FIGURES

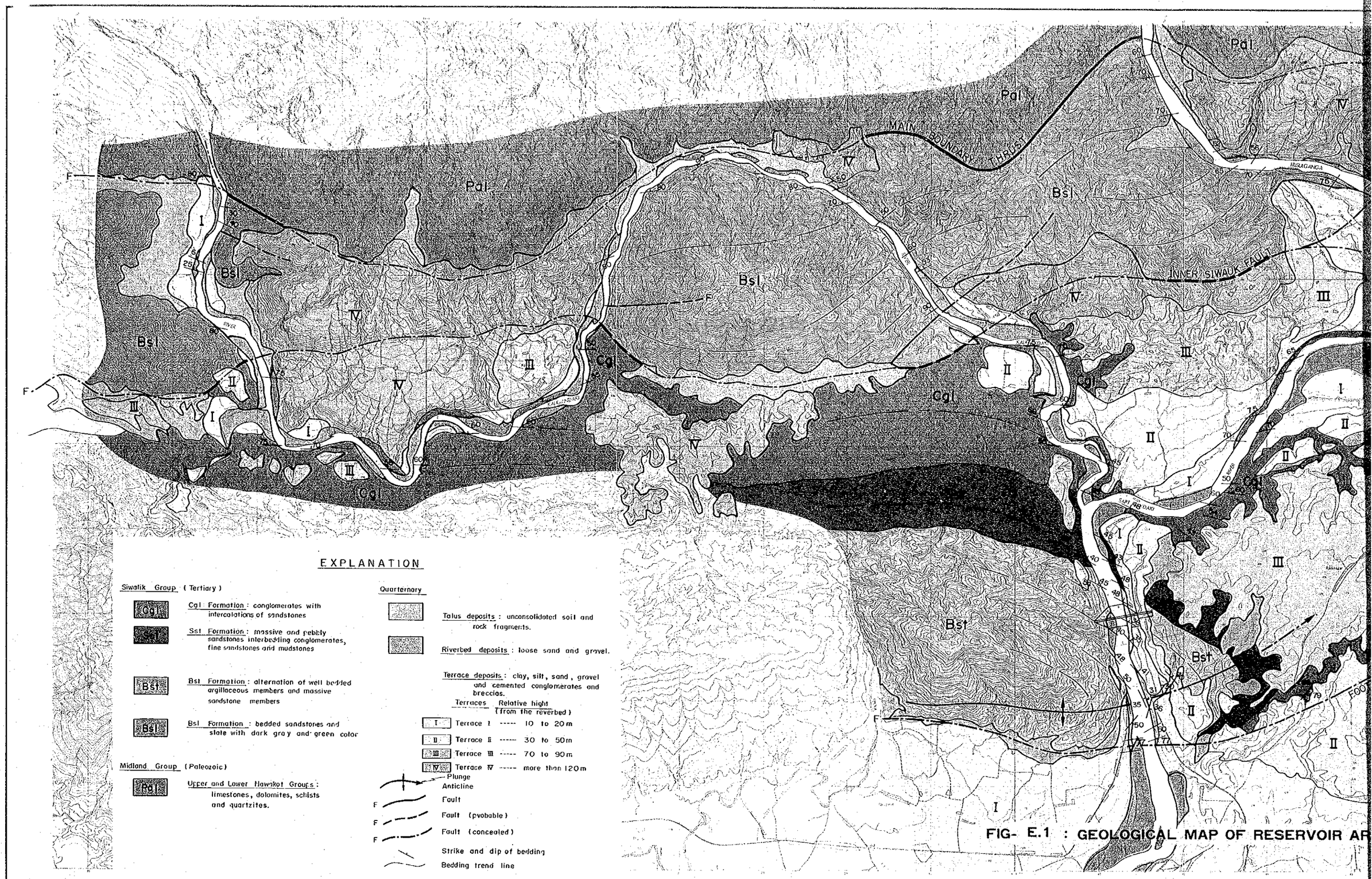
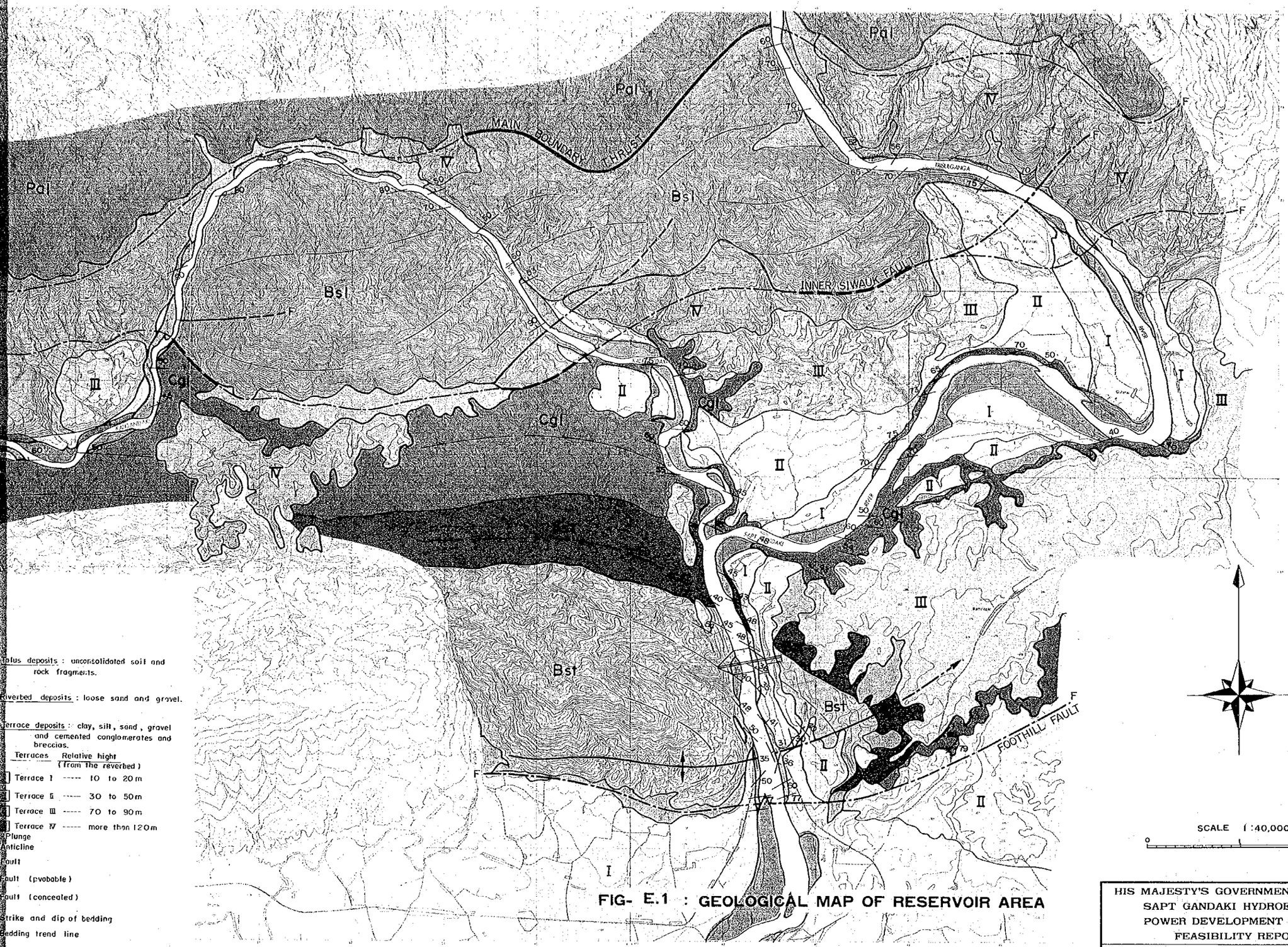


FIG- E.1 : GEOLOGICAL MAP OF RESERVOIR AR

FIG- E.1



Talus deposits : unconsolidated soil and rock fragments.

Riverbed deposits : loose sand and gravel.

Terrace deposits : clay, silt, sand, gravel and cemented conglomerates and breccias.

Terraces	Relative hight (from the reverbed)
Terrace I	10 to 20m
Terrace II	30 to 50m
Terrace III	70 to 90m
Terrace IV	more than 120m

Plunge

Anticline

Fault

Fault (pvobable)

Fault (concealed)

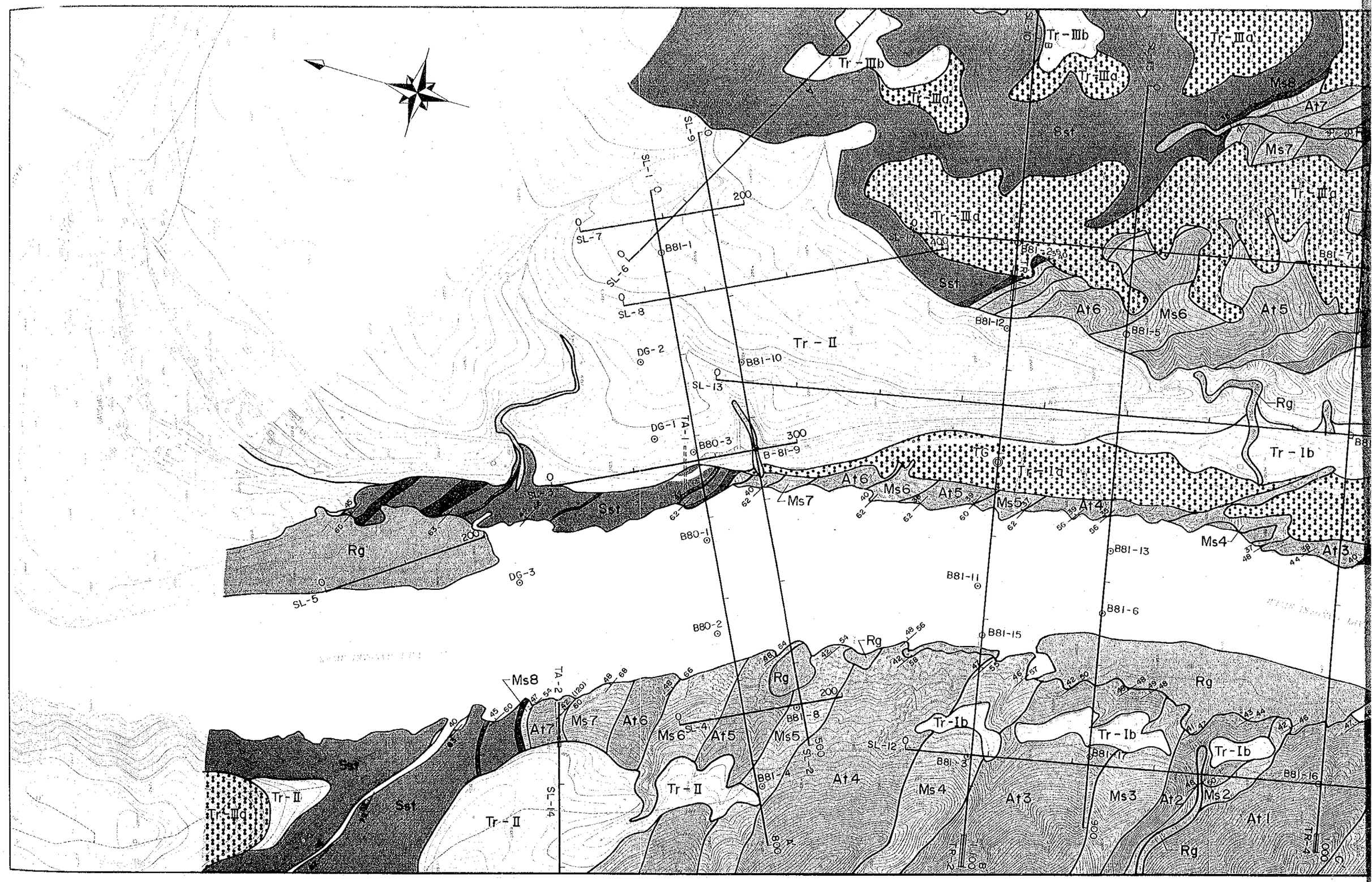
Strike and dip of bedding

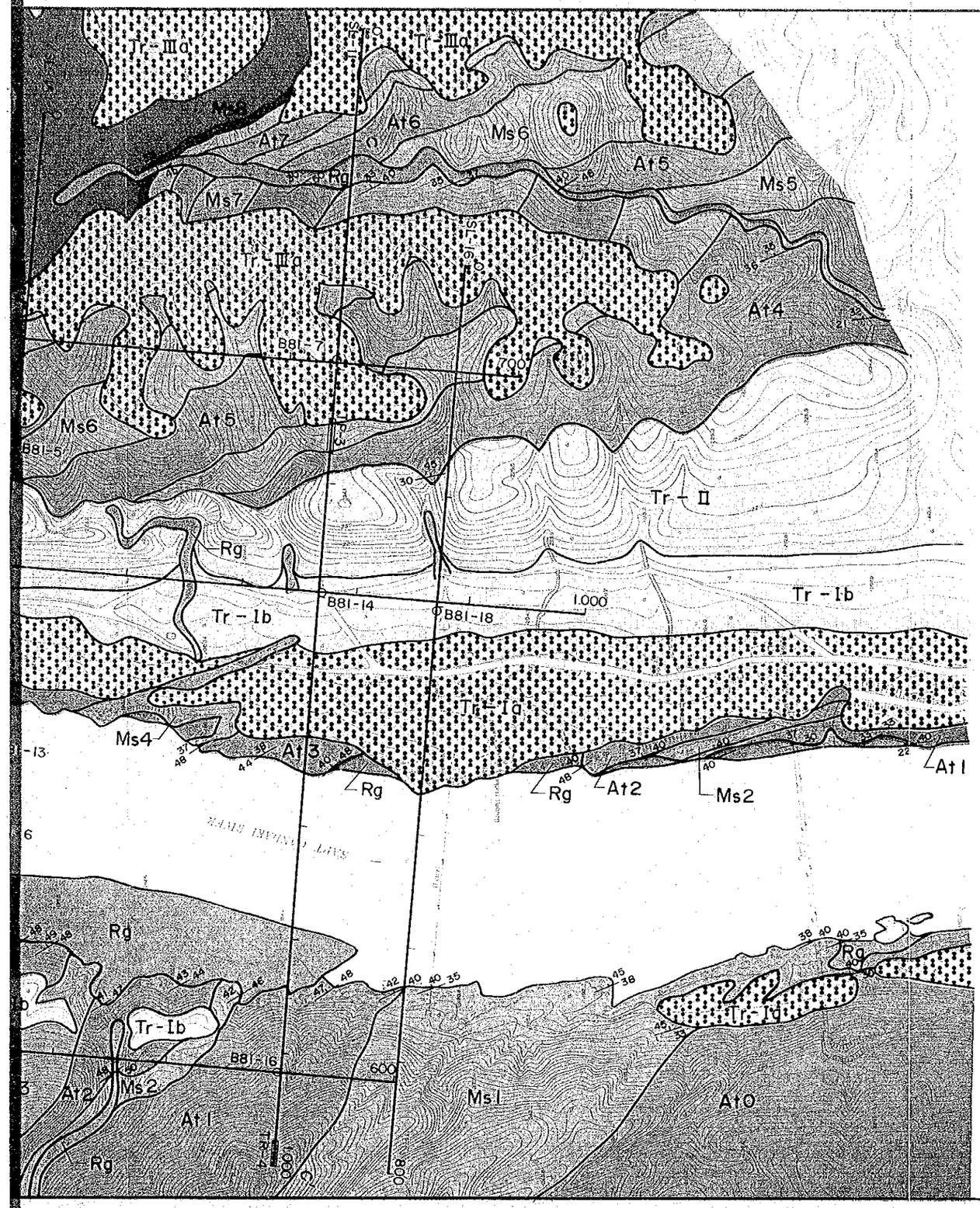
Bedding trend line

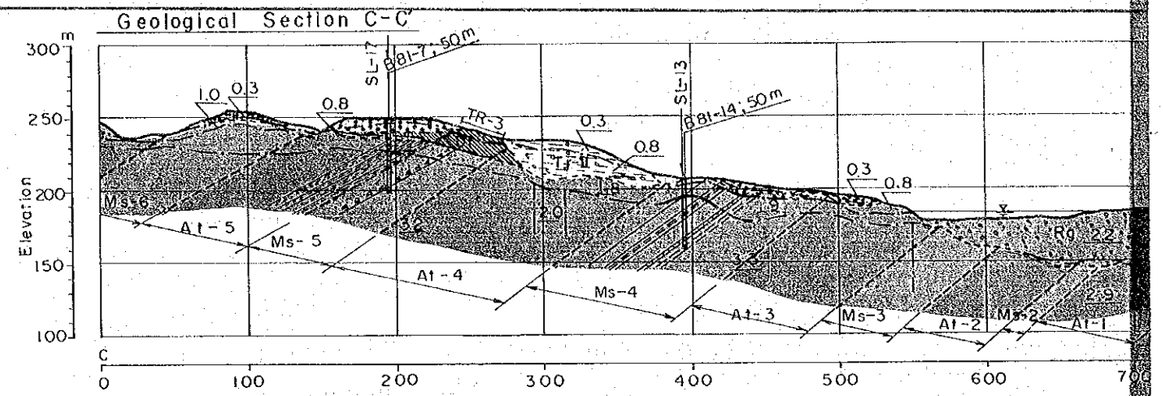
FIG- E.1 : GEOLOGICAL MAP OF RESERVOIR AREA

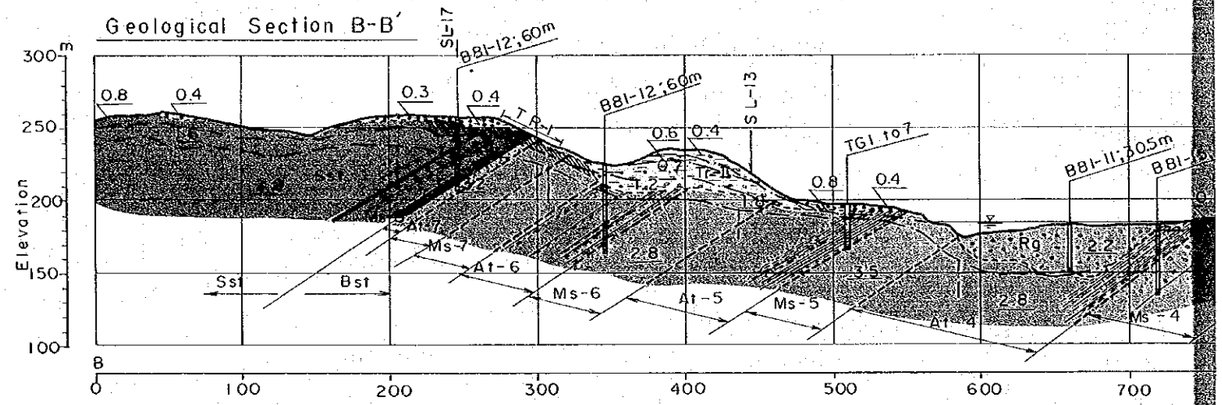
HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC
POWER DEVELOPMENT PROJECT
FEASIBILITY REPORT

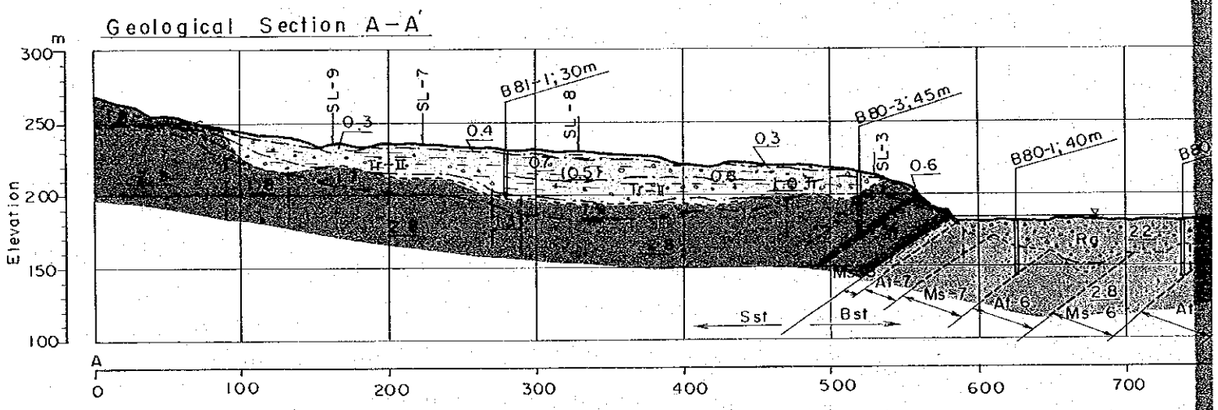
JAPAN INTERNATIONAL COOPERATION AGENCY


Tr - IIIb
Tr - IIIa
Sst
Ms8
At7
Ms7
Tr - IIIa
At6
Ms6
At5
B81-7
B81-12
B81-5
Tr - II
Rg
Tr - Ib
Ms5
At4
Ms4
At3
B81-13
B81-11
B81-6
B81-15
Ms3
At2
Ms2
At1
B81-16
B81-17
B81-3
B81-4
B81-8
B81-10
B81-9
B81-1
B81-2
B80-1
B80-2
B80-3
DG-1
DG-2
DG-3
SL-1
SL-2
SL-4
SL-5
SL-6
SL-7
SL-8
SL-9
SL-12
SL-13
SL-14
SL-17
TA-1
TA-2
TR-1
TR-2
TR-4
A
B
C
200
300
400
500
600
800
1000









Marks in the Plan

Boundary of strata.

Strike and dip of bedding.

B81-1 Test drilling point.

0 200 SL-4 Seismic refraction survey line.

A A' Geological section line. (A, B and C)

Marks in the Sections

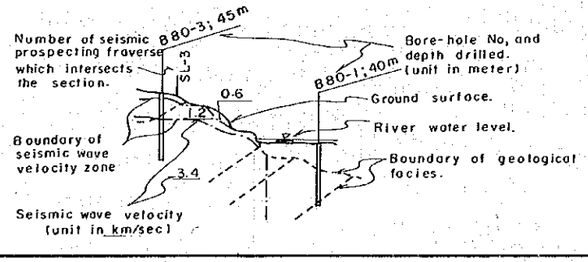
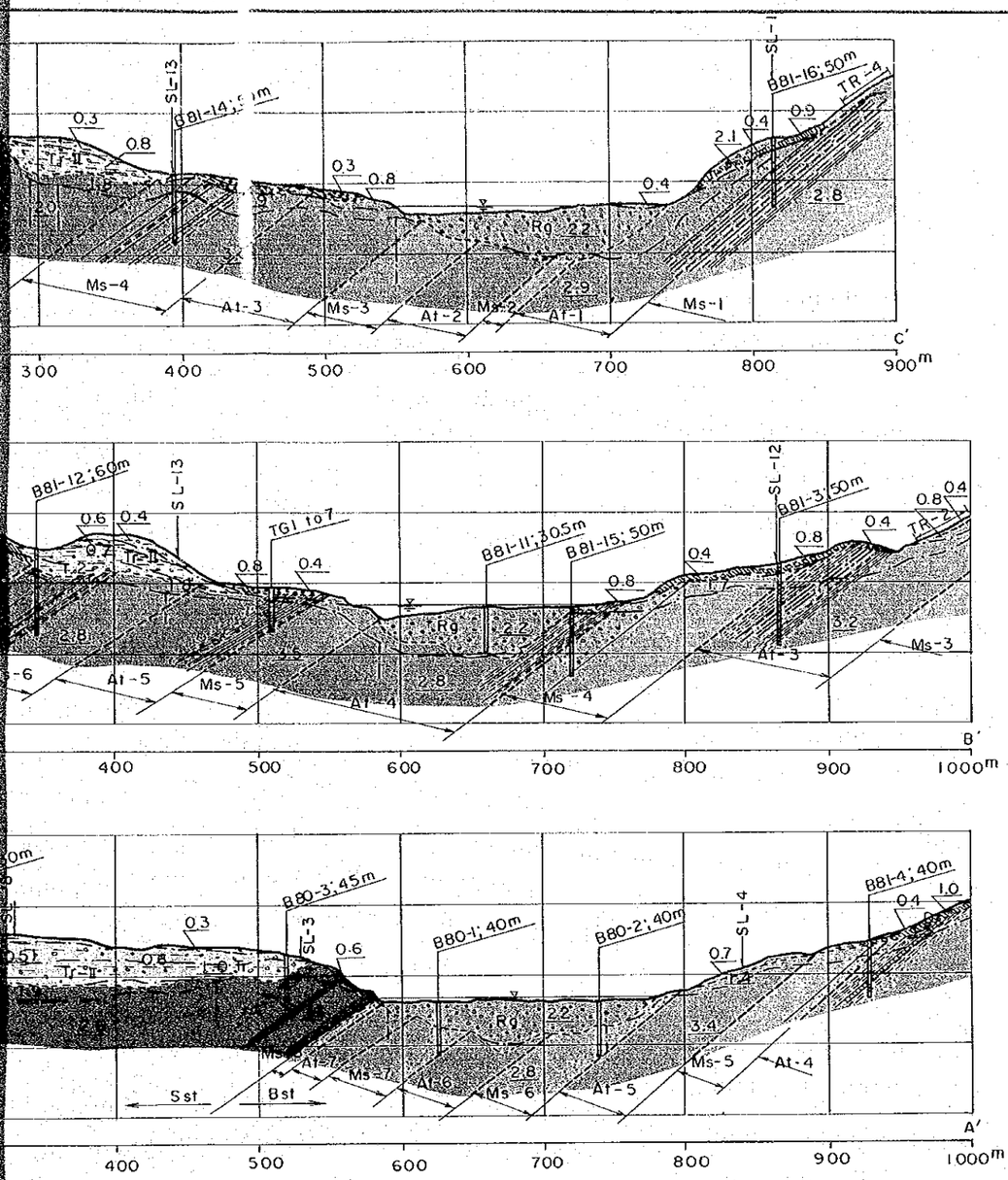


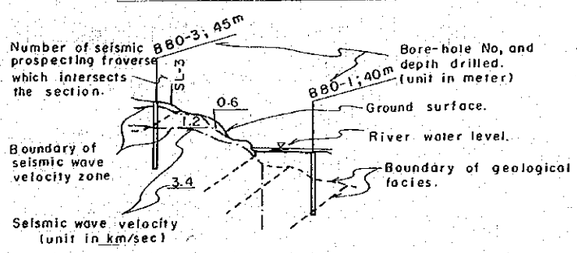
FIG- E.2



Explanation

				Descriptions	Thickness
Alluvium	Riverbed Deposits		Rg	Silt, sand and gravel.	15 to 40 m in the main channel
	Terrace Deposits	Lower Terrace	Tr-Ia	Silt, sand, gravel and cemented conglomerates.	0 to 8 m
			Tr-Ib	Silt, sand and gravel.	3 to 10 m
		Middle Terrace	Tr-II	Thick deposits of clay, silt, sand and gravel and cemented conglomerates; including large boulders.	20 to 40 m
		Higher Terrace	Tr-IIIa	Brownish color clay, silt and sand with basal gravel.	3 to 10 m
			Tr-IIIb	Brownish color clay, silt and sand with soft pebbles and underlying residual soil.	2 to 8 m
Siwalik Group	Sst Formation (200 m+)	Mudstone Bed	Sst	Massive and pebbly, medium to coarse sandstones; with interbeds of 3 to 7 m-thick pebble conglomerate beds and argillaceous rock beds.	200 m+
		Conglomerate Bed			
	Bst Formation (600 m+)	Ms-8 Member	Ms-8	Massive and pebbly sandstones.	7 m
		At-7 Member	At-7	Bedded calcareous shales, muddy sandstones and fine sandstones; interbedding a intraformational breccia.	15 to 20 m
		Ms-7 Member	Ms-7	Massive medium to coarse sandstones; including laminations and concretions.	25 m
		At-6 Member	At-6	Bedded calcareous shales, greenish mudstones and sandstones; the lower half is thickly bedded fine sandstones.	30 m
		Ms-6 Member	Ms-6	Massive medium to coarse sandstones; including pebbles and concretions; fine sandstones are interbedded in the lower.	30 m
		At-5 Member	At-5	Bedded shales, mudstones, fine sandstones and breccias; argillaceous rocks and fine sandstones are alternated.	35 m
		Ms-5 Member	Ms-5	Massive medium to very coarse sandstones separated in three units by two layers of greenish thin mudstones; pebble layers are in the lower.	25 to 30 m
		At-4 Member	At-4	Bedded shales, mudstones, fine to very fine sandstones and breccias; shales are calcareous and hard with thick bedding.	65 m
		Ms-4 Member	Ms-4	Massive medium to very coarse sandstones with a few intercalations of calcareous shales, mudstones and fine sandstones.	45 to 60 m
		At-3 Member	At-3	Bedded shales, mudstones, fine to very fine sandstones and breccias; a few meter thick calcareous shales are striking in the middle part.	50 to 65 m
		Ms-3 Member	Ms-3	Massive sandstones with scattered pebbles; laminations and concretion layers are included.	30 m
		At-2 Member	At-2	Bedded shales, mudstones and fine to very fine sandstones with intraformational fragments; fine sandstones are predominant.	35 m
		Ms-2 Member	Ms-2	A thick bed of medium to coarse sandstone.	10 m
		At-1 Member	At-1	Bedded shales, mudstones, very fine to medium sandstones and breccias; generally calcareous except greenish color sandy mudstone.	45 m
		Ms-1 Member	Ms-1	Massive medium to coarse sandstones with pebbles; a few meter thick intra-formational breccia interbedden in the middle.	105 m
		At-0 Member	At-0	Bedded shales, mudstones and fine sandstones.	15 m+

Marks in the Sections



SCALE 1 :4,000

0 100 200m

FIG- E.2 : GEOLOGICAL MAP AND SECTION OF DAMSITE

HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC
POWER DEVELOPMENT PROJECT
FEASIBILITY REPORT

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FIG- E.3

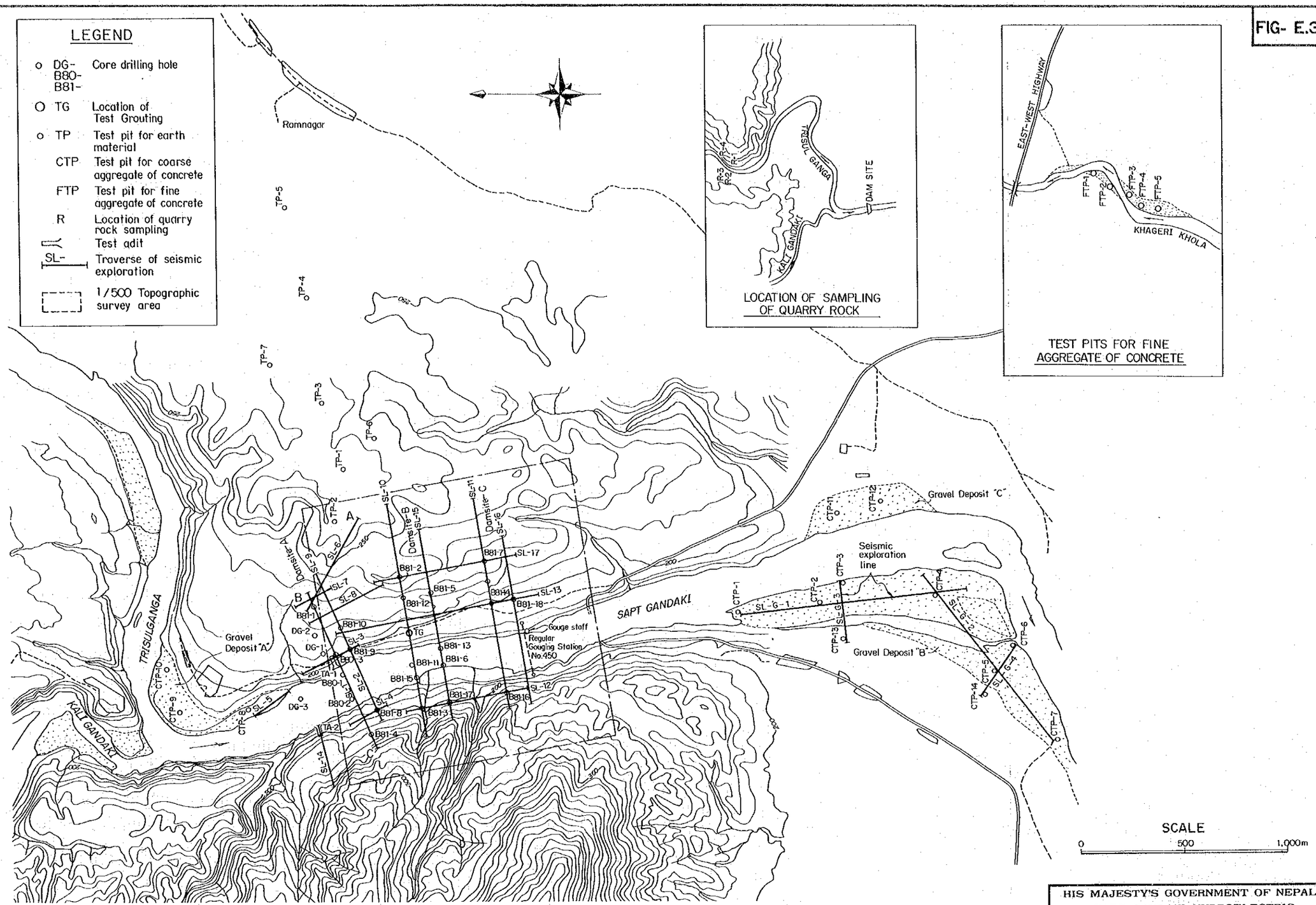


FIG- E.3 : LOCATION MAP OF INVESTIGATION

HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC
POWER DEVELOPMENT PROJECT
FEASIBILITY REPORT
JAPAN INTERNATIONAL COOPERATION AGENCY

FIG- E.4

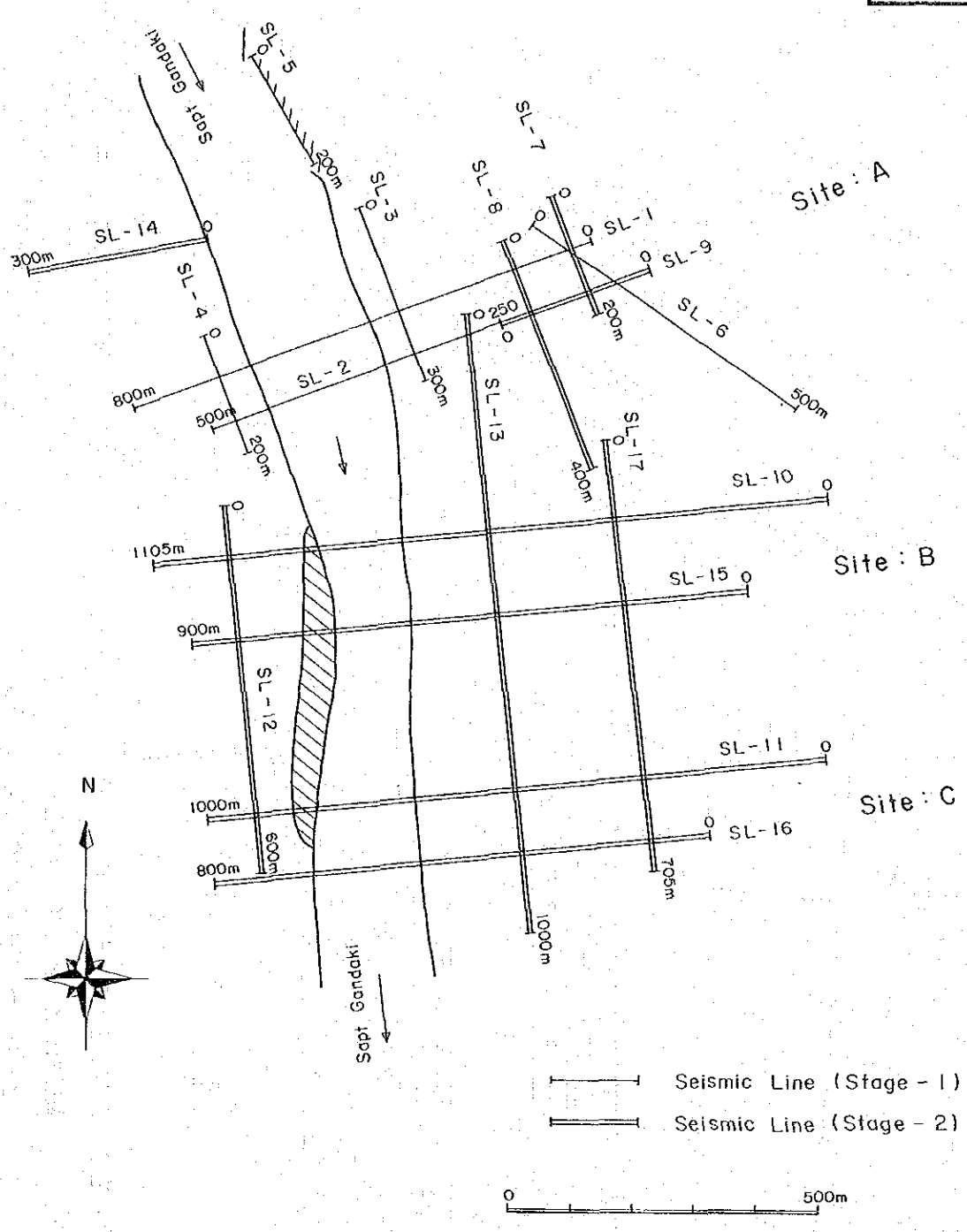
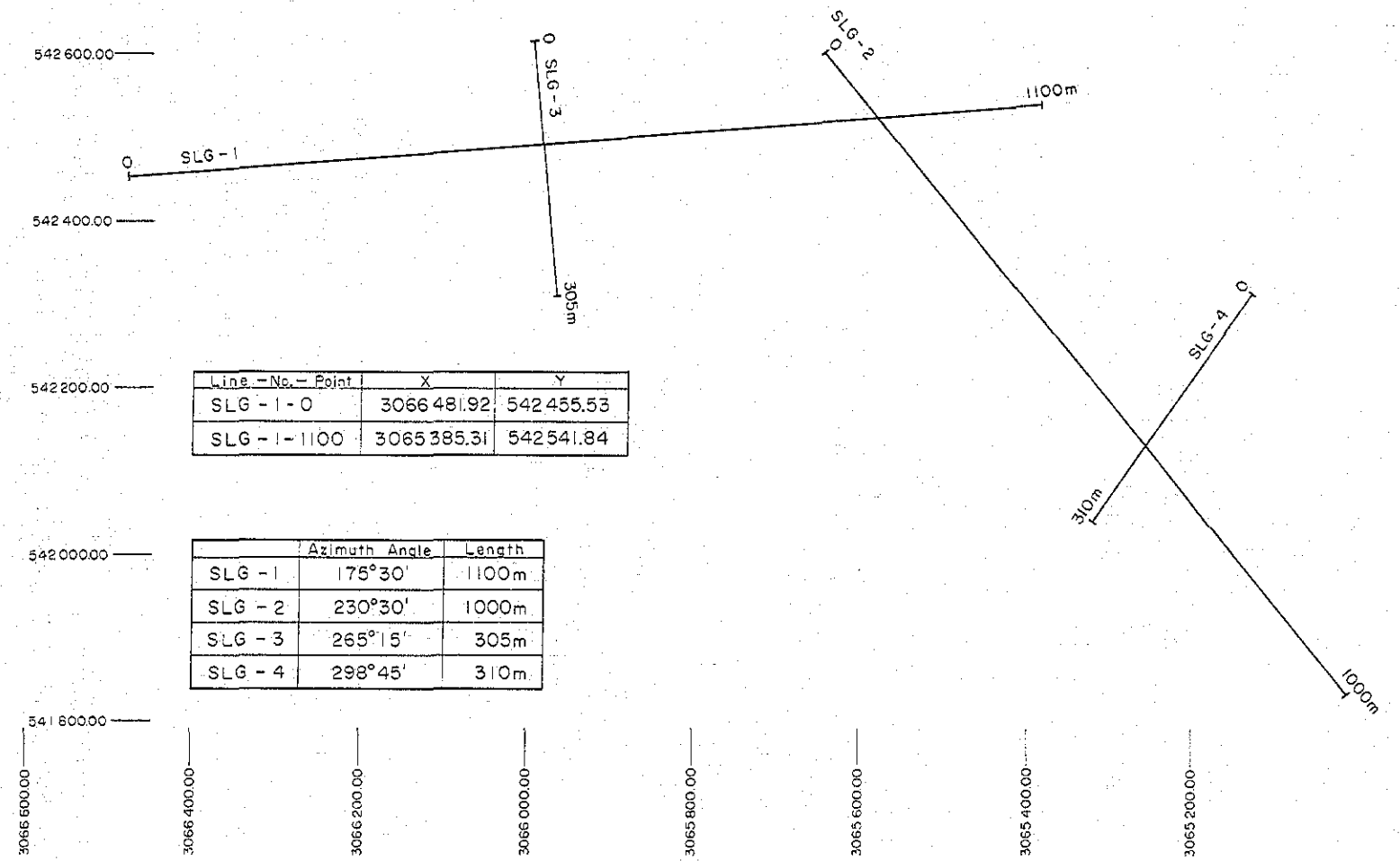


FIG- E.4 : ARRANGEMENT OF SEISMIC REFRACTION PROFILE LINES IN THE DAMSITE

HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC
POWER DEVELOPMENT PROJECT
FEASIBILITY REPORT
JAPAN INTERNATIONAL COOPERATION AGENCY



Line - No. - Point	X	Y
SLG - 1 - 0	3066 481.92	542 455.53
SLG - 1 - 1100	3065 385.31	542 541.84

	Azimuth Angle	Length
SLG - 1	175°30'	1100m
SLG - 2	230°30'	1000m
SLG - 3	265°15'	305m
SLG - 4	298°45'	310m

FIG- E.5 : ARRANGEMENT OF SEISMIC REFRACTION PROFILE LINES IN THE GRAVEL DEPOSIT

HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC
POWER DEVELOPMENT PROJECT
FEASIBILITY REPORT

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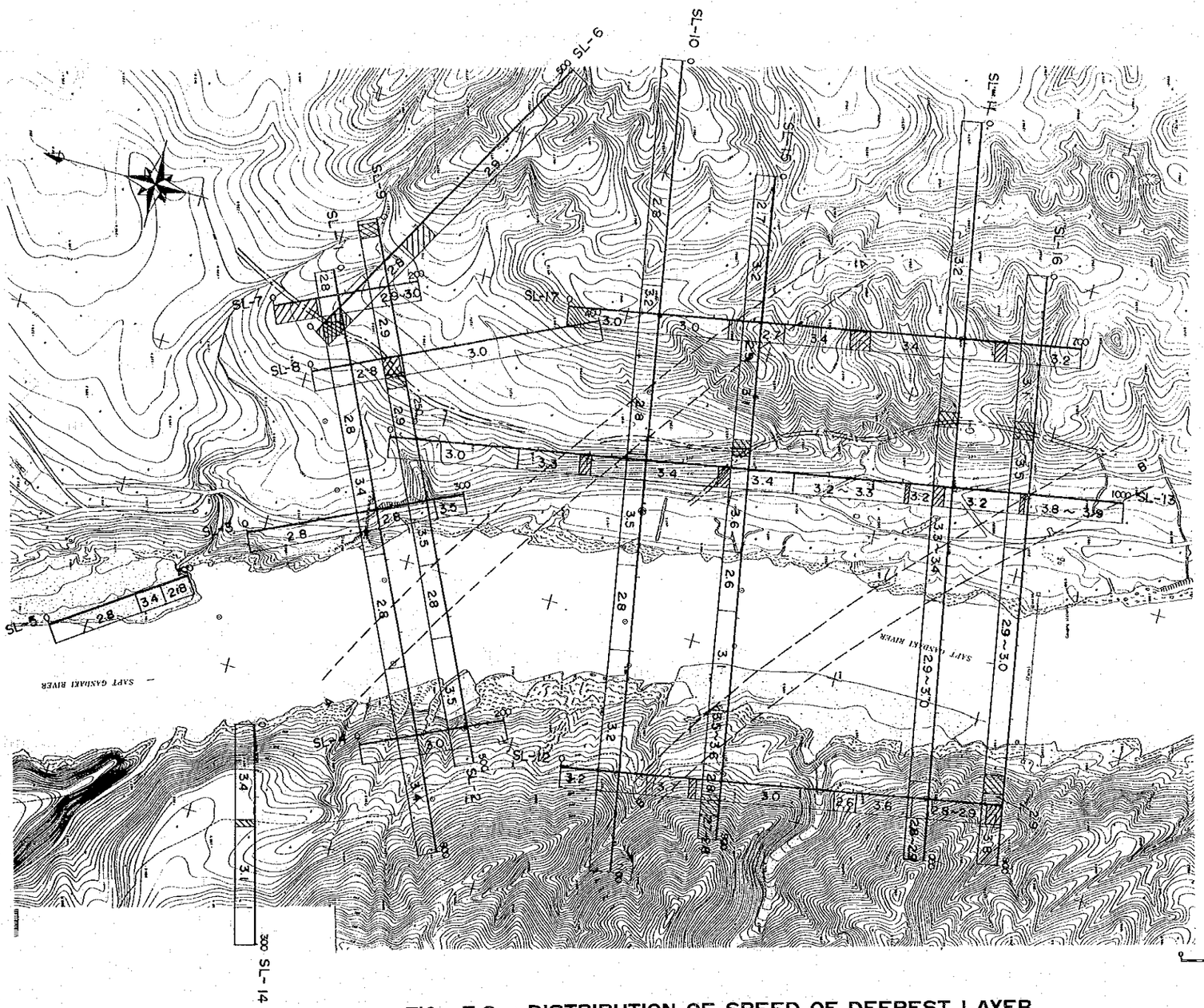
FIG- E.5

FIG- E.6



EXPLANATION

SL - 1 to 17 : Refraction Profile NO.

2.8 | 3.0 — Profile Line

Speed of the deepest layer (unit in km/sec)

Low - speed zone

Probable trece of the low-speed zone in the left bank.

A — A' Probable trend of the 2.7 km/sec to 2.9 km/sec zone which seems to correlate with Ms - 6 Member.

B — B' Probable trend of the 3.3 km/sec to 3.9 km/sec zone which seems to correlate with At - 3 Member.

Note:

1. The deepest layer generally represents the besement (fresh bedrock) in refraction profile.
2. The trace of the low - speed zone in the left bank probably correlates to the steep edge line of old river channels.

0 200 400m

FIG- E.6 : DISTRIBUTION OF SPEED OF DEEPEST LAYER IN SEISMIC REFRACTION PROFILE

HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC POWER DEVELOPMENT PROJECT
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FIG- E.7

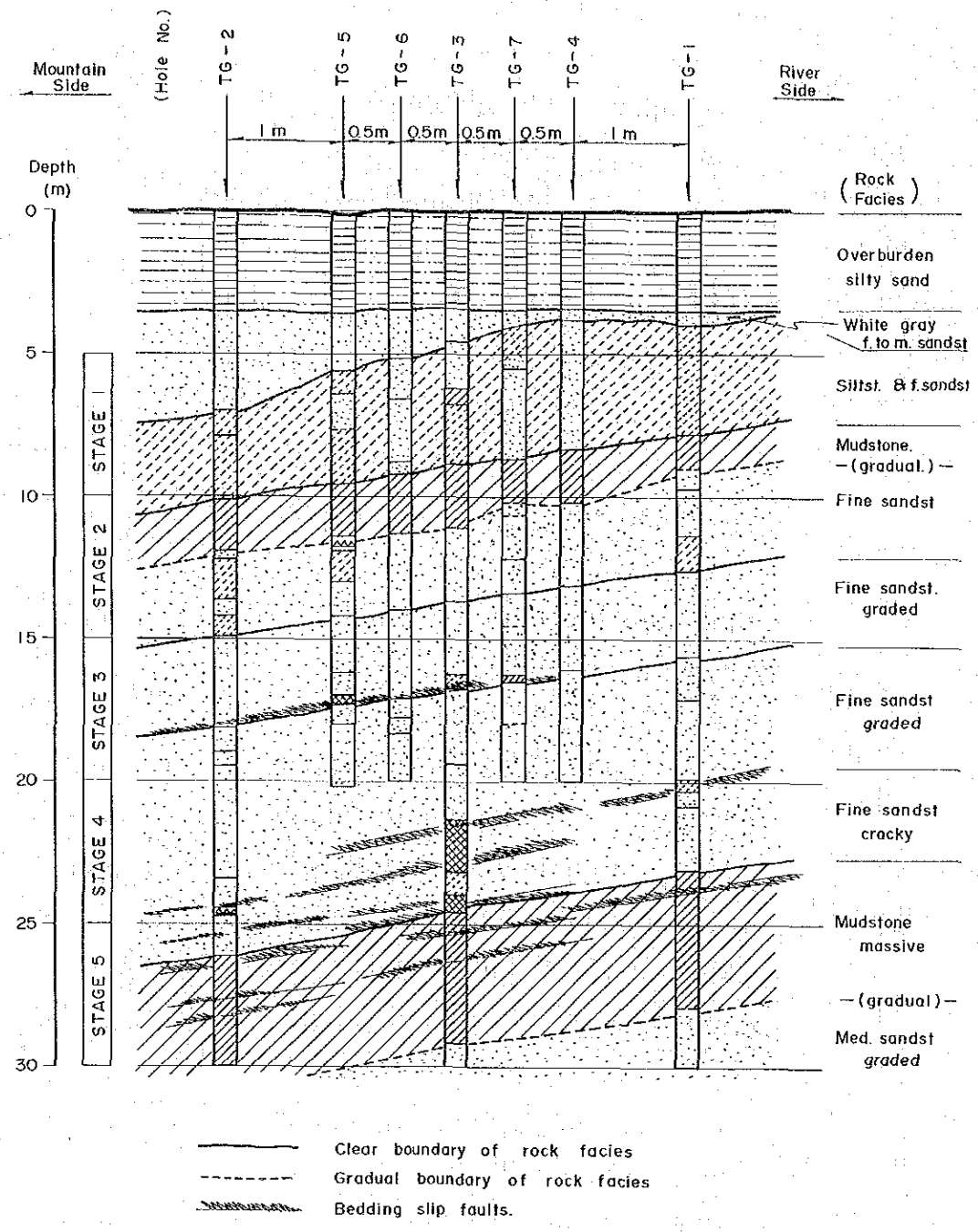

FIG- E.7 : GEOLOGIC SECTION OF THE TEST GROUT SITE

HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC POWER DEVELOPMENT PROJECT
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FIG- E.8

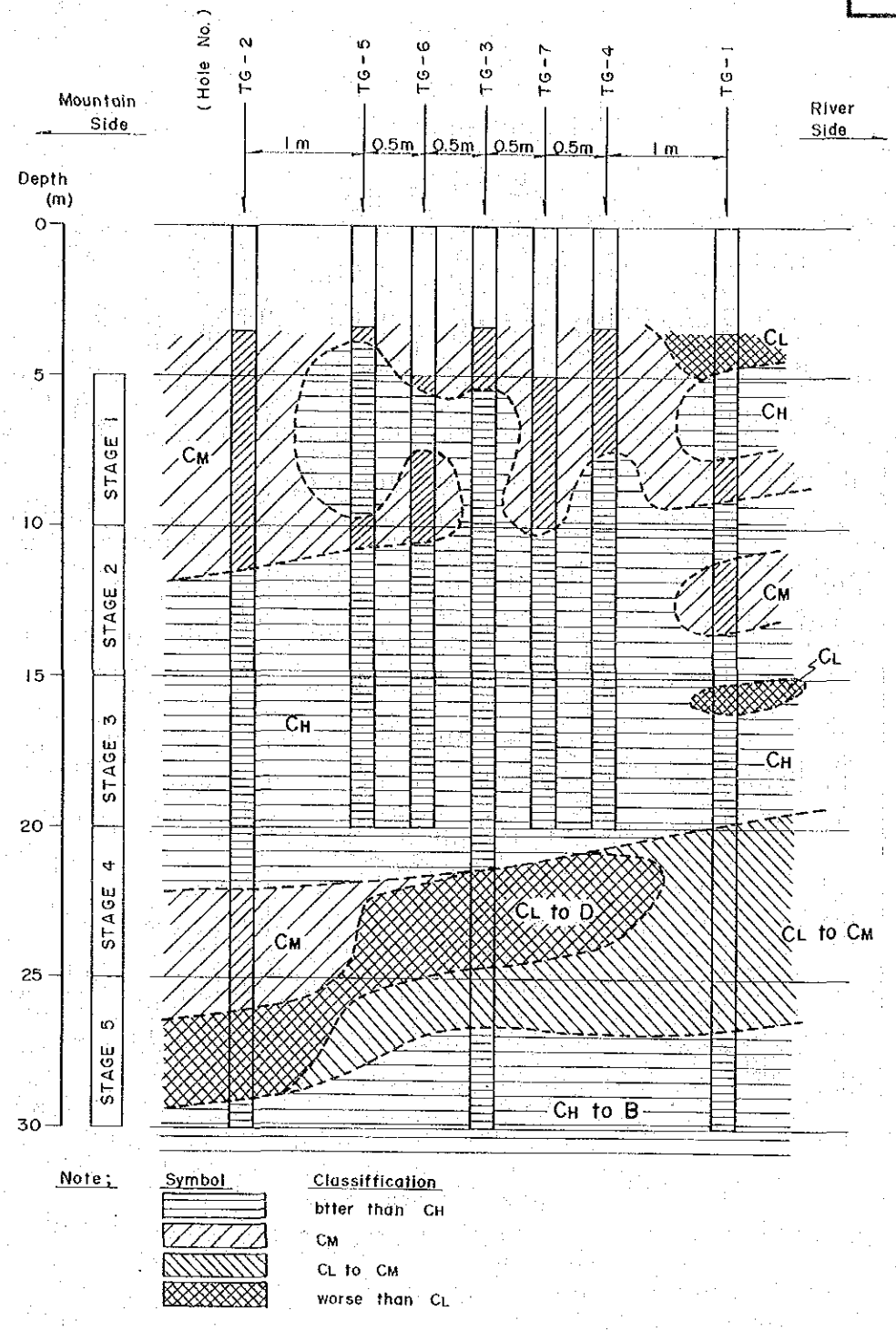

FIG- E.8 : CROSS SECTION OF ROCK CLASSIFICATION IN THE TEST GROUT SITE

HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC
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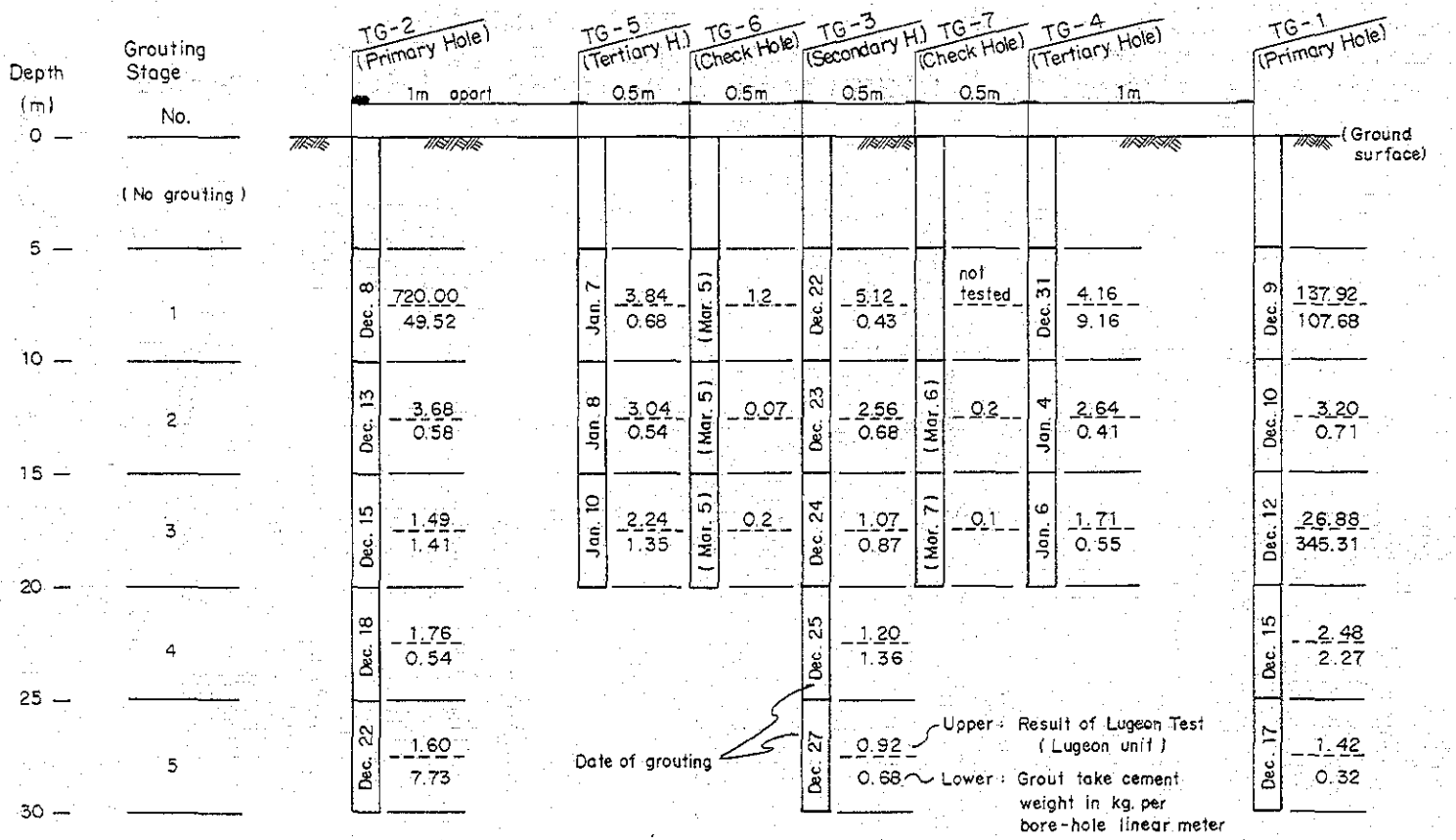

※ Check holes were not grouted. Then dates show the Lugeon tested date.
The 1st stage of TG-7 was not tested due to leakage of water from TG-6.

FIG-E.9 : RECORD OF TEST GROUTING

HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC
POWER DEVELOPMENT PROJECT
FEASIBILITY REPORT
JAPAN INTERNATIONAL COOPERATION AGENCY

FIG-E.9

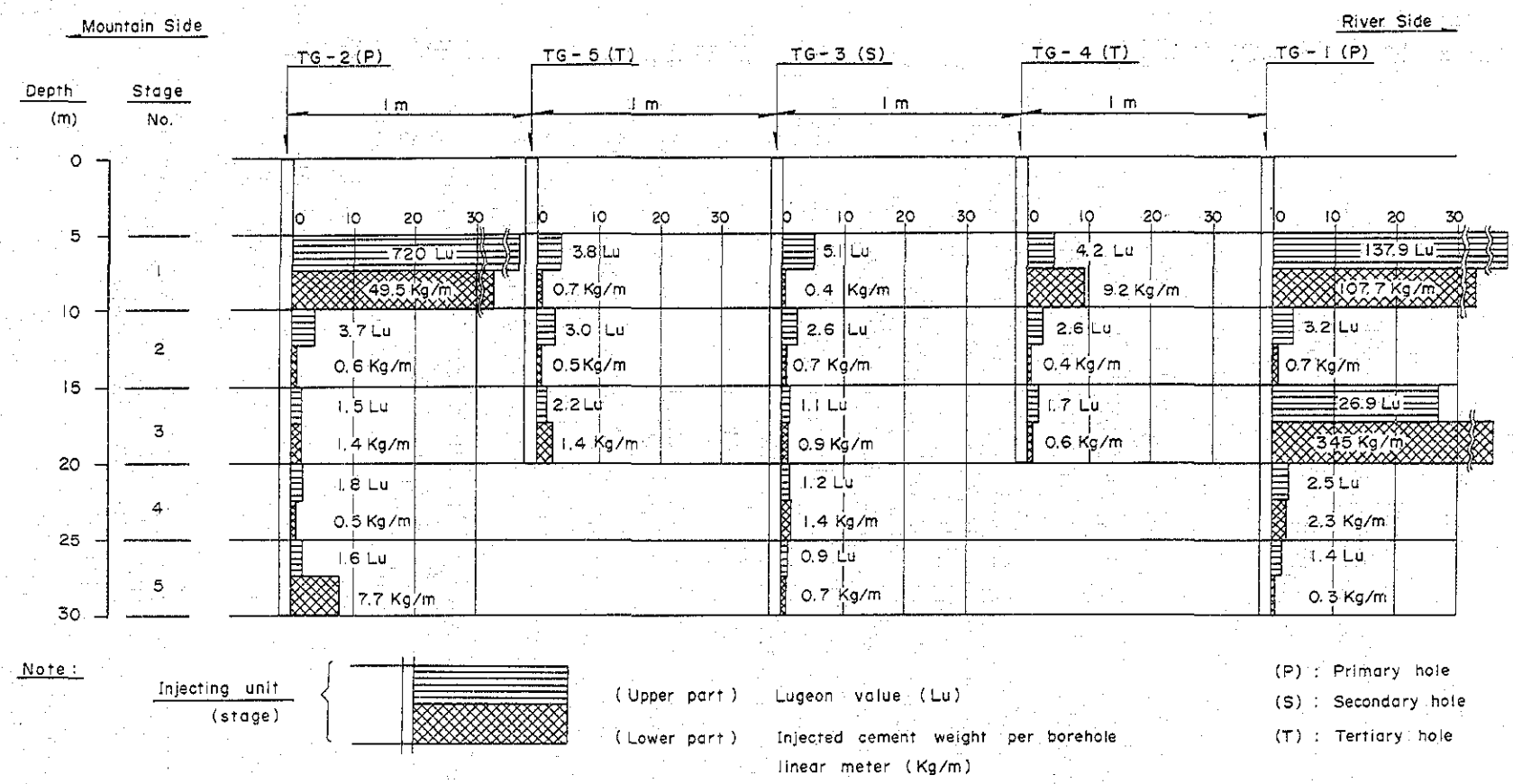

FIG- E.10 : GRAPH OF GROUT TAKE AND LUGEON VALUE IN THE CROSS SECTION OF TEST GROUT SITE

HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC POWER DEVELOPMENT PROJECT
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FIG-E.10

FIG-E.11

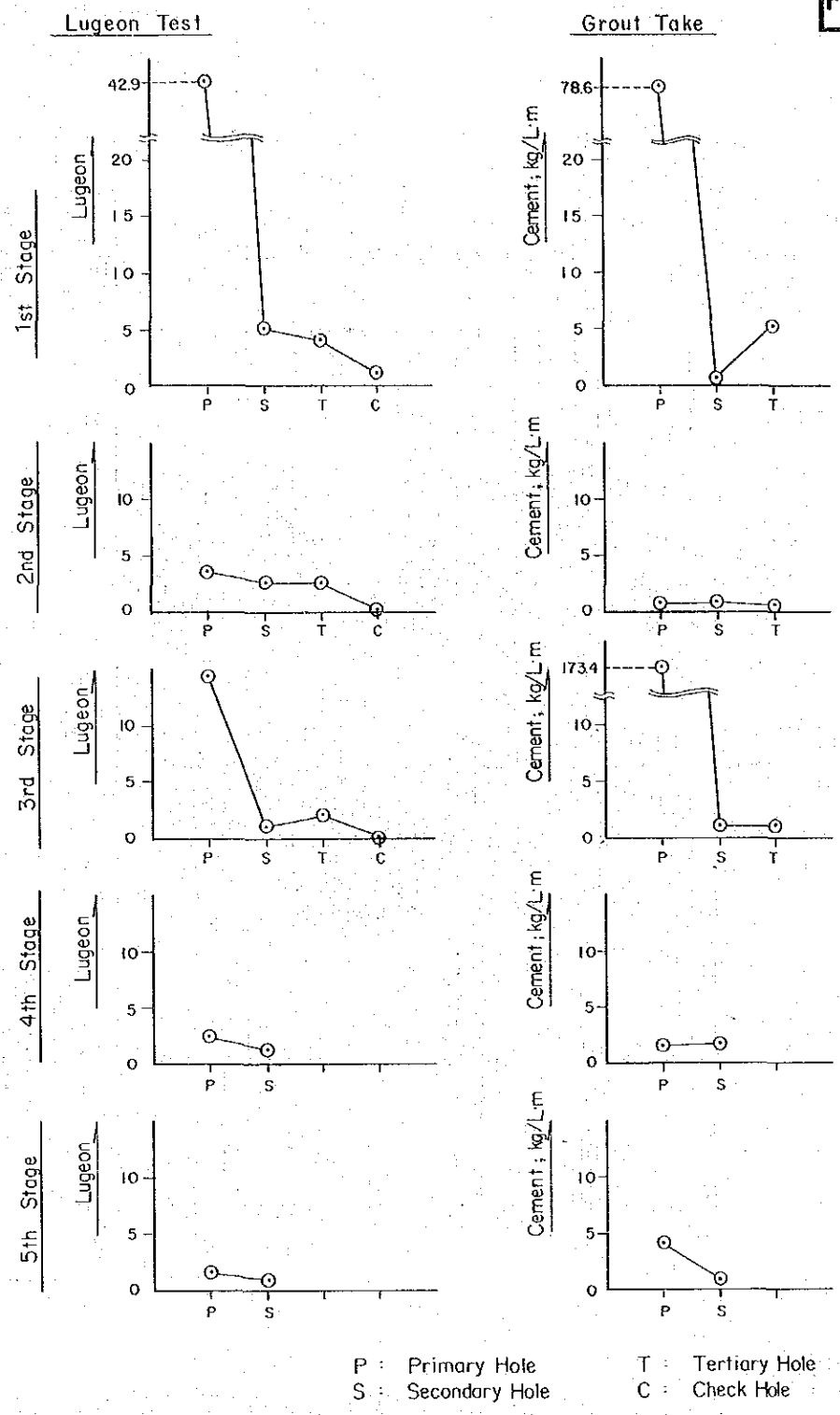

FIG-E.11 : EFFECT OF GROUTING

HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC
POWER DEVELOPMENT PROJECT
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FIG-E.12

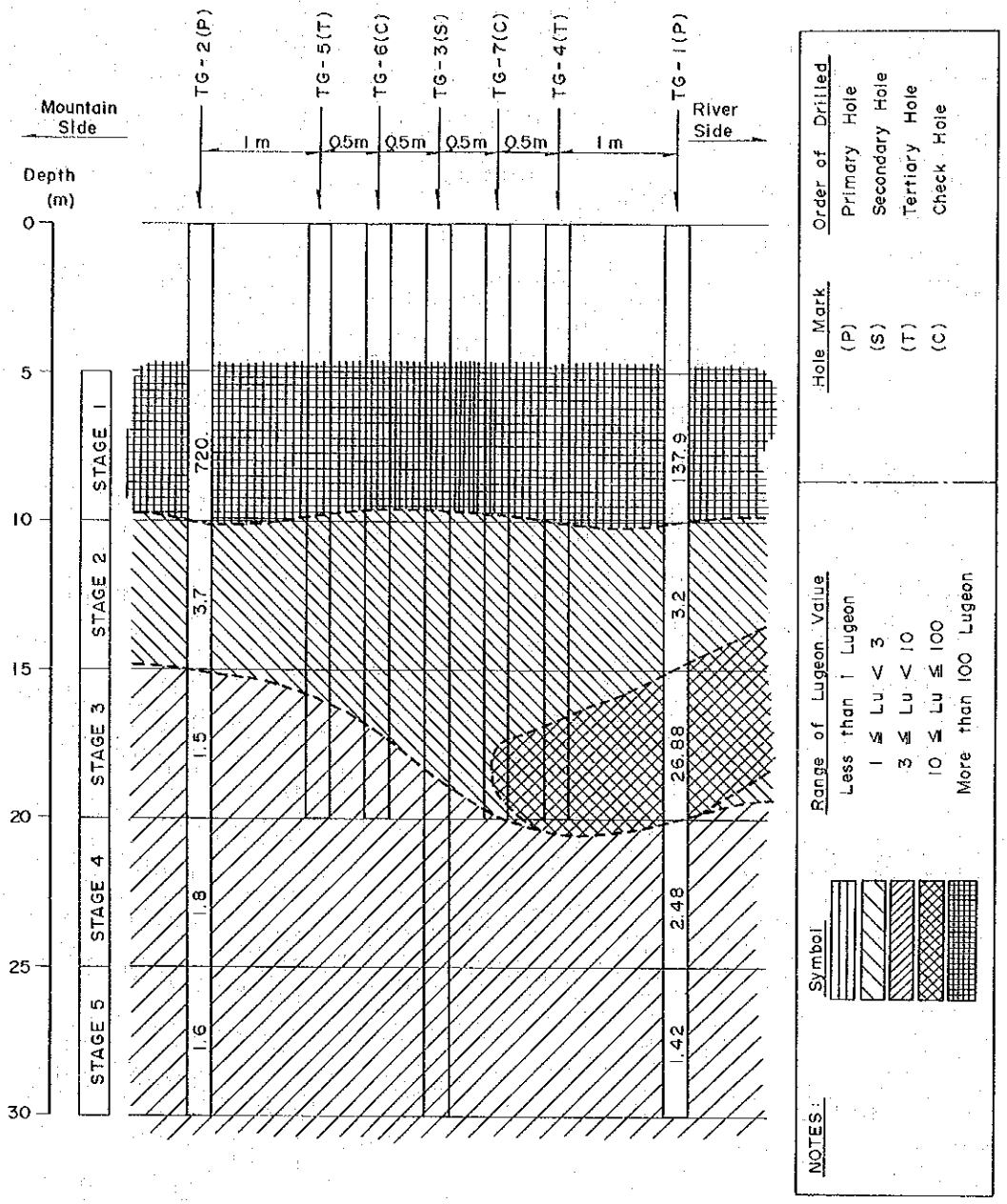

FIG- E.12 :

PERMEABILITY (BY THE LUGEON TEST) MAP IN THE CROSS SECTION OF THE TEST GROUT SITE(1) BEFORE GROUTING: i.e. LUGEON TESTS IN PRIMARY HOLES

HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC
POWER DEVELOPMENT PROJECT
FEASIBILITY REPORT
JAPAN INTERNATIONAL COOPERATION AGENCY

FIG-E.13

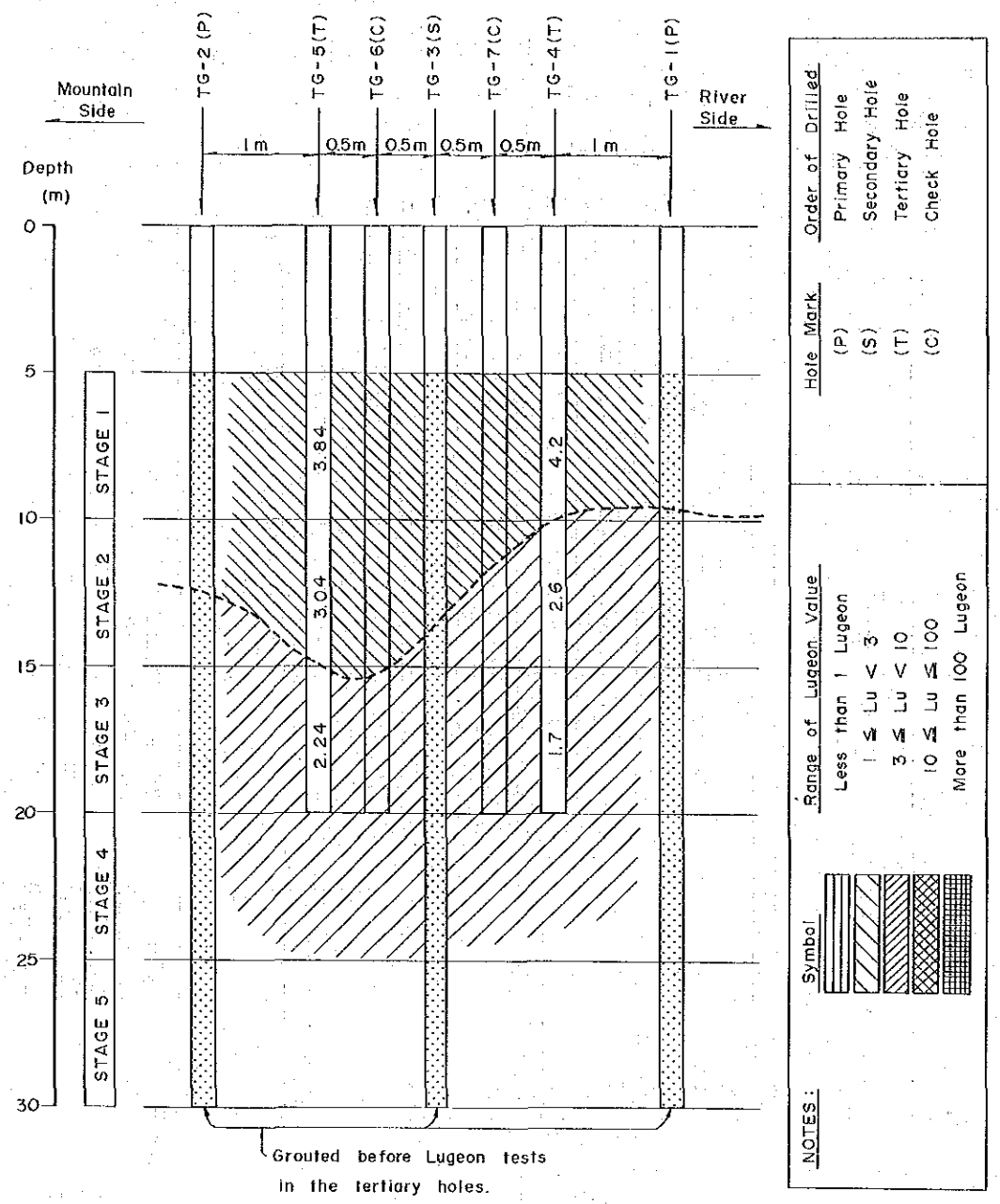

FIG- E.13 : PERMEABILITY (BY THE LUGEON TEST) MAP IN THE CROSS SECTION OF THE TEST GROUT SITE(2) AFTER GROUTED IN 2M APART: i.e. LUGEON TESTS IN TERTIARY HOLES

HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC POWER DEVELOPMENT PROJECT
FEASIBILITY REPORT
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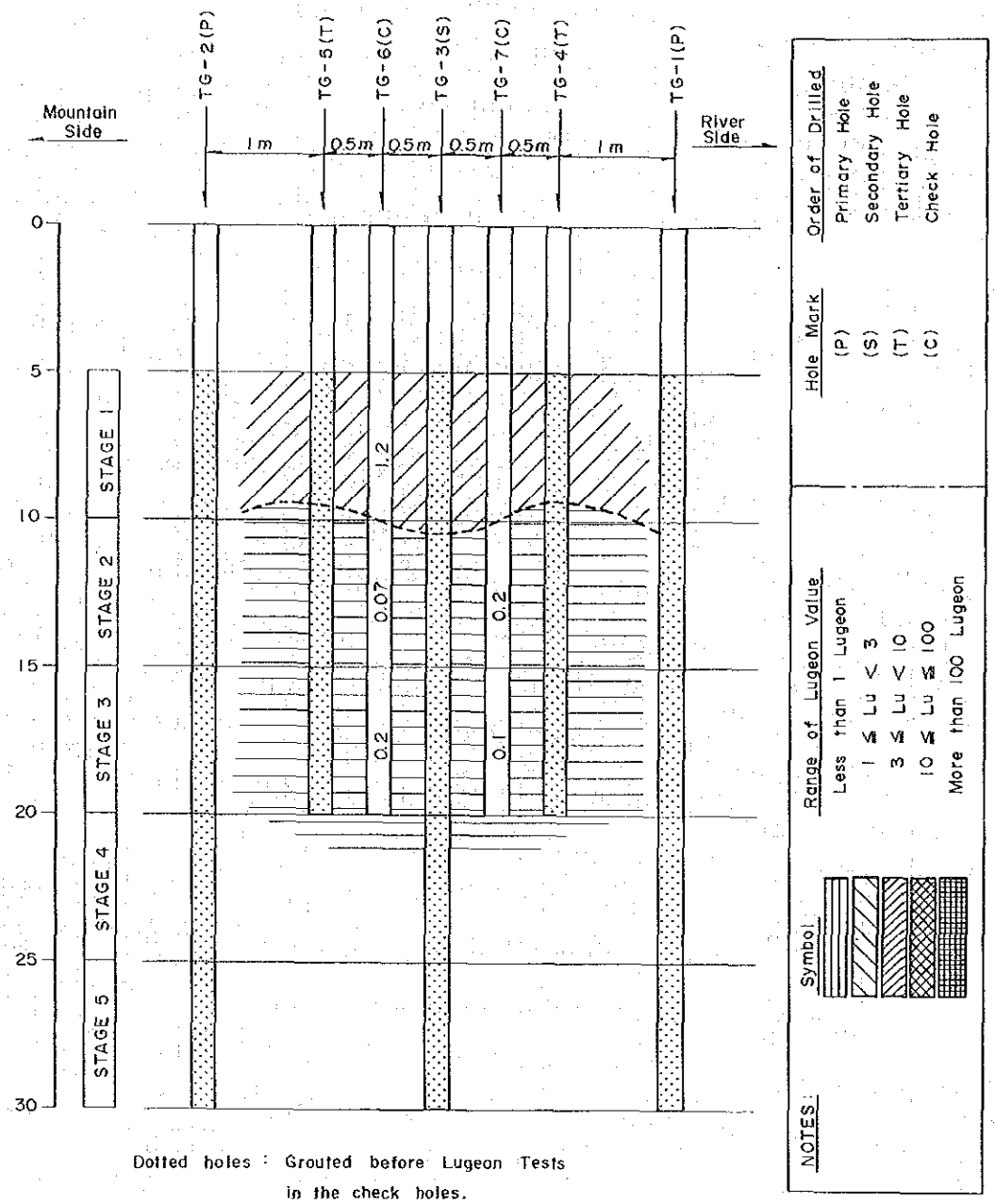
FIG-E.14



Dotted holes : Grouted before Lugeon Tests in the check holes.

FIG- E.14 : PERMEABILITY (BY THE LUGEON TEST) MAP IN THE CROSS SECTION OF THE TEST GROUT SITE(3) AFTER GROUTED IN 1M APART: i.e. LUGEON TESTS IN CHECK HOLES

HIS MAJESTY'S GOVERNMENT OF NEPAL
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POWER DEVELOPMENT PROJECT
FEASIBILITY REPORT
JAPAN INTERNATIONAL COOPERATION AGENCY

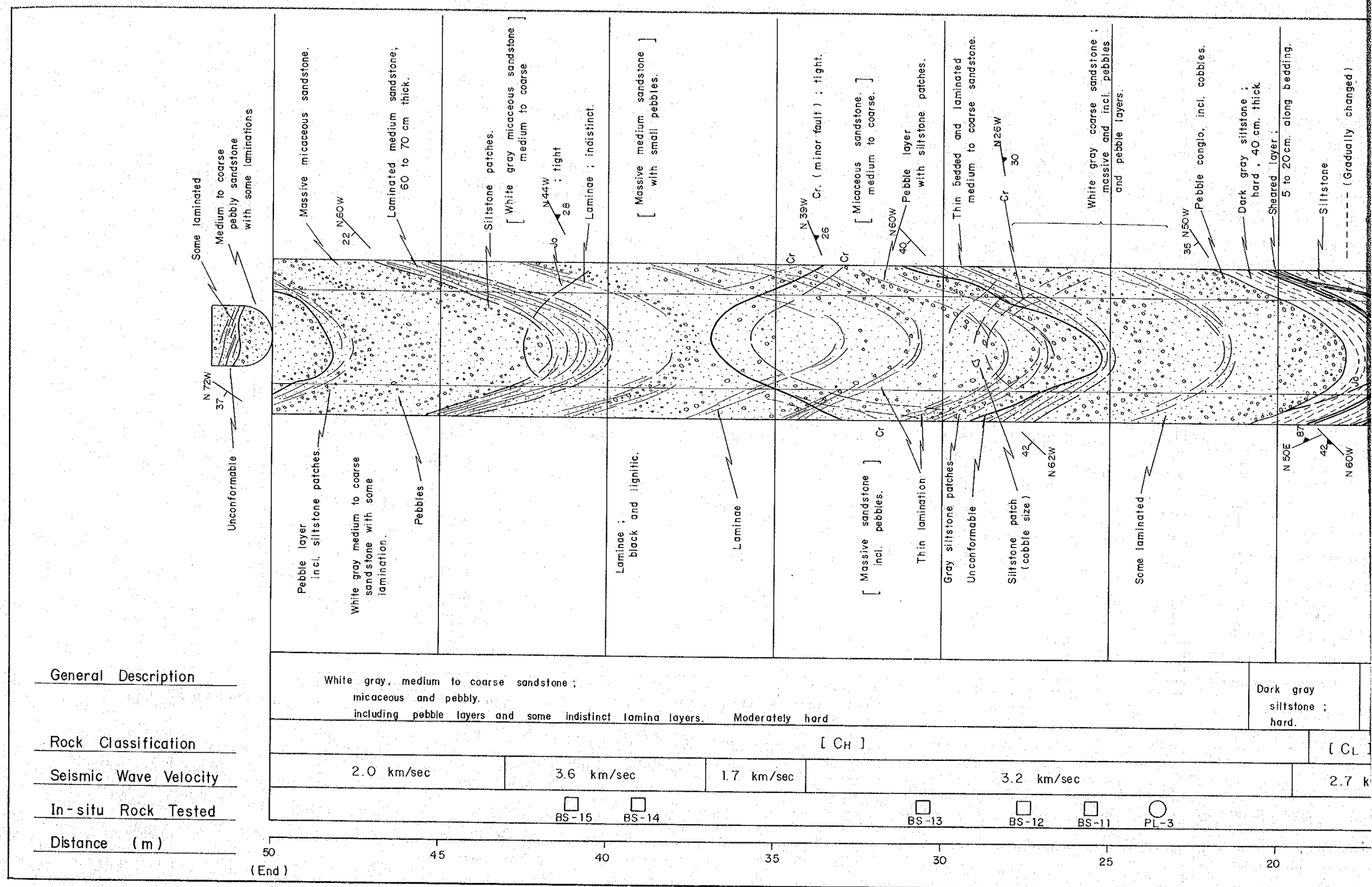
Some laminated
Medium to coarse pebbly sandstone with some laminations
N 72W
37
Unconformable
Pebble layer incl. siltstone patches.
White gray medium to coarse sandstone with some lamination.
Pebbles
Massive micaceous sandstone.
22
N60W
Laminated medium sandstone; 60 to 70 cm thick.
Siltstone patches.
[White gray micaceous sandstone medium to coarse
N44W
28
; tight
Jo
Laminae ; indistinct.
Laminae ; black and lignitic.
[Massive medium sandstone with small pebbles.]
Laminae
Cr
N 39W
26
Cr. (minor fault) ; tight.
Cr
[Massive sandstone incl. pebbles.]
Cr
[Micaceous sandstone. medium to coarse.]
N60W
40
Pebble layer with siltstone patches.
Thin lamination
Thin bedded and laminated medium to coarse sandstone.
Gray siltstone patches
Unconformable
Cr
N26W
30
Siltstone patch (cobble size)
42
N 62W
White gray coarse sandstone ; massive and incl. pebbles and pebble layers.
Some laminated
35
N50W
Pebble conglo. incl. cobbles.
Dark gray siltstone ; hard , 40 cm. thick.
Sheared layer ;
5 to 20 cm. along bedding.
N 50E
87
42
N 60W
Siltstone
- - - - - - - (Gradually changed)
Jo
General Description
White gray, medium to coarse sandstone ; micaceous and pebbly. including pebble layers and some indistinct lamina layers. Moderately hard
Dark gray siltstone ; hard.
Rock Classification
[CH]
[CL
Seismic Wave Velocity
2.0 km/sec
3.6 km/sec
1.7 km/sec
3.2 km/sec
2.7 k
In-situ Rock Tested
BS-15
BS-14
BS-13
BS-12
BS-11
PL-3
Distance (m)
50
(End)
45
40
35
30
25
20

FIG- E.15

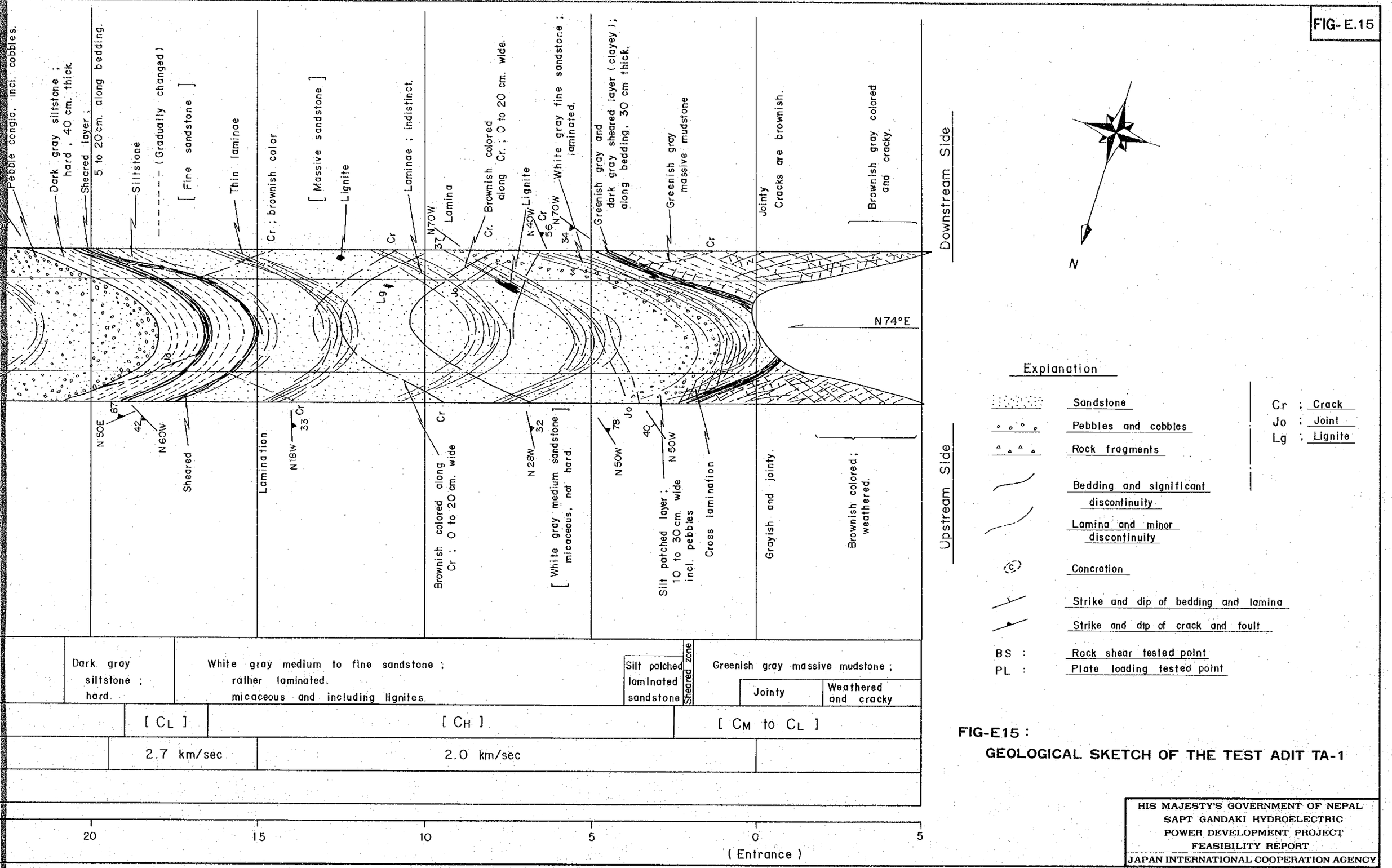

FIG-E15 :

GEOLOGICAL SKETCH OF THE TEST ADIT TA-1

HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC
POWER DEVELOPMENT PROJECT
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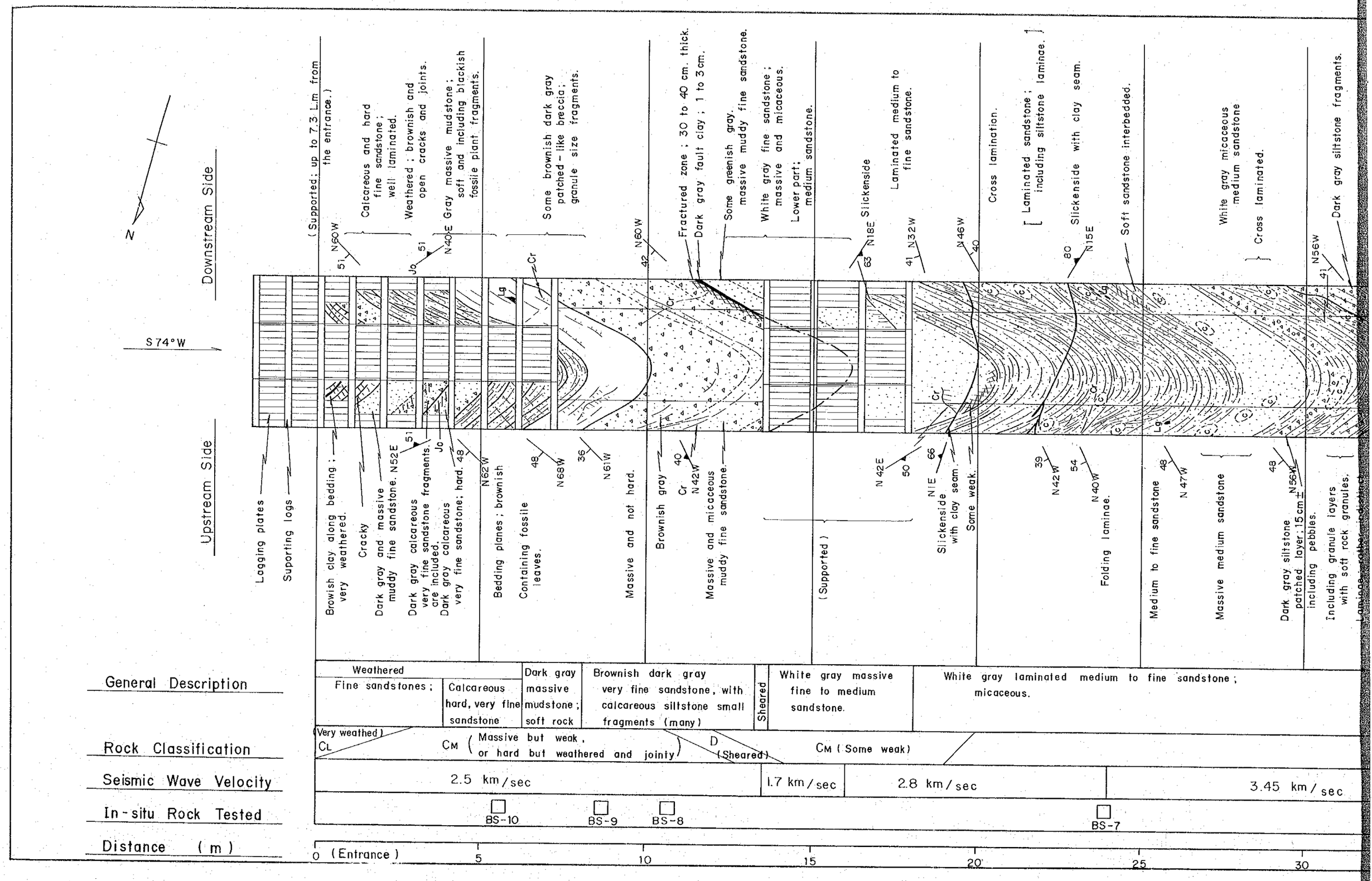
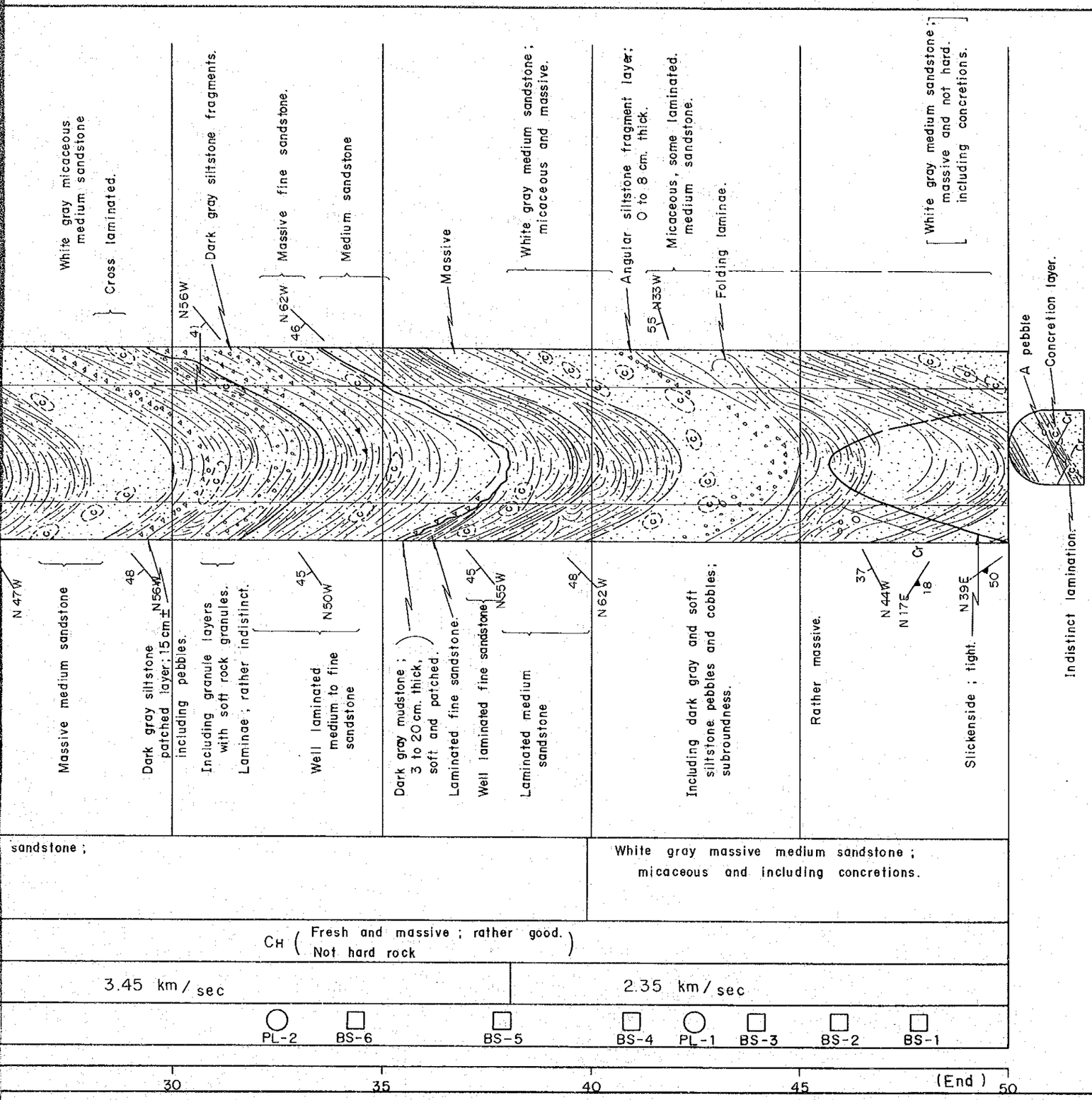

N
S 74°W
Downstream Side
Upstream Side
(Supported; up to 7.3 L.m from the entrance.)
Calcareous and hard fine sandstone; well laminated.
Weathered; brownish and open cracks and joints.
Gray massive mudstone; soft and including blackish fossile plant fragments.
Some brownish dark gray patched-like breccia; granule size fragments.
Fractured zone; 30 to 40 cm. thick.
Dark gray fault clay; 1 to 3 cm.
Some greenish gray, massive muddy fine sandstone.
White gray fine sandstone; massive and micaceous.
Lower part; medium sandstone.
Slickenside
Laminated medium to fine sandstone.
Cross lamination.
Laminated sandstone; including siltstone laminae.
Slickenside with clay seam.
Soft sandstone interbedded.
White gray micaceous medium sandstone
Cross laminated.
Dark gray siltstone fragments.
Lagging plates
Suporting logs
Browish clay along bedding; very weathered.
Cracky
Dark gray and massive muddy fine sandstone.
Dark gray calcareous very fine sandstone fragments are included.
Dark gray calcareous very fine sandstone; hard.
Bedding planes; brownish
Containing fossile leaves.
Massive and not hard.
Brownish gray
Massive and micaceous muddy fine sandstone.
(Supported)
Slickenside with clay seam.
Some weak.
Folding laminae.
Medium to fine sandstone
Massive medium sandstone
Dark gray siltstone patched layer; 15 cm ± including pebbles.
Including granule layers with soft rock granules.
General Description
Weathered
Fine sandstones;
Calcareous hard, very fine sandstone
Dark gray massive mudstone; soft rock
Brownish dark gray very fine sandstone, with calcareous siltstone small fragments (many)
Sheared
White gray massive fine to medium sandstone.
White gray laminated medium to fine sandstone; micaceous.
Rock Classification
(Very weathed) CL
CM (Massive but weak, or hard but weathered and jointy)
D (Sheared)
CM (Some weak)
Seismic Wave Velocity
2.5 km/sec
1.7 km/sec
2.8 km/sec
3.45 km/sec
In-situ Rock Tested
BS-10
BS-9
BS-8
BS-7
Distance (m)
0 (Entrance)
5
10
15
20
25
30

FIG- E.16



Explanation

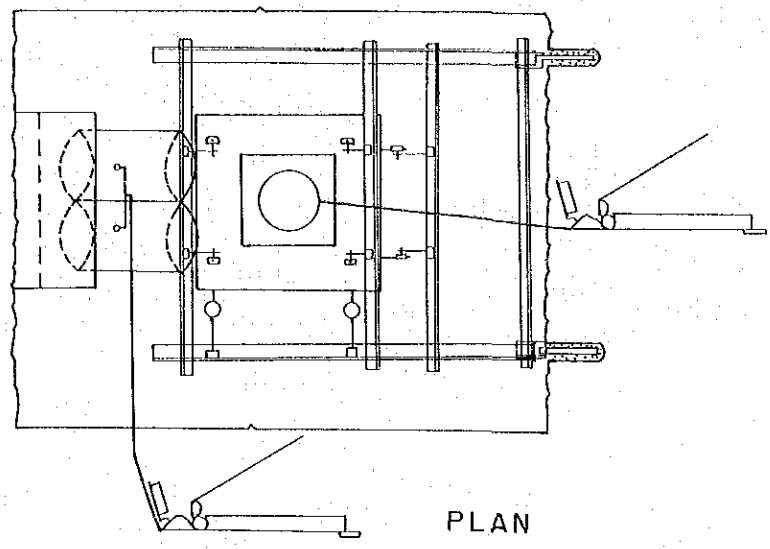
- Sandstone
- Pebbles and cobbles
- Rock fragments
- Bedding and significant discontinuity.
- Lamina and minor discontinuity
- Concretion
- Strike and dip of bedding and lamina
- Strike and dip of crack and foult.
- BS : Rock shear tested point
- PL : Plate loading tested point

- Cr ; Crack
- Jo ; Joint
- Lg ; Lignite

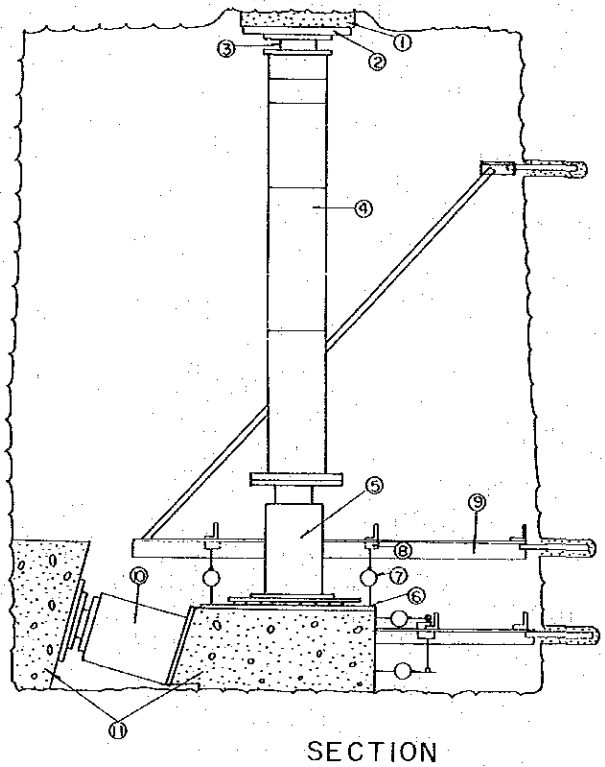
FIG-E.16 : GEOLOGICAL SKETCH OF THE TEST ADIT TA-2

HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC
POWER DEVELOPMENT PROJECT
FEASIBILITY REPORT
JAPAN INTERNATIONAL COOPERATION AGENCY

FIG-E.17



PLAN



SECTION

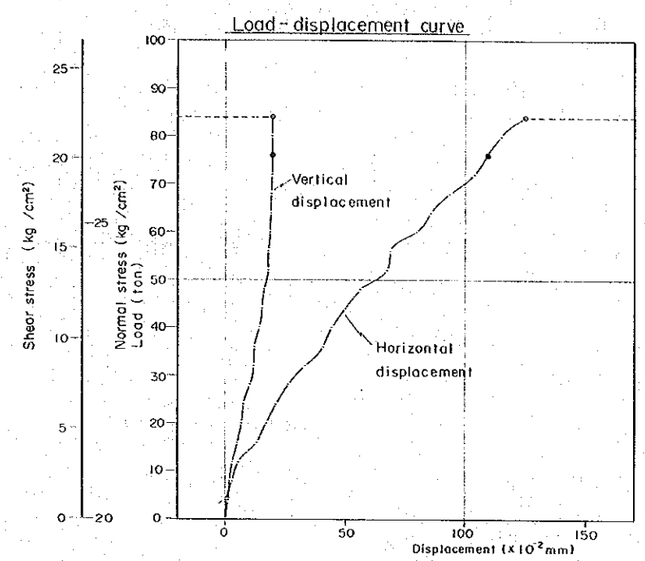
①	Mortar
②	Plate
③	Universal head
④	Pipe saports
⑤	Hydraulic jack(100ton)
⑥	Plate
⑦	Dial gauge
⑧	Magnet stand
⑨	Angle
⑩	Hydraulic jack(200 ton)
⑪	Concrete block

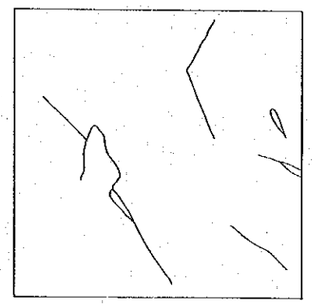
FIG-E.17 : THE BLOCK SHEAR TEST ARRANGEMENTS

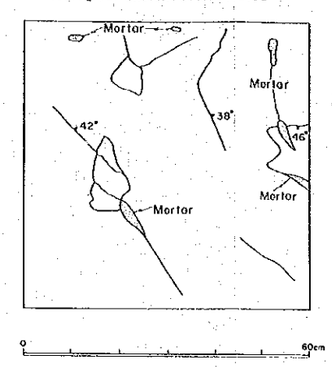
HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC
POWER DEVELOPMENT PROJECT
FEASIBILITY REPORT
JAPAN INTERNATIONAL COOPERATION AGENCY

FIG- E.18

BS I LOADING N = 72 ton $\theta = 17°$



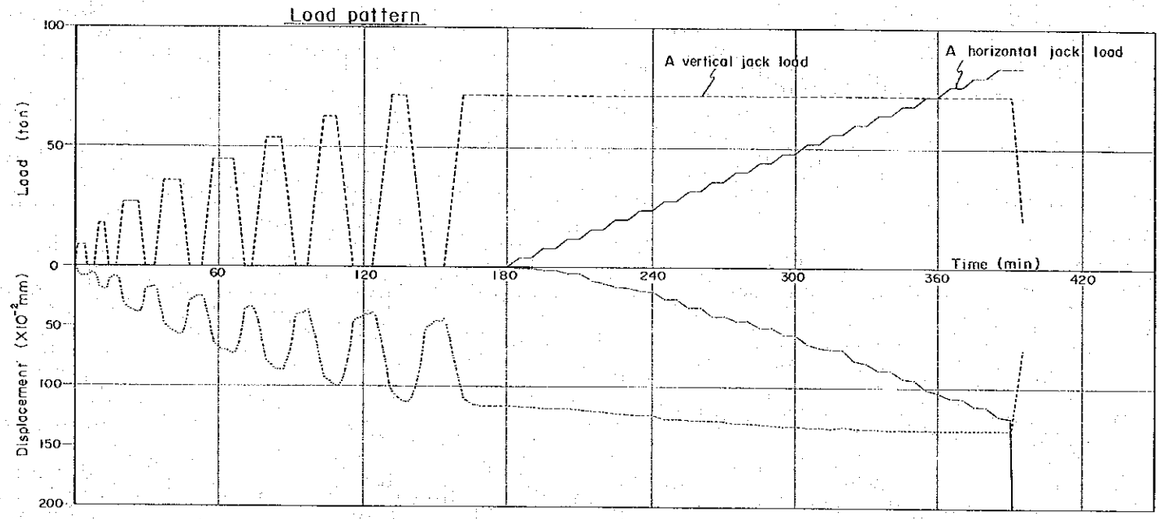




LEGEND
- ○ Failure point
- ● Upheaval point

Rock type : Sand stone.

Note : White gray.
medium sandstone.
massive and micaceous.



LEGEND
- Horizontal displacement
- Vertical displacement

FIG- E.18 : BLOCK SHEAR TEST RECORD, BS-1

HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC
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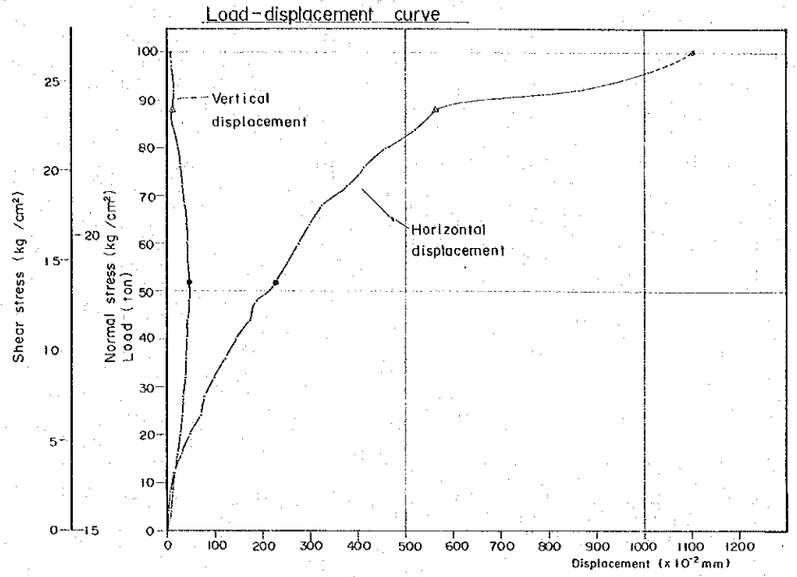
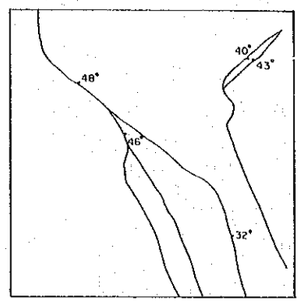
FIG- E.19

BS 2 LOADING N = 54 ton θ = 17°

Load-displacement curve

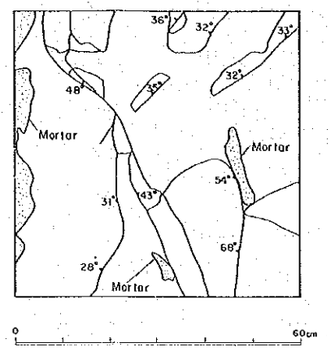


Geological sketch before testing



Force (S19°E)

Geological sketch after tested

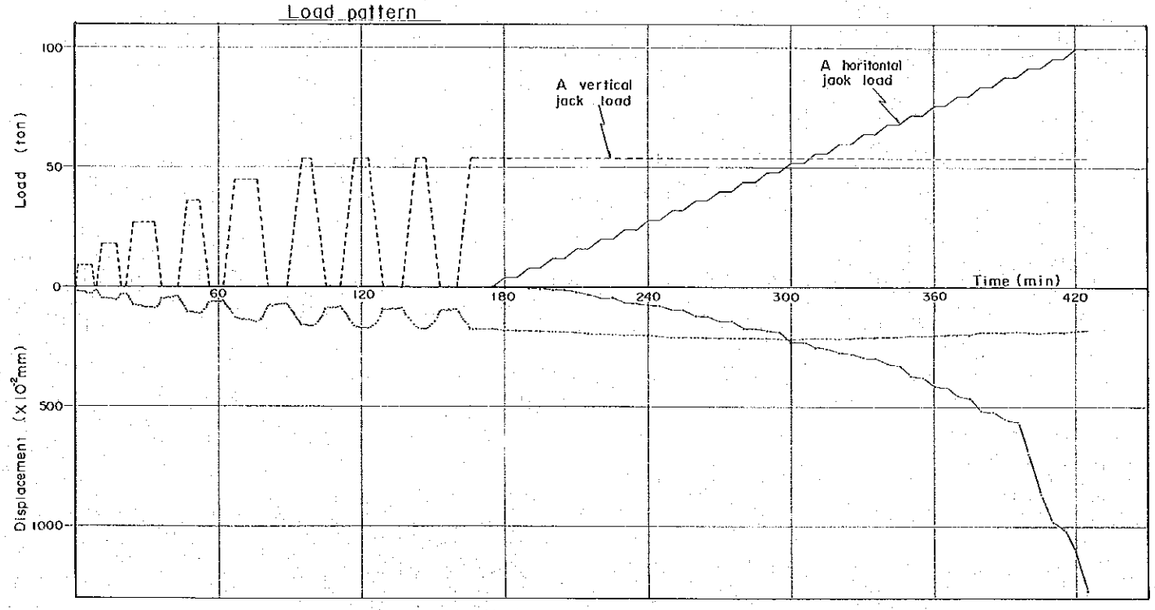


Rock type : Sand stone

Note : White gray.
fine to medium sandstone.
massive and micaceous.

LEGEND
- o Failure point
- △ Principal yield point
- ● Upheaval point

Load pattern



Time-displacement curve

LEGEND
- Horizontal displacement
- Vertical displacement

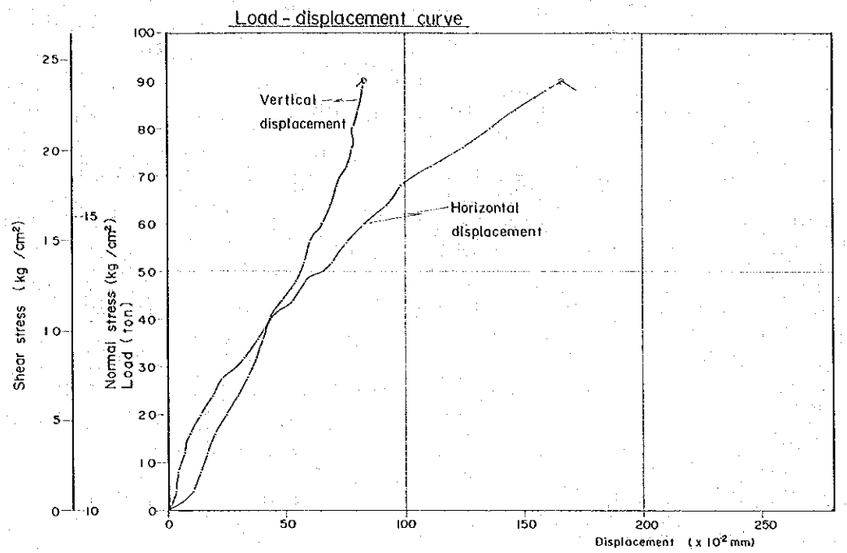
FIG- E.19 : BLOCK SHEAR TEST RECORD, BS-2

HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC
POWER DEVELOPMENT PROJECT
FEASIBILITY REPORT
JAPAN INTERNATIONAL COOPERATION AGENCY

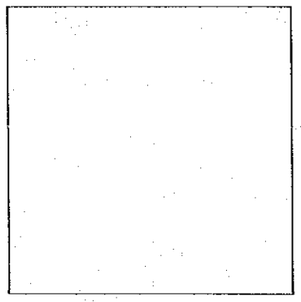
FIG- E.20

BS 3 LOADING N = 36 ton θ = 17°

Load - displacement curve

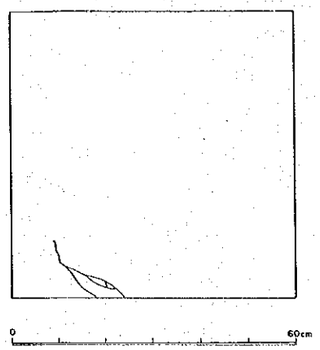


Geological sketch before testing



Force (S 8° E)

Geological sketch after tested



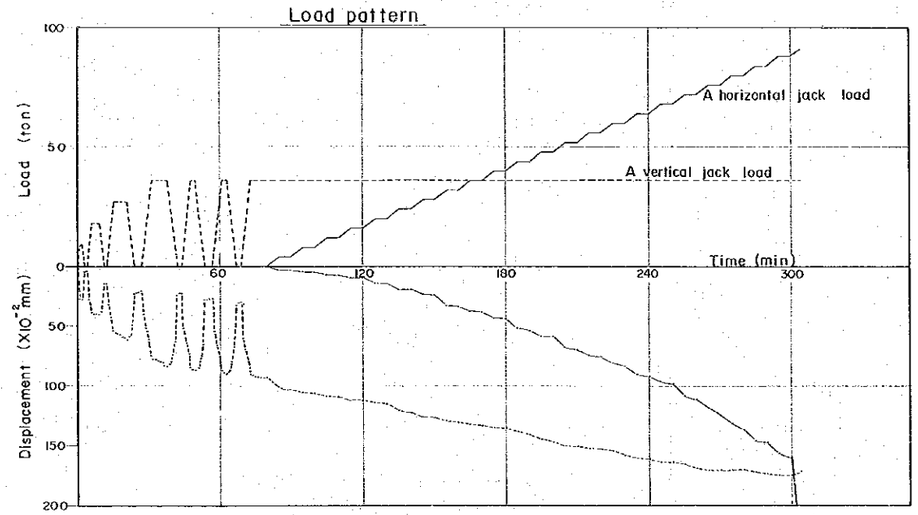
LEGEND

o Failure point

Rock type : Sand stone.

Note : White gray.
medium sandstone.
massive and micaceous.

Load pattern



LEGEND

Horizontal displacement

Vertical displacement

Time-displacement curve

FIG- E.20 : BLOCK SHEAR TEST RECORD, BS-3

HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC
POWER DEVELOPMENT PROJECT
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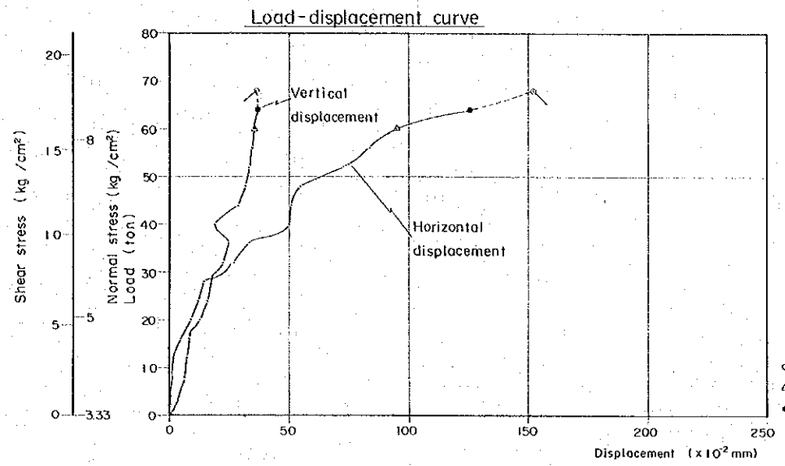
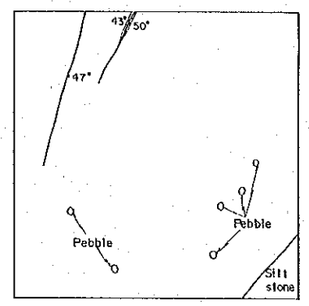
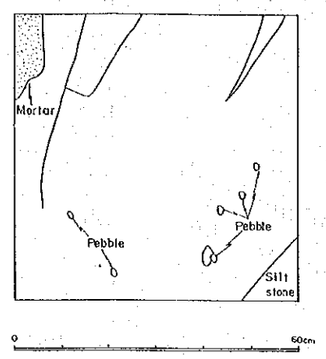
FIG- E.21

BS 4 LOADING N=12 ton θ=17°



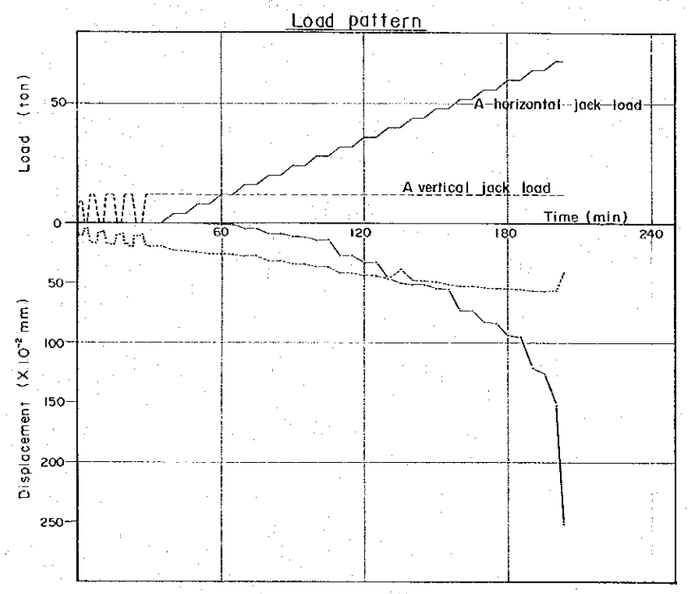




LEGEND
- ○ Failure point
- △ Principal yield point
- ● Upheaval point

Rock type : Sand stone.

Note : White gray.
medium to coarse sandstone.
massive and micaceous.



Time-displacement curve

LEGEND
- Horizontal displacement
- Vertical displacement

FIG- E.21 : BLOCK SHEAR TEST RECORD, BS-4

HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC
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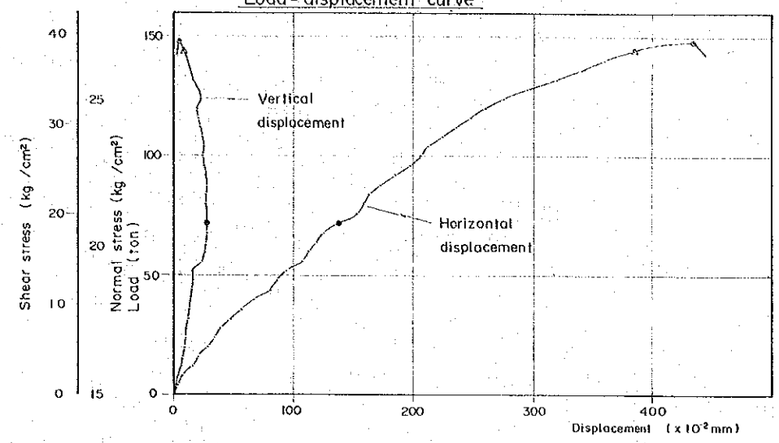
FIG- E.22

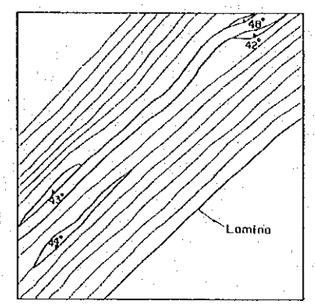
BS 5 LOADING N=54 ton θ=17°

Load-displacement curve



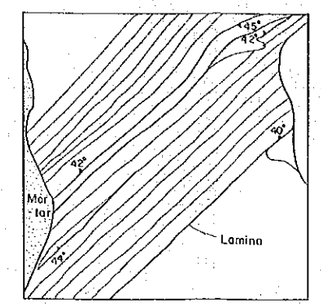
LEGEND
- ○ Failure point
- △ Printipal yield point
- ● Upheaval point

Geological sketch before testing



Force (S 15°E)

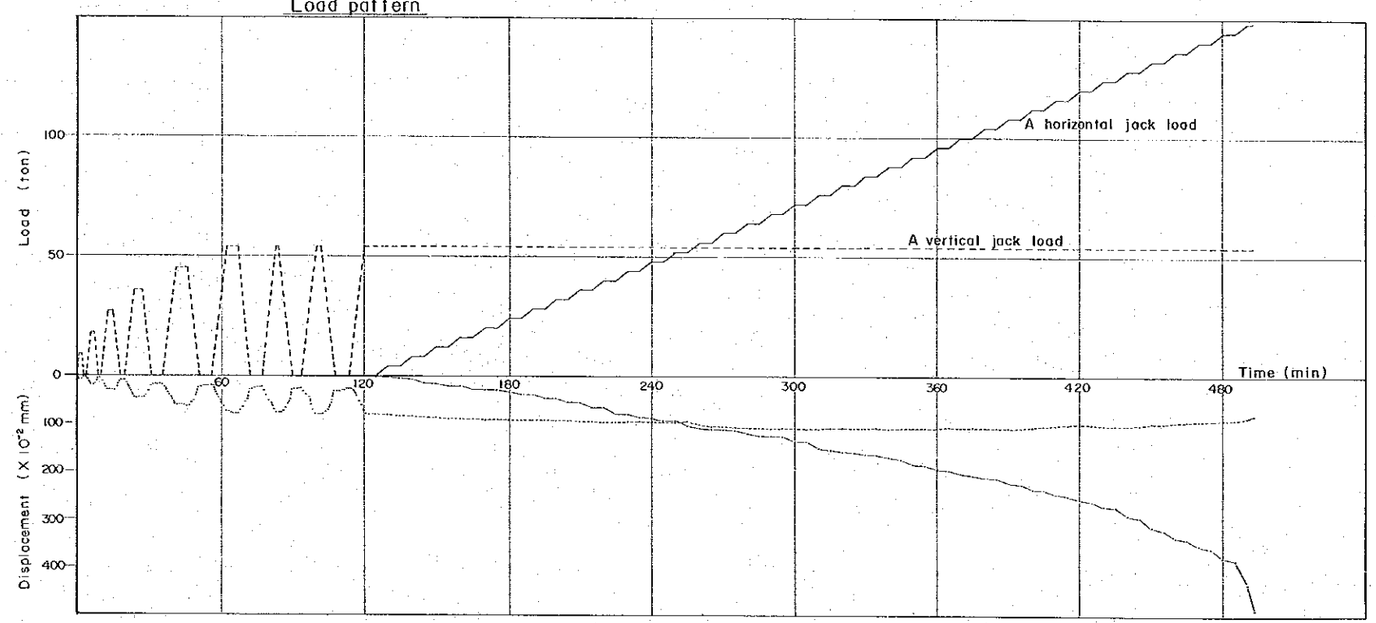
Geological sketch after tested



Rock type : Sand stone

Note : White gray. fine sandstone. micaceous and laminated.

Load pattern



LEGEND
- Horizontal displacement
- Vertical displacement

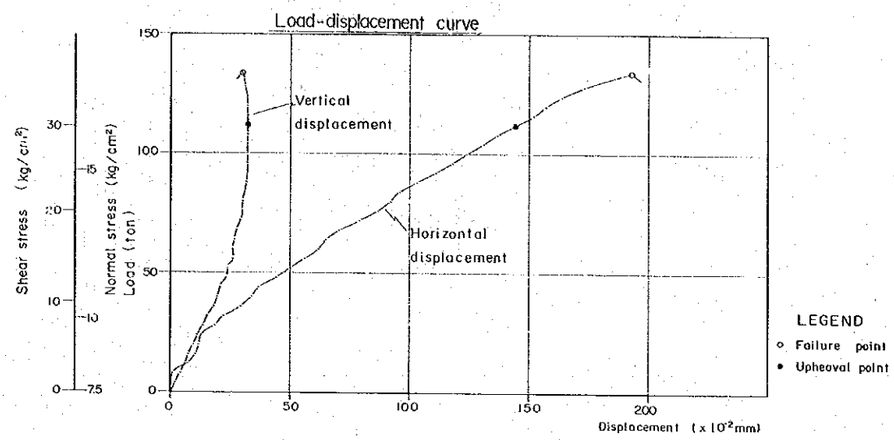
Time-displacement curve

FIG- E.22 : BLOCK SHEAR TEST RECORD, BS-5

HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC
POWER DEVELOPMENT PROJECT
FEASIBILITY REPORT
JAPAN INTERNATIONAL COOPERATION AGENCY

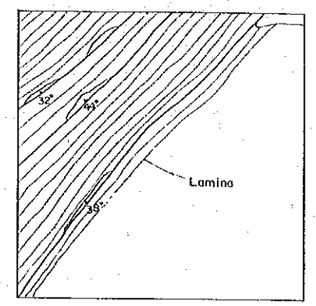
FIG- E.23

BS 6 LOADING N=27ton θ=17°



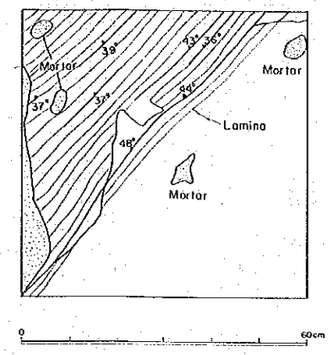
LEGEND
○ Failure point
● Upheaval point

Geological sketch before testing



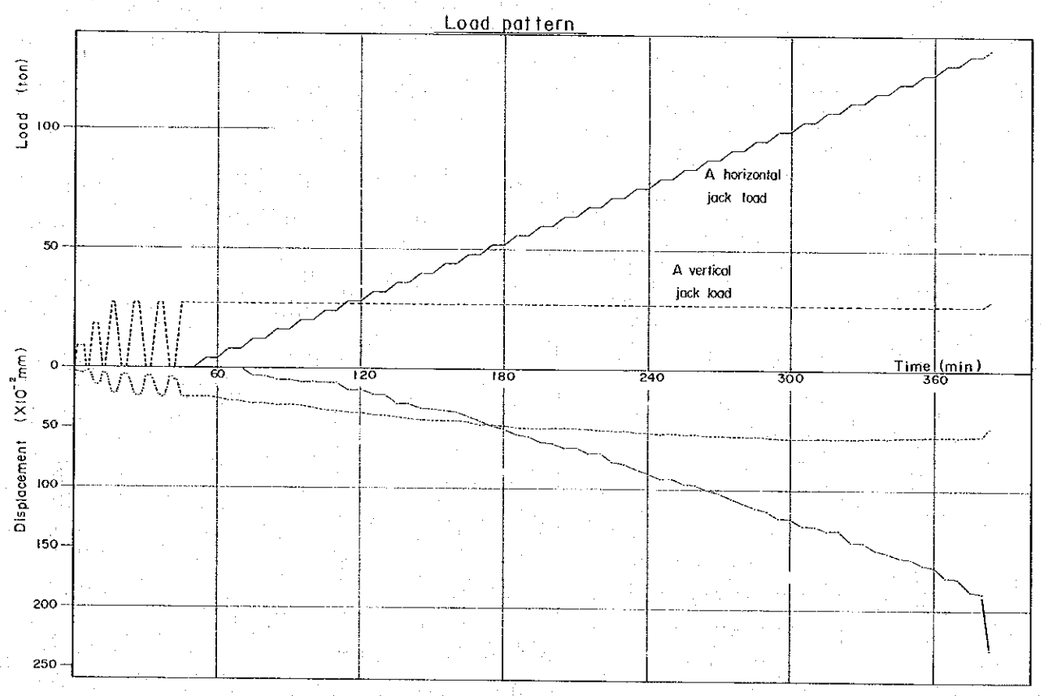
Force (S22°E)

Geological sketch after tested



Rock type : Sand stone.

Note : White gray.
fine sandstone.
micaceous and laminated.



Time-displacement curve

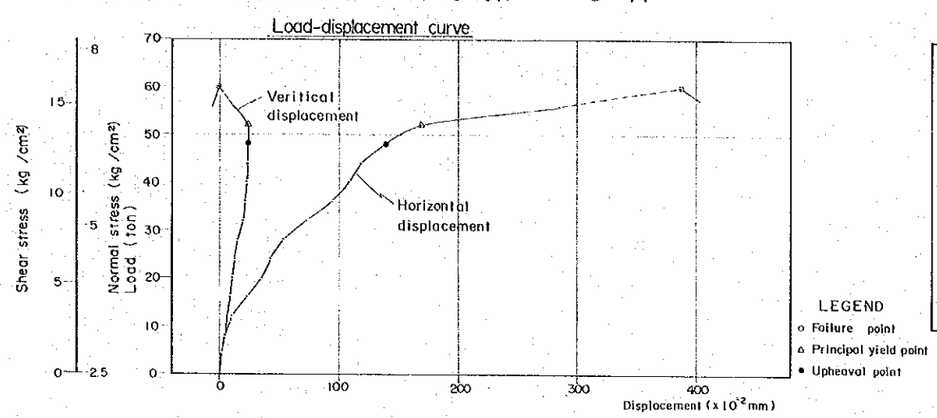
LEGEND
Horizontal displacement
Vertical displacement

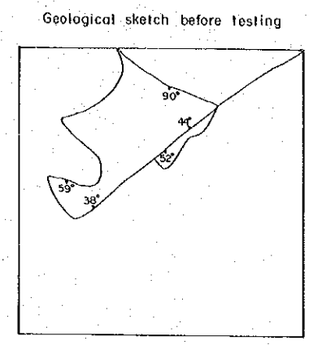
FIG- E.23 : BLOCK SHEAR TEST RECORD, BS-6

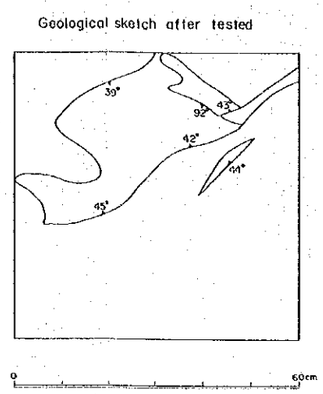
HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC
POWER DEVELOPMENT PROJECT
FEASIBILITY REPORT
JAPAN INTERNATIONAL COOPERATION AGENCY

FIG- E.24

BS 7 LOADING N=9 ton θ=17°







Rock type : Sand stone.

Note : White gray.
massive and micaceous.
medium to fine sandstone.

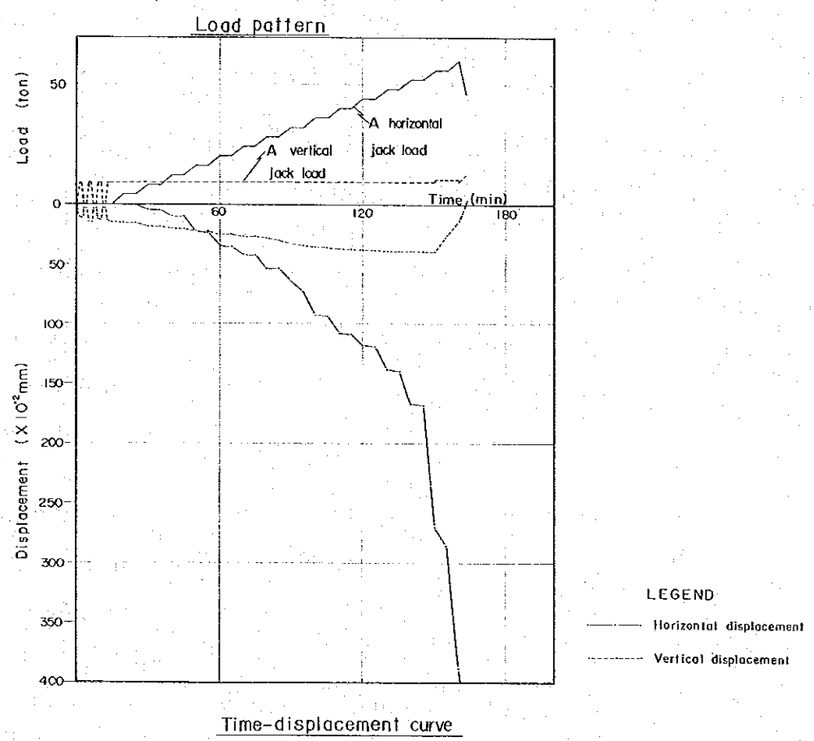
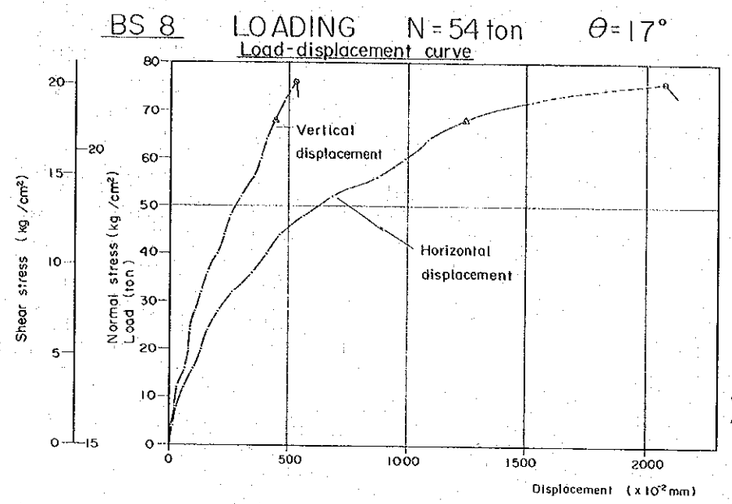


FIG- E.24 : BLOCK SHEAR TEST RECORD, BS-7

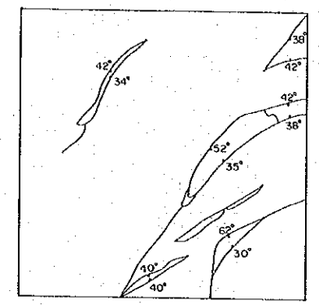
HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC
POWER DEVELOPMENT PROJECT
FEASIBILITY REPORT
JAPAN INTERNATIONAL COOPERATION AGENCY

FIG- E.25



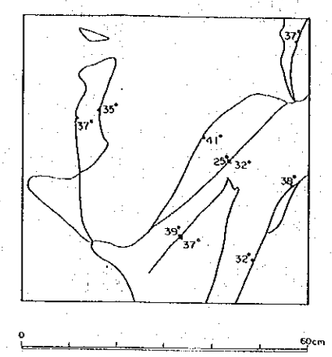
LEGEND
○ Failure point
△ Principal yield point

Geological sketch before testing



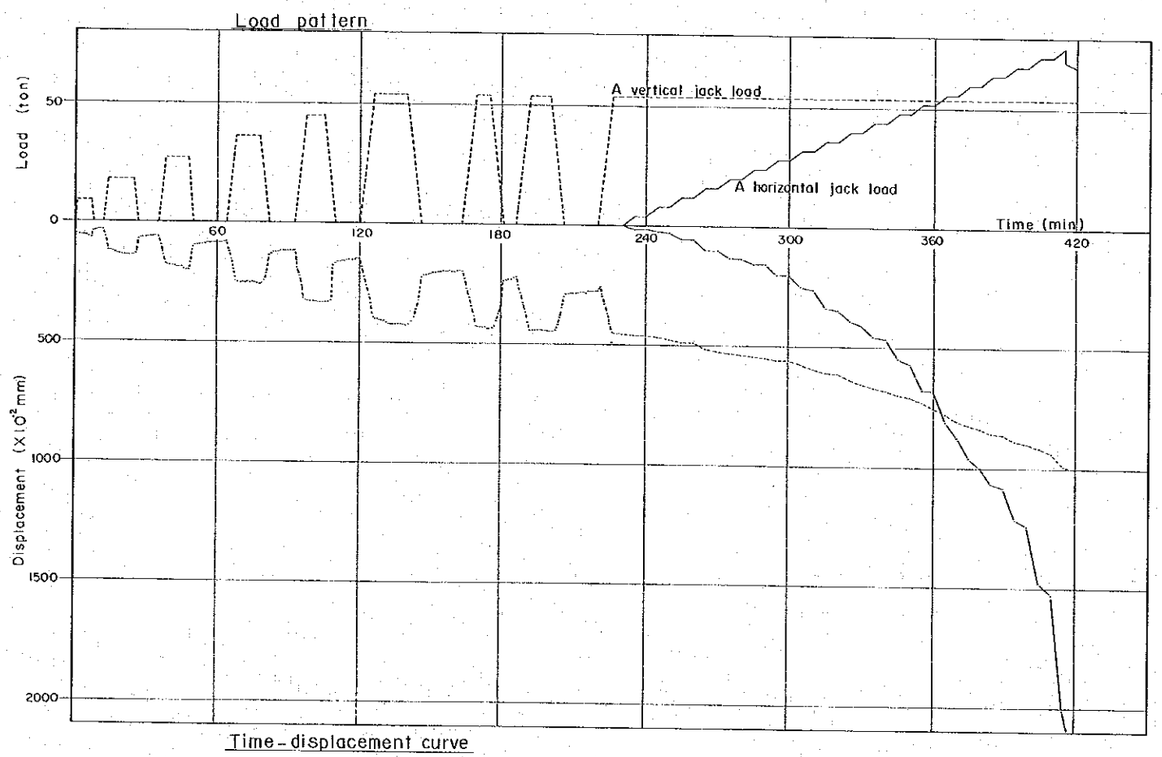
Force (S21°E)

Geological sketch after tested



Rock type : Mud stone.

Note : Brownish gray.



LEGEND
Horizontal displacement
Vertical displacement

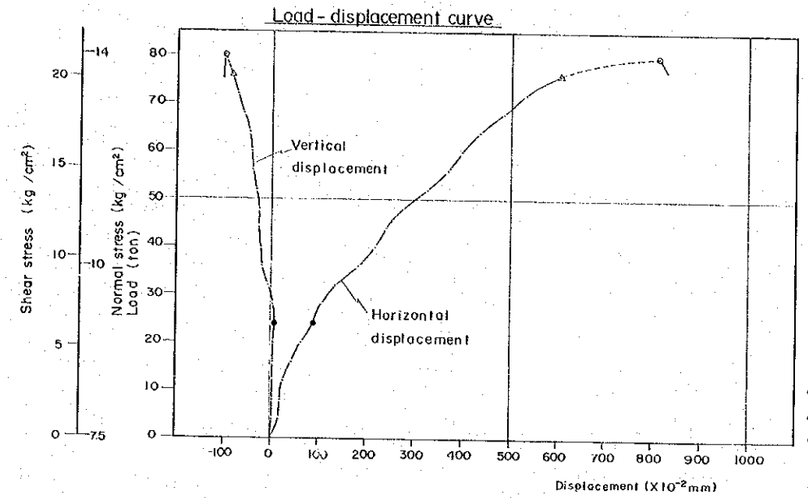
FIG- E.25 : BLOCK SHEAR TEST RECORD, BS-8

HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC
POWER DEVELOPMENT PROJECT
FEASIBILITY REPORT
JAPAN INTERNATIONAL COOPERATION AGENCY

FIG- E.26

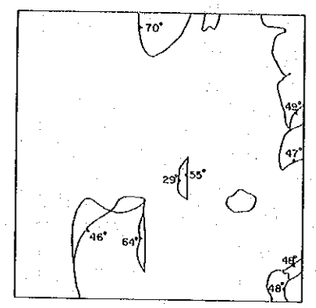
BS 9 LOADING N = 27 ton θ = 17°

Load - displacement curve



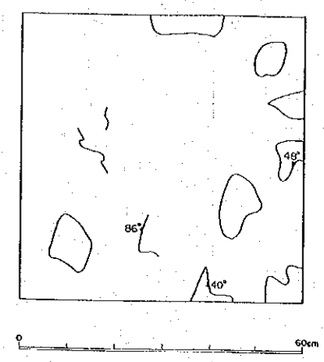
LEGEND
- ○ Failure point
- △ Principal yield point
- ● Upheaval point

Geological sketch before testing



Force (S 23°E)

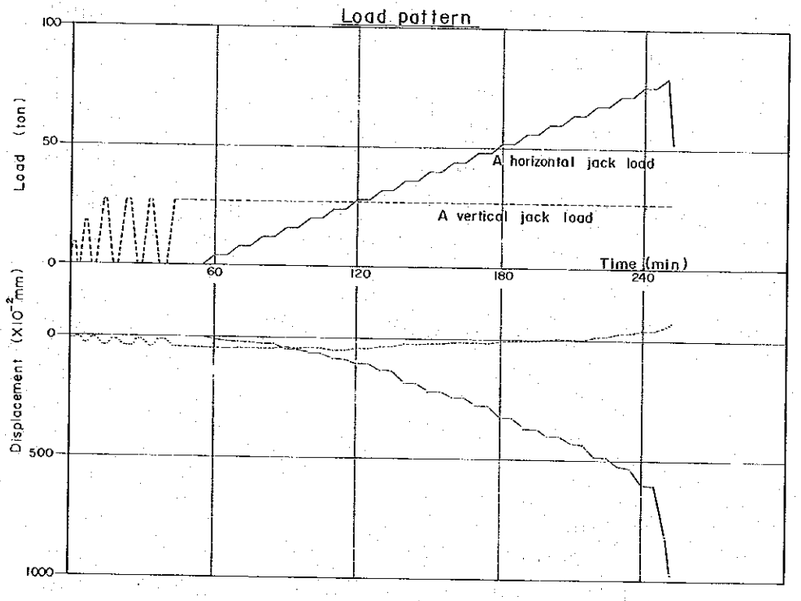
Geological sketch after tested



Rock type : Mud stone.

Note : Brownish gray.

Load pattern



LEGEND
- Horizontal displacement
- Vertical displacement

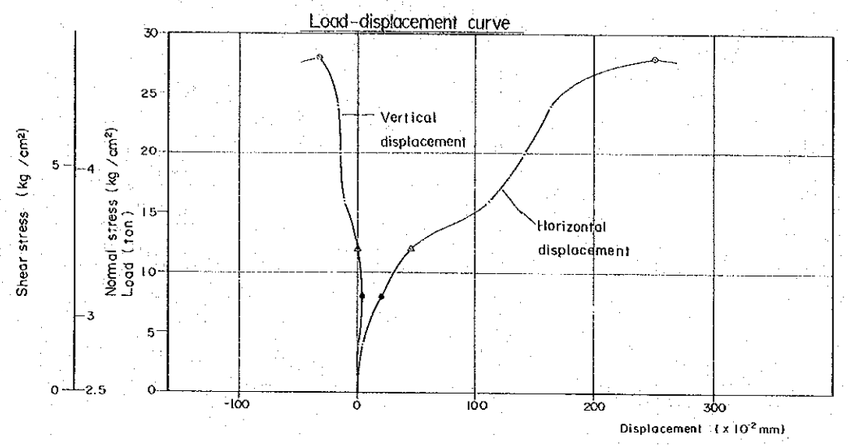
Time-displacement curve

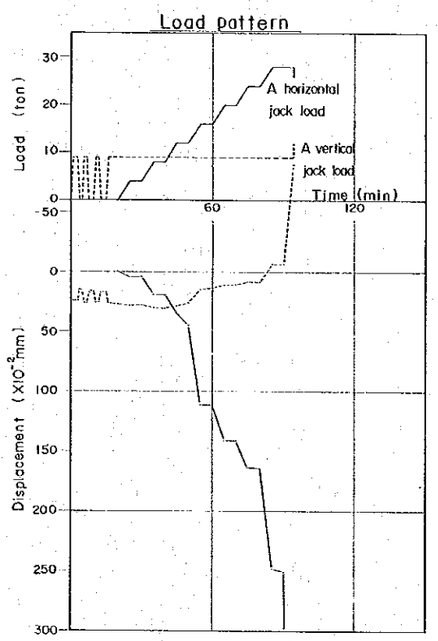
FIG- E.26 : BLOCK SHEAR TEST RECORD, BS-9

HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC
POWER DEVELOPMENT PROJECT
FEASIBILITY REPORT
JAPAN INTERNATIONAL COOPERATION AGENCY

FIG- E.27

BS 10 LOADING N = 9 ton θ = 17°



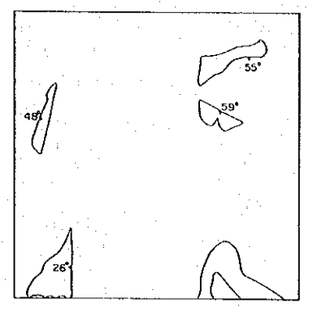


Time-displacement curve

LEGEND
- Horizontal displacement
- Vertical displacement

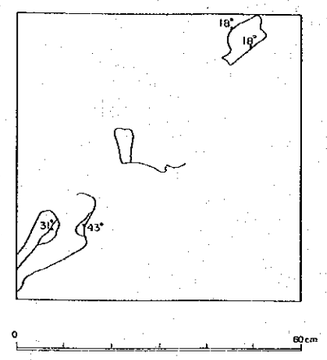
LEGEND
- ○ Failure point
- △ Principal yield point
- ● Upheaval point

Geological sketch befgre testing



Force (S 26°E)

Geological sketch after tested



Rock type : Mud stone.

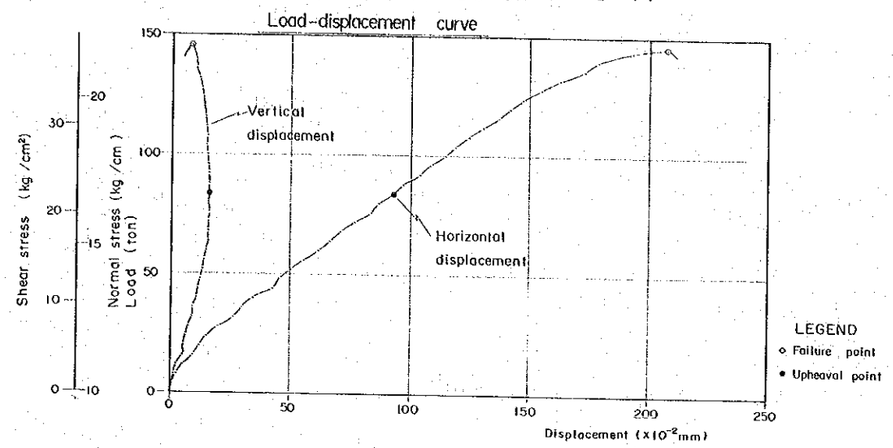
Note : Dark gray.
massive mudstone.

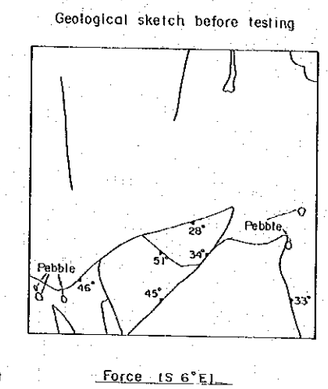
FIG- E.27 : BLOCK SHEAR TEST RECORD, BS-10

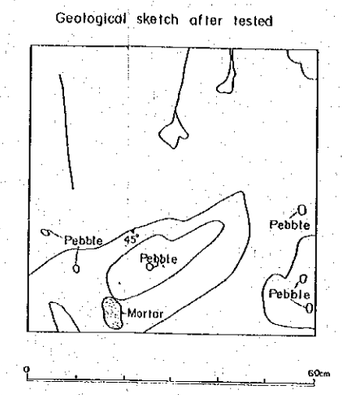
HIS MAJESTY'S GOVERNMENT OF NEPAL
SAPT GANDAKI HYDROELECTRIC
POWER DEVELOPMENT PROJECT
FEASIBILITY REPORT
JAPAN INTERNATIONAL COOPERATION AGENCY

FIG- E.28

BS 11 LOADING N=36 ton θ=17°



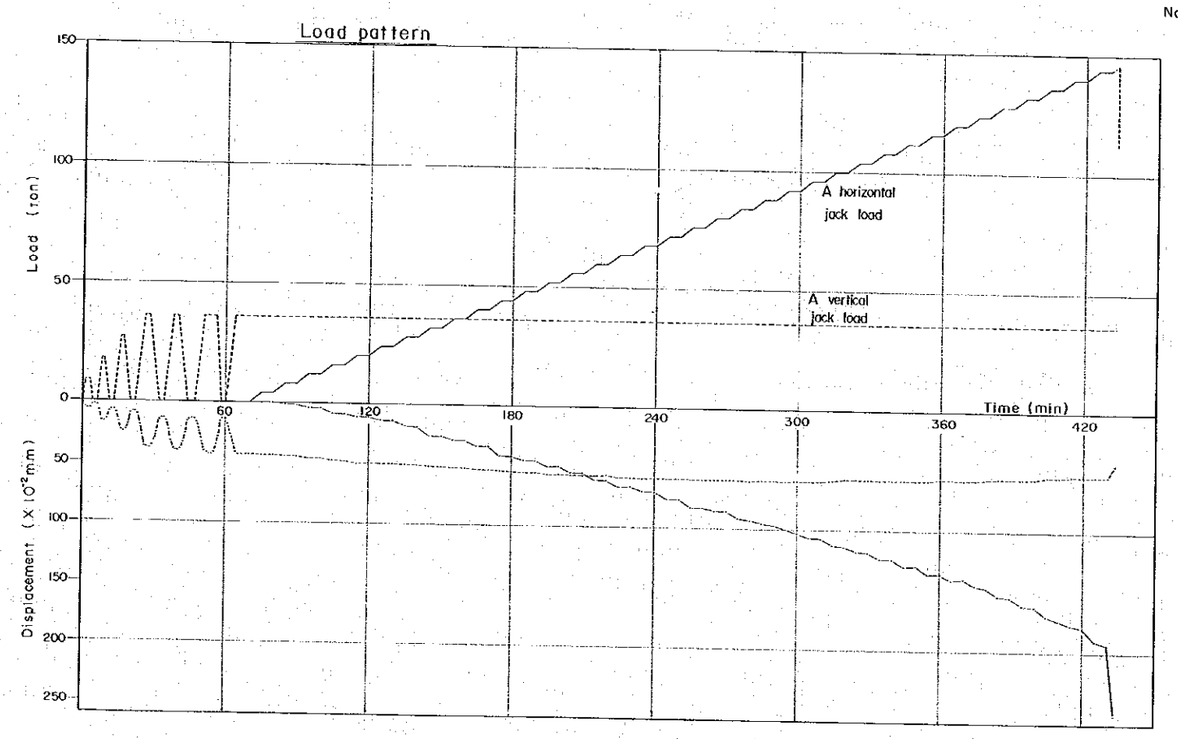




LEGEND
- ○ Failure point
- ● Upheaval point

Rock type : Sand stone.

Note : White gray. massive. coarse sandstone with some pebbles.



LEGEND
- Horizontal displacement
- Vertical displacement

Time-displacement curve

FIG- E.28 : BLOCK SHEAR TEST RECORD, BS-11

HIS MAJESTY'S GOVERNMENT OF NEPAL
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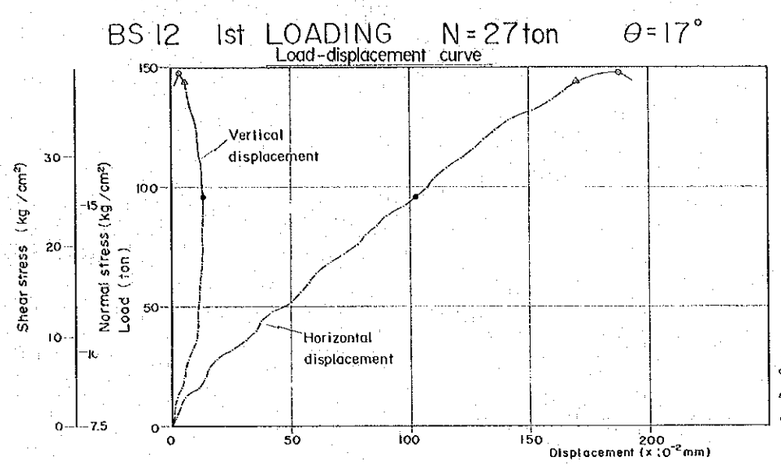
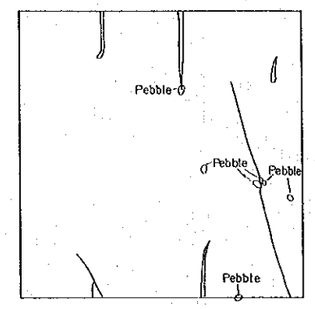
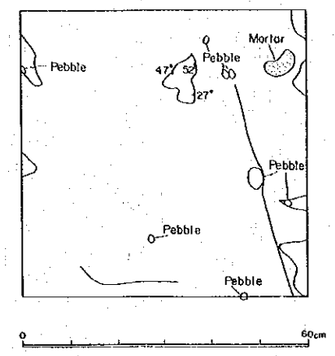
FIG- E.29



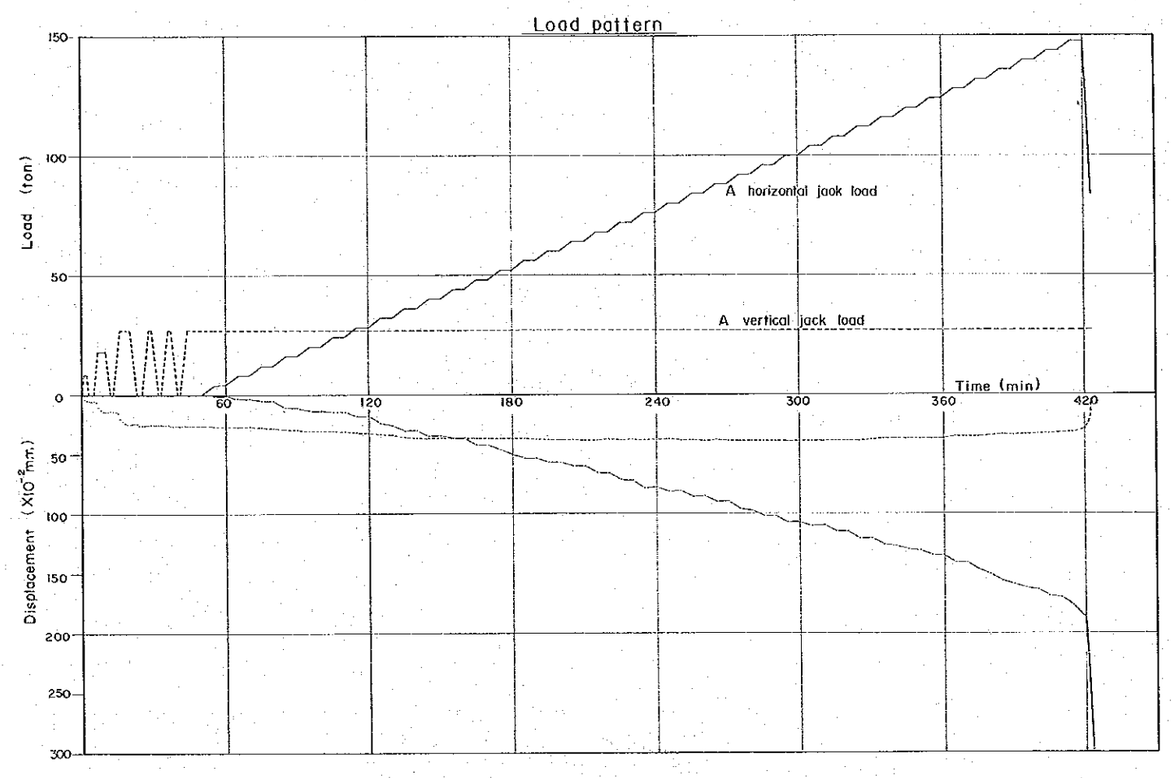




LEGEND
- ○ Failure point
- △ Principal yield point
- ● Upheaval point

Rock type : Sand stone.

Note : White gray, massive, coarse sandstone with some small pebbles.



LEGEND
- Horizontal displacement
- Vertical displacement

Time-displacement curve

FIG- E.29 : BLOCK SHEAR TEST RECORD, BS-12

HIS MAJESTY'S GOVERNMENT OF NEPAL
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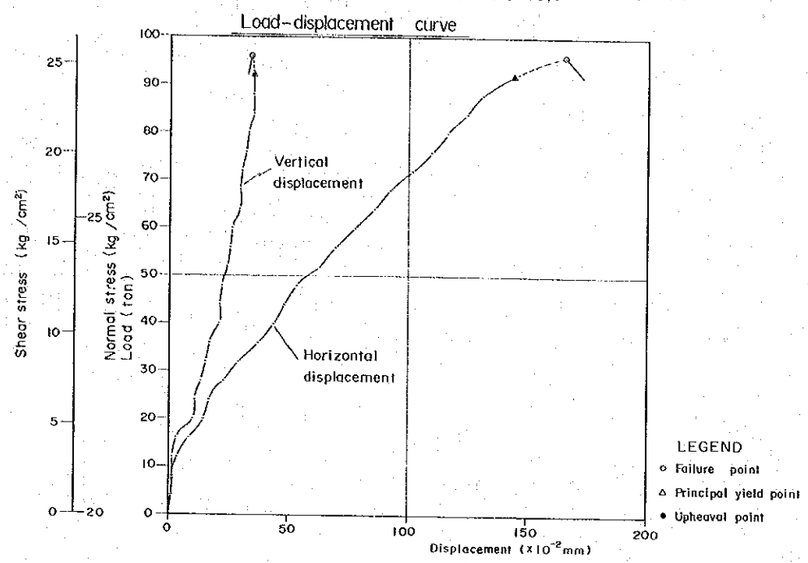
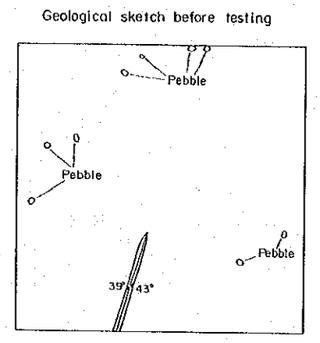
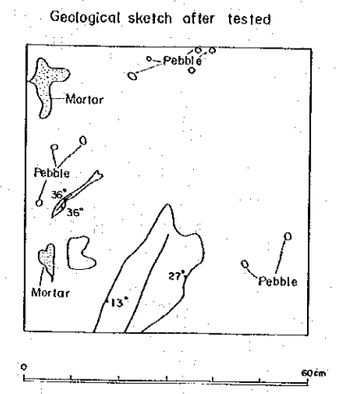
FIG- E.30

BS 13 Ist LOADING N = 18 ton θ=17°



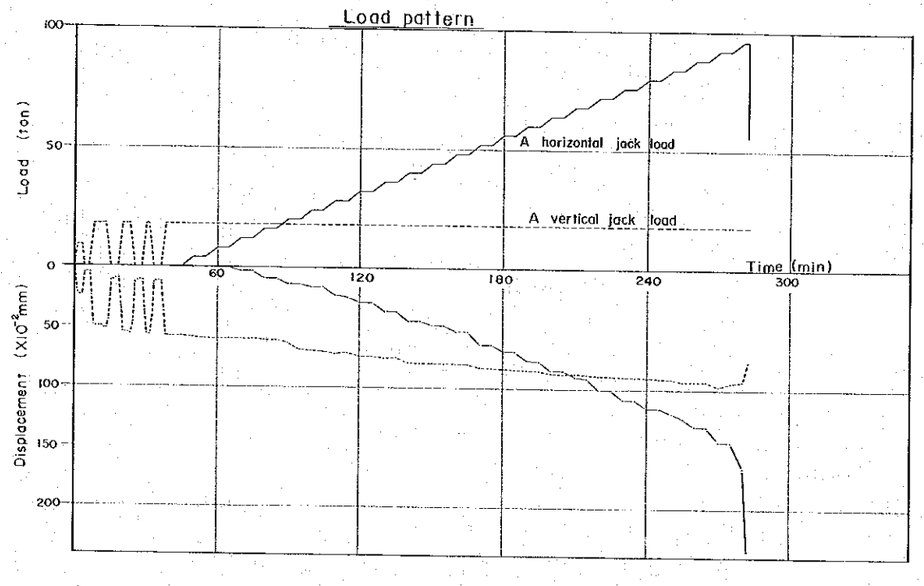


Force (S 1°E)



Rock type : Sand stone.

Note : White gray. massive. coarse sandstone with some small pebbles.



LEGEND
Horizontal displacement
Vertical displacement

Time-displacement curve

FIG- E.30 : BLOCK SHEAR TEST RECORD, BS-13

HIS MAJESTY'S GOVERNMENT OF NEPAL
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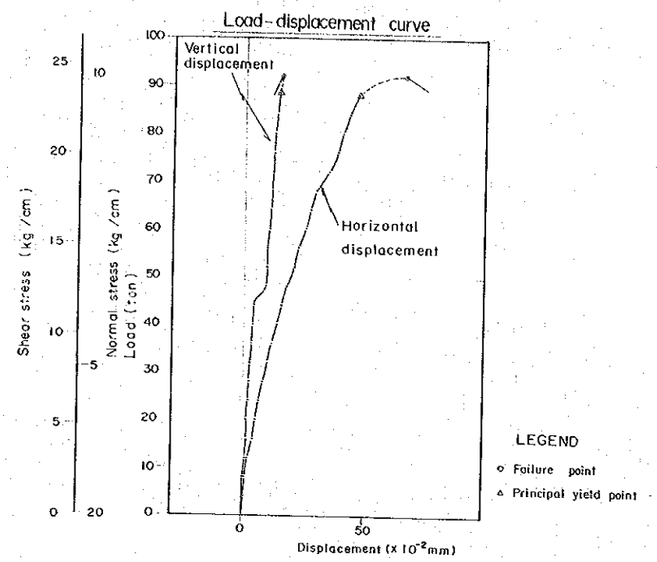
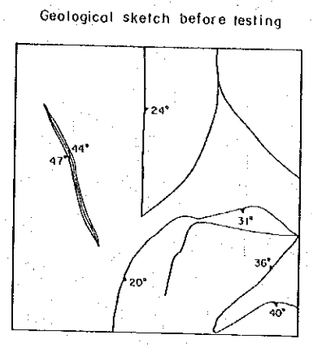
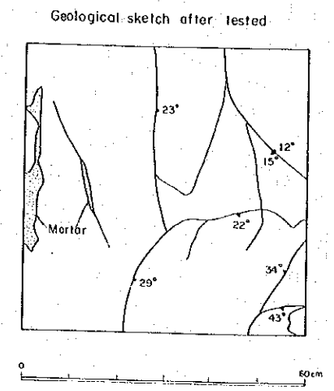
FIG- E.31

BS 14 1st LOADING N = 9 ton θ = 17°

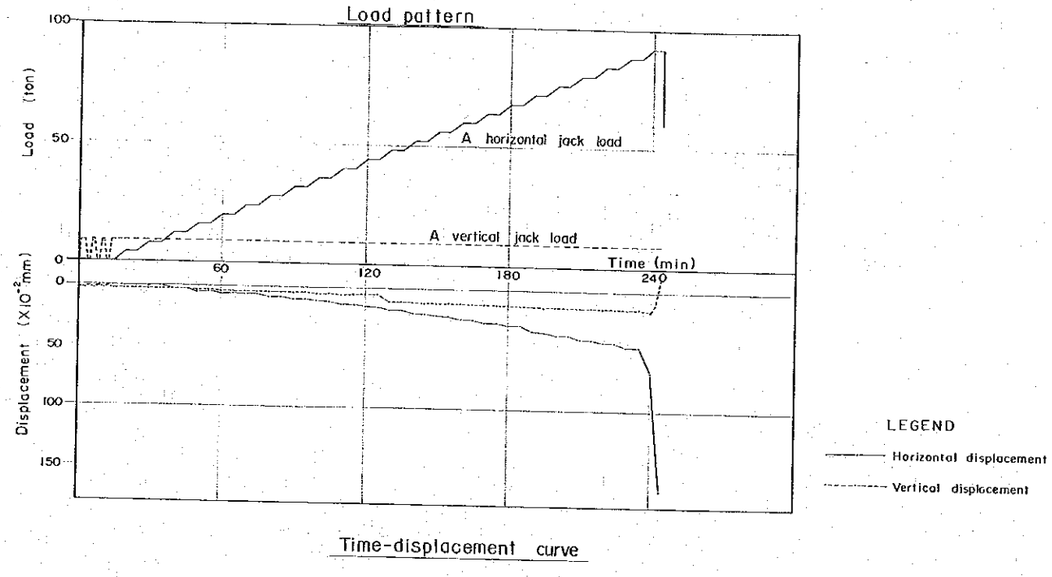






Rock type : Sand stone.

Note : White gray. massive. coarse sandstone.



Time-displacement curve

FIG- E.31 : BLOCK SHEAR TEST RECORD, BS-14

HIS MAJESTY'S GOVERNMENT OF NEPAL
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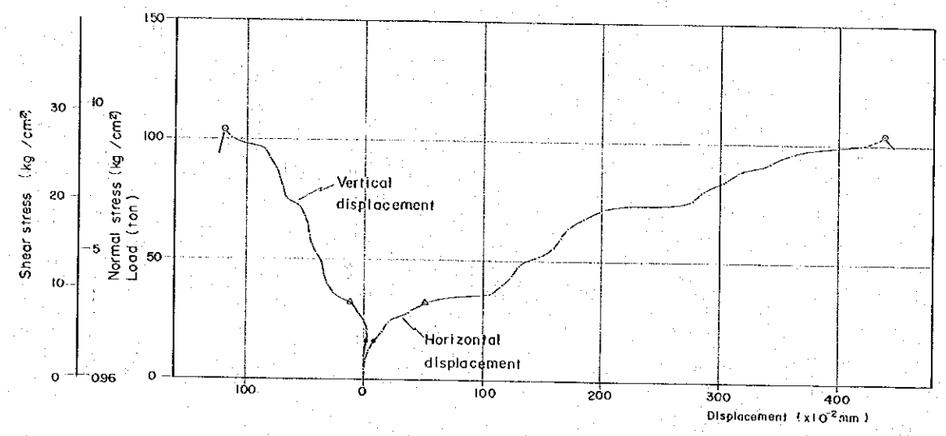
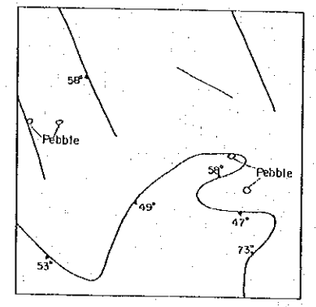
FIG- E.32

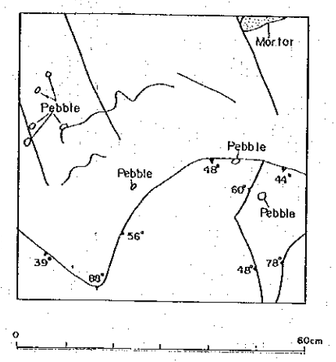
BS 15 Ist LOADING N = 2.5 ton θ = 1.7°



Geological sketch before testing



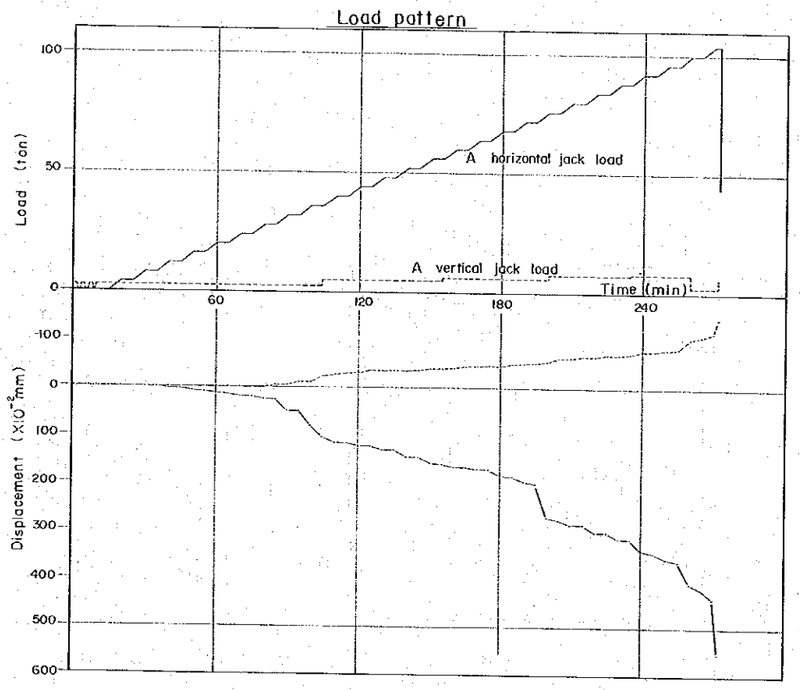
Geological sketch after tested



Rock type : Sand stone.

Note : White gray. massive. coarse sandstone with some small pebbles.

Load pattern



LEGEND
- Failure point
- Principal yield point
- Uheaval point

LEGEND
- Horizontal displacement
- Vertical displacement

Time-displacement curve

FIG- E.32 : BLOCK SHEAR TEST RECORD, BS-15

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FIG-E.33

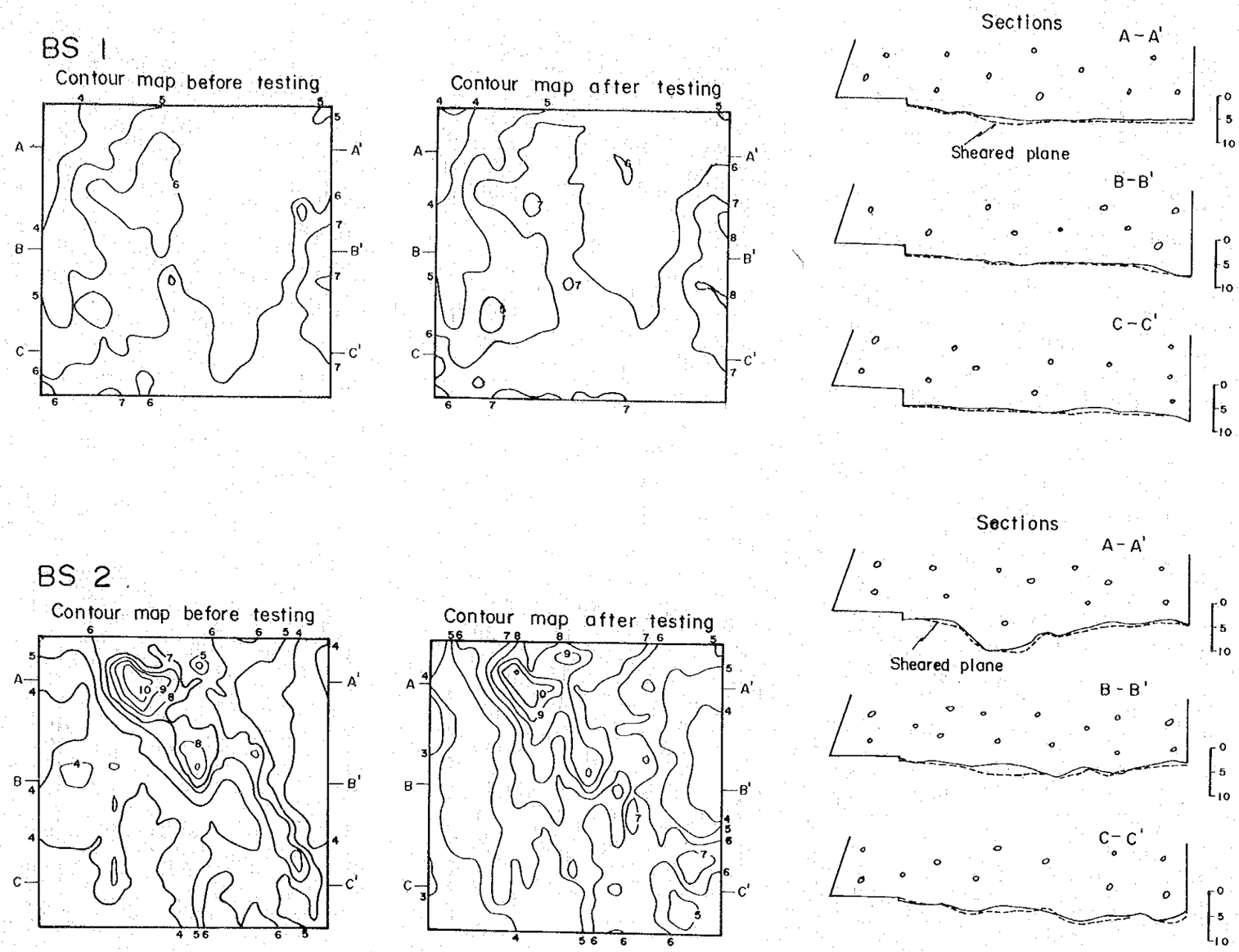

FIG-E.33 : BLOCK SHEAR TEST,
CONTOUR MAP OF TEST PLANES.(1)

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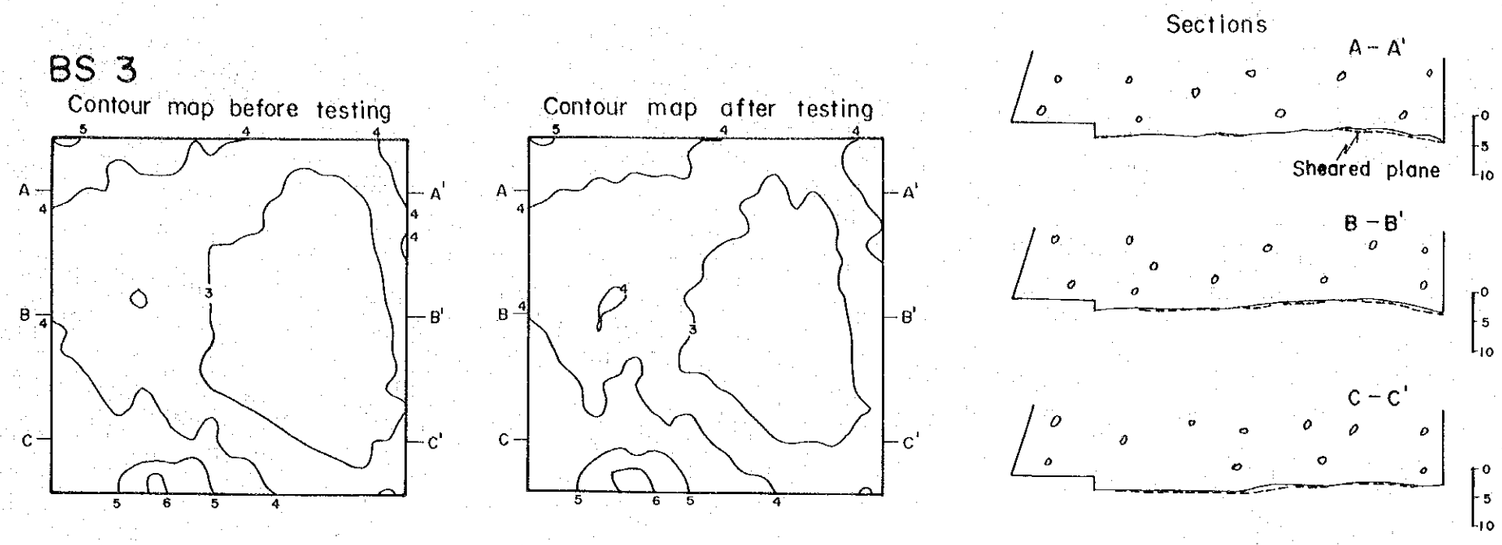
FIG-E.34



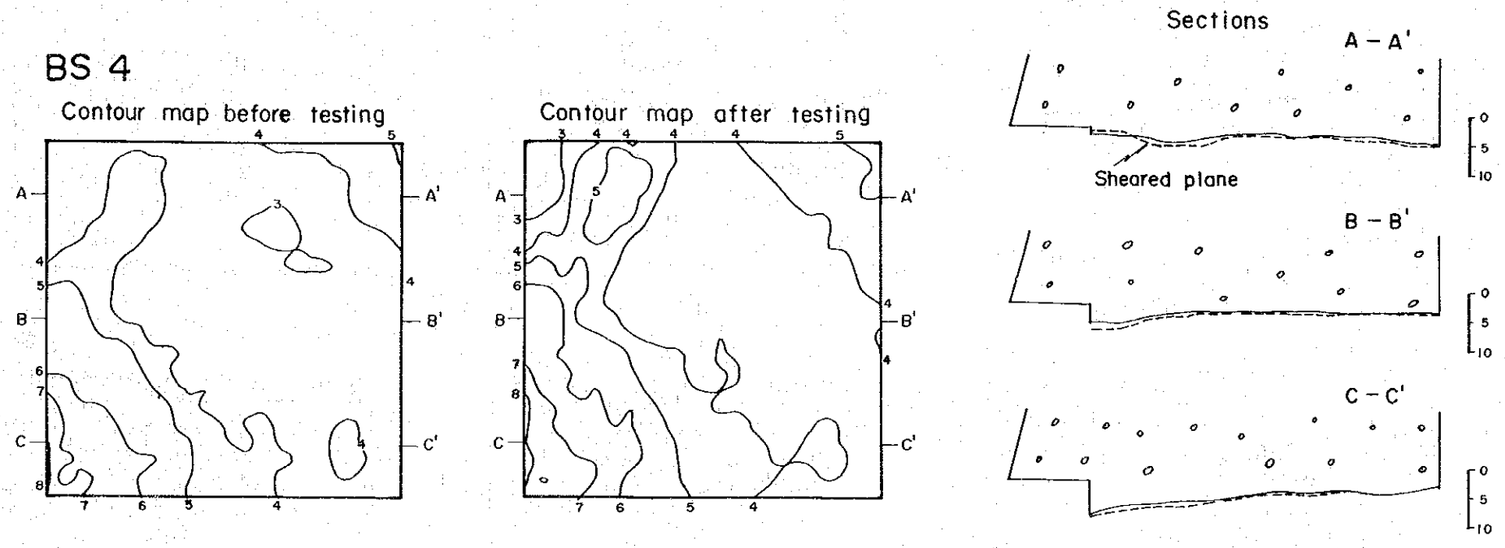


FIG-E.34 : BLOCK SHEAR TEST,
CONTOUR MAP OF TEST PLANES.(2)

HIS MAJESTY'S GOVERNMENT OF NEPAL
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