

社会開発調査部報告書

REPUBLIC OF KENYA
MINISTRY OF WATER DEVELOPMENT
NATIONAL WATER CONSULTANTS' ASSOCIATION

STUDY ON THE SUSTAINABILITY OF THE WATER SUPPLY
FOR THE MACHAKOS AREA

FINAL REPORT

COPIES TO BE DISTRIBUTED

DECEMBER 1980

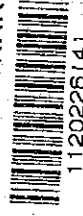
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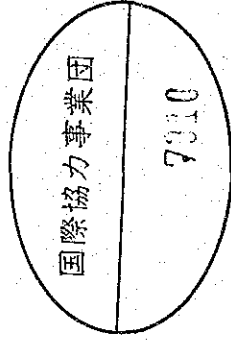
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THE STUDY ON CONSTRUCTION OF DAM
IN MALEWA RIVER SYSTEM
FOR
GREATER NAKURU WATER SUPPLY PROJECT

Scale 1 : 5000

SHEET INDEX

1	2
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7	8

LEGEND

- Tarmac Road
- Murum road
- Railway Line
- Votable Track
- Roadpath
- Houses, Hols
- Fence, Hedge
- Cultivation
- Quarry
- Cutting, Embankment
- Bridge
- Culvert
- Rocks
- Predipice land slide
- Cliffs
- Pond
- Rivers and streams
- Indefinite streams
- Forest, Trees
- Traverse Point
- Principal Point
- Spot Height
- Contours 1:5m. Index 25m
- Form Lines

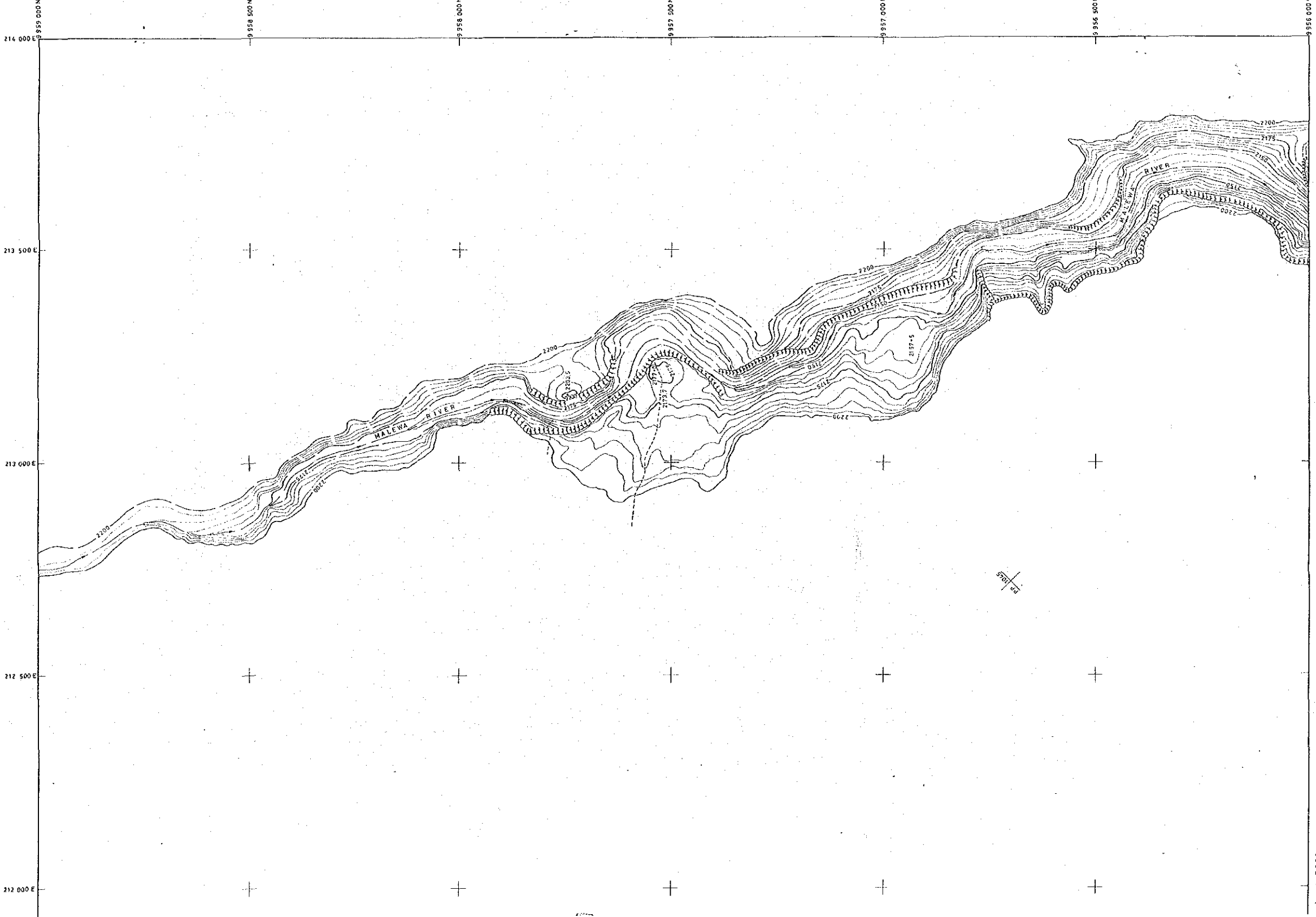
GRID INFORMATION

UTM ZONE 37

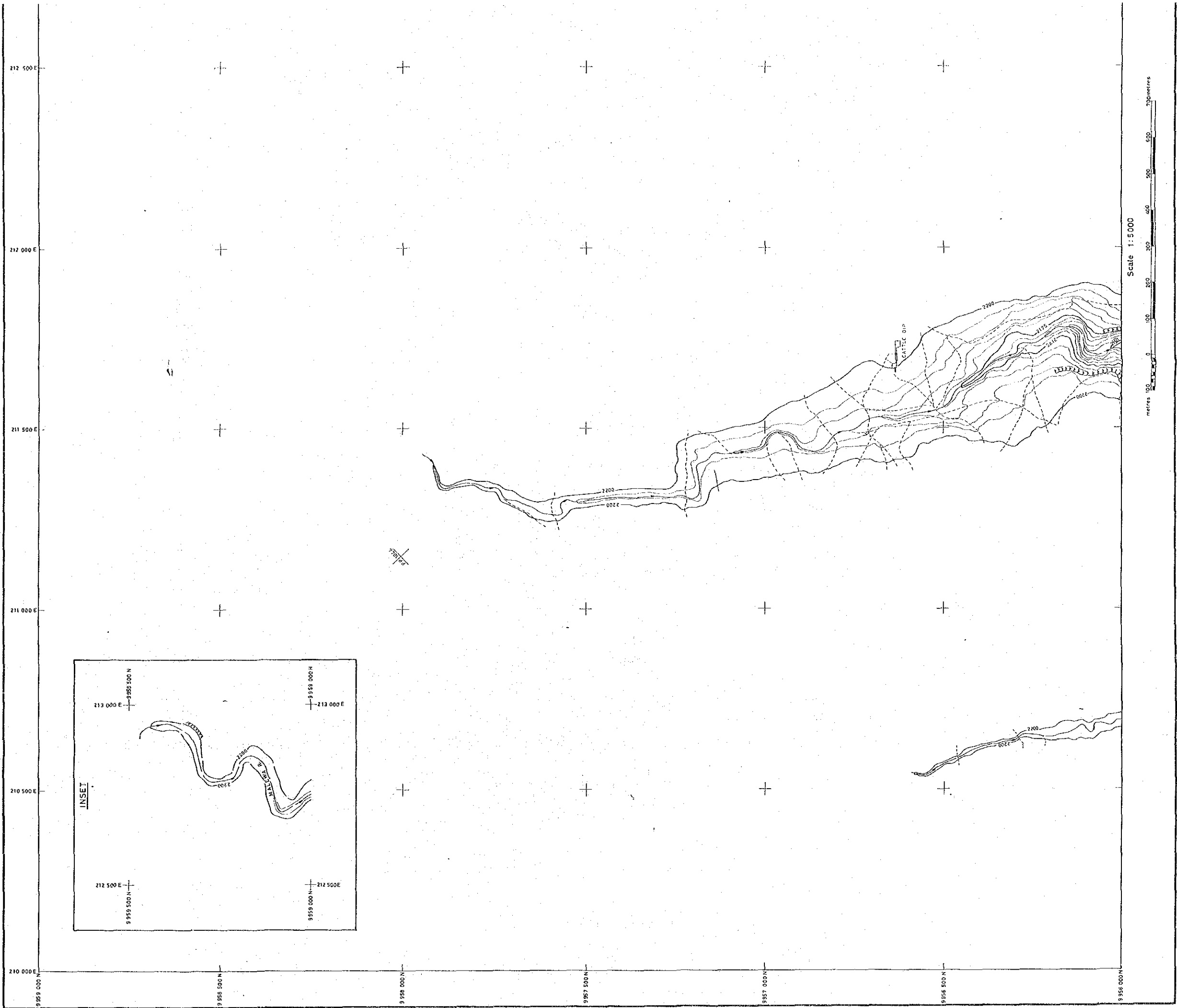
MAP HISTORY

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JAPAN INTERNATIONAL COOPERATION AGENCY.

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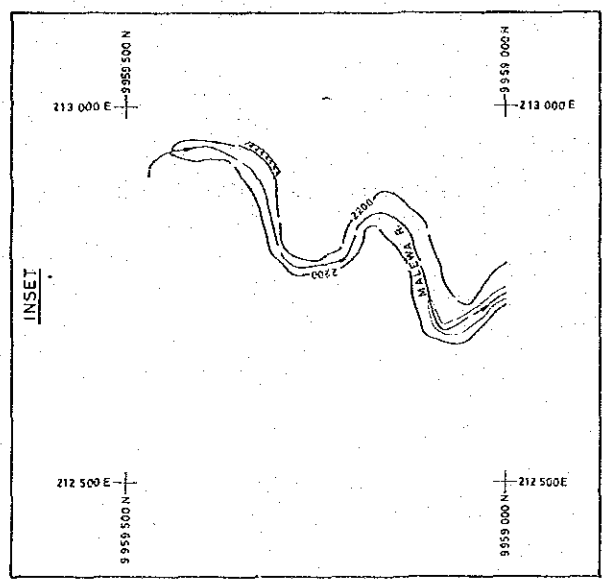


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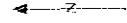
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metres 100 200 300 400 500 600 700metres

THE STUDY ON CONSTRUCTION OF DAM
IN MALEWA RIVER SYSTEM
FOR
GREATER NAKURU WATER SUPPLY PROJECT

Scale 1:5000

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LEGEND

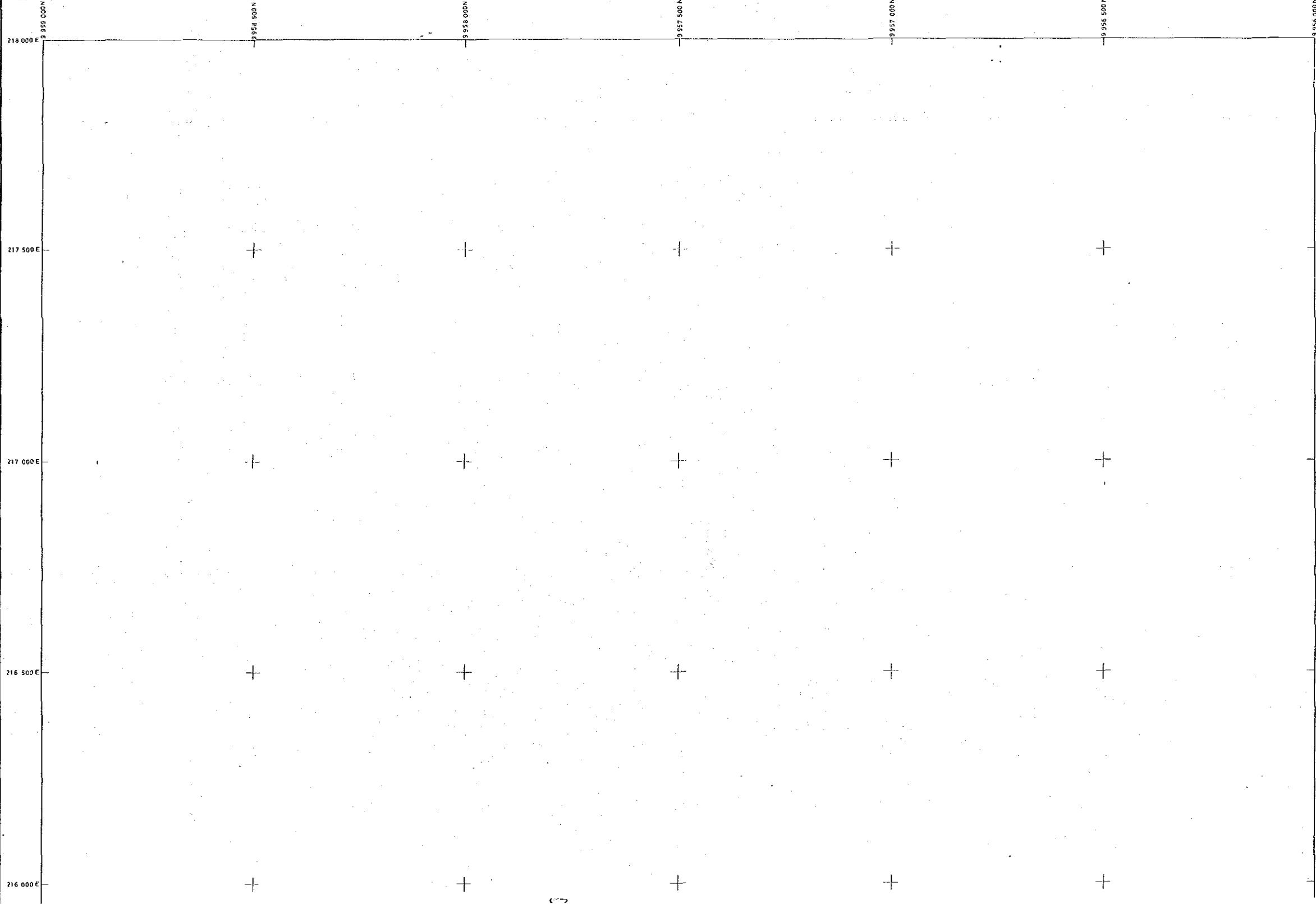
- Tarmac Road
- Murum Road
- Railway Line
- Motorable Track
- Footpath
- Houses, Huts
- Fence, Hedge
- Cultivation
- Quarry
- Cutting, Embankment
- Bridge
- Culvert
- Rocks
- Precipice and slide
- Cliffs
- pond
- Rivers and streams
- Indefinite streams
- Ponds, Trees
- Traverse Point
- Principal Point
- Spot Height
- Contours 7.5m Index 15m.
- Form Lines

GRID INFORMATION

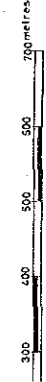
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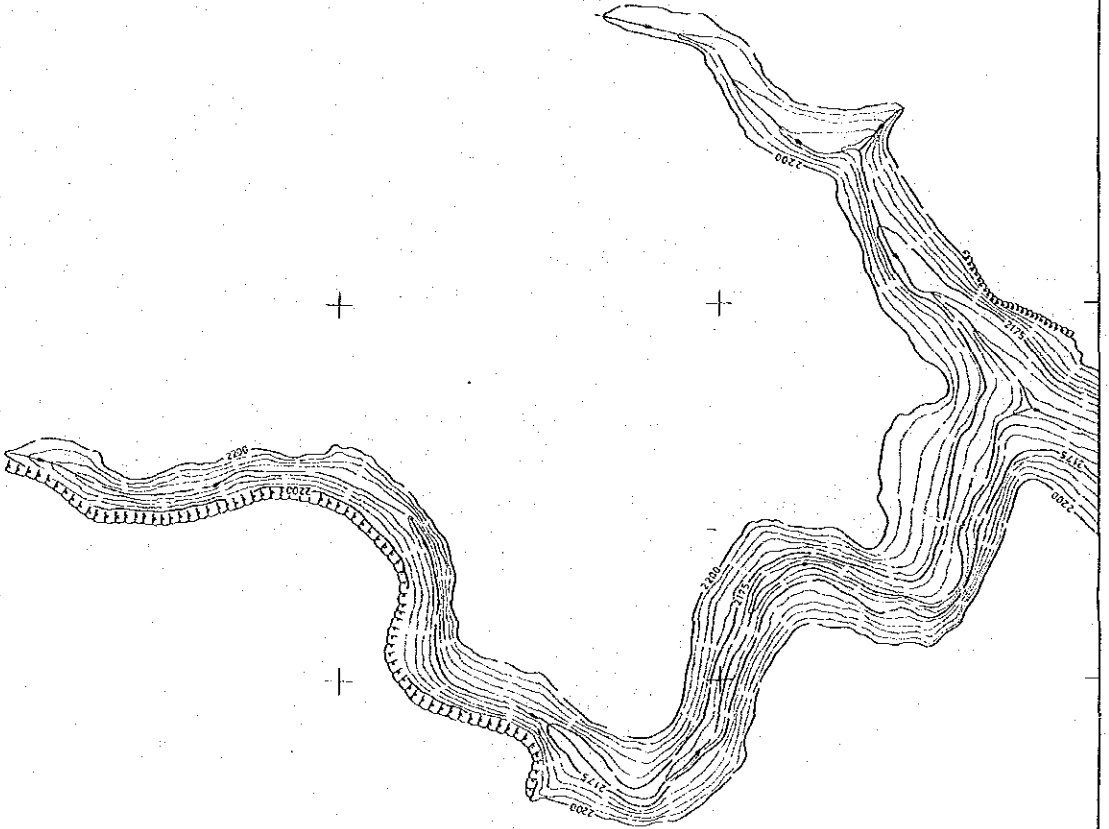
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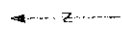


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Scale 1 : 5000

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LEGEND

- Tarmac Road
- Murrum Road
- Railway Line
- Motorable Track
- Footpath
- Houses, Huts
- Fence, Hedge
- Cultivation
- Grassy
- Cutting, Embankment
- Bridge
- Culvert
- Rocks
- Precipice land, Juice
- Cliffs
- Pond
- Rivers and streams
- Inclined streams
- Forest, Trees
- Traverse Point
- Principal Point
- Spot Height
- Contours 1/5 m. index 25 m.
- Form Lines

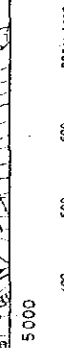
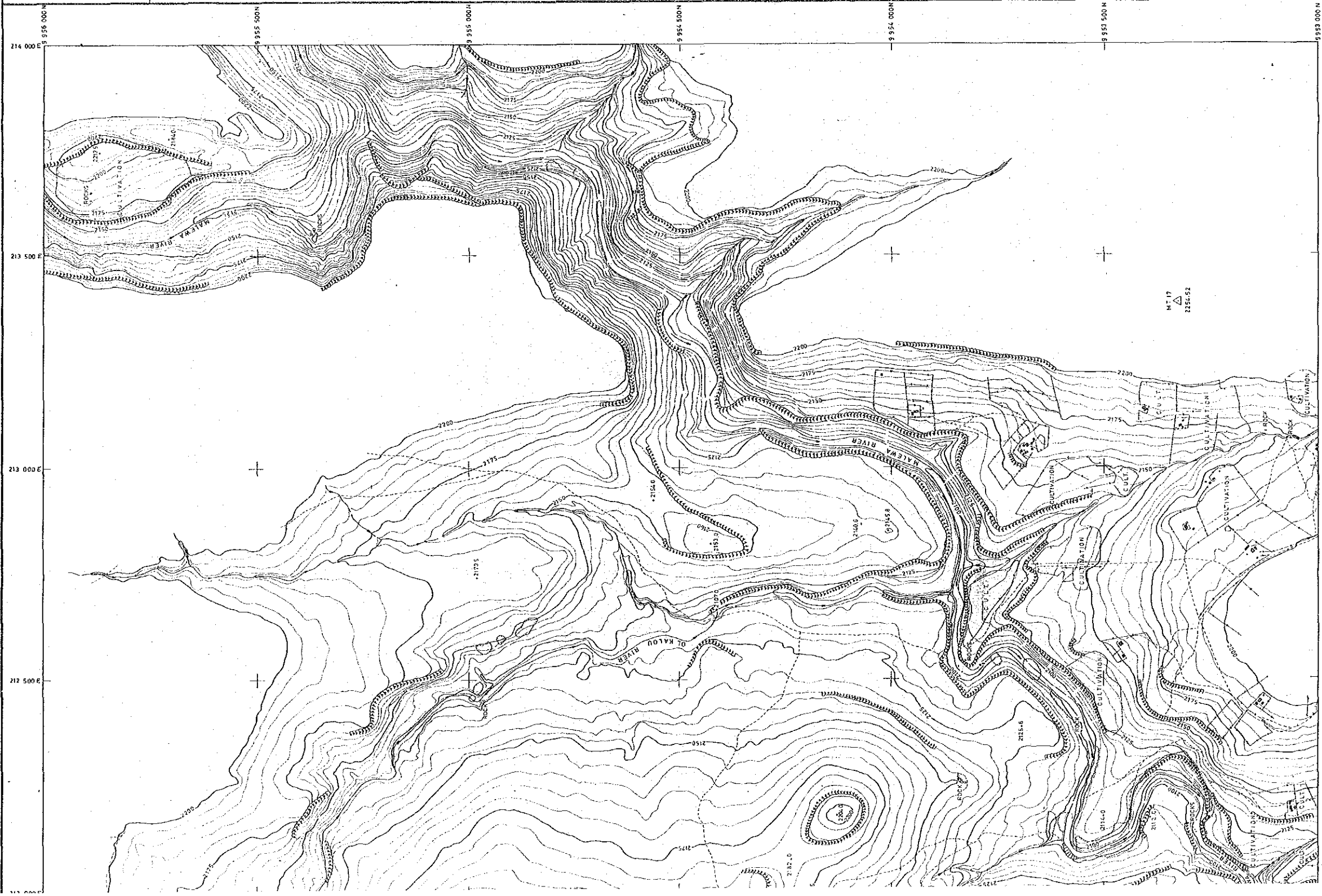
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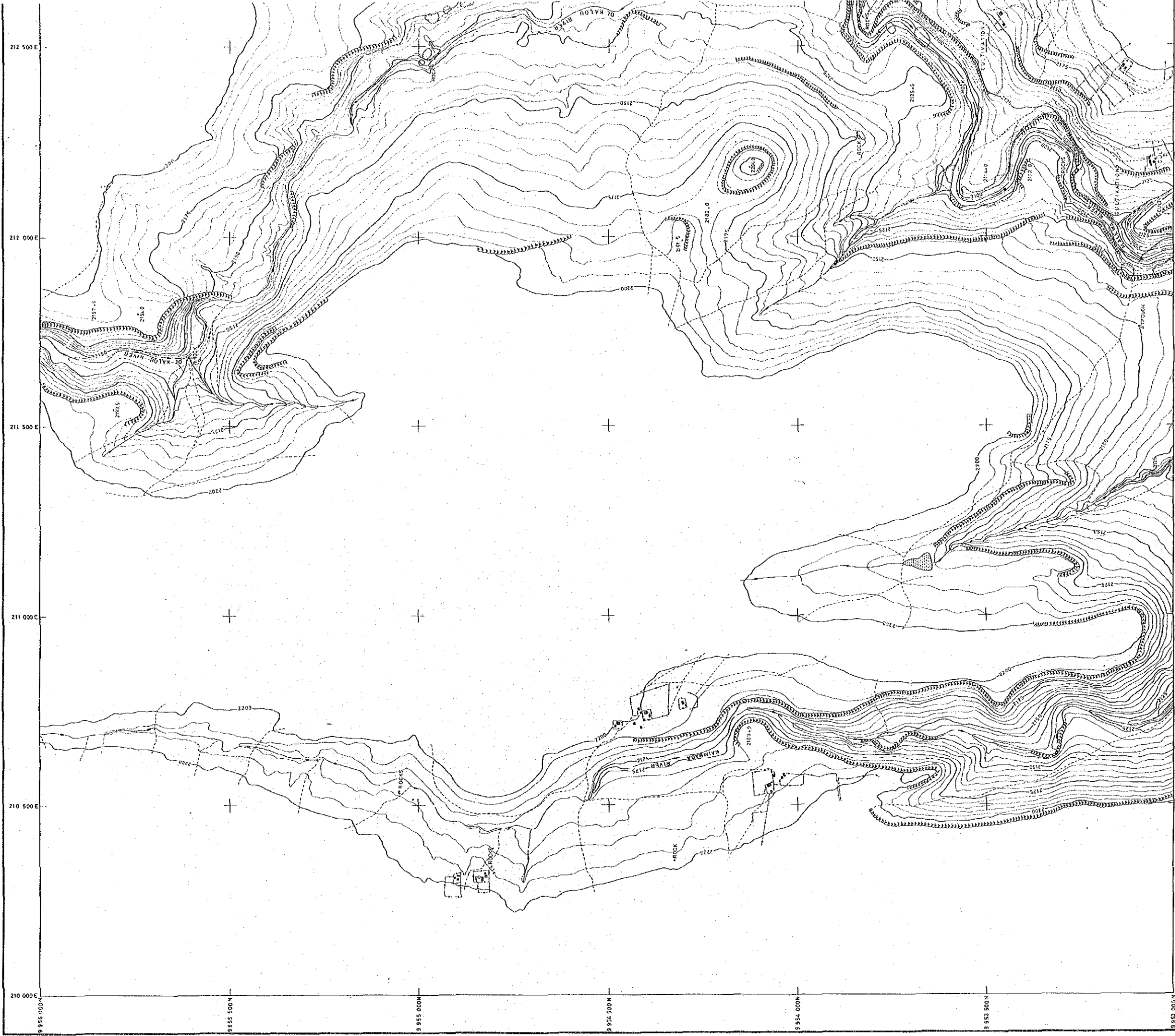
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MAP HISTORY

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Scale 1:5000

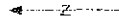
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THE STUDY ON CONSTRUCTION OF DAM
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GREATER NAKURU WATER SUPPLY PROJECT

Scale 1 : 5000

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LEGEND

- Tarmac Road
- Murum Road
- Railway Line
- Motorable Track
- Footpath
- Houses, huts
- Fence, Hedge
- Cultivation
- Quarry
- Cutting, Embankment
- Bridge
- Culvert
- Rocks
- Precipice land slide
- Cliffs
- Pond
- Rivers and streams
- Infinite streams
- Forest, Trees
- Traverse Point
- Principal Point
- Spot Height
- Contours 1:5 m. Index 25 m.
- Form Lines

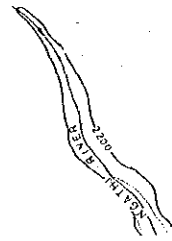
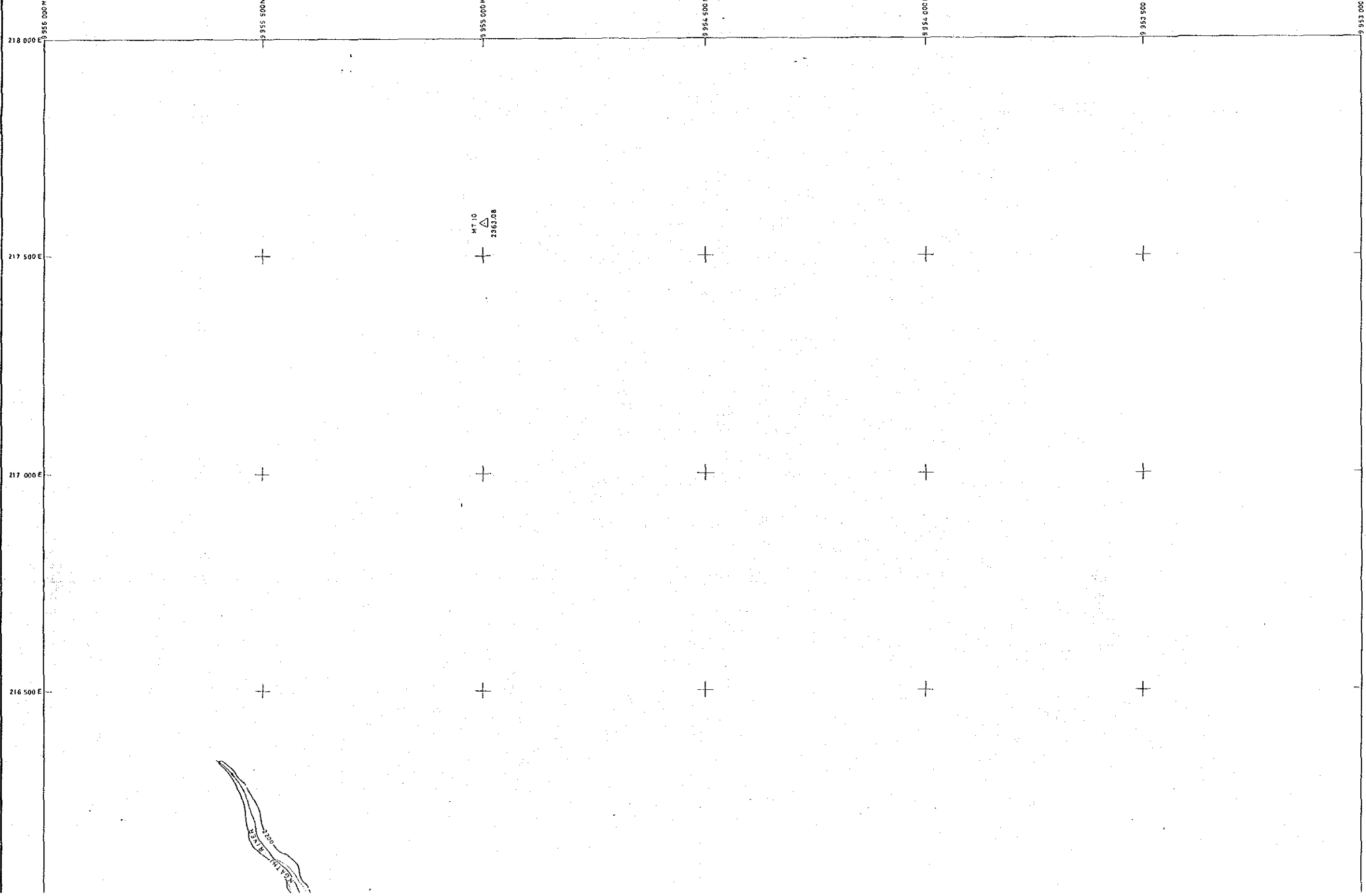
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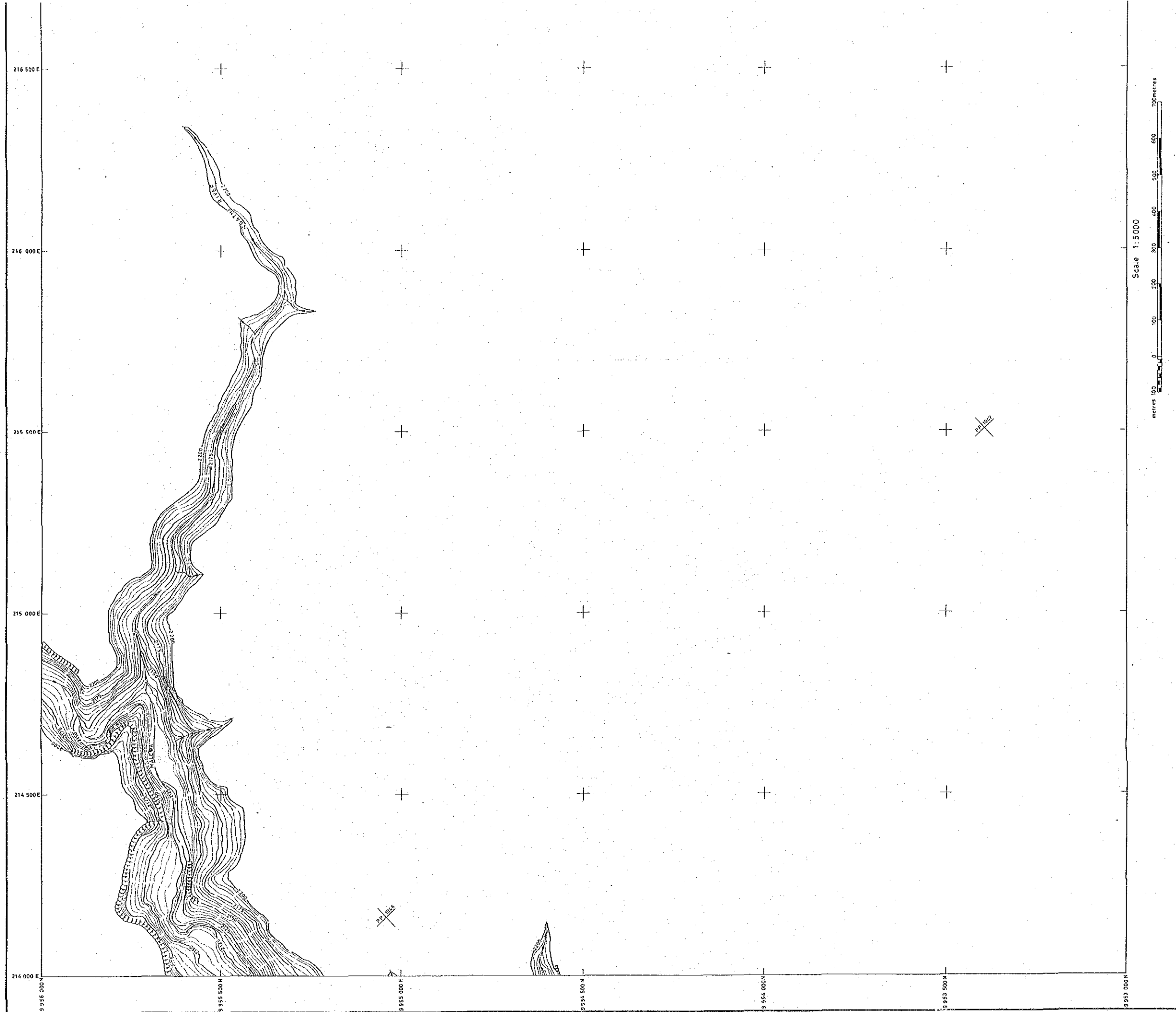
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AERIAL PHOTOGRAPHY (JANUARY 1989), GROUND
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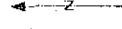


THE STUDY ON CONSTRUCTION OF DAM
IN MALEWA RIVER SYSTEM
FOR
GREATER NAKURU WATER SUPPLY PROJECT

Scale 1:5000

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LEGEND

Armac Road	[Symbol]
Murum Road	[Symbol]
Railway Line	[Symbol]
Motorable Track	[Symbol]
Population	[Symbol]
Houses, Huts	[Symbol]
Fence, hedge	[Symbol]
Cultivation	[Symbol]
Quarry	[Symbol]
Cutting, Embankment	[Symbol]
Bridge	[Symbol]
Culvert	[Symbol]
Rocks	[Symbol]
Precipice and slide	[Symbol]
Cliffs	[Symbol]
Pond	[Symbol]
Rivers and streams	[Symbol]
Intermittent streams	[Symbol]
Forest, Trees	[Symbol]
Traverse Point	[Symbol]
Principal Point	[Symbol]
Spot height	[Symbol]
Contours 1.5m in 25m	[Symbol]
Form Lines	[Symbol]

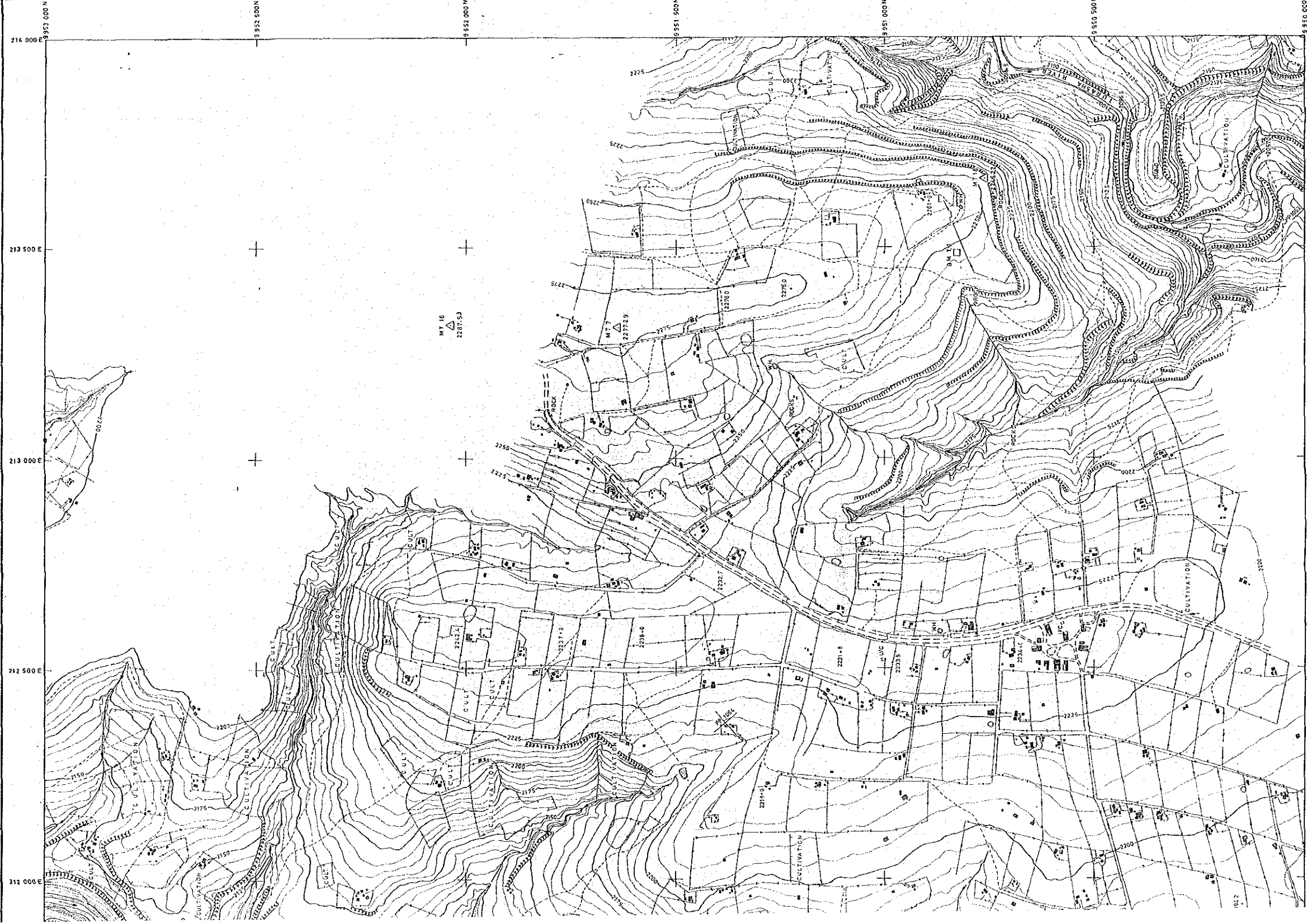
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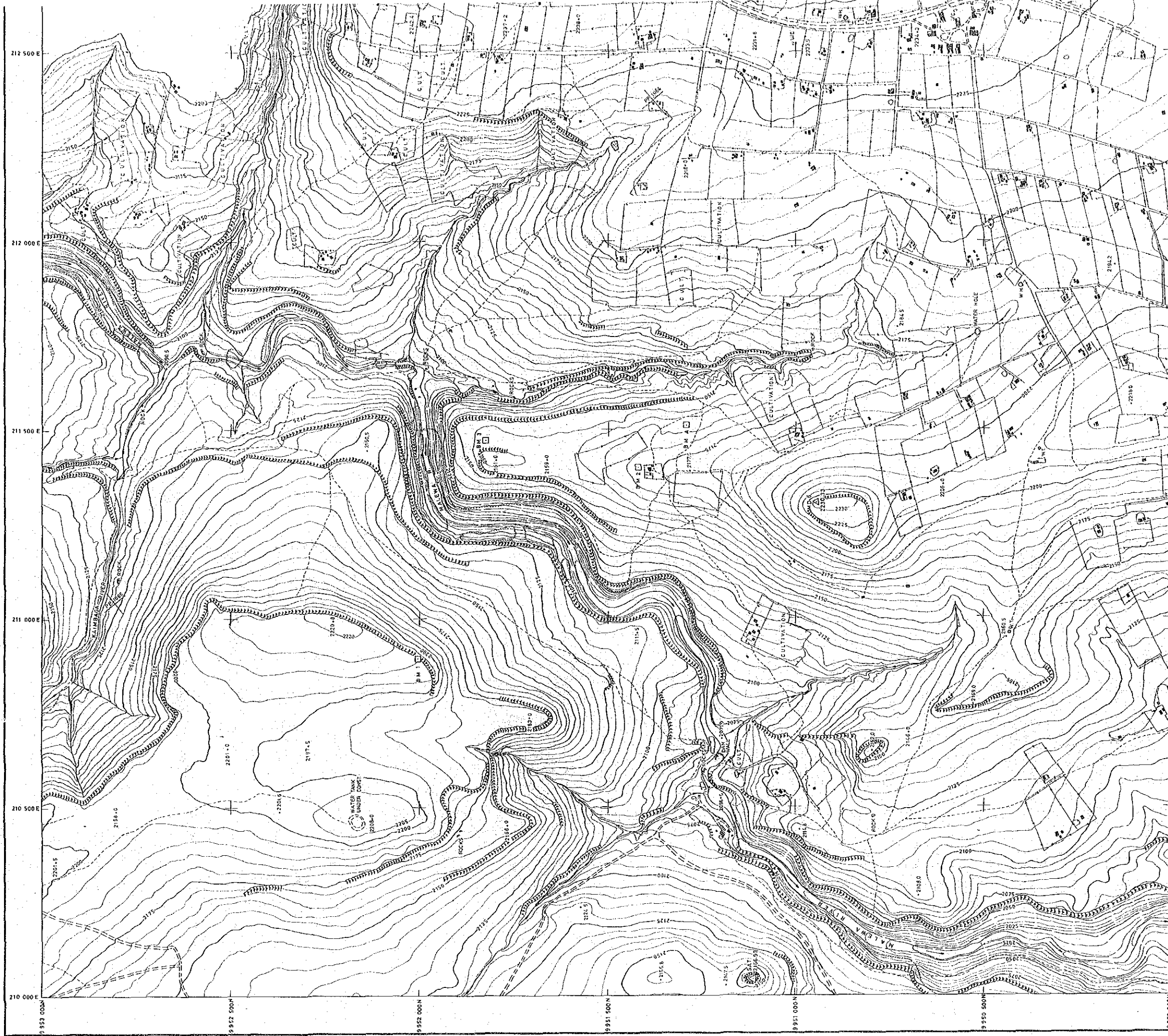
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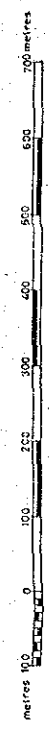
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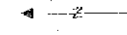


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LEGEND

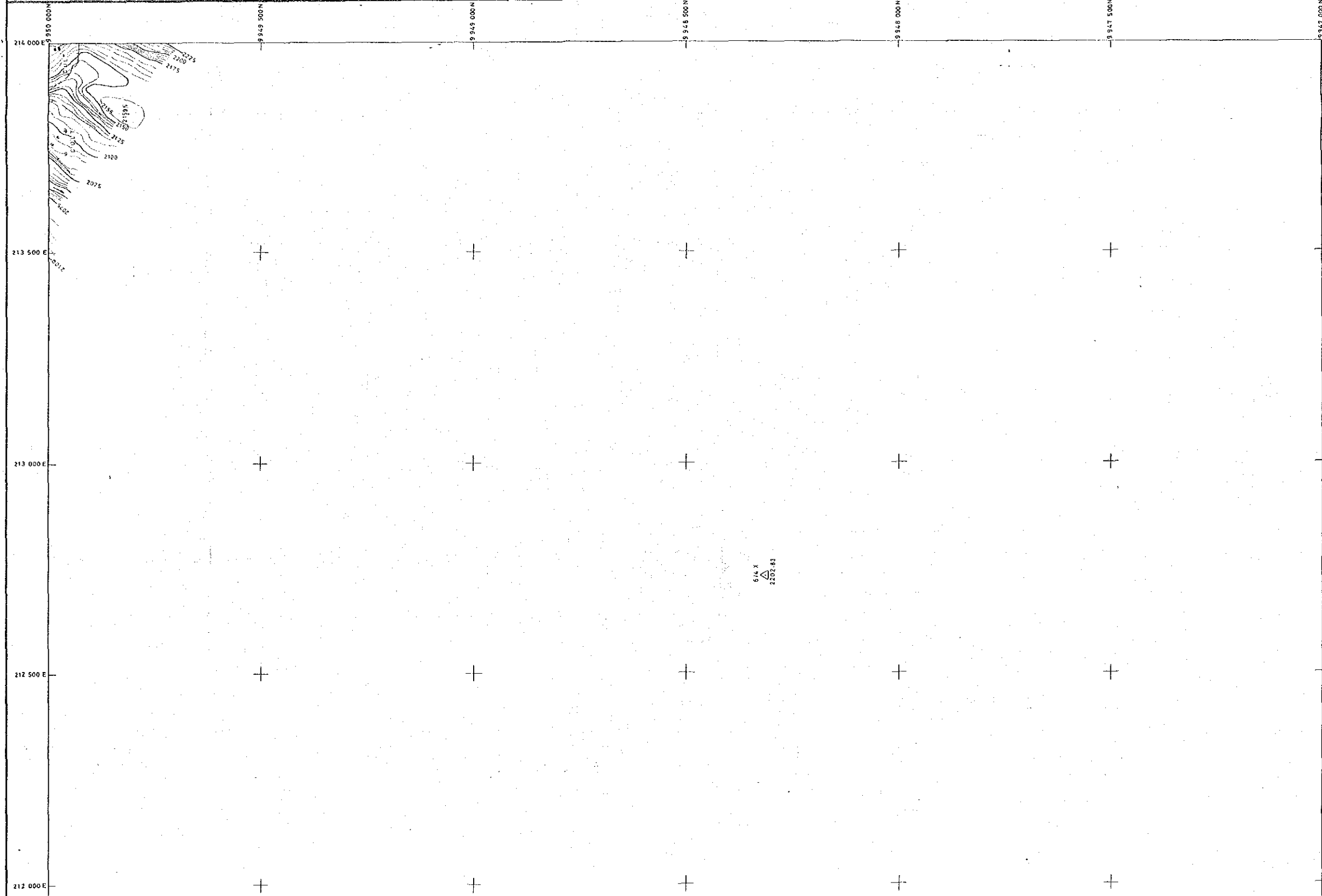
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- Murum Road
- Railway Line
- Motorable Track
- Footpath
- Houses, Huts
- Fence, Hedge
- Cultivation
- Quarry
- Cuttings, Embankment
- Bridge
- Covert
- Reeds
- Precipice Land slide
- Cliffs
- Pond
- Rivers and streams
- Intermittent streams
- Forest, Trees
- Traverse Point
- Principal Point
- Spot height
- Contours 1/15m. Index 25m
- Form Lines

GRID INFORMATION

UTM ZONE 37

MAP HISTORY

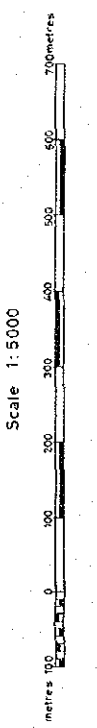
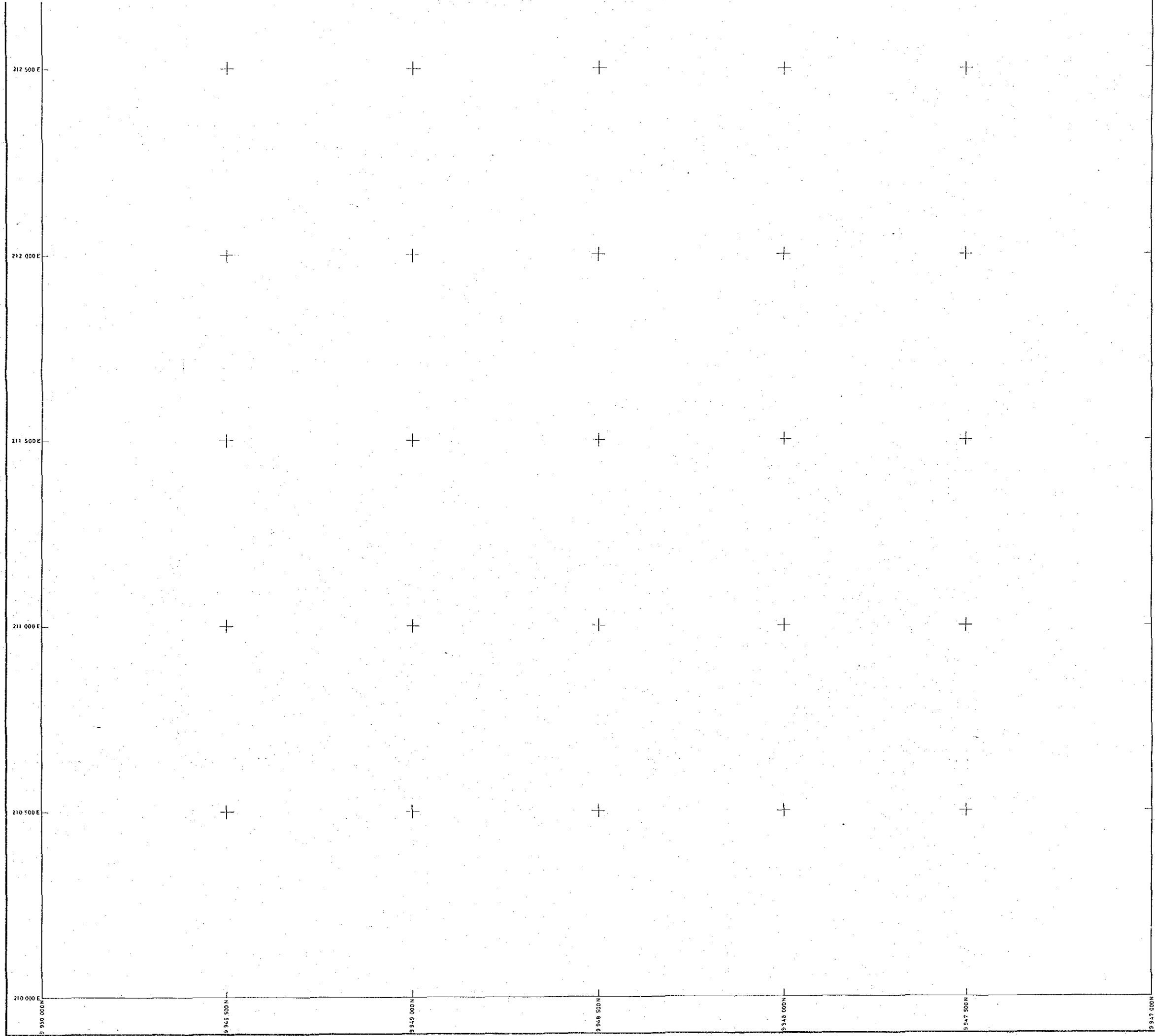
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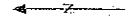


THE STUDY ON CONSTRUCTION OF DAM
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LEGEND

- Tarmac Road
- Murum Road
- Railway Line
- Motorable Track
- Footpath
- Houses, Huts
- Fence, Hedge
- Cultivation
- Quarry
- Cutting, Embankment
- Bridge
- Culvert
- Rocks
- Precipice Land slide
- Cirris
- Pond
- Rivers and streams
- Indefinite streams
- Forest, Trees
- Traverse Point
- Principal Point
- Spot height
- Contours 1/5m Interval
- Farm Lines

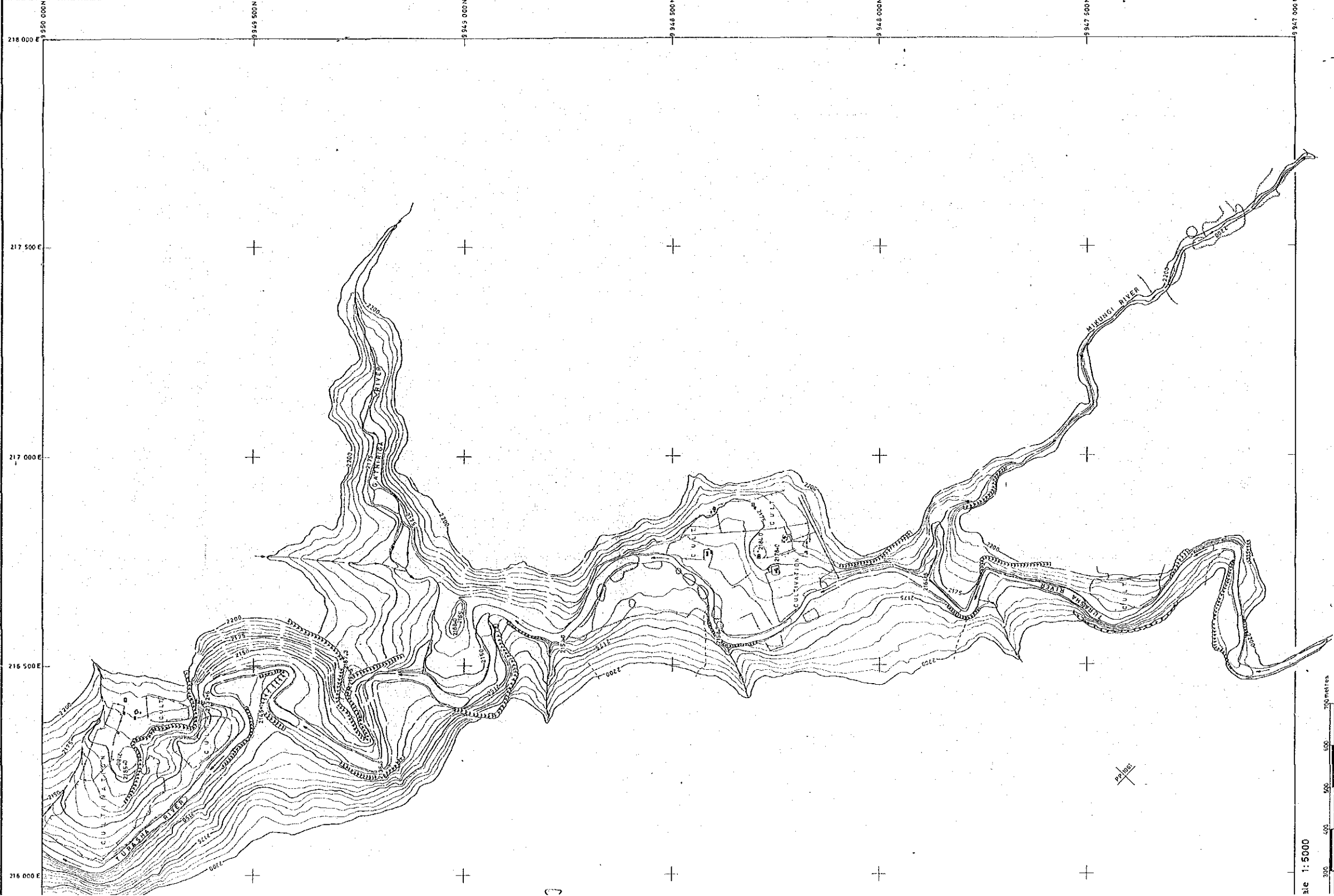
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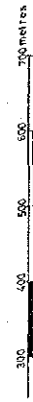
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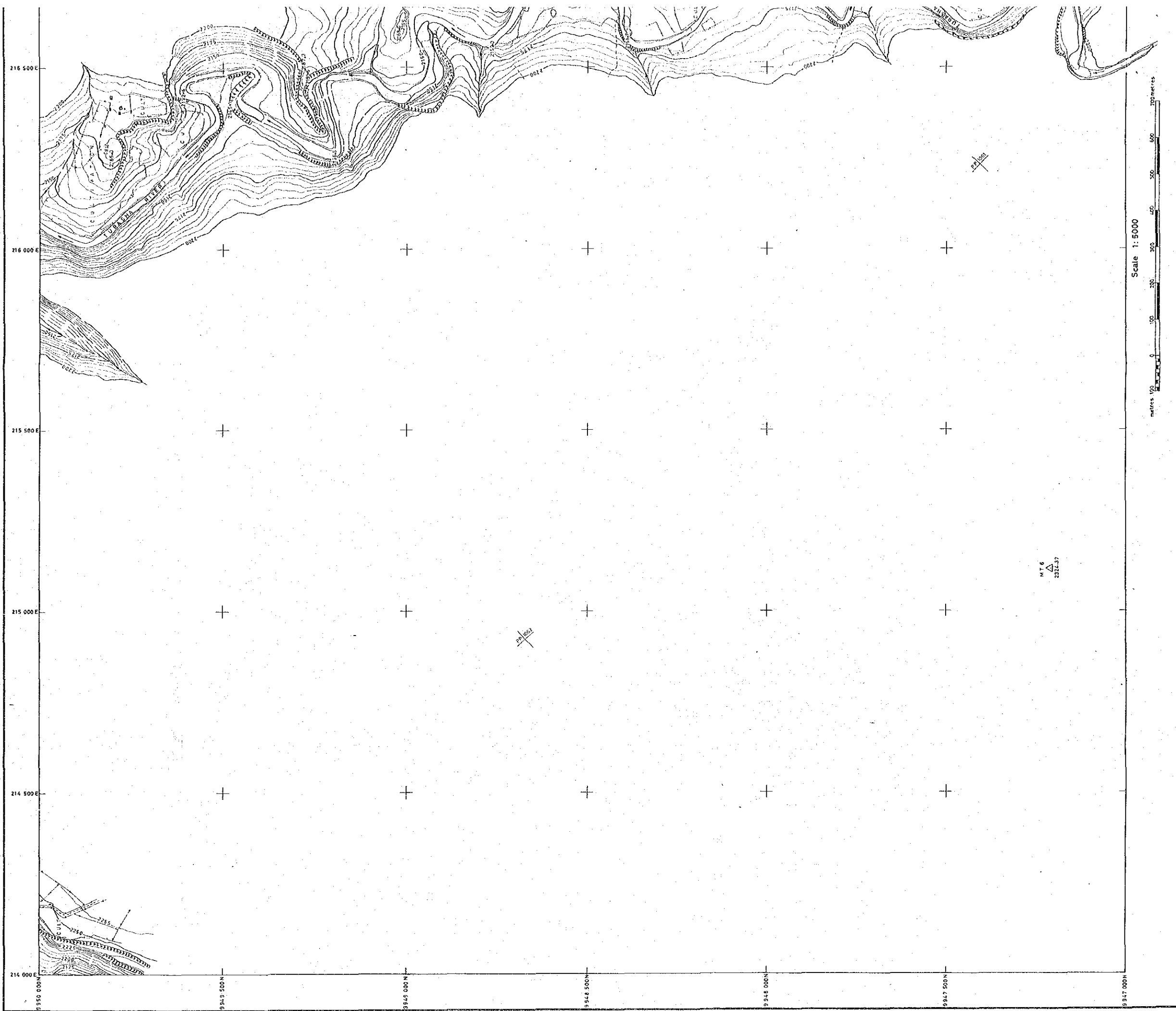
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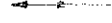


THE STUDY ON CONSTRUCTION OF DAM
IN MALEWA RIVER SYSTEM
FOR
GREATER NAKURU WATER SUPPLY PROJECT
EASTERN DIVISION

Scale 1 : 10,000

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LEGEND

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- Murum Road
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- Quarry
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- Bridge
- Culvert
- Recess
- Cliffs
- Pond
- Rivers and streams
- Indefinite streams
- Forest, Trees
- Traverse Point, Principal Point
- Spot Height
- Contours V.I. 2m. Index 10m.
10.5m. for the lake area
- Form Lines

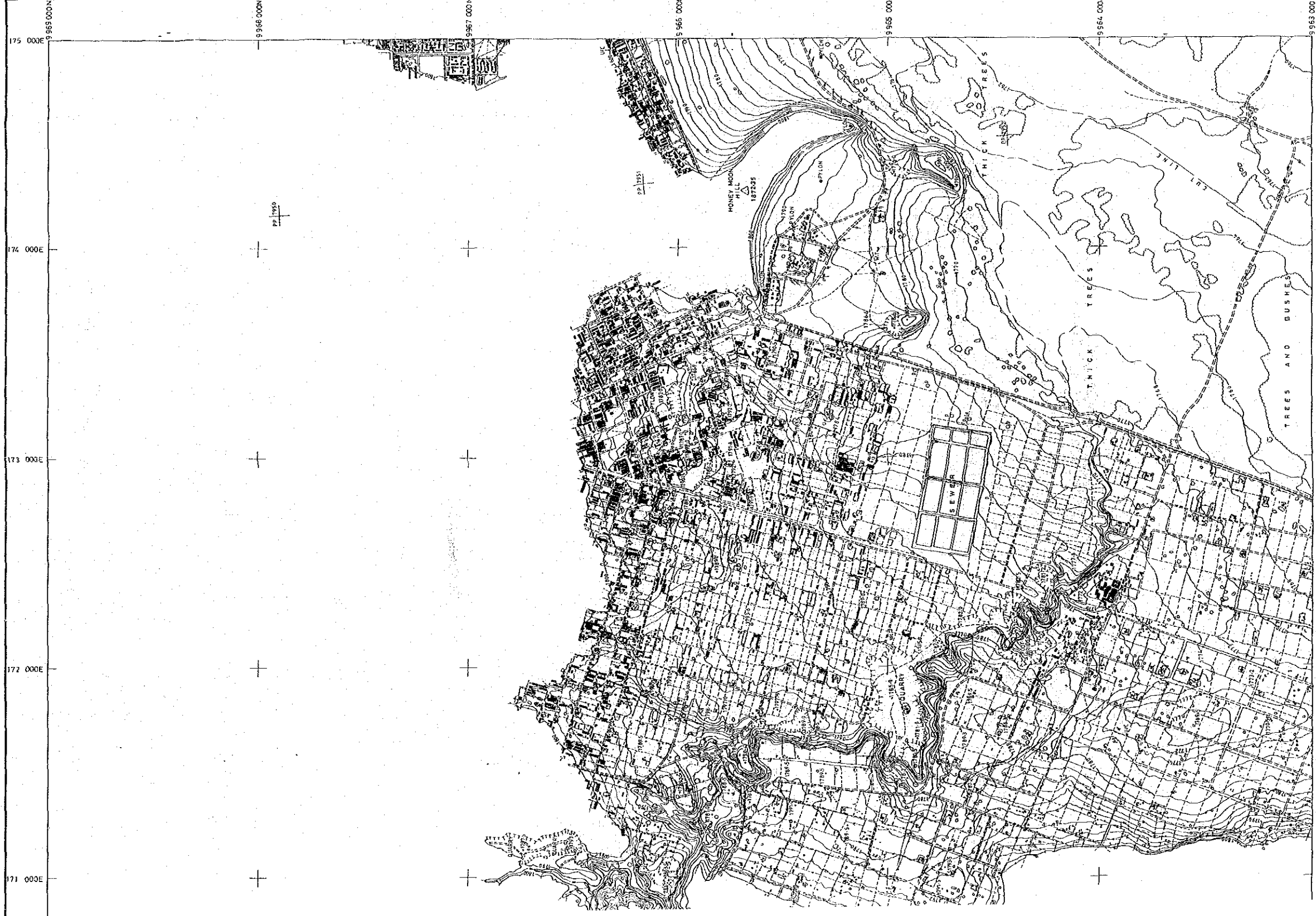
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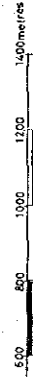
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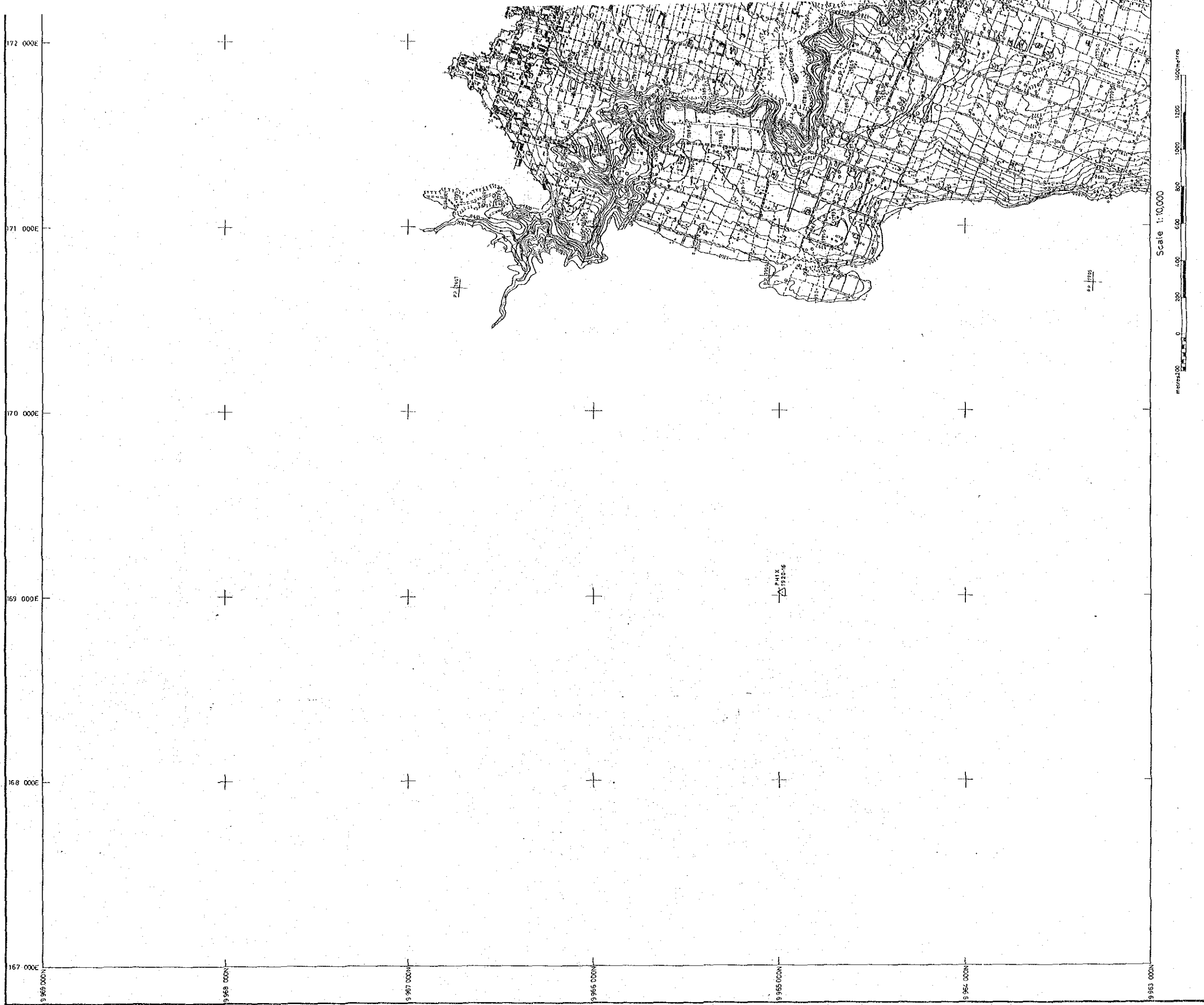
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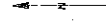


THE STUDY ON CONSTRUCTION OF DAM
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FOR
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EASTERN DIVISION

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LEGEND

- Tarmac Road
- Murrum Road
- Railway Line
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- Houses, Huts
- Fence, Hedge
- Cultivation
- Quarry
- Cutting, Embankment
- Bridge
- Culvert
- Recks
- Cliffs
- Pond
- Rivers and streams
- Indefinite streams
- Forest, Trees
- Traverse Point, Principal Point
- Spot Height
- Contours V.I. 2m, Index 10m, (0.5m. for the lake area)
- Form Lines

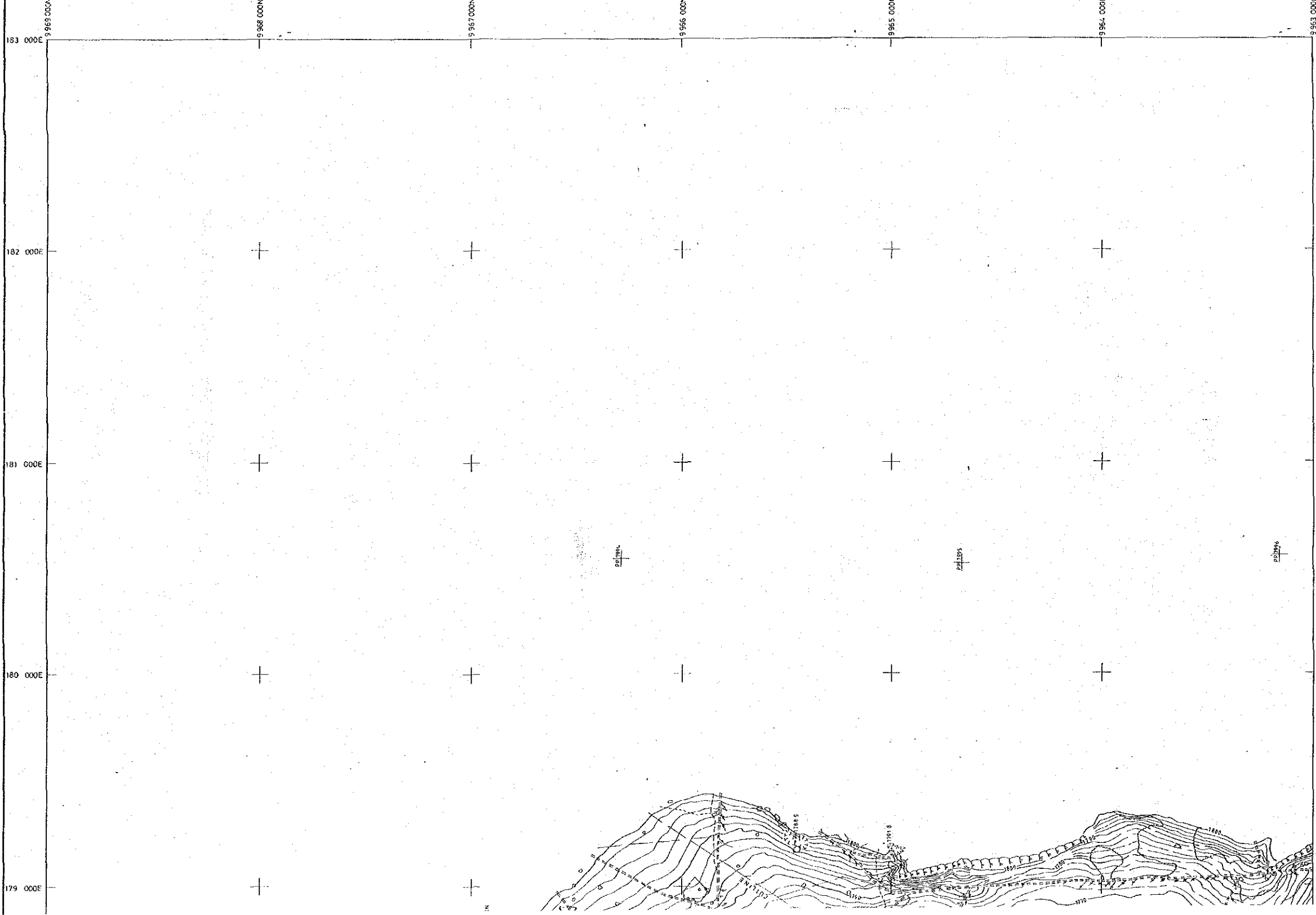
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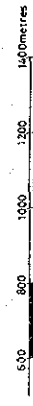
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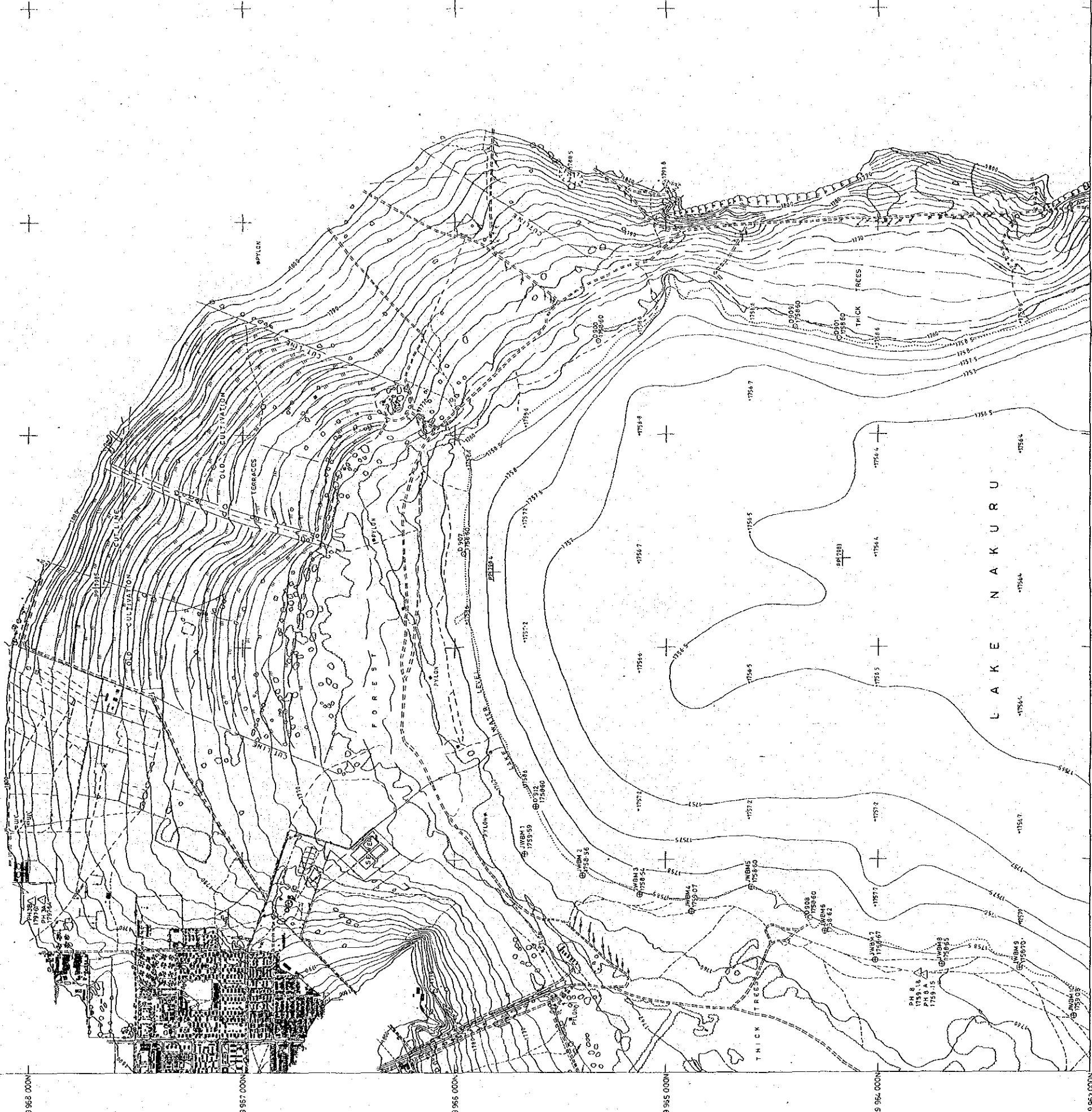
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Site 1:10,000



180 000E
179 000E
178 000E
177 000E
176 000E
175 000E



Scale 1:10,000
metres
kilometres

THE STUDY ON CONSTRUCTION OF DAM
IN MALEWA RIVER SYSTEM
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EASTERN DIVISION

Scale 1:10,000

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LEGEND

- Tarmac Road
- Murrum Road
- Railway Line
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- Houses, Huts
- Fence, Hedge
- CULTIVATION
- Quarry
- Cutting, Embankment
- Bridge
- Culvert
- Recks
- Cliffs
- Pond
- Rivers and streams
- Intermittent streams
- Forest, Trees
- Traverse Point, Principal Point
- Spot height
- Contours V.I. Em. Index 10m.
10.5m. for the lake area
- Form Lines

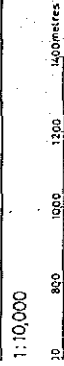
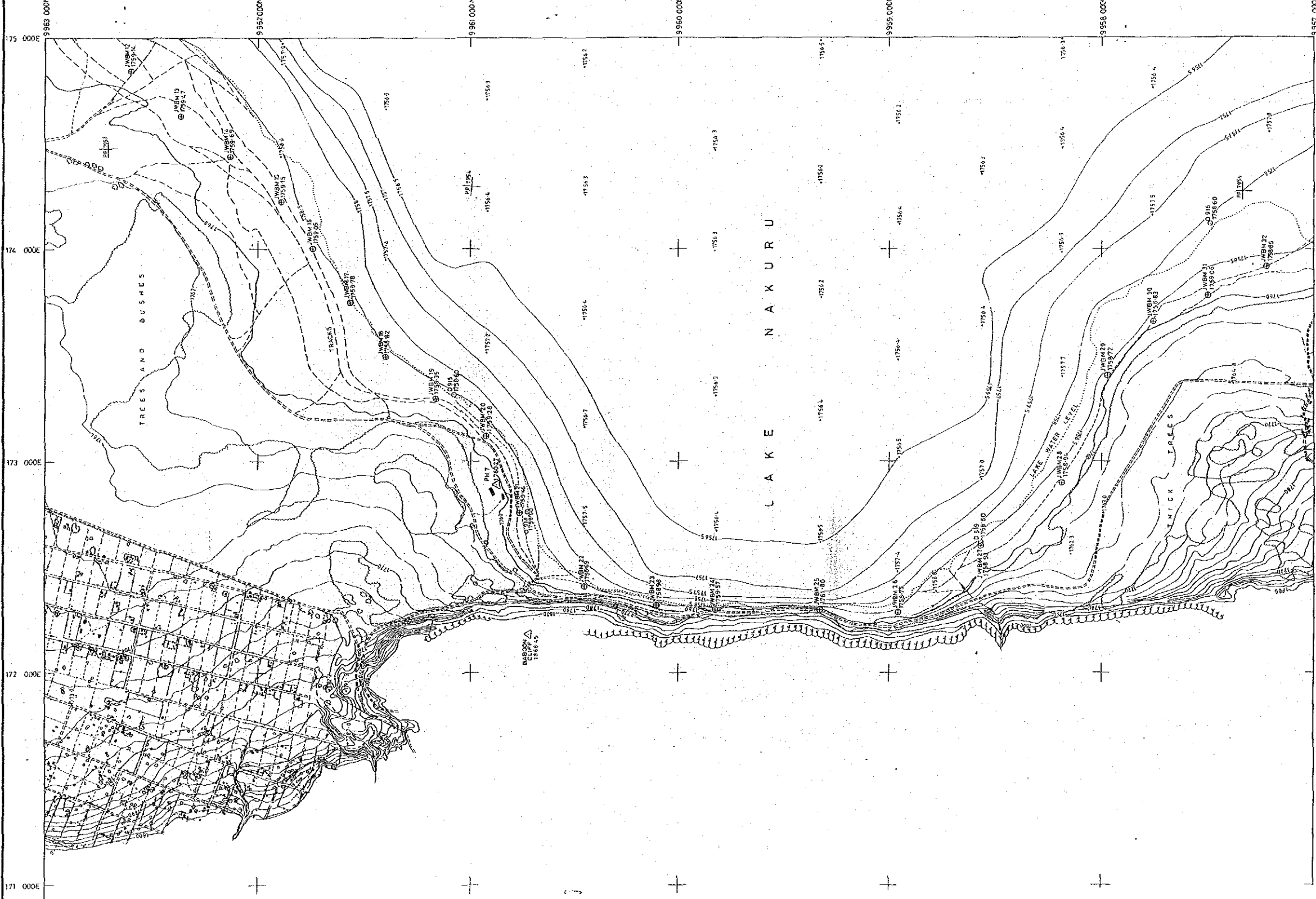
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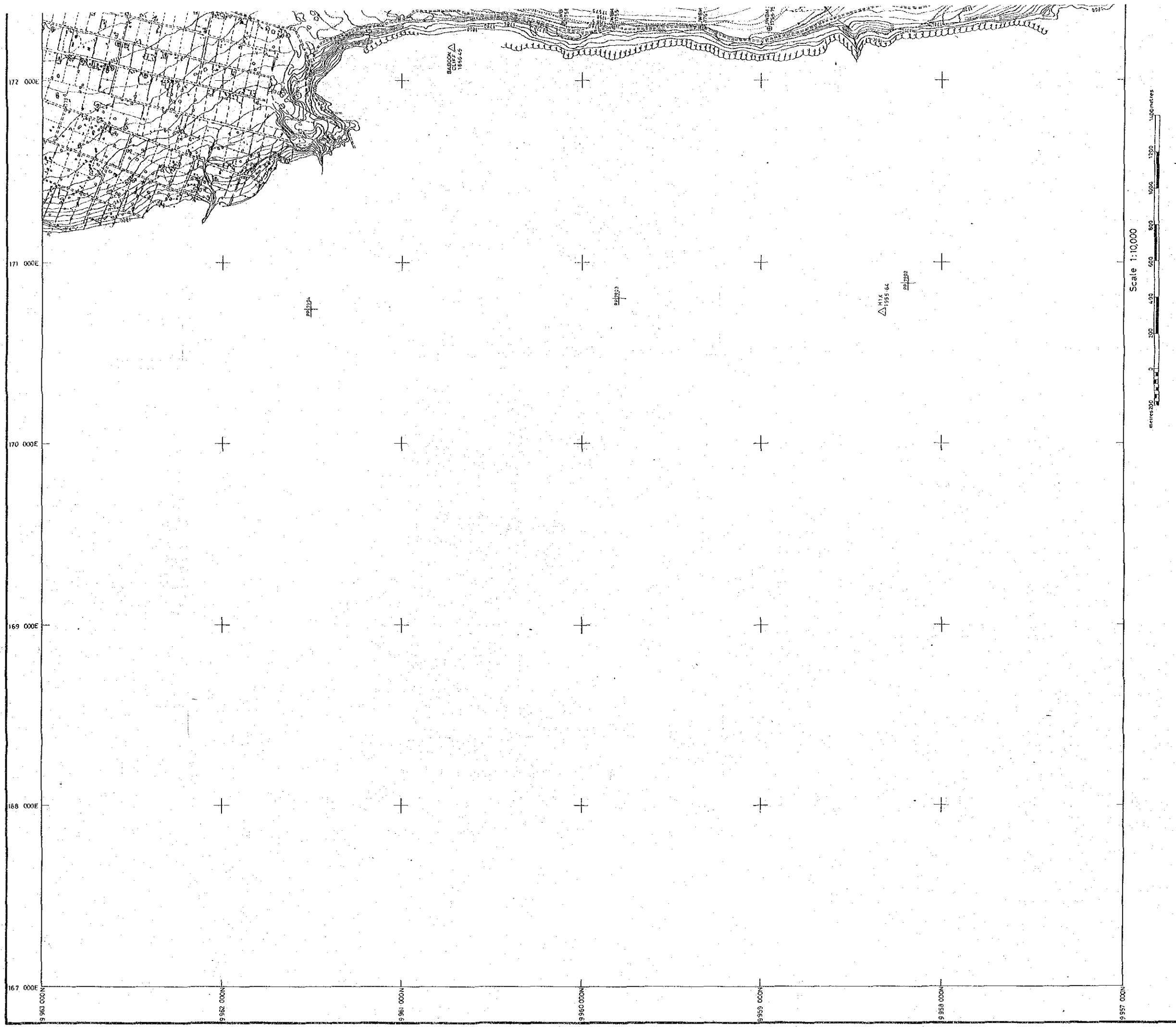
MAP HISTORY

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1:10,000



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EASTERN DIVISION

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LEGEND

- Tarmac Road
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- Metreable Track
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- Fence, Hedge
- Cultivation
- Quarry
- Cutting, Embankment
- Bridge
- Culvert
- Rocks
- Cliff
- Pond
- Rivers and streams
- Indefinite streams
- Forest, Trees
- Traverse Point, Principal Point
- Spot height
- Contours V.L.M. Index 10m.
(0.5m. for the lake area)
- Farm Lines

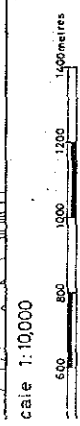
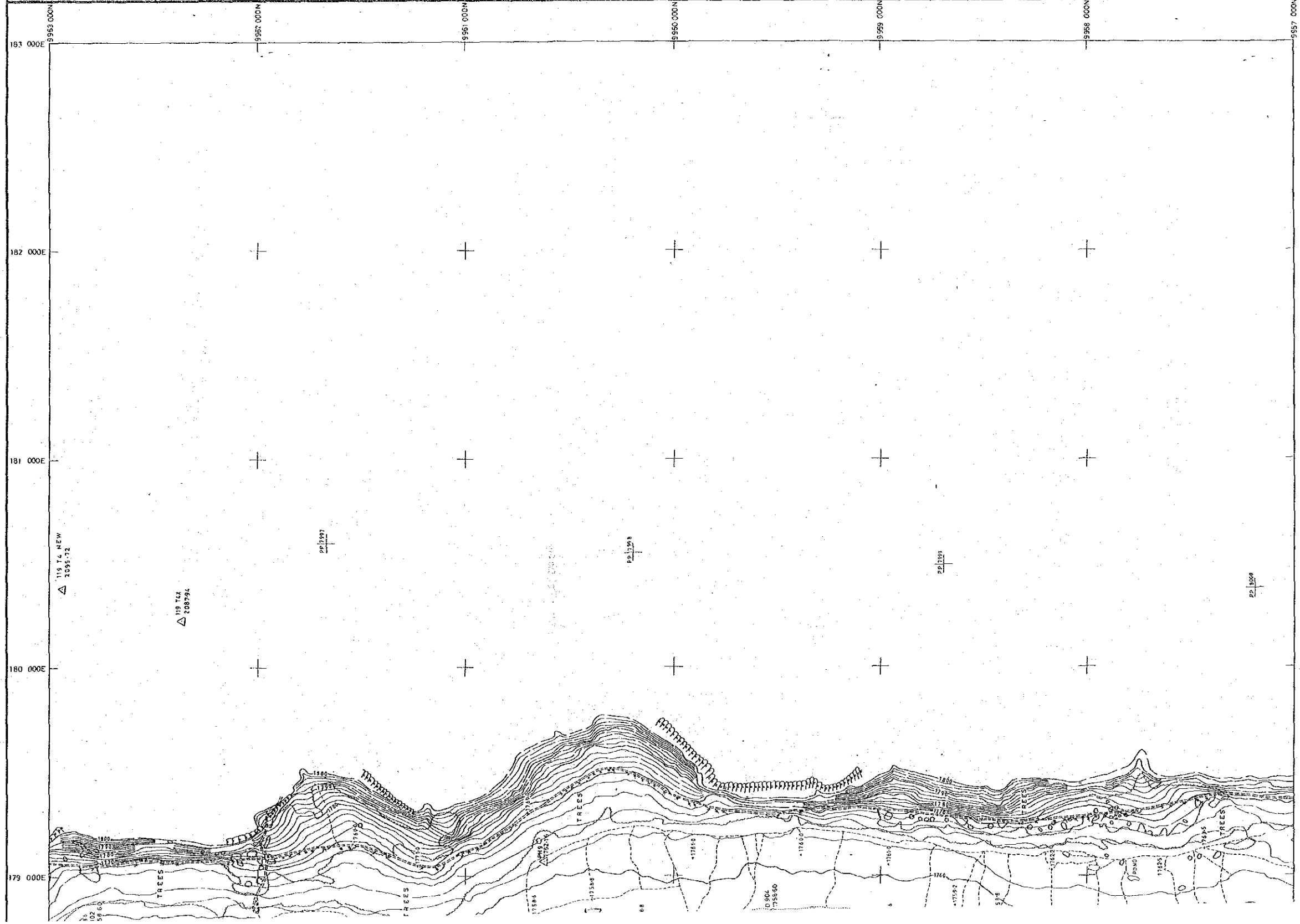
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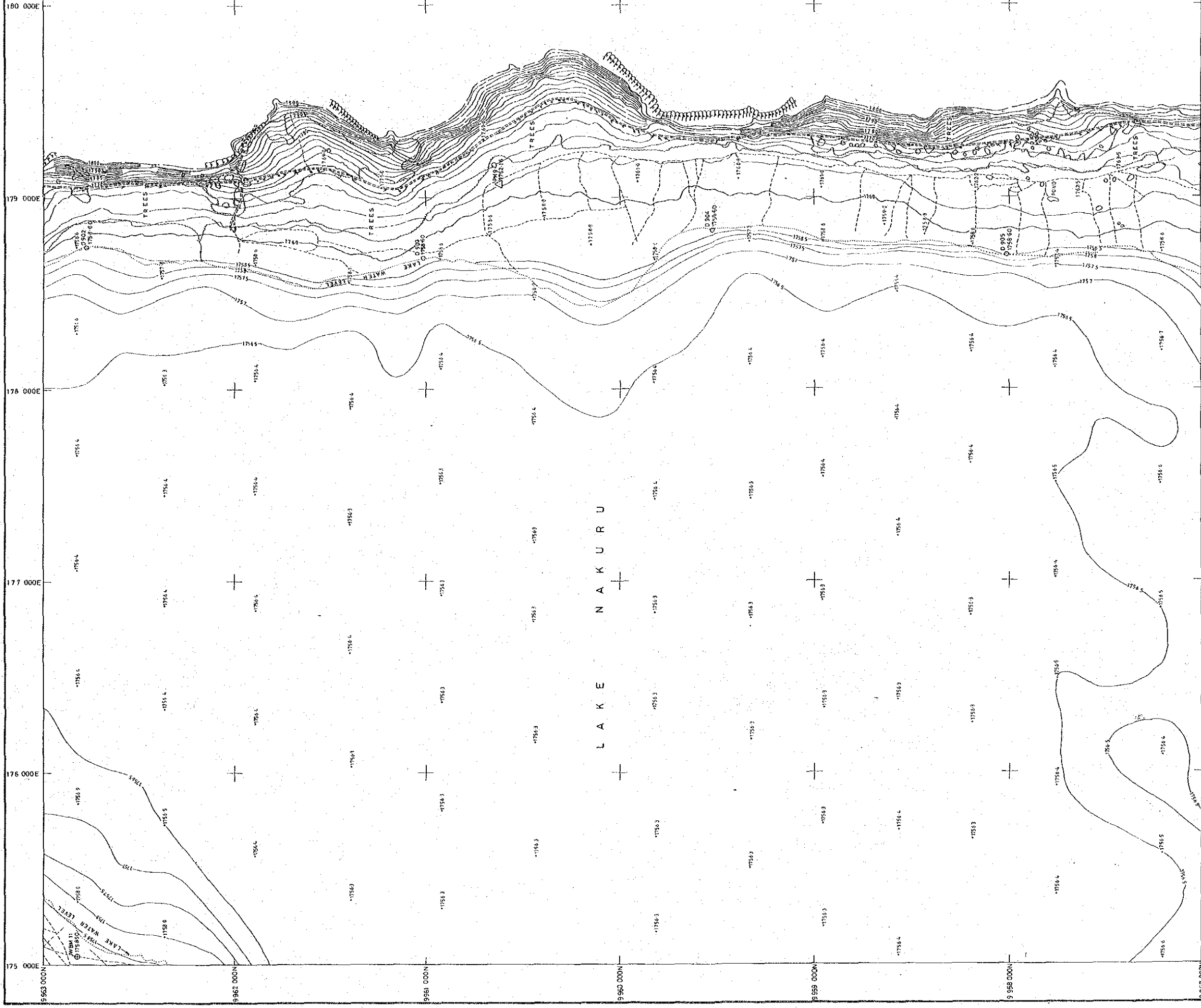
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MAP HISTORY

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- Bridge
- Culvert
- Rock
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- Pond
- Rivers and streams
- Indefinite streams
- Forest, Trees
- Traverse Point, Principal Point
- Spot Height
- Contours V.I. 2m, Index 10m.
(0.5m. for the lake area)
- Form Lines

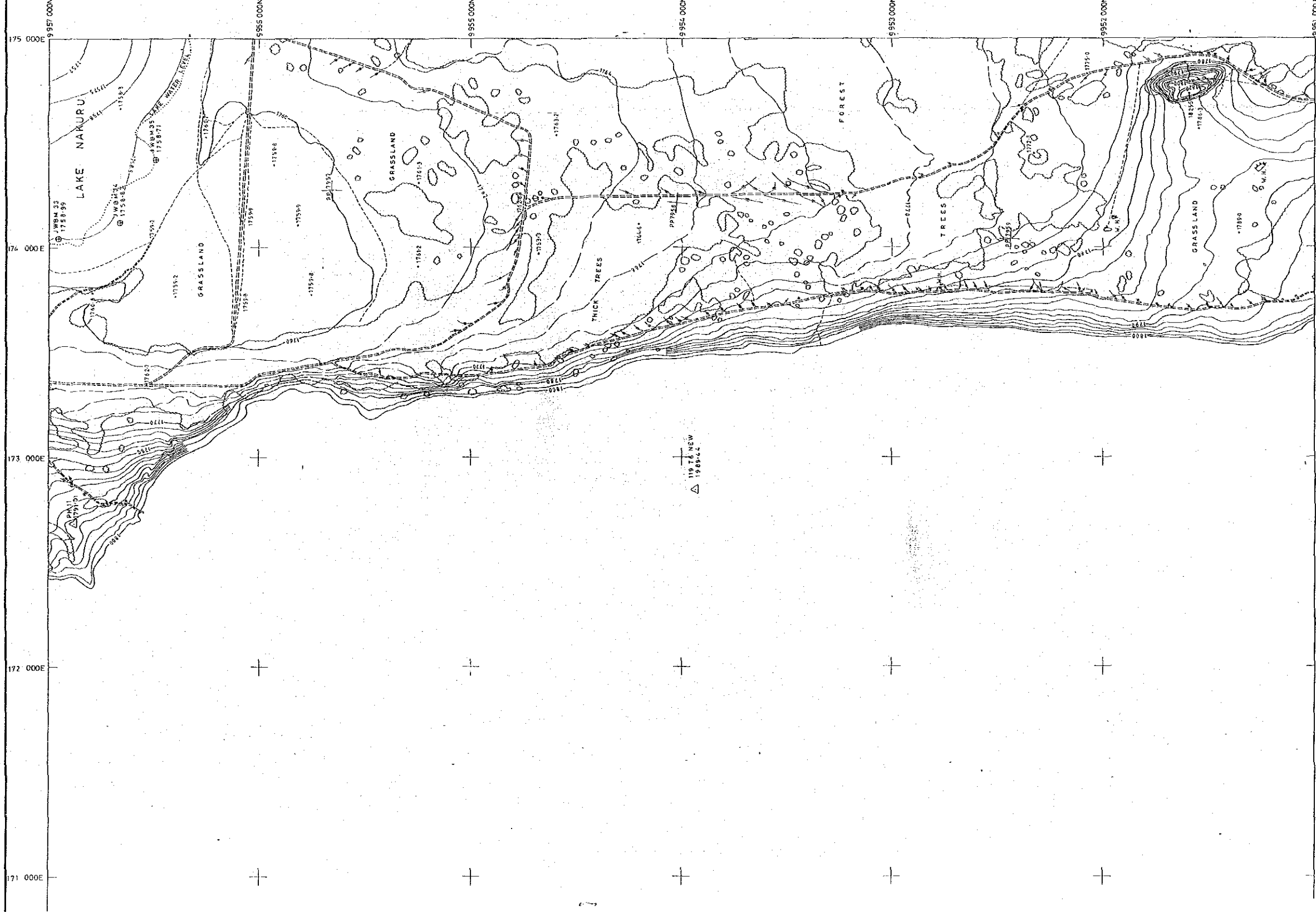
GRID INFORMATION

UTM ZONE 34

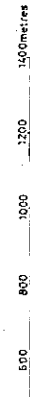
MAP HISTORY

AERIAL PHOTOGRAPHY (JUNE 1980), GROUND CONTROL.
PHOTOGRAMMETRIC COMPILATION UNDERTAKEN BY
PHOTOMAP (K) LTD. AND SOUNDING SURVEY
UNDERTAKEN BY THE JICA STUDY TEAM.

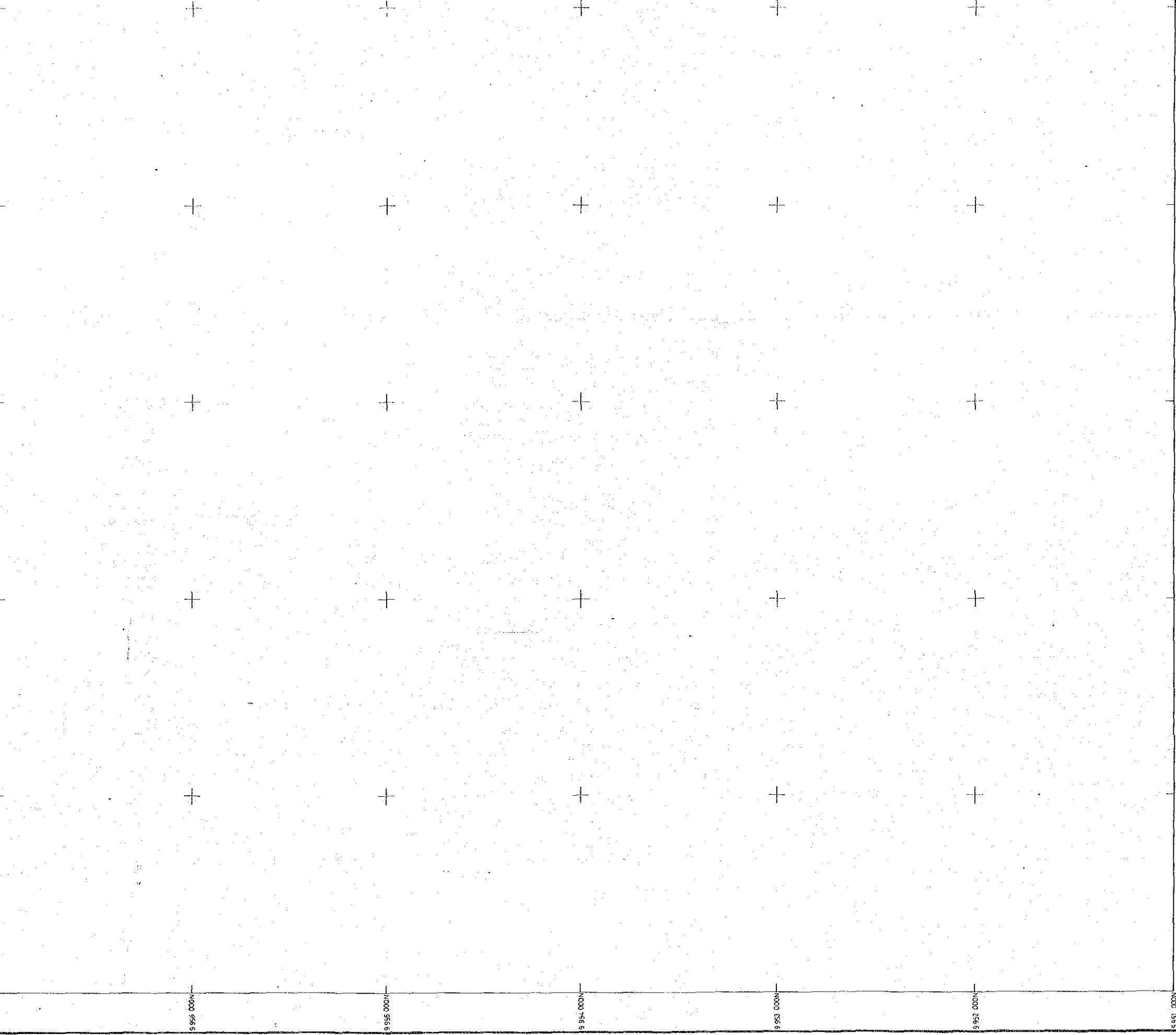
JAPAN INTERNATIONAL COOPERATION AGENCY



Scale 1:10,000

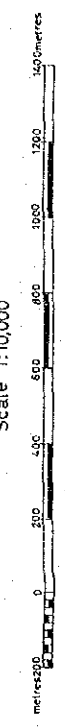


172 000E
171 000E
170 000E
169 000E
168 000E
167 000E



9 957 000N
9 958 000N
9 959 000N
9 960 000N
9 961 000N
9 962 000N
9 963 000N
9 964 000N
9 965 000N

Scale 1:10,000



THE STUDY ON CONSTRUCTION OF DAM
IN MALEWA RIVER SYSTEM
FOR
GREATER NAKURU WATER SUPPLY PROJECT
EASTERN DIVISION

Scale, 1 : 10,000

SHEET INDEX

1	2
3	4
5	6
7	8

LEGEND

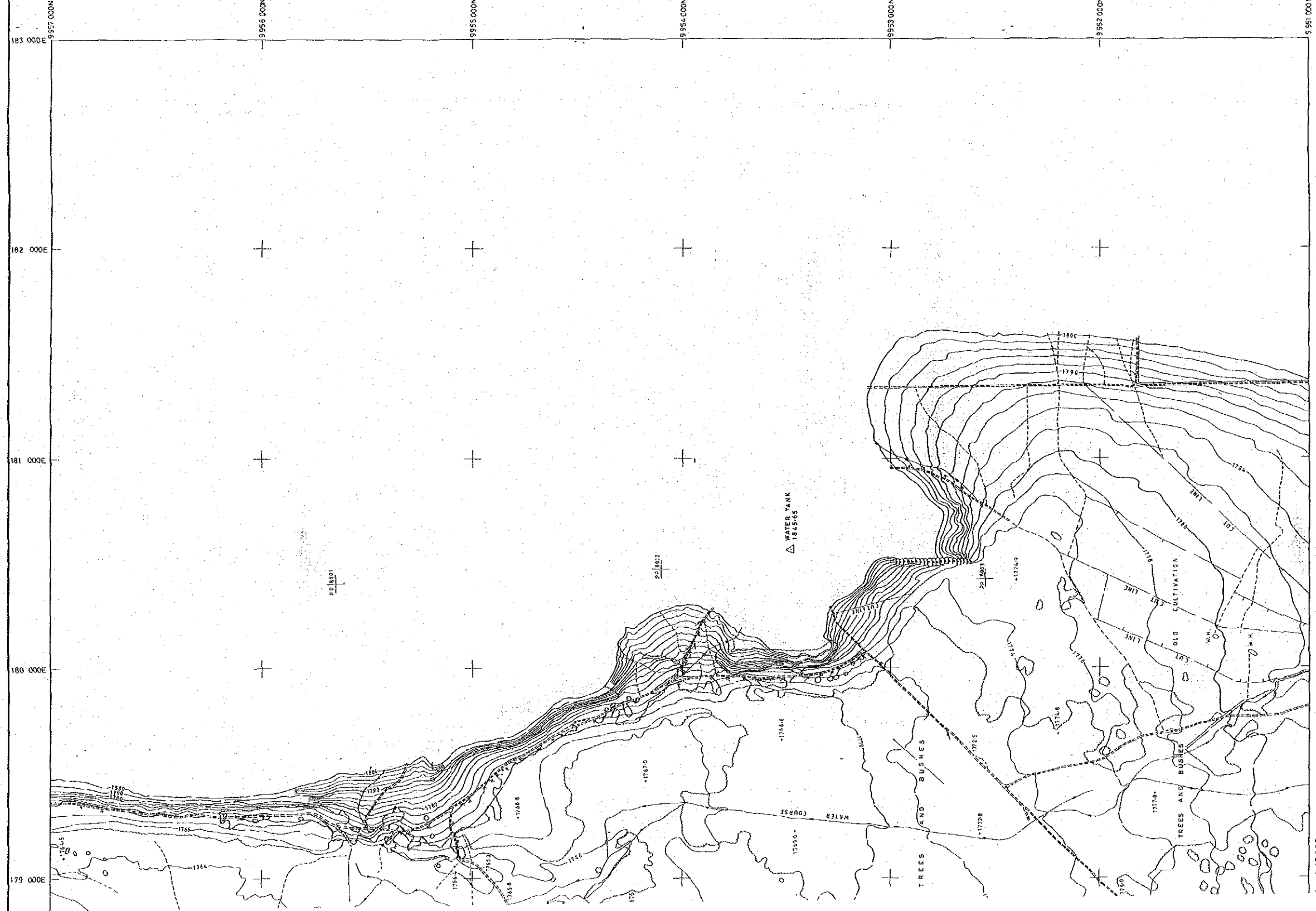
- Tarmac Road
- Murrum Road
- Railway Line
- Motorable Track
- Houses, Huts
- Fence, Hedge
- Cultivation
- Quarry
- Cutting, Embankment
- Bridge
- Culvert
- Recks
- Cliffs
- Pond
- Rivers and streams
- Indefinite streams
- Forest, Trees
- Traverse Point, Principal Point
- Spot height
- Contours V.I. 2m, Index 10m.
(0.5m. for the lake area)
- Farm Lines

GRID INFORMATION
UTM ZONE 36

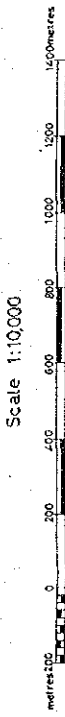
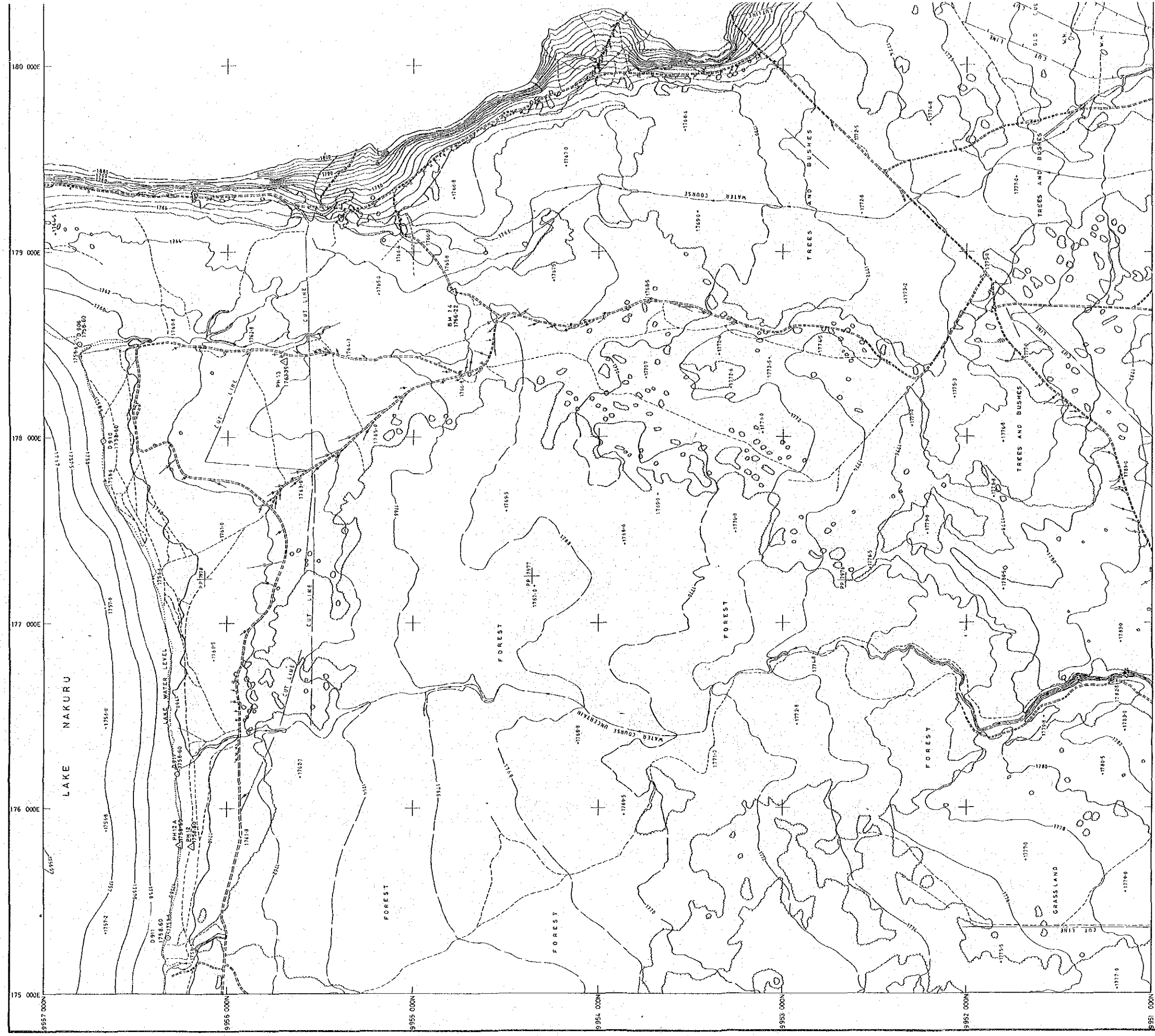
MAP HISTORY

AERIAL PHOTOGRAPHY (JUNE 1960), GROUND CONTROL,
PHOTOGRAMMETRIC COMPILATION UNDERTAKEN BY
PHOTOMAP (K) LTD. AND SOUNDING SURVEY
UNDERTAKEN BY THE JICA STUDY TEAM.

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Scale 1:10,000
0 500 1000 1500metres



180 000E
 179 000E
 178 000E
 177 000E
 176 000E
 175 000E

9957 000N
 9955 000N
 9953 000N
 9951 000N
 9949 000N
 9947 000N
 9945 000N
 9943 000N
 9941 000N

THE STUDY ON CONSTRUCTION OF DAM
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GREATER NAKURU WATER SUPPLY PROJECT
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LEGEND

- Tarmac Road
- Murrum Road
- Railway Line
- Motorable Track
- Houses, Huts
- Fence, Hedge
- Cultivation
- Quarry
- Cutting, Embankment
- Bridge
- Culvert
- Rocks
- Cliffs
- Pond
- Rivers and streams
- Indefinite streams
- Forest, Trees
- Traverse Point, Principal Point
- Spot height
- Contours V.L. 2m index 10m.
10.5m for the lake area
- Form Lines

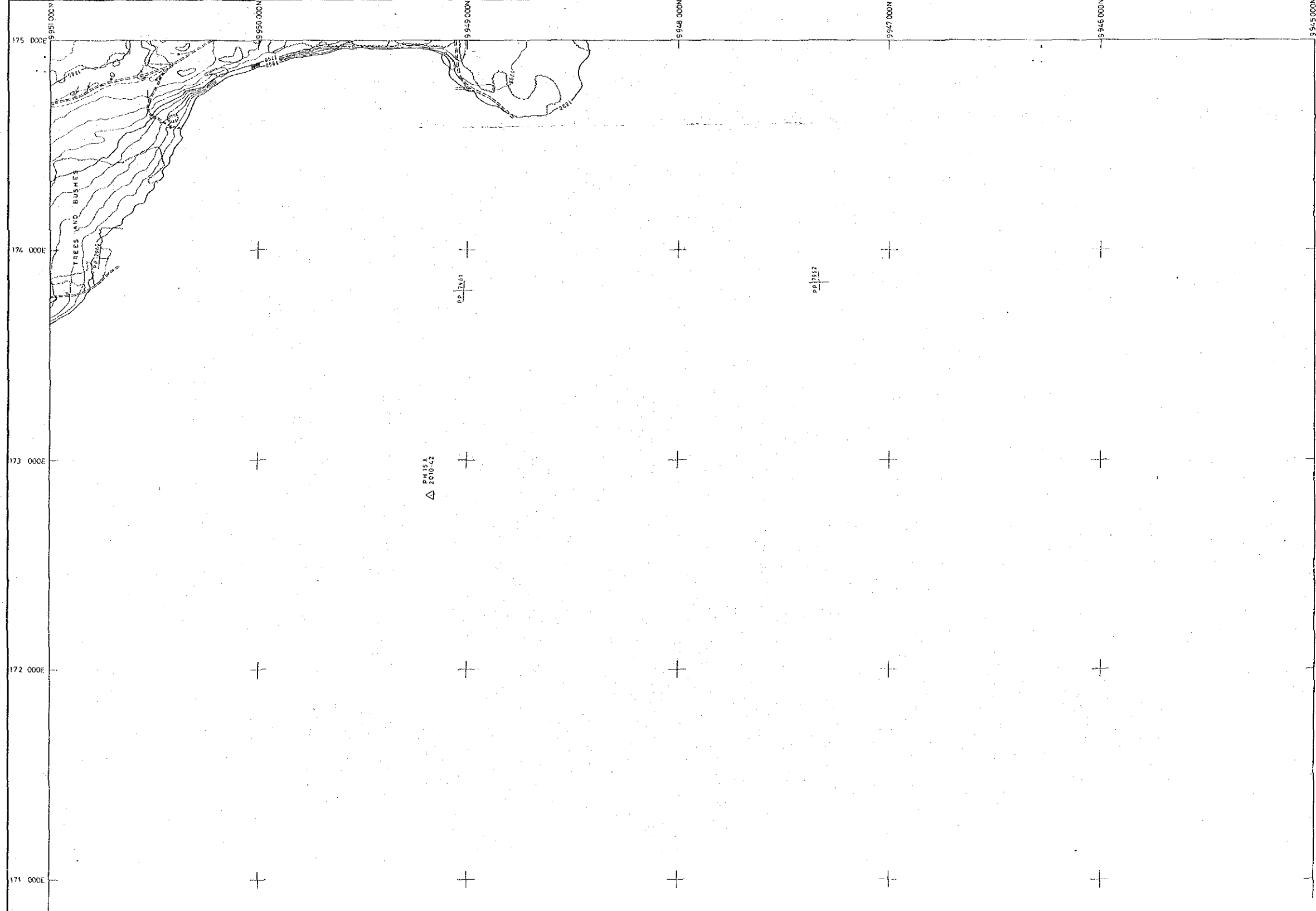
GRID INFORMATION

UTM ZONE 36

MAP HISTORY

AERIAL PHOTOGRAPHY (JUNE 1950), GROUND CONTROL,
PHOTOGRAMMETRIC COMPILATION UNDERTAKEN BY
PHOTOMAP (K) LTD. AND SOUNDING SURVEY
UNDERTAKEN BY THE JICA STUDY TEAM.

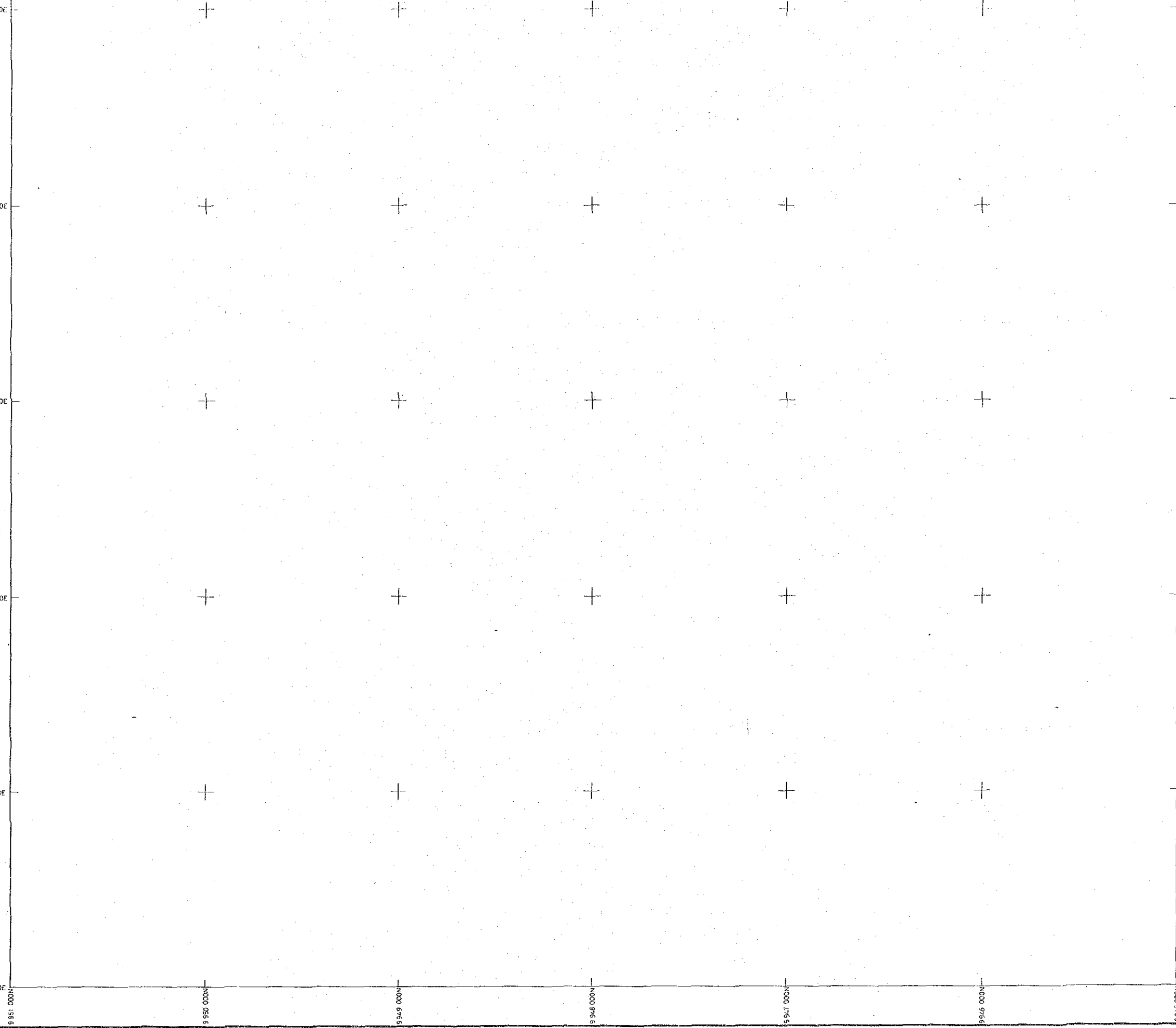
JAPAN INTERNATIONAL COOPERATION AGENCY



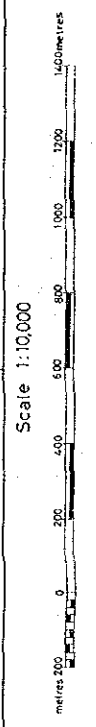
Scale 1:10,000



172 000E
171 000E
170 000E
169 000E
168 000E
167 000E



9945 000N
9946 000N
9947 000N
9948 000N
9949 000N
9950 000N

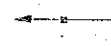


THE STUDY ON CONSTRUCTION OF DAM
IN MALEWA RIVER SYSTEM
FOR
GREATER NAKURU WATER SUPPLY PROJECT
EASTERN DIVISION

Scale 1 : 10,000

SHEET INDEX

1	2
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LEGEND

- Tarmac Road
- Murrum Road
- Railway Line
- Motorable Track
- Houses, Huts
- Fence, hedge
- Cultivation
- Quarry
- Cutting, Embankment
- Bridge
- Culvert
- Rocks
- Cliffs
- Pond
- Rivers and streams
- Indefinite streams
- Forest, Trees
- Traverse Point, Principal Point
- Spot height
- Contours V.L. 2m. Index 10m. 10.5m. for the lake area
- Perm. Lines

GRID INFORMATION

UTM ZONE 36

MAP HISTORY

AERIAL PHOTOGRAPHY (JUNE 1959). GROUND CONTROL.
PHOTOGRAMMETRIC COMPILATION UNDERTAKEN BY
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