL HOLE	HOLE NO.: BME-4 (Test 2)

Project: Small Hydto Study For Medamit — Coordinates:

Location: Medamit — Date of Test: 27.7.1987

Job No : KSI/87(J18) — Reporter: B.J.O.

Borehole	Elevation C. D. (m):		Diameter (mm): 75
	Dip Angle (o): 90°		Bearing (o):
Test Section	Stage No:		
	Depth — Packer (m)	12.00	
	Depth — Hole Bottom (m)	18.00	
	Elev. — Packer (m)		
	Elev. — Hole Bottom (m)		
	Length, L (m): 6.00		

GEOLOGY:

Slightly weathered to fresh grey strong SANDSTONE (Greywacke, probably metamorphic) occasional quartz vein laminated, bedded structure, sub-horizontal planes, occasional partings along bedding plane due to coring

Height of Gauge (m): 0.40

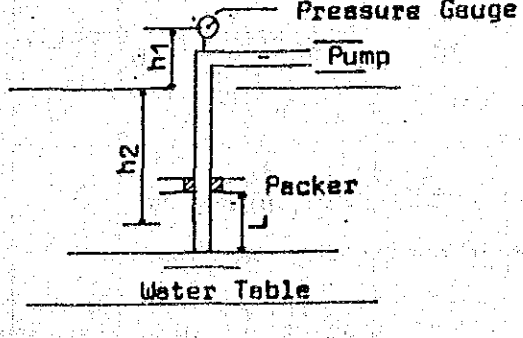
Water Head (m): (Full) — Temp. of Injected Water °C: 26

Pump	Model, Type: SP 40B	Flow Meter	Type:
	Max. Discharge (l/min): 105		Min. Precision (l): 1 Litre
	Max. Pressure (g/cm²): 40,000	Pressure Gauge	Min. Reading (g/cm²): 500
Type of Packer	Hydraulically inflated single packer		Max. Reading (g/cm²): 20,000

*Effective Pressure (Kg/cm²) P = Pa + 1/10 (h-ht)
where, h = h1+h2 ht = head loss

** Lugeon Value (l/min/m/10kg/cm²) = Lu = 100/PL

Unsaturated Strata:



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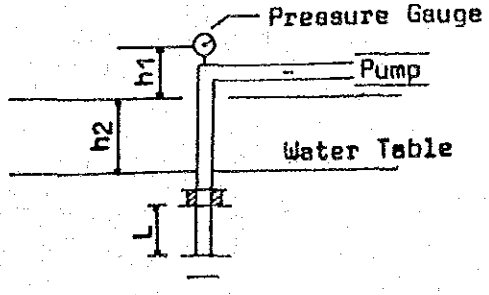
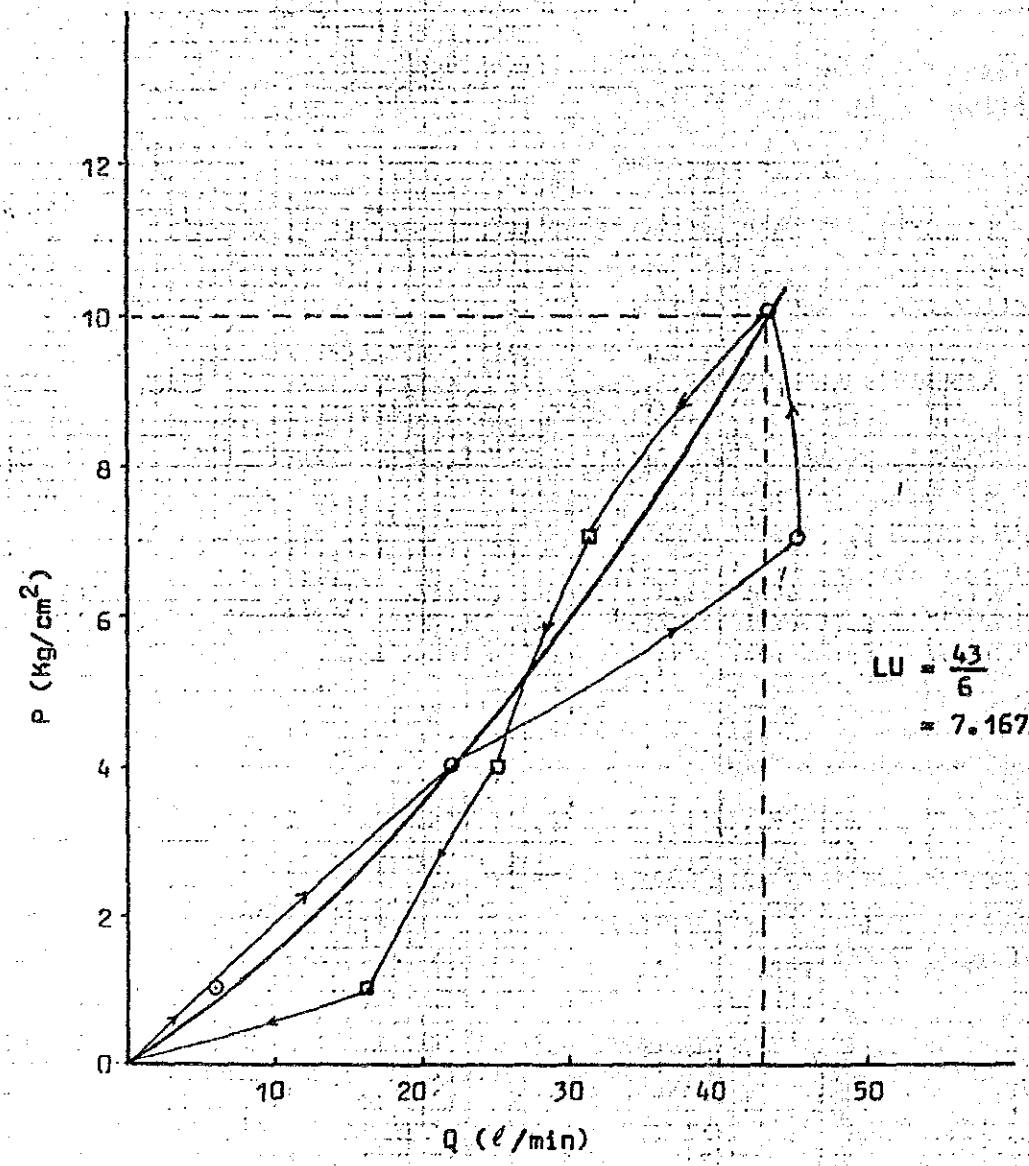


Project: Small Hydro Study For Medamit

Job No: KSI/87(J18)

Type of Test: Water Pressure Test in drill hole

Test No: BME-4/Test 2 (12.00 - 18.00m)



Remarks:-

Discharge of increasing pressure

Discharge of decreasing pressure

Average

WATER PRESSURE TEST IN DRILL HOLE

Hole No: BME-4 (Test 2)

Project: Small Hydro Study For Medamit

Date of Test: 27.7.1987

Job No: KSI/87(J18)

Reporter: B.J.O.

Stage No:

Depth of Packer (m): 12.00

Depth of hole bottom (m): 18.00

Test Length (m): 6.00

Time			Gauge Pressure	Effective Pressure	Integrated	Water pumped-in		Lugeon Value	Remarks
Hr.	Min	Elapsed (min)	Kg/cm²	Kg/cm²	ℓ/min	Sectional ℓ/min	Constant rate ℓ/min		(Average)
15	45	1	1	1.04		6	6	9.62	6
		1	1			4	4		
		1	1			5	5		
		1	1			6	6		
		1	1			5	5		
		1	1			5	5		
		1	1			7	7		
		1	1			7	7		
		1	1			5	5		
		1	1			9	9		
		1	4	4.04		22	22	9.08	22
		1	4			23	23		
		1	4			22	22		
		1	4			24	24		
		1	4			20	20		
		1	4			22	22		
		1	4			23	23		
		1	4			26	26		
		1	4			17	17		
		1	7	7.04		48	48	10.65	45
		1	7			46	46		
		1	7			43	43		
		1	7			52	52		
		1	7			38	38		
		1	7			36	36		
		1	7			45	45		
		1	7			46	46		
		1	7			46	46		
		1	7			46	46		
		1	10	10.04		49	49	7.13	

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WATER PRESSURE TEST IN DRILL HOLE

Hole No: BME-4 (Test 2)

Project: Small Hydro Study For Medamit

Date of Test: 27.7.1987

Reporter: B.J.O.

Job No: KSI/87(J18)

Stage No:

Depth of Packer (m): 12.00

Depth of hole bottom (m): 18.00

Test Length (m): 6.00

Time			Gauge Pressure	Effective Pressure	Integrated	Water pumped-in		Lugeon Value	Remarks (Average)
Hr.	Min	Elapsed (min)	Kg/cm^2	Kg/cm^2	ℓ/min	Sectional ℓ/min	Constant rate ℓ/min		
		1	10	10.04		49	49	7.13	43
		1	10			39	39		
		1	10			37	37		
		1	10			48	48		
		1	10			42	42		
		1	10			40	40		
		1	10			42	42		
		1	10			42	42		
		1	10			42	42		
		1	10	7.04		39	39	7.33	31
		1	10			30	30		
		1	10			33	33		
		1	10			30	30		
		1	10			32	32		
		1	10			30	30		
		1	10			30	30		
		1	10			30	30		
		1	10			29	29		
		1	4	4.04		28	28	10.31	25
		1	4			27	27		
		1	4			26	26		
		1	4			24	24		
		1	4			25	25		
		1	4			21	21		
		1	4			26	26		
		1	4			21	21		
		1	4			24	24		
		1	4			22	22		
		1	1	1.04		19	19	25.64	16
		1	1			17	17		

WATER PRESSURE TEST IN DRILL HOLE									Hole No: BME-4(Test 2)
Project : Small Hydro Study For Medamit									Date of Test: 27.7.1987
Job No: KSI/87(J18)									Reporter: B.J.O.
Stage No:			Depth of Packer (m): 12.00						Test Length (m): 6.00
			Depth of hole bottom (m): 18.00						
Time			Gauge Pressure	Effective Pressure	Integrated	Water pumped-in		Lugeon Value	Remarks
Hr.	Min	Elapsed (min)	Kg/cm^2	Kg/cm^2	ℓ/min	Sectional ℓ/min	Constant rate ℓ/min		(Average)
		1	1			16	16		16
		1	1			22	22		
		1	1			13	13		
		1	1			17	17		
		1	1			12	12		
		1	1			19	19		
		1	1			12	12		
		1	1			17	17		

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WATER PRESSURE TEST IN DRILL HOLE	HOLE NO.: BME-4 (Test 3)

Project: Small Hydro Study For Medamit

Location: Medamit

Job No : KSI/87(J18)

Coordinates:

Date of Test: 29-7-1987

Reporter: B.J.O.

Borehole	Elevation C. D. (m):		Diameter (mm): 75
	Dip Angle (o): 90°		Bearing (o):
Test Section	Stage No:		
	Depth: Packer (m)	17.60	
	Depth: Hole Bottom (m)	22.30	
	Elev.: Packer (m)		
	Elev.: Hole Bottom (m)		
	Length, L (m):		

GEOLOGY:

Slightly weathered to fresh grey strong SANDSTONE (Greywacke, probably metamorphic) occasional laminated with shale & quartz veins, bedded structure, sub-horizontal planes, occasional partings along bedding planes due to coring

Height of Gauge (m): 0.40

Water Head (m): Full

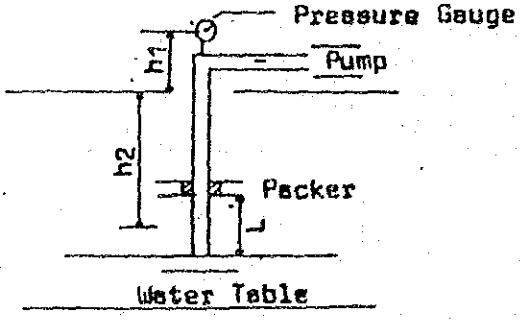
Temp. of Injected Water °C: 26

Pump	Model, Type: SP 408	Flow Meter	Type:
	Max. Discharge (l/min): 105		Min. Precision (l): 1
	Max. Pressure (g/cm²): 40,000	Pressure Gauge	Min. Reading (g/cm²): 500
Type of Packer	Hydraulically inflated single packer		Max. Reading (g/cm²): 20,000

*Effective Pressure (Kg/cm²) $P = Pe + 1/10 (h-hl)$
where, $h = h1+h2$ hl = head loss

** Lugeon Value (l/min/m/10kg/cm²) = Lu = 100/PL

Unsaturated Strata:



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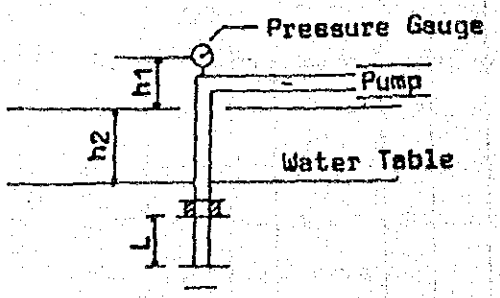
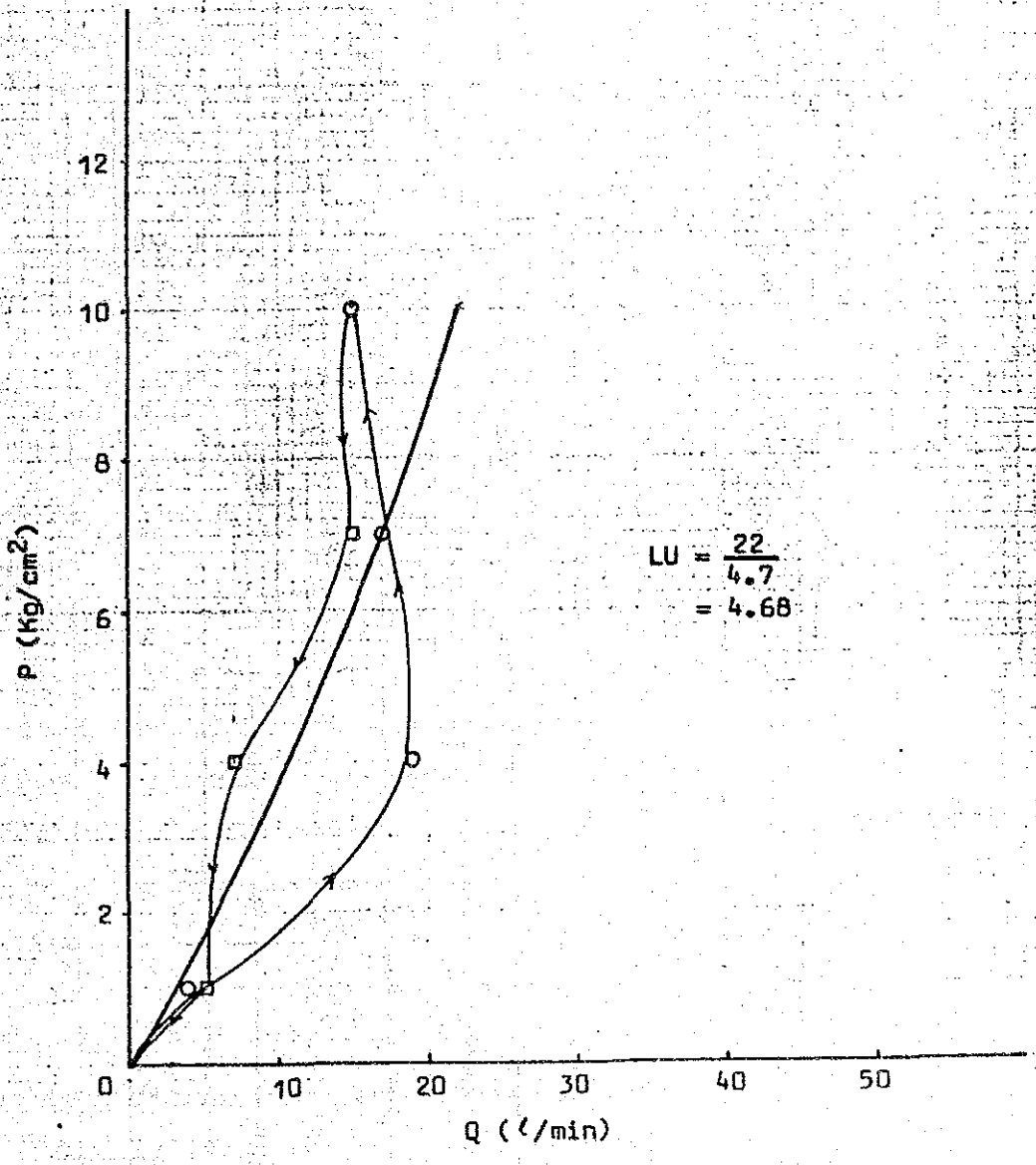


Project: Small Hydro Study For Medamit

Job No : KSI/87(J18)

Type of Test: Water Pressure Test in drill hole

Test No: BME-4/Test 3 (17.60 - 22.30m)



$$LU = \frac{22}{4.7} = 4.68$$

Remarks:-

Discharge of increasing pressure

Discharge of decreasing pressure

Average

GEOTECHNIQUE EAST MALAYSIA SDN. BHD.
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WATER PRESSURE TEST IN DRILL HOLE									Hole No: BME-4 (Test 3)
Project & Location: Small Hydro Study for Medamit									Date of Test: 29-7-1987
Job No: KSI/87(J18)									Reporter: B.J.O.
Stage No:				Depth of Packer (m): 17.60					Test Length (m): 4.70
				Depth of hole bottom (m): 22.30					

Time			Gauge Pressure	Effective Pressure	Integrated	Water pumped-in		Lugeon Value	Remarks (Average)
Hr.	Min	Elapsed (min)	Kg/cm^2	Kg/cm^2	ℓ/min	Sectional ℓ/min	Constant rate ℓ/min		
11	15	1	1	1.04		4	4	8.18	4
		1	1			5	5		
		1	1			6	6		
		1	1			3	3		
		1	1			1	1		
		1	1			3	3		
		1	1			3	3		
		1	1			3	3		
		1	1			4	4		
		1	1			3	3		
		1	4	4.04		21	21	10.01	19
		1	4			20	20		
		1	4			21	21		
		1	4			21	21		
		1	4			20	20		
		1	4			20	20		
		1	4			19	19		
		1	4			15	15		
		1	4			16	16		
		1	7	7.04		21	21	5.14	17
		1	7			21	21		
		1	7			20	20		
		1	7			20	20		
		1	7			18	18		
		1	7			15	15		
		1	7			13	13		
		1	7			13	13		
		1	7			13	13		
		1	7			13	13		
		1	10	10.04		11	11	3.18	15

WATER PRESSURE TEST IN DRILL HOLE

Hole No: BME-4 (Test 3)

Project & Location: Small Hydro Study For Medamit

Date of Test: 29-7-1987

Job No: KSI/87(J18)

Reporter: B.J.O.

Stage No:

Depth of Packer (m): 17.60

Depth of hole bottom (m): 22.30

Test Length (m): 4.70

Time			Gauge Pressure	Effective Pressure	Integrated	Water pumped-in		Lugeon Value	Remarks (Average)
Hr.	Min	Elapsed (min)	Kg/cm^2	Kg/cm^2	ℓ/min	Sectional ℓ/min	Constant rate ℓ/min		
		1	10	10.04		16	16	0.32	15
		1	10			18	18		
		1	10			13	13		
		1	10			12	12		
		1	10			14	14		
		1	10			12	12		
		1	10			13	13		
		1	10			18	18		
		1	10			25	25		
		1	7	7.04		25	25	4.53	15
		1	7			25	25		
		1	7			25	25		
		1	7			8	8		
		1	7			8	8		
		1	7			9	9		
		1	7			10	10		
		1	7			8	8		
		1	4	4.04		7	7	3.68	7
		1	4			8	8		
		1	4			8	8		
		1	4			7	7		
		1	4			7	7		
		1	4			6	6		
		1	4			6	6		
		1	4			5	5		
		1	4			6	6		
		1	4			7	7		
		1	1	1.04		5	5	10.23	
		1	1			4	4		
		1	1			4	4		

WATER PRESSURE TEST IN DRILL HOLE

Hole No: BME-4 (Test 3)

Project & Location: Small Hydro Study For Mademit

Date of Test: 29-7-1987

Reporter: B.J.O.

Job No: KSI/87(J18)

Stage No:

Depth of Packer (m): 17.60

Depth of hole bottom (m): 22.30

Test Length (m): 4.70

Time			Gauge Pressure	Effective Pressure	Integrated	Water pumped-in		Lugeon Value	Remarks (Average)
Hr.	Min	Elapsed (min)	Kg/cm^2	Kg/cm^2	ℓ/min	Sectional ℓ/min	Constant rate ℓ/min		
		1	1			4	4		5
		1	1			5	5		
		1	1			5	5		
		1	1			3	3		
		1	1			7	7		
		1	1			5	5		
		1	1			5	5		

GEOTECHNIQUE EAST MALAYSIA SDN. BHD.
Foundation & Soil Specialists

Sheet 1 of 1

WATER PRESSURE TEST IN DRILL HOLE	HOLE NO.: BME-7 (Test 1)

Project: Small Hydro Study For Medamit — Coordinates:

Location: Medamit — Date of Test:

Job No : KSI/87(J18) — Reporter: B.J.O.

Borehole	Elevation C. D. (m):			Diameter (mm): 75
	Dip Angle (o): 90°			Bearing (o):
Test Section	Stage No:			GEOLOGY: Slightly weathered grey strong LIMESTONE, occasional calcite vein laminated
	Depth	Packer (m)	7.30	
		Hole Bottom (m)	10.40	
	Elev.	Packer (m)		
		Hole Bottom (m)		
	Length, L (m):			
Height of Gauge (m): 0.40				

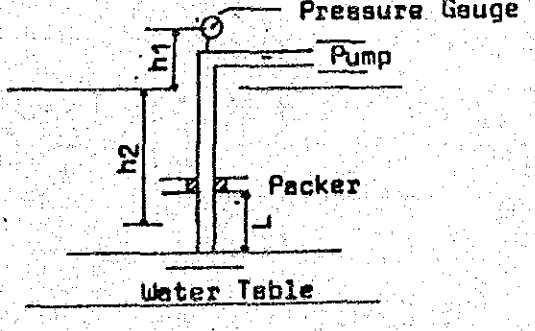
Water Head (m): 8.35 — Temp. of Injected Water °C: 26

Pump	Model, Type: SP 408	Flow Meter	Type:
	Max. Discharge (l/min): 105		Min. Precision (l): 1
	Max. Pressure (g/cm²): 40,000	Pressure Gauge	Min. Reading (g/cm²): 500
Type of Packer	Hydraulically inflated single packer		Max. Reading (g/cm²): 20,000

*Effective Pressure (Kg/cm²) P = Pe + 1/10 (h-ht)
where, h = h1+h2 ht = head loss

** Lugeon Value (l/min/m/10kg/cm²) = Lu = 100/PL

Unsaturated Strata:



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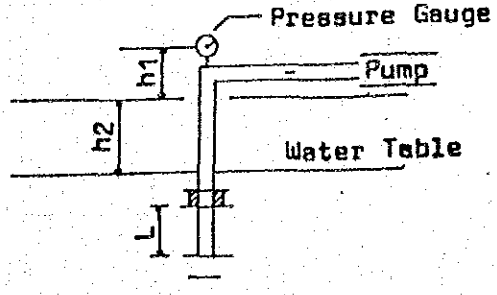

GEOTECHNIQUE EAST MALAYSIA SDN. BHD.
Foundation & Soil Specialists

WATER PRESSURE TEST IN DRILL HOLE

Hole No: BME-7 (Test 1)

Project & Location: Small Hydro Study For Medamit

Date of Test:

Reporter: B.J.D.

Job No: KSI/87(J18)

Stage No:

Depth of Packer (m): 7.30

Depth of hole bottom (m): 10.40

Test Length (m): 3.10

Time			Gauge Pressure	Effective Pressure	Integrated	Water pumped-in		Lugeon Value	Remarks (Average)
Hr.	Min	Elapsed (min)	Kg/cm^2	Kg/cm^2	ℓ/min	Sectional ℓ/min	Constant rate ℓ/min		
		1	1			75			75
		1	1			75			
		1	1			75			Test Failed
		1	1			75			
		1	1			75			
		1	1			75			
		1	1			75			
		1	1			75			
		1	1			75			
		1	1			75			
		1	1			75			
		1	1			75			
		1	1			75			

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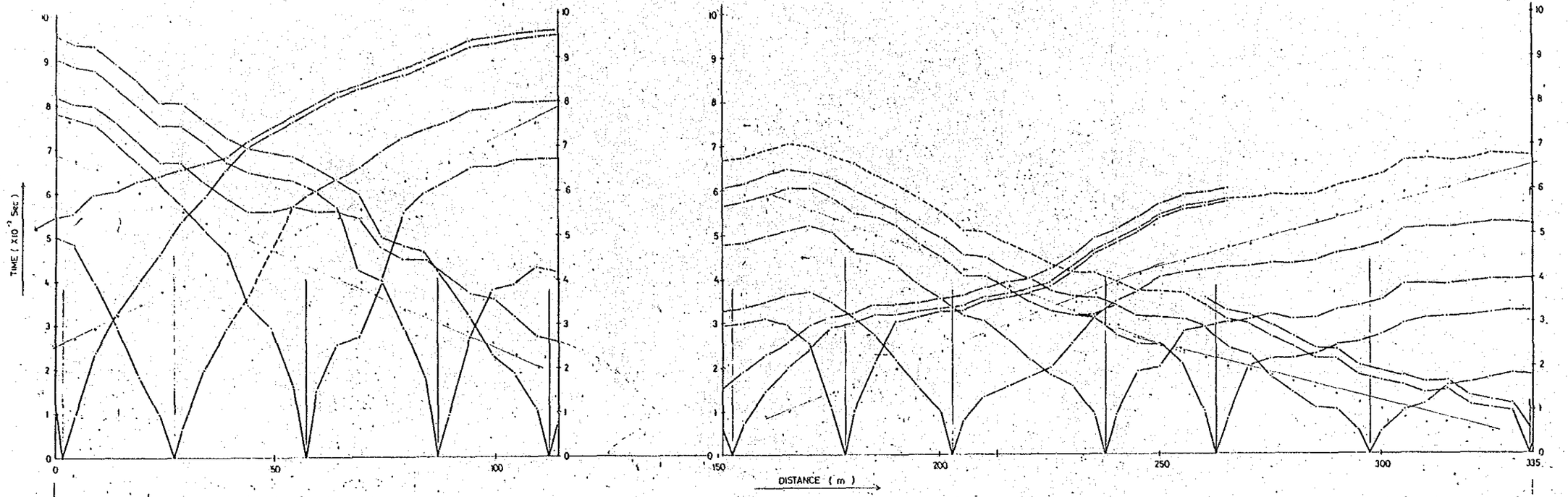
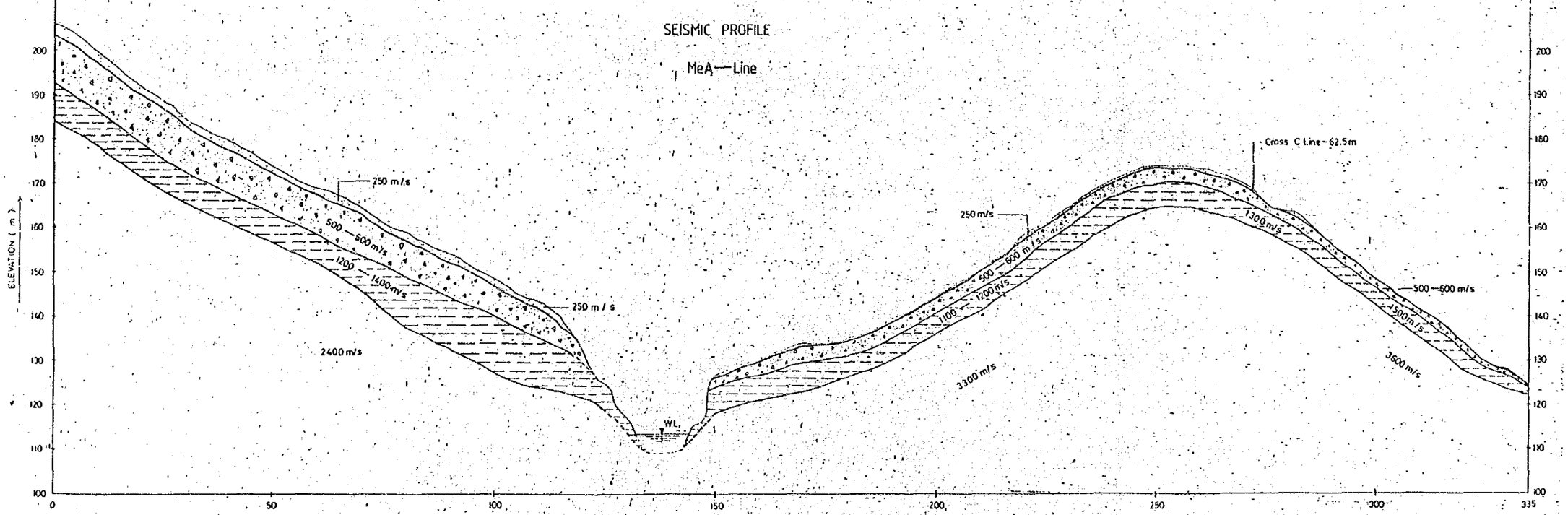
TRAVEL-TIME GRAPH

MeA—Line



SEISMIC PROFILE

MeA—Line



LEGEND

- Top soil • Completely weathered rock • Slopwash material
- Highly weathered • Highly to moderately weathered rock material
- Moderately weathered • Moderately to slightly weathered rock material
- Slightly weathered • Fresh rock
- Ground profile
- Rock / Soil refractor
- Velocity boundary within bedrock

Scale: 1 : 500

SURVEY INFORMATION

Date of survey : 18.06.87.
Seismic Energy Source: 12 G.A. SHELLS
Recording Instrument: OYO MCSEIS 1500, 24 Channel System
Recording Mode: Digital, 8-BIT WORDS, 1024 WORDS / Channel, stored in floppy Diskettes.

GOVERNMENT OF MALAYSIA
FEASIBILITY STUDY
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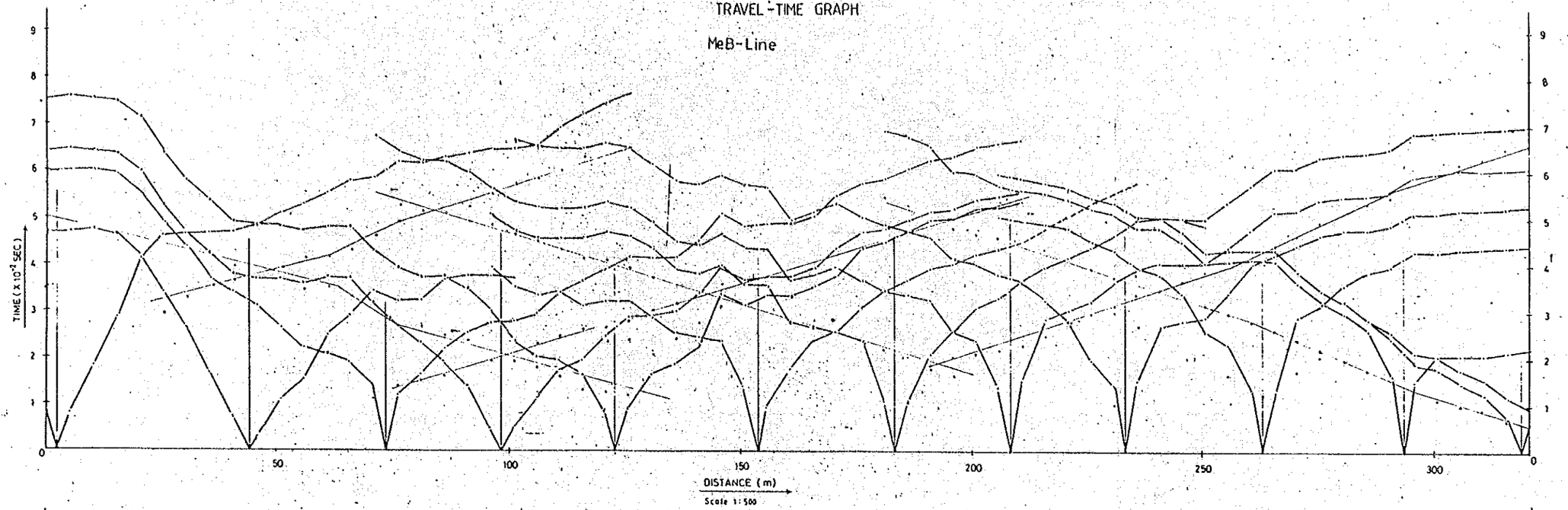
JAPAN INTERNATIONAL COOPERATION AGENCY

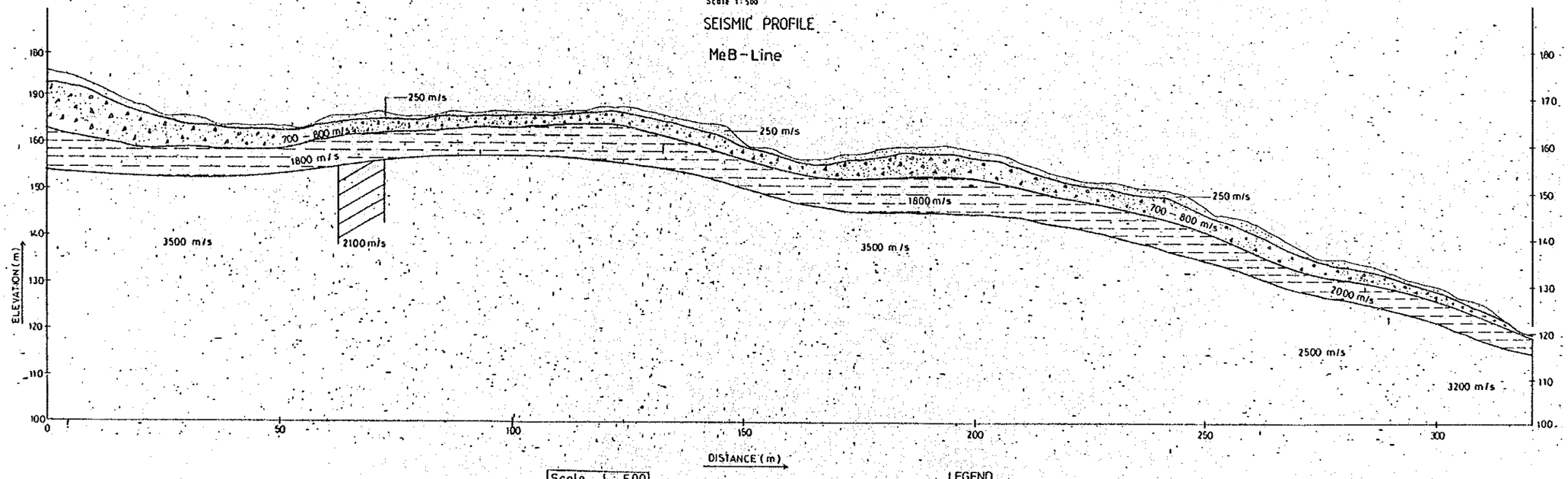
TRAVEL-TIME GRAPH

MeB-Line



SEISMIC PROFILE

MeB-Line



Scale 1 : 500

LEGEND

- Top soil • Completely weathered rock • Slopwash material
- Highly weathered • Highly to moderately weathered rock material
- Moderately weathered • Moderately to slightly weathered rock material
- Slightly weathered • Fresh rock
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- Rock / Soil refractor
- Velocity boundary within bedrock

SURVEY INFORMATION

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GOVERNMENT OF MALAYSIA

FEASIBILITY STUDY

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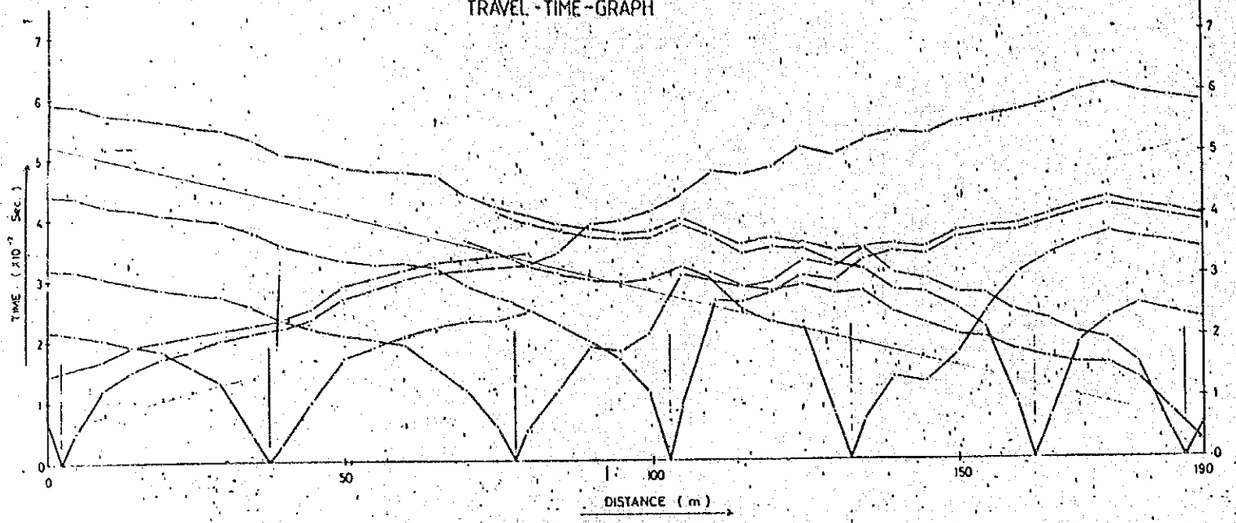
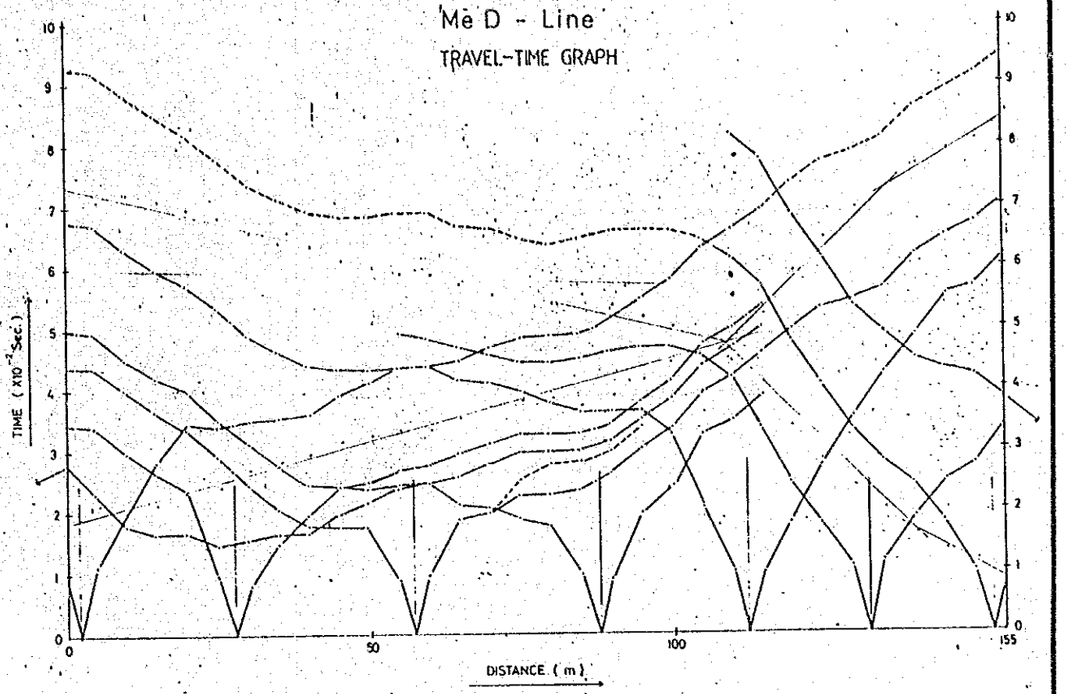
Me C - Line

TRAVEL - TIME - GRAPH



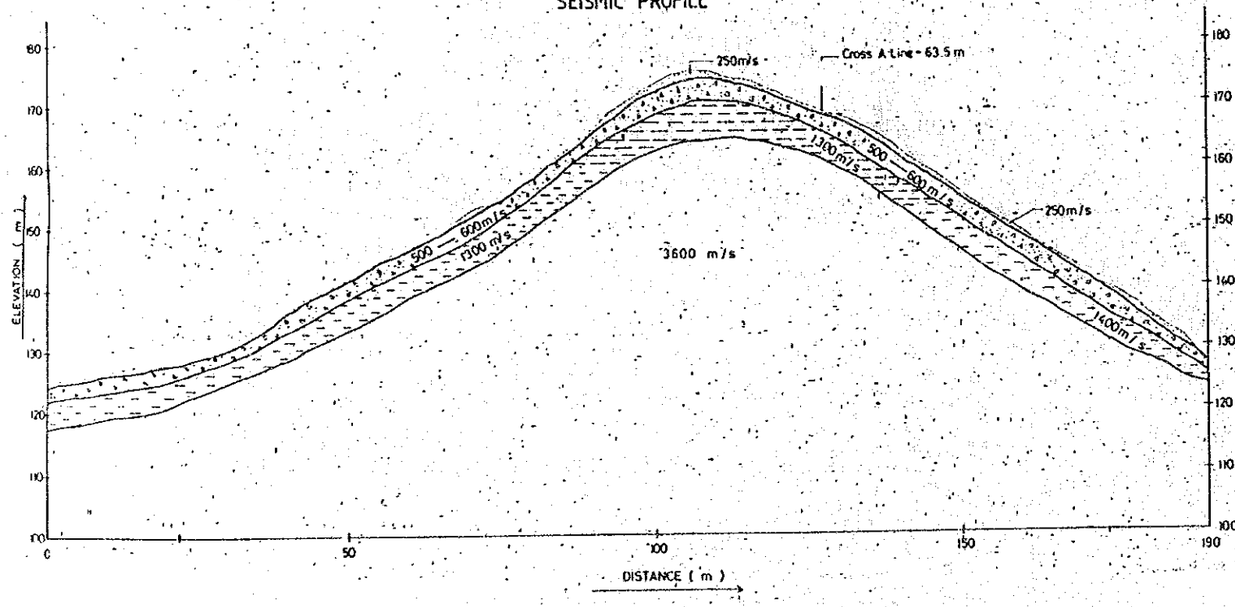
Me D - Line

TRAVEL-TIME GRAPH



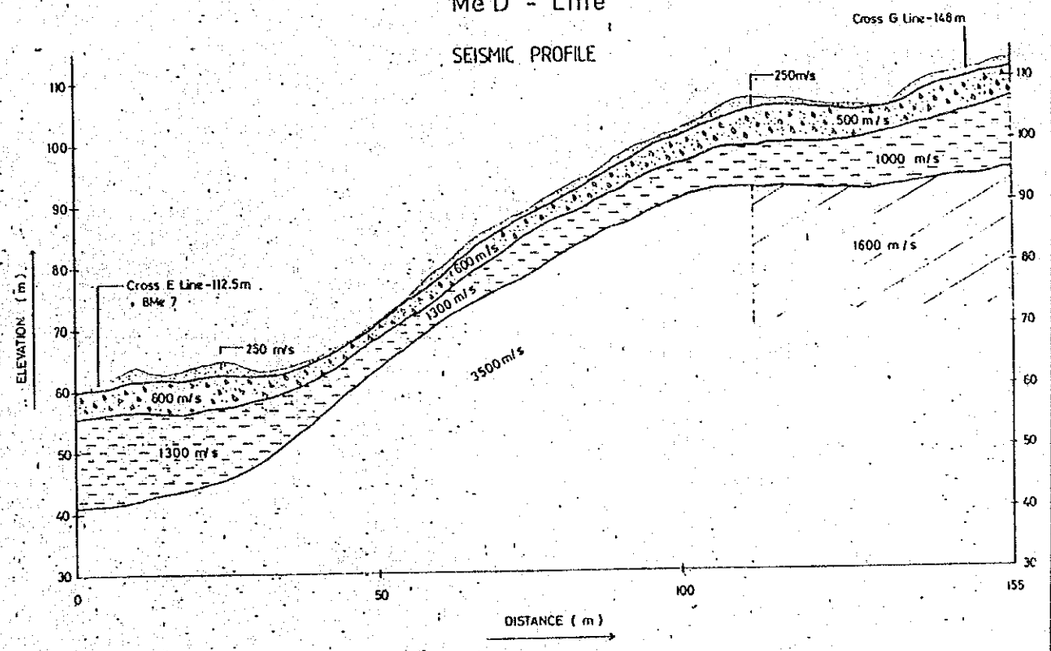
Me Ç - Line

SEISMIC PROFILE



Me D - Line

SEISMIC PROFILE



LEGEND

- Top soil • Completely weathered rock • Slopwash material
- Highly weathered • Highly to moderately weathered rock material
- Moderately weathered • Moderately to slightly weathered rock material
- Slightly weathered • Fresh rock
- Ground profile
- Rock / Soil refractor
- Velocity boundary within bedrock

Scale : 1 : 500

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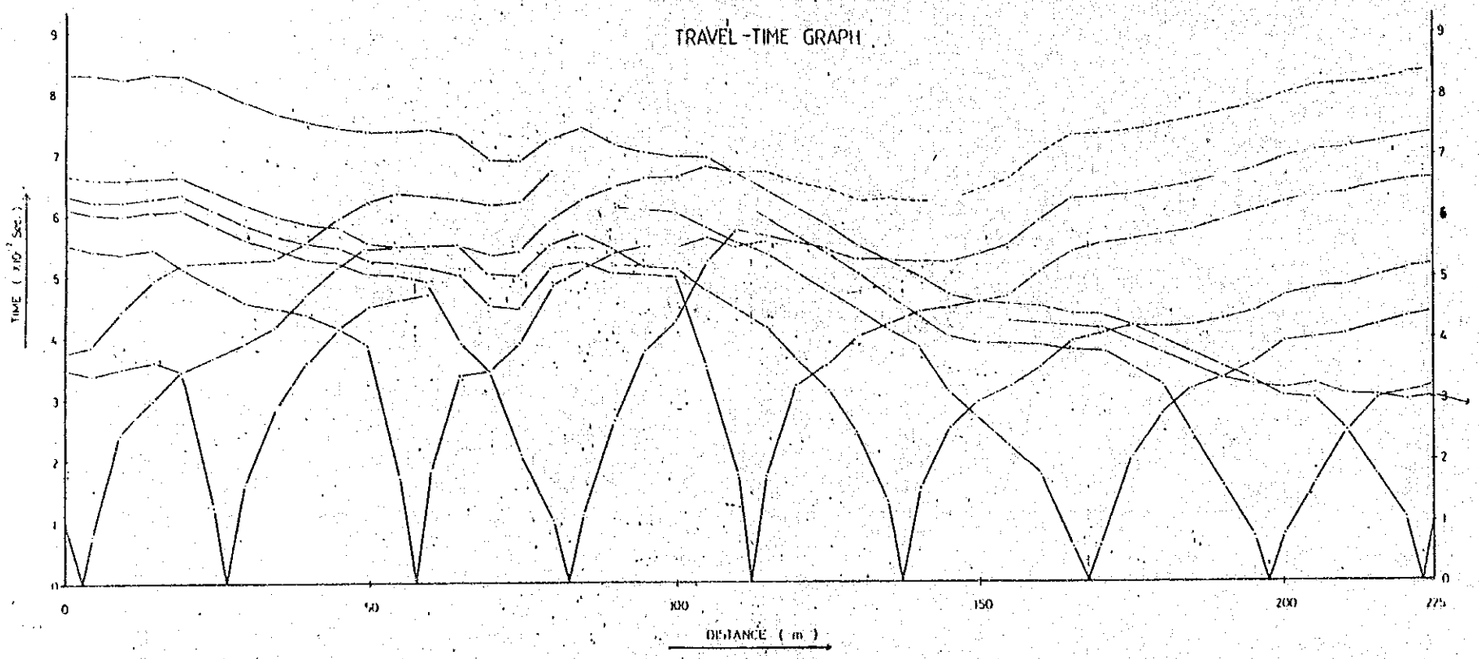
Me E – Line

TRAVEL-TIME GRAPH



LEGEND

- Top soil • Completely weathered rock • Slopwash material
- Highly weathered • highly to moderately weathered rock material
- Moderately weathered • Moderately to slightly weathered rock material
- Slightly weathered • Fresh rock
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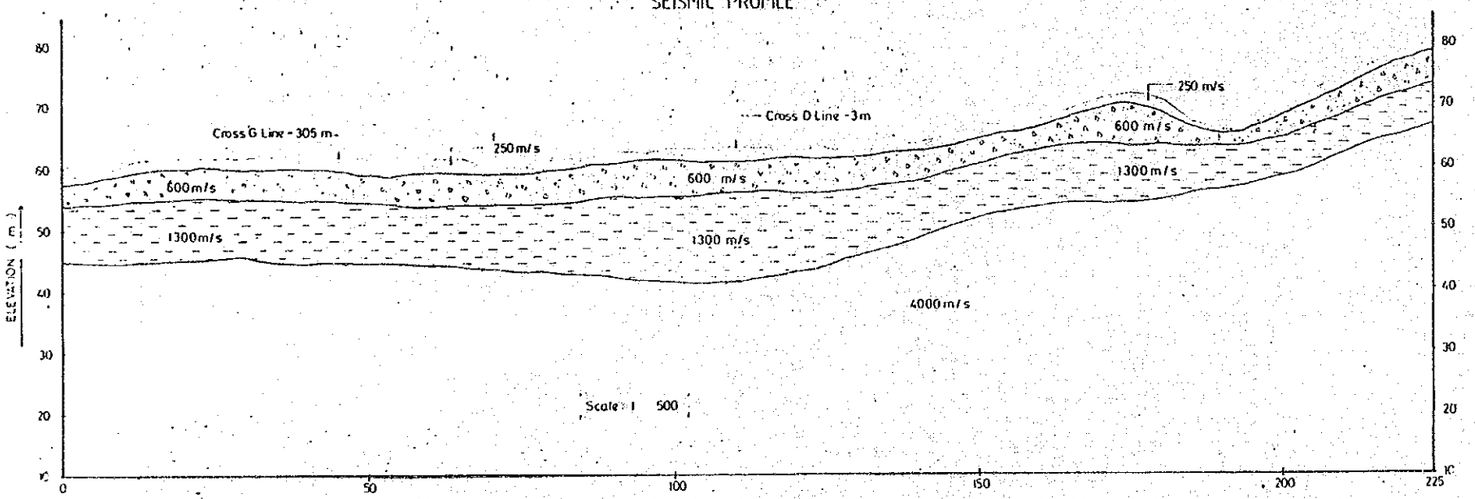
Me E – Line

SEISMIC PROFILE



DISTANCE (m)

MEDAMIT-2 SEISM

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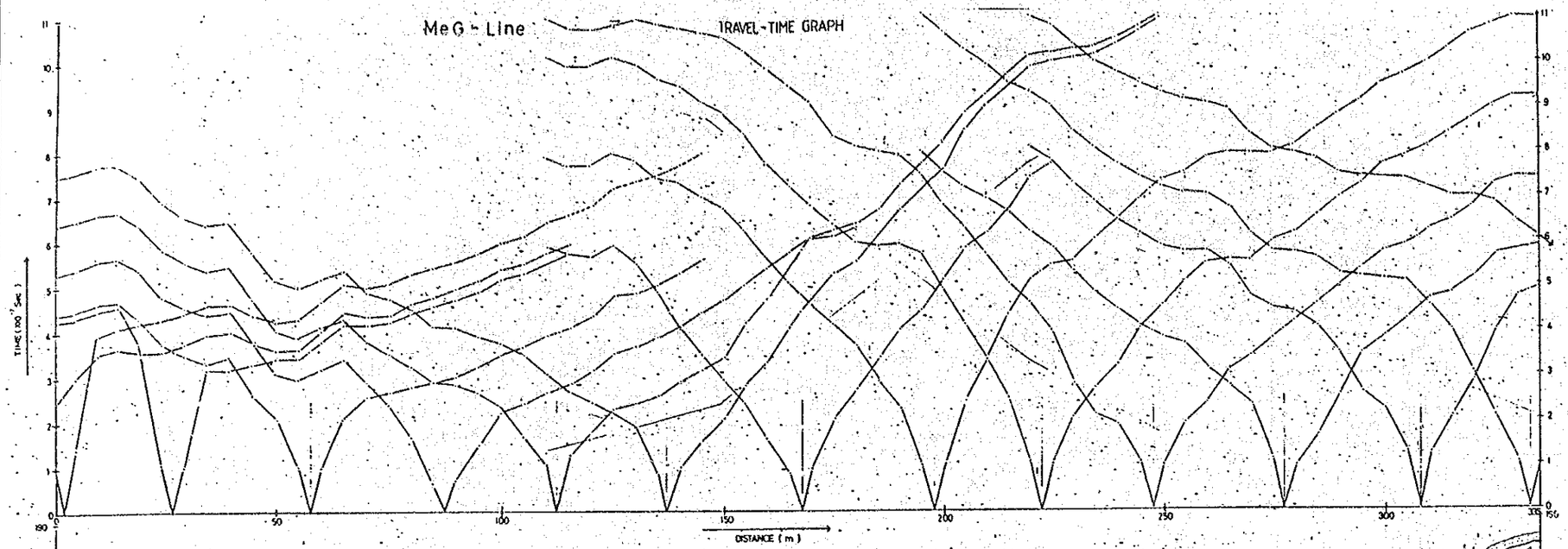
MeG - Line TRAVEL-TIME GRAPH



LEGEND

- Top soil + Completely weathered rock + Slopwash material
- Highly weathered + Highly to moderately weathered rock material
- Moderately weathered + Moderately to slightly weathered rock material
- Slightly weathered + Fresh rock
- Ground profile
- Rock / Soil refractor
- Velocity boundary within bedrock

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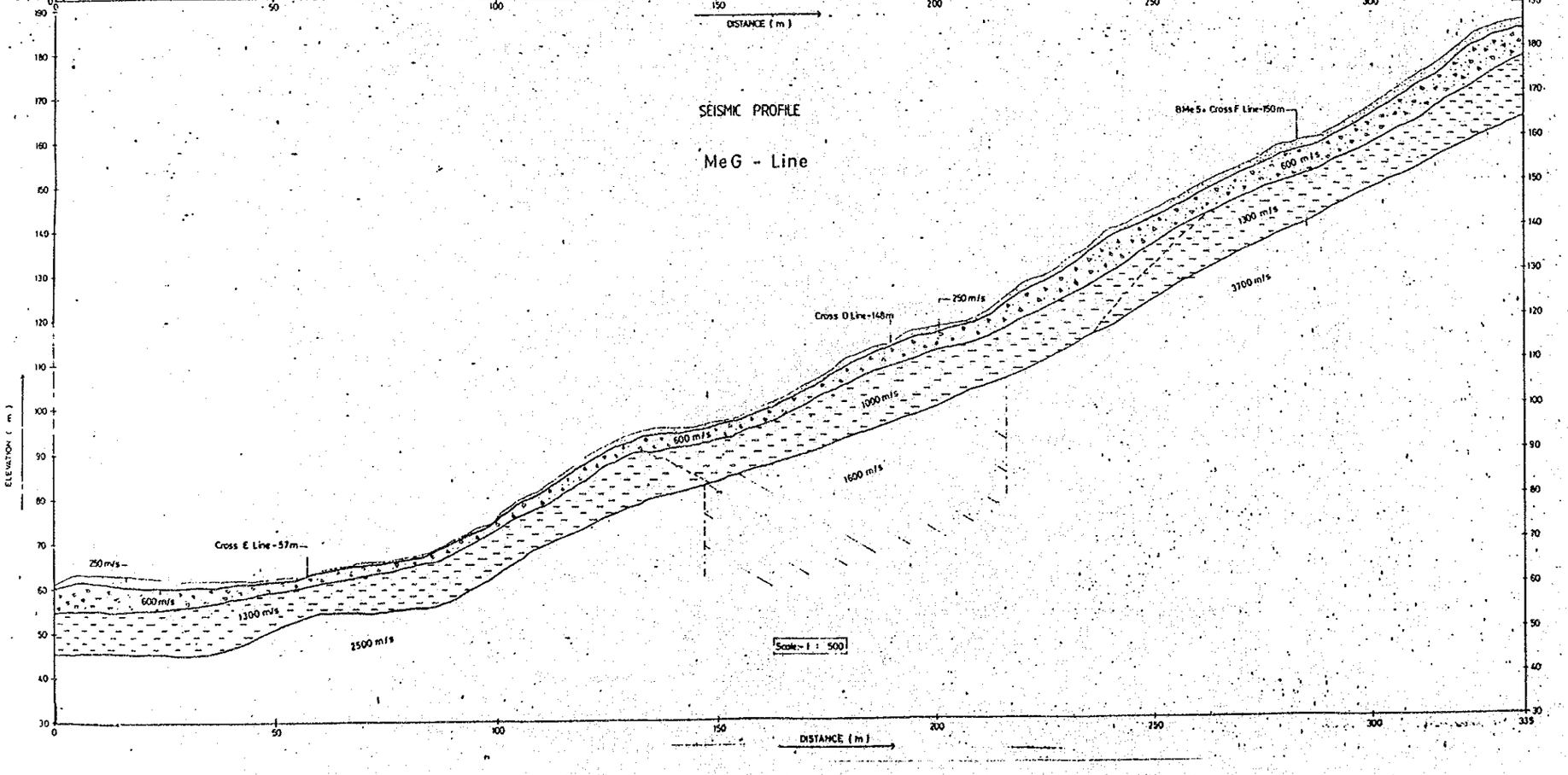
SEISMIC PROFILE

MeG - Line



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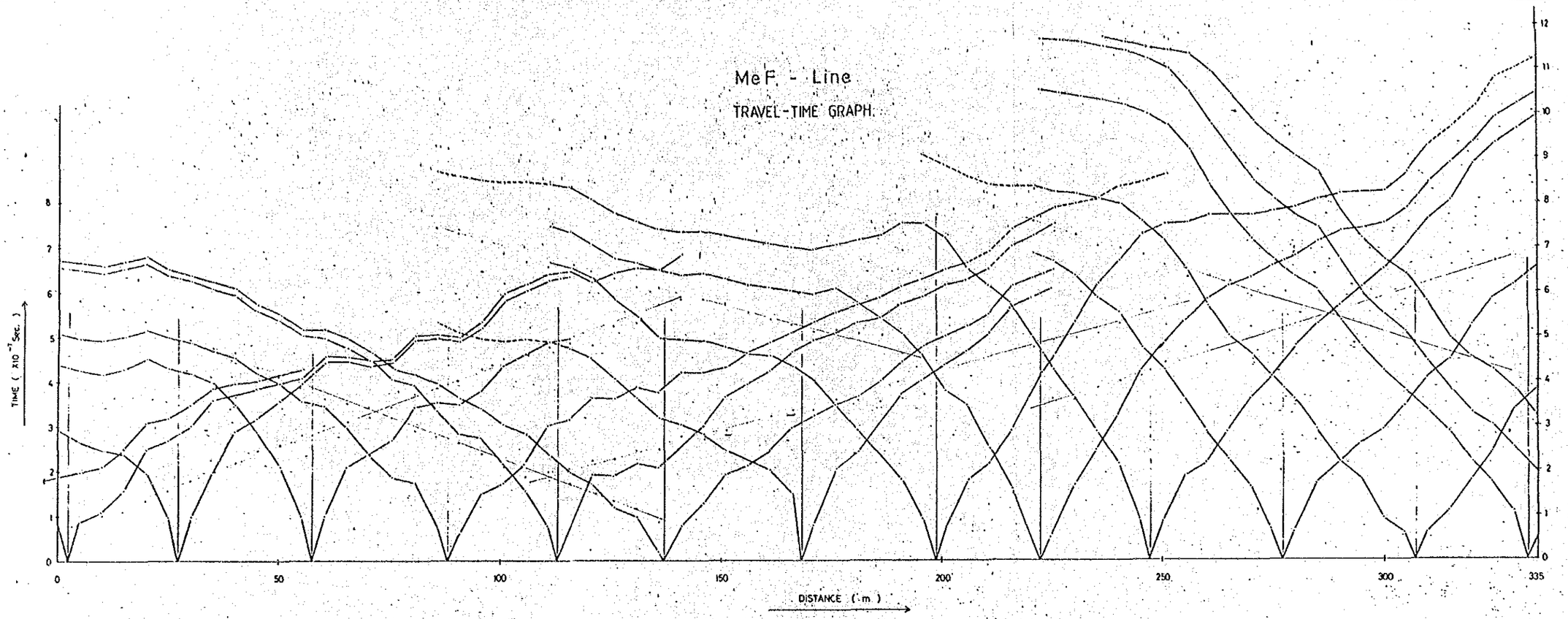
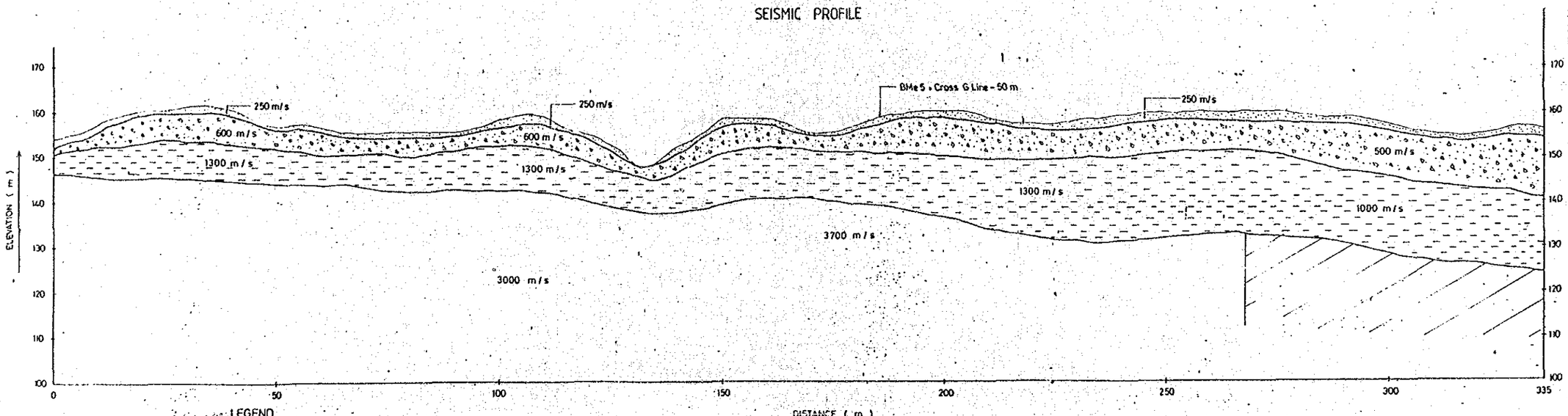
MeF - Line

TRAVEL-TIME GRAPH



MeF - Line

SEISMIC PROFILE



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