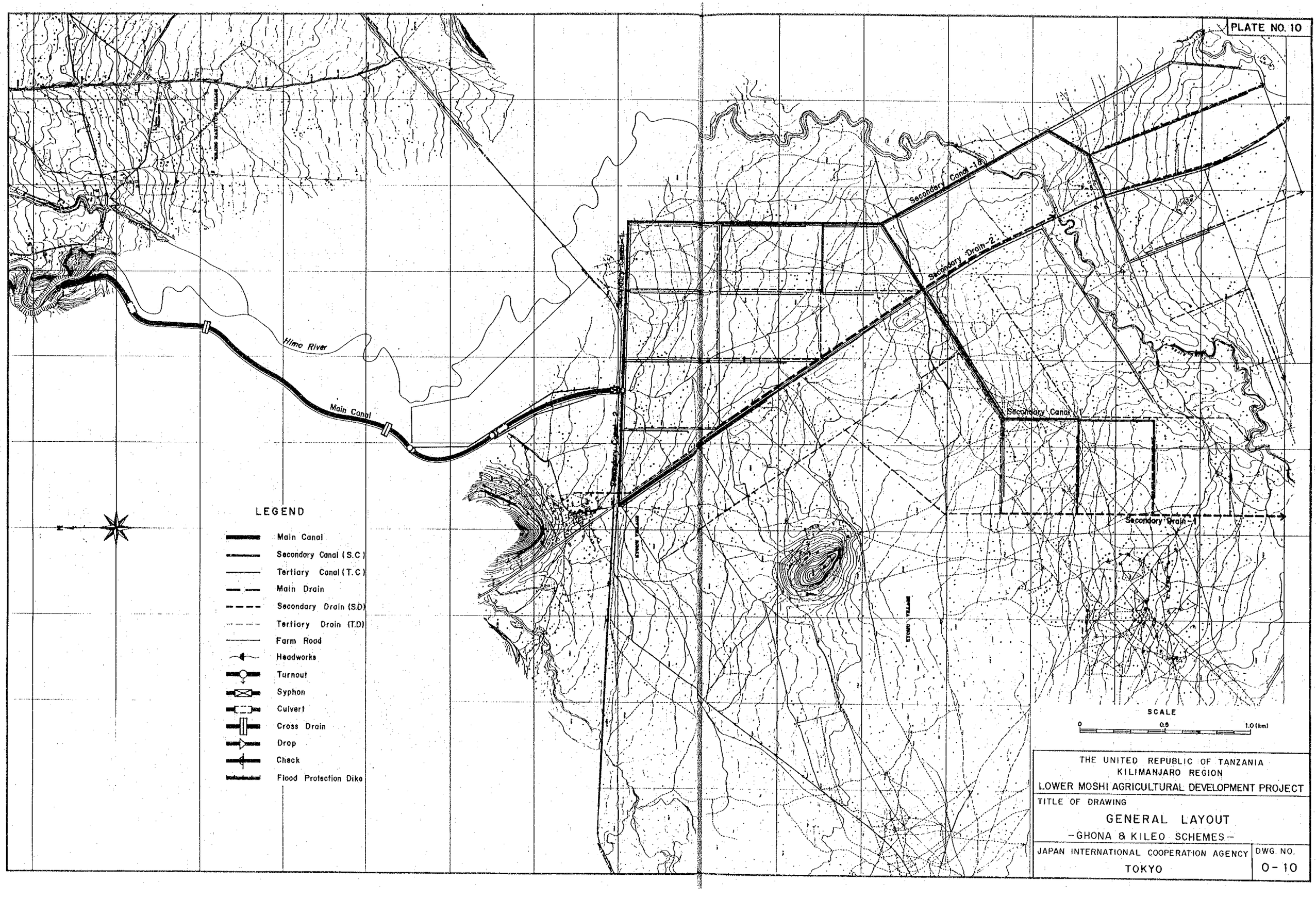
PLATE NO. 10



THE UNITED REPUBLIC OF TANZANIA
KILIMANJARO REGION
LOWER MOSHI AGRICULTURAL DEVELOPMENT PROJECT

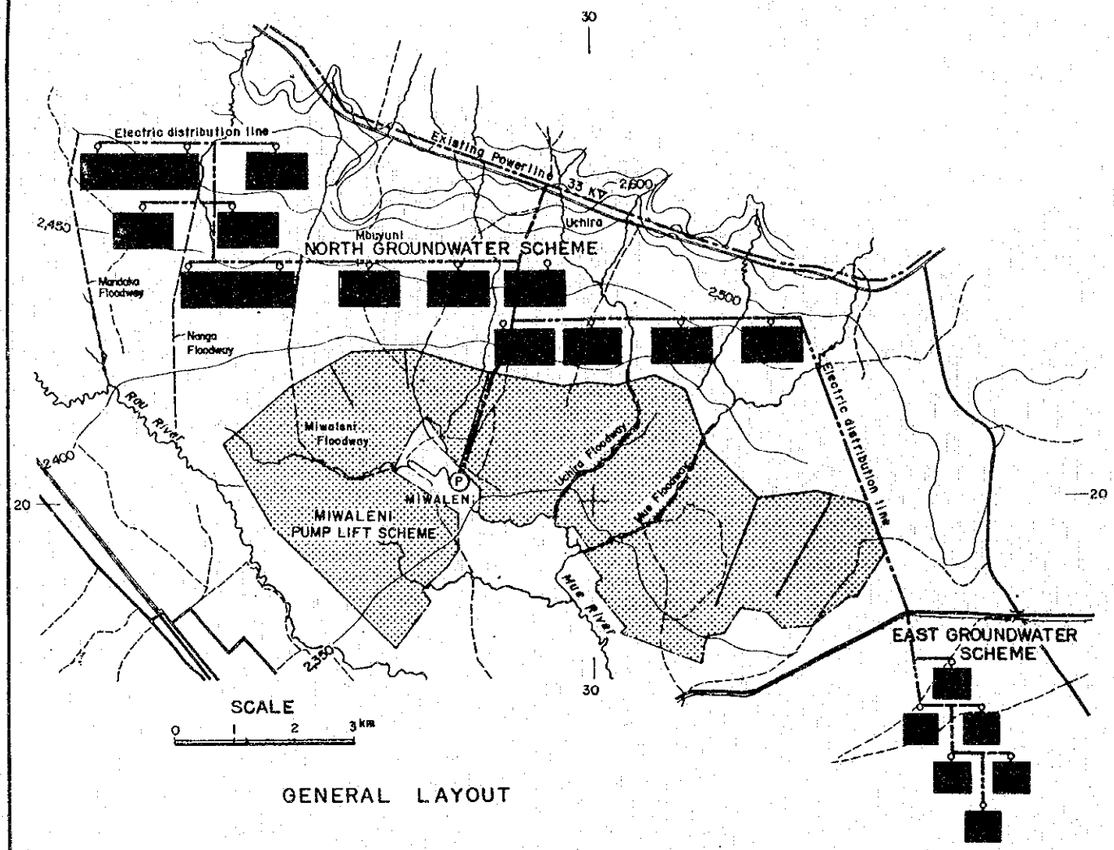
TITLE OF DRAWING

GENERAL LAYOUT

-GHONA & KILEO SCHEMES-

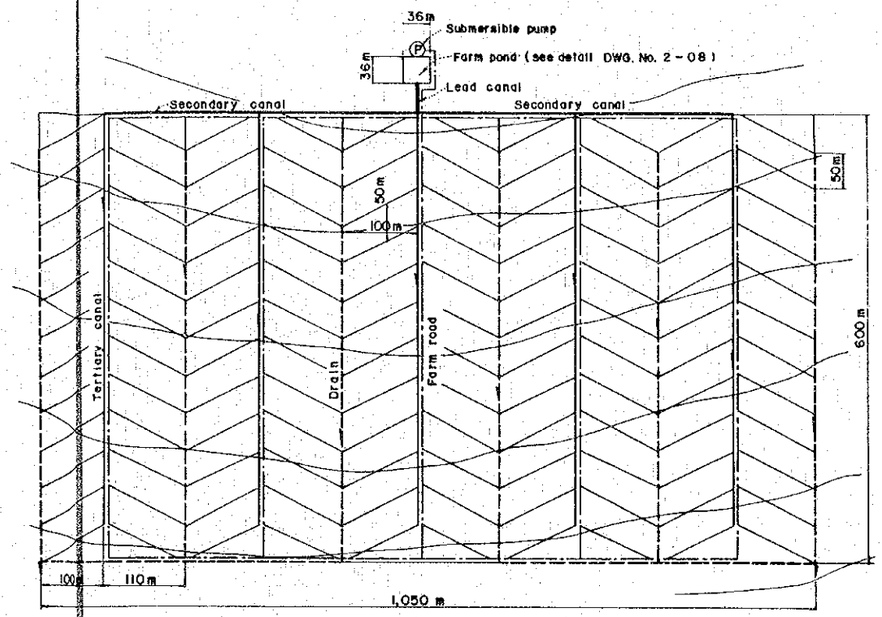
JAPAN INTERNATIONAL COOPERATION AGENCY	DWG. NO.
TOKYO	O-10

PLATE NO. 11

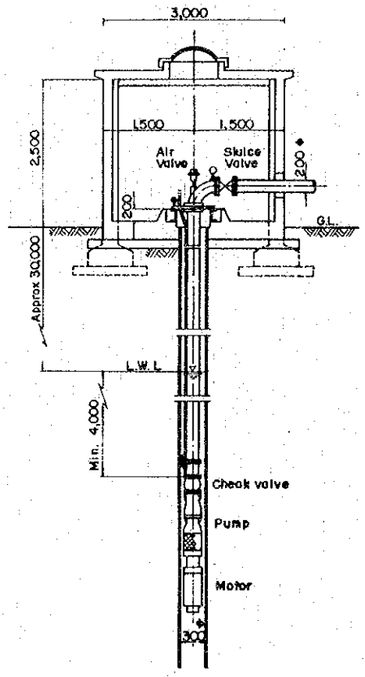


GENERAL LAYOUT

NORTH GROUNDWATER SCHEME



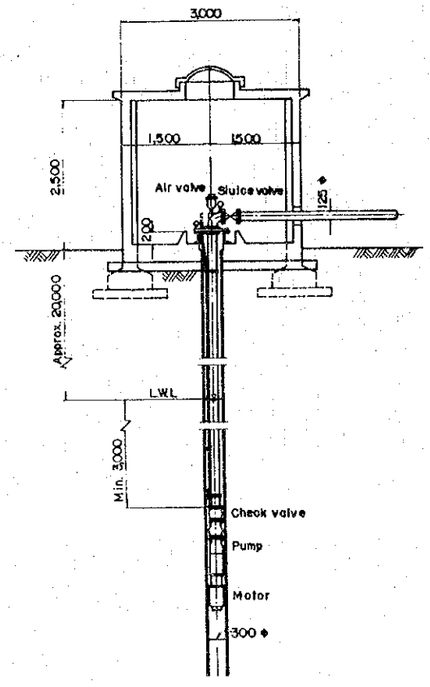
TYPICAL LAYOUT (60 ha)



PLAN

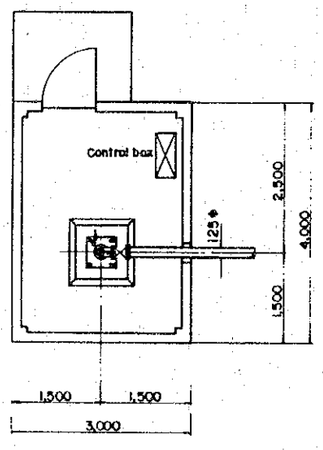
Pump	: Submersible Motor Pump
Discharge	: 3.6 m³/min. /unit
Total head	: 35m
Diameter	: 200 ϕ
Motor output	: 37 KW

EAST GROUNDWATER SCHEME



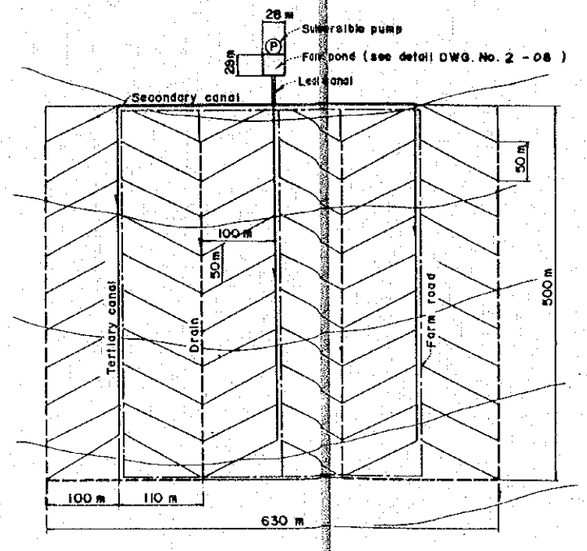
PROFILE

PUMP STATION

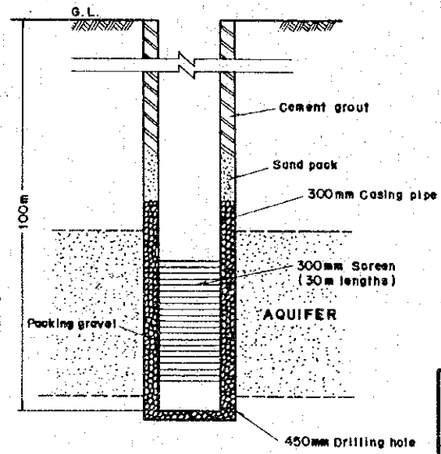


PLAN

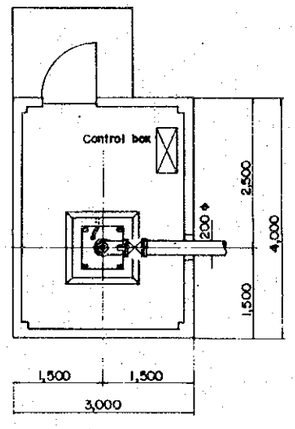
Pump	: Submersible Motor Pump
Discharge	: 1.8 m³/min./unit
Total head	: 25 m
Diameter	: 125 ϕ
Motor output	: 15 KW



TYPICAL LAYOUT (30 ha)



STANDARD WELL OF BOTH SCHEMES



PROFILE

PUMP STATION

THE UNITED REPUBLIC OF TANZANIA
KILIMANJARO REGION
LOWER MOSHI AGRICULTURAL DEVELOPMENT PROJECT

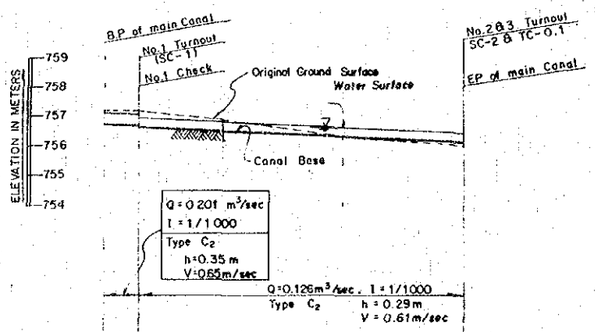
TITLE OF DRAWING
GENERAL LAYOUT
- GROUNDWATER SCHEME -

JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO

DWG. NO. D - 11

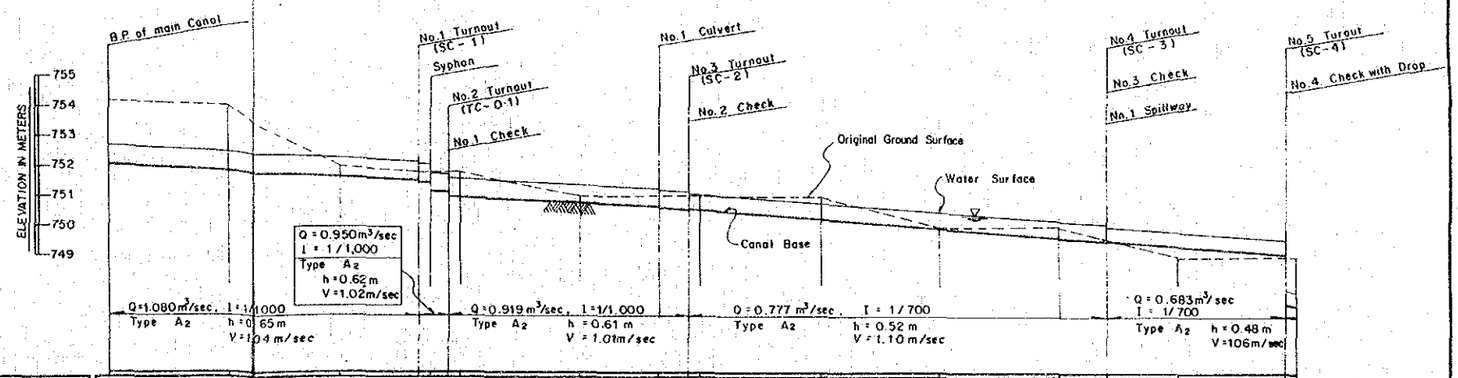
PLATE NO. 12

UPPER MABOGINI SCHEME



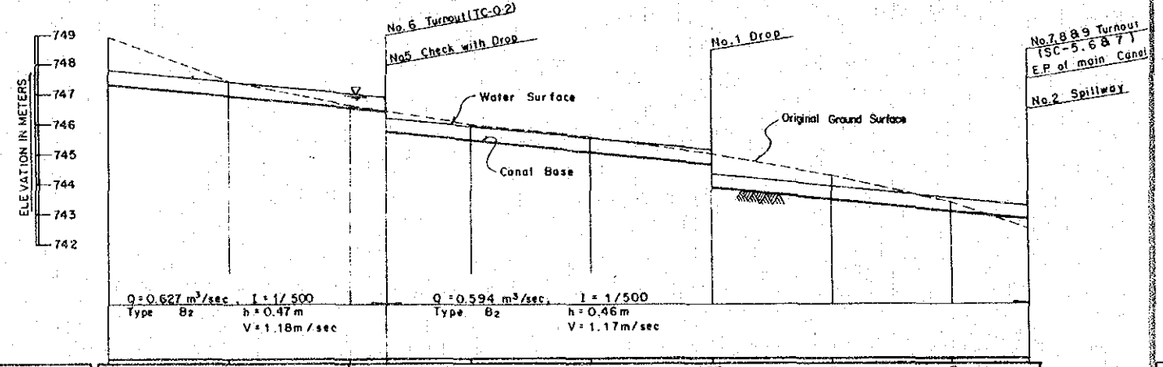
CANAL BASE ELEVATION	756.75	756.69 / 756.67	756.53	756.33	756.13	
WATER SURFACE ELEVATION	757.10	757.06 / 756.96	756.82	756.62	756.42	
GROUND SURFACE ELEVATION	757.2	757.2	756.9	756.35	756.0	
REDUCED DISTANCE	0.0	60.0	200.0	400.0	600.0	
DISTANCE	0.0	60.0	140.0	200.0	200.0	
STATION	NO.0	+60.0	NO.1	NO.2	NO.3	
CURVE						

MABOGINI SCHEME



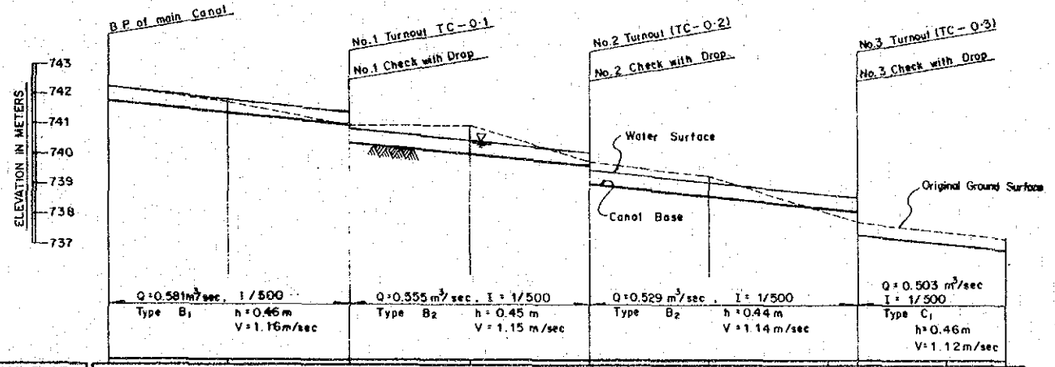
CANAL BASE ELEVATION	752.05	751.85	751.65	751.52	751.33 / 751.13 / 750.98	750.78	750.66 / 750.61	750.56 / 750.54	750.26	749.97	749.68	749.57 / 749.53	749.36	749.10 / 748.93 / 748.77
WATER SURFACE ELEVATION	752.70	752.50	752.30	752.17 / 752.15 / 752.13 / 751.98	751.63 / 751.61 / 751.59	751.39	751.27 / 751.22	751.09 / 751.06	750.78	750.45	750.20	750.09 / 750.01	749.84	749.63 / 749.57
GROUND SURFACE ELEVATION	754.2	754.0	752.0	751.8	751.8	751.0	751.0	751.0	751.0	750.0	750.0	749.6	749.0	749.0
REDUCED DISTANCE	0.0	200.0	400.0	530.0 / 550.0 / 580.0 / 600.0		800.0	930.0	980.0 / 1000.0	1200.0	1400.0	1600.0	1680.0	1800.0	1980.0 / 2000.0
DISTANCE	0.0	200.0	200.0	130.0 / 20.0 / 20.0 / 200.0		200.0	130.0	50.0 / 20.0	200.0	200.0	200.0	80.0	120.0	180.0 / 20.0
STATION	NO.0	NO.1	NO.2	+130.0 / +150.0 / +180.0 / NO.3		NO.4	+130.0	+180.0 / NO.5	NO.6	NO.7	NO.8	+60.0	NO.9	+180.0 / NO.10
CURVE														

RAU YA KATI SCHEME



CANAL BASE ELEVATION	747.37	746.97	746.57	746.45 / 746.16	745.48	745.08	744.68 / 743.88	743.48	743.08	742.82						
WATER SURFACE ELEVATION	747.84	747.44	747.04	746.92 / 746.22	745.94	745.54	745.14 / 744.34	743.94	743.54	743.28						
GROUND SURFACE ELEVATION	749.0	747.5	746.7	746.9	746.0	745.6	745.0	744.3	743.4	742.5						
REDUCED DISTANCE	2 000.0	2 200.0	2 400.0	2 460.0	2 600.0	2 800.0	3 000.0	3 200.0	3 400.0	3 530.0						
DISTANCE	20.0	200.0	200.0	60.0	140.0	200.0	200.0	200.0	200.0	130.0						
STATION	NO.10	NO.11	NO.12	+60.0	NO.13	NO.14	NO.15	NO.16	NO.17	+130.0						
CURVE																

RAU YA KATI SCHEME



CANAL BASE ELEVATION	741.84	741.44	741.04 / 740.45	740.05	739.65 / 739.06	738.66	738.26	738.16 / 737.34	737.04	736.84						
WATER SURFACE ELEVATION	742.30	741.90	741.50 / 740.90	740.50	740.10 / 739.50	739.10	738.70	738.60 / 737.80	737.50	737.30						
GROUND SURFACE ELEVATION	742.3	741.8	741.0	741.0	739.8	739.3	738.1	737.8	737.5	737.2						
REDUCED DISTANCE	0.0	200.0	400.0	600.0	800.0	1 000.0	1 200.0	1 250.0	1 400.0	1 500.0						
DISTANCE	0.0	200.0	200.0	200.0	200.0	200.0	200.0	50.0	150.0	100.0						
STATION	NO.0	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6	+50.0	NO.7	+100.0						
CURVE																

SCALE

Vertical : 0 — 5 — 10 (m) (1:100)

Horizontal : 0 — 250 — 500 (m) (1:5000)

LEGEND

Q : Design discharge (m/sec)
I : Hydraulic gradient
h : Water depth (m)
V : Velocity (m/sec)

THE UNITED REPUBLIC OF TANZANIA
KILIMANJARO REGION
LOWER MOSHI AGRICULTURAL DEVELOPMENT PROJECT

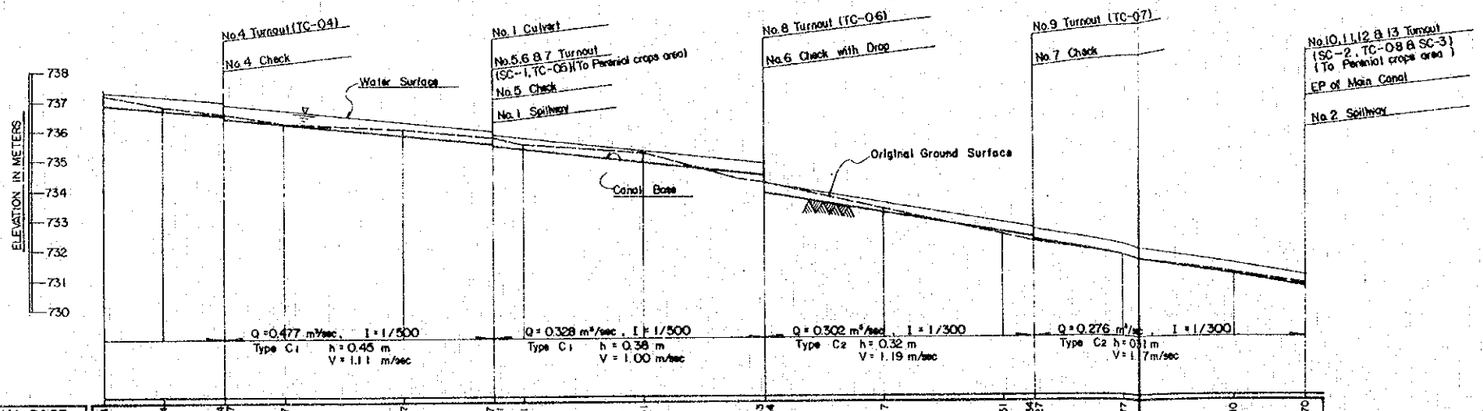
TITLE OF DRAWING
PROFILE OF MAIN IRRIGATION CANALS 1/6
RAU RIVER SYSTEM (1)

JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO

DWG. NO.
1-01

PLATE NO. 13

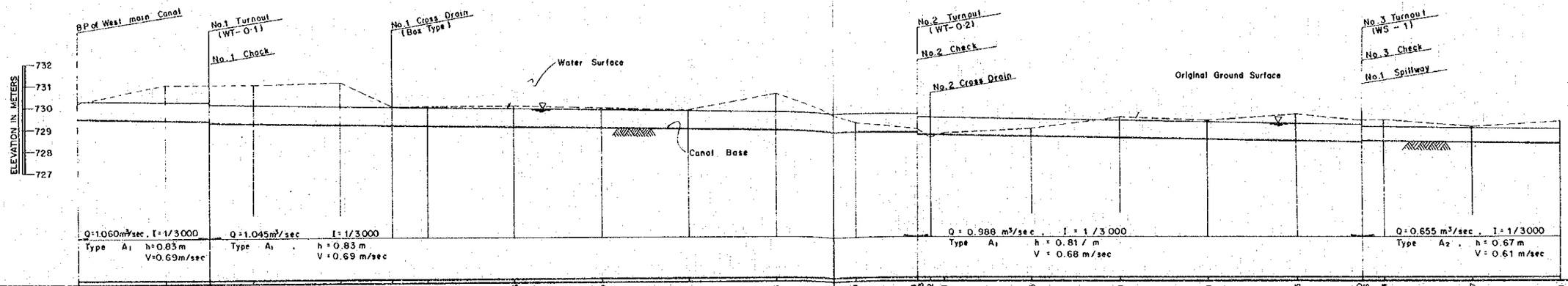
RAU YA KATI SCHEME (2)



| | | |

PLATE NO. 14

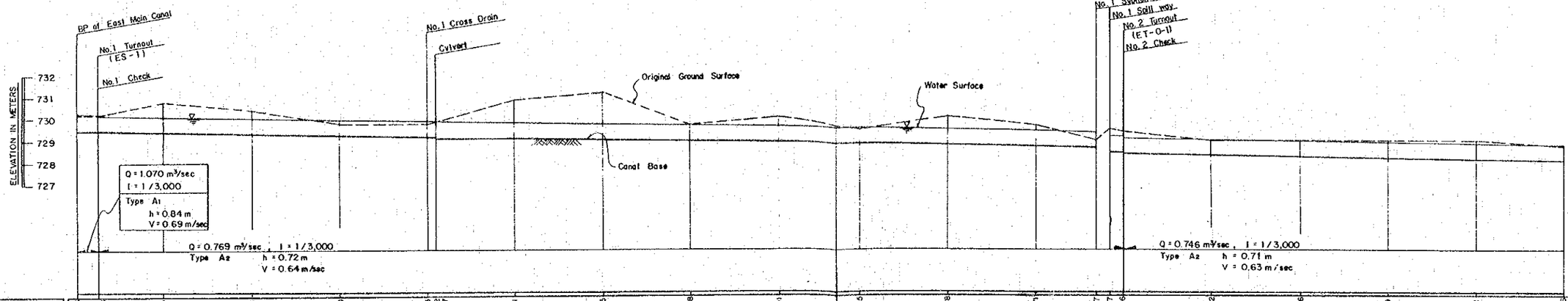
MIWALENI SCHEME (WEST MAIN CANAL)



| | | |

PLATE NO. 15

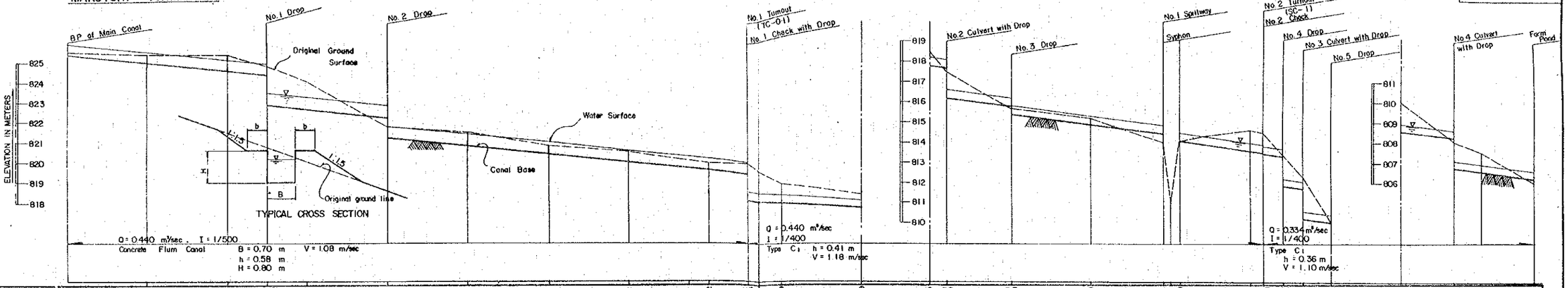
MIWALENI SCHEME (EAST MAIN CANAL)



| | | |

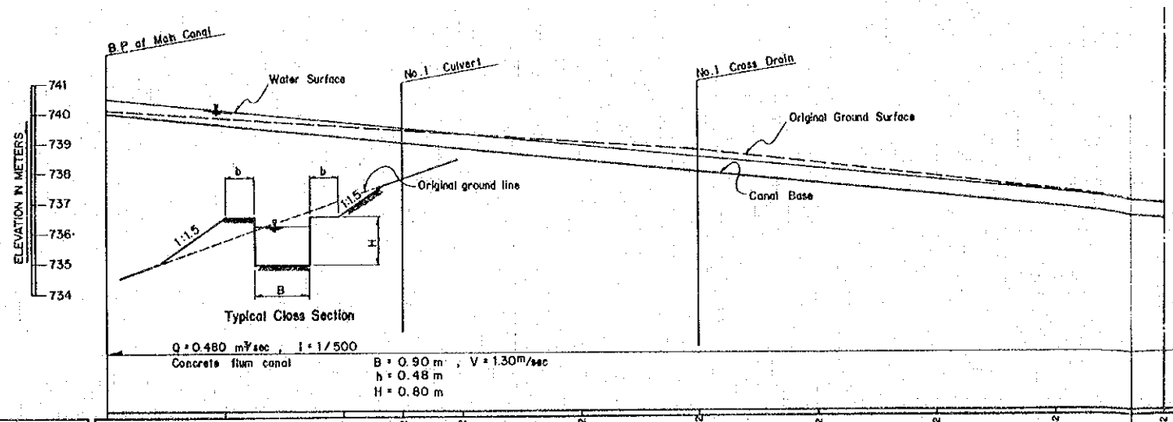
PLATE NO. 16

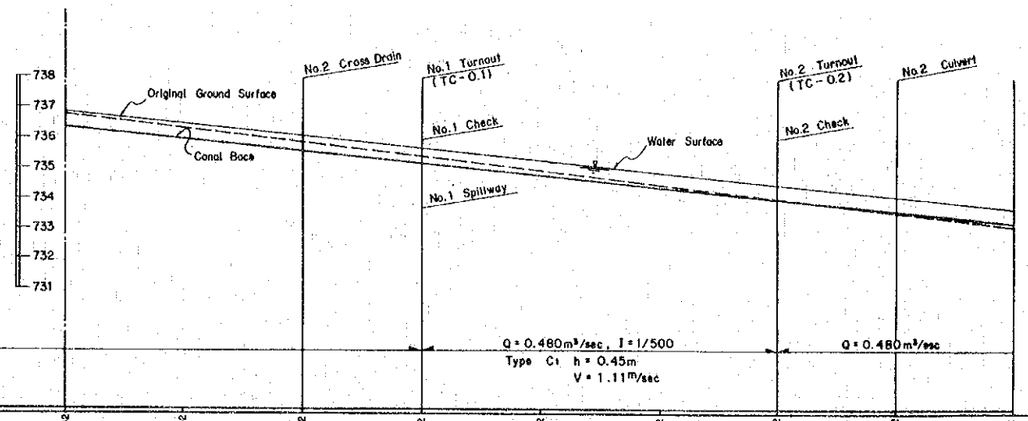
MAKUYUNI SCHEME



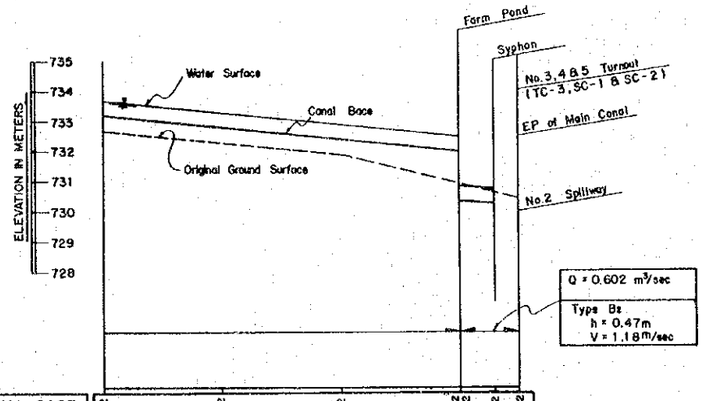
| | | |

GHONA & KILEO SCHEME





CANAL BASE ELEVATION	740.02	739.62	739.22	739.02	738.82	738.42	738.02	737.62	737.22	736.82	736.42	736.42	736.02	735.62	735.22	734.82	734.42	734.02	733.82	733.22
WATER SURFACE ELEVATION	740.80	740.10	739.70	739.50	739.30	738.90	738.50	738.10	737.70	737.30	736.90	736.90	736.50	736.10	735.70	735.30	734.90	734.50	734.10	733.70
GROUND SURFACE ELEVATION	740.10	739.60	739.50	739.40	739.30	739.00	738.70	738.20	737.80	737.30	736.80	736.80	736.40	735.90	735.40	735.00	734.50	734.10	733.60	733.10
REDUCED DISTANCE	0.0	200.0	400.0	500.0	600.0	800.0	1,000.0	1,200.0	1,400.0	1,600.0	1,800.0	1,800.0	2,000.0	2,200.0	2,400.0	2,600.0	2,800.0	3,000.0	3,200.0	3,400.0
DISTANCE	0.0	200.0	200.0	100.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
STATION	No.0	No.1	No.2	+100.0	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.9	No.10	No.11	No.12	No.13	No.14	No.15	No.16	No.17
CURVE																				



CANAL BASE ELEVATION	732.82	732.22	731.72	732.02	732.42	730.32	730.02
WATER SURFACE ELEVATION	733.70	733.30	732.90	732.50	730.90	730.50	730.50
GROUND SURFACE ELEVATION	733.10	732.70	732.20	731.10	730.70	730.50	730.50
REDUCED DISTANCE	3,400.0	3,600.0	3,800.0	4,000.0	4,060.0	4,100.0	
DISTANCE	200.0	200.0	200.0	200.0	60.0	40.0	
STATION	No.17	No.18	No.19	No.20	+60.0	+100.0	
CURVE							

SCALE

Vertical : 0 5 10 (m) (1 : 100)

Horizontal : 0 250 500 (m) (1 : 5,000)

LEGEND

Q : Design discharge (m³/sec)
I : Hydraulic gradient
h : Water depth (m)
V : Velocity (m/sec)

THE UNITED REPUBLIC OF TANZANIA
KILIMANJARO REGION
LOWER MOSHI AGRICULTURAL DEVELOPMENT PROJECT

TITLE OF DRAWING

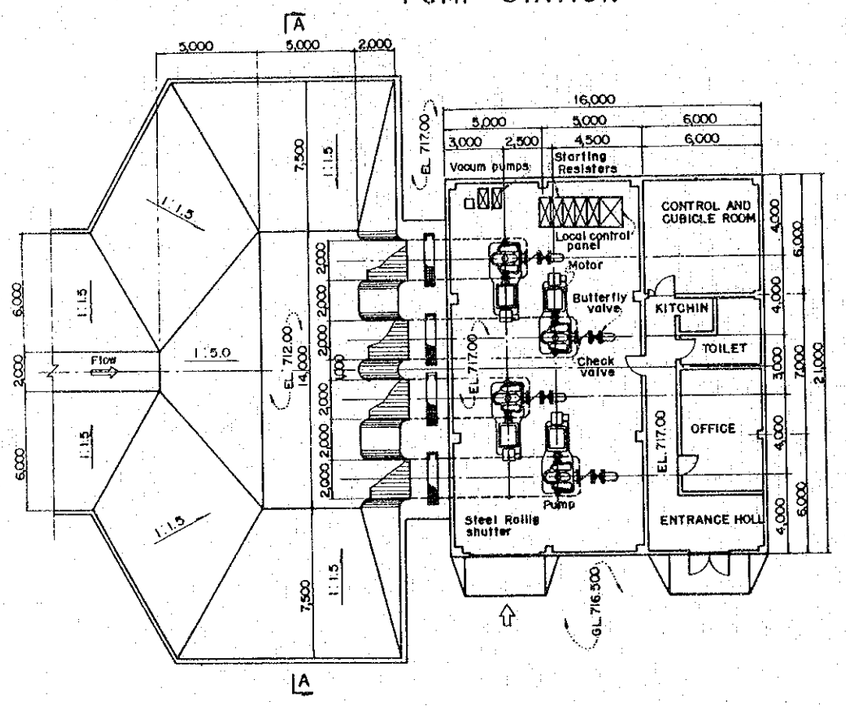
PROFILE OF MAIN IRRIGATION CANALS 6/6
— HIMO RIVER SYSTEM (2) —

JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO

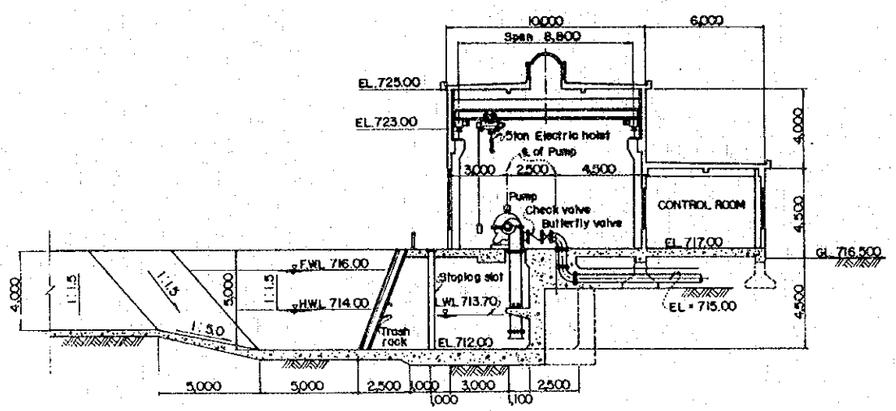
DWG. NO.
1 - 06

PLATE NO. 18

PUMP STATION

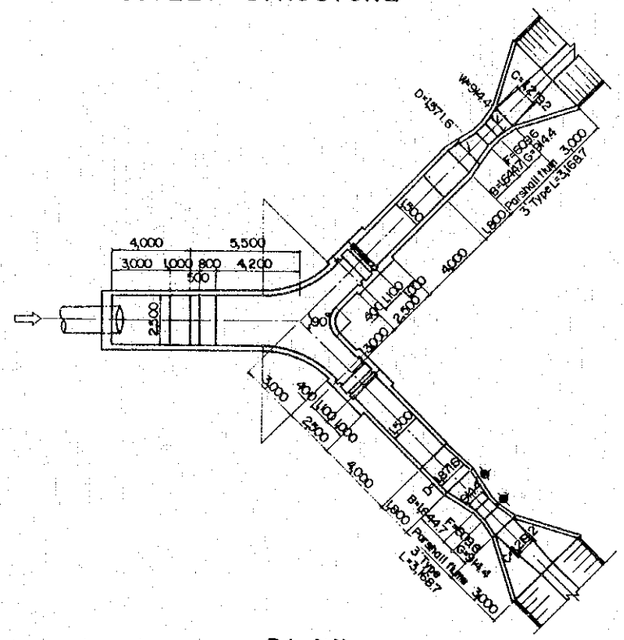


PLAN

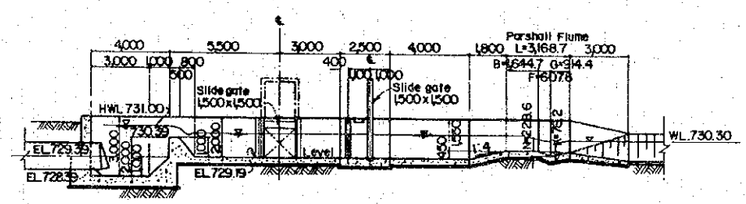


PROFILE

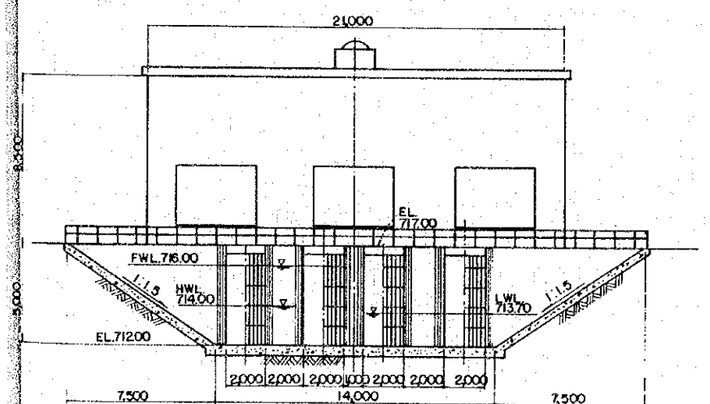
OUTLET STRUCTURE



PLAN



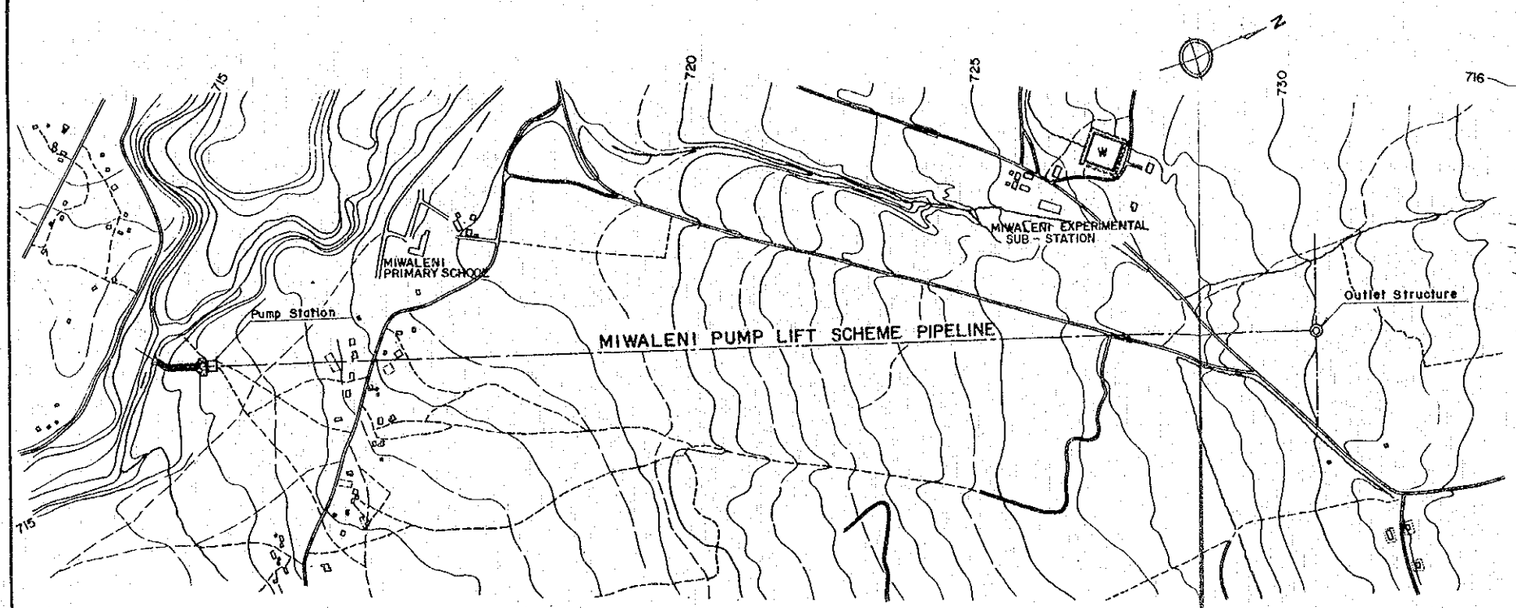
PROFILE



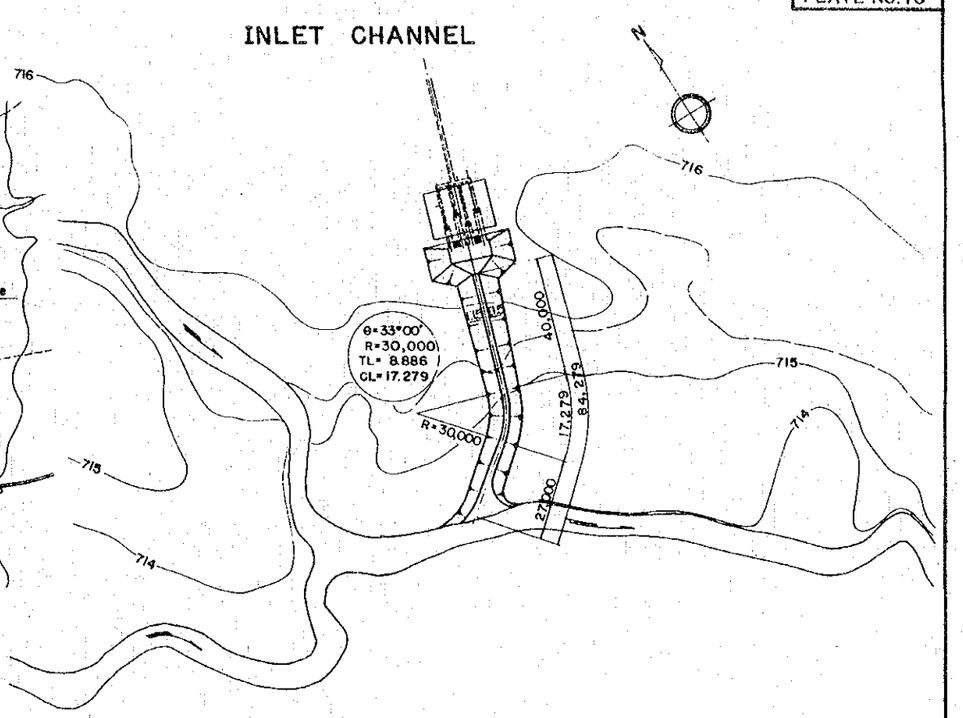
SECTION A-A

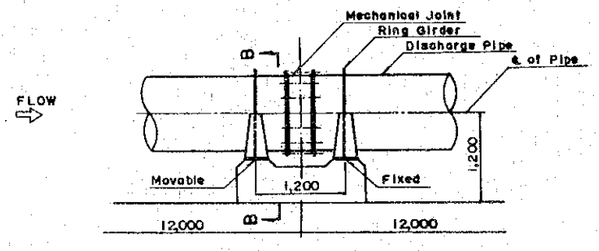
THE UNITED REPUBLIC OF TANZANIA
KILIMANJARO REGION
LOWER MOSHI AGRICULTURAL DEVELOPMENT PROJECT
TITLE OF DRAWING
MIWALENI PUMP STATION 1/2
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO
DWG. NO. 2-01

PLATE NO.19

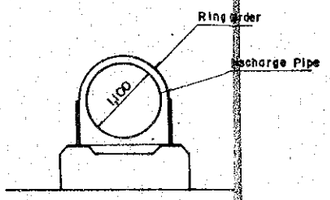


PLAN



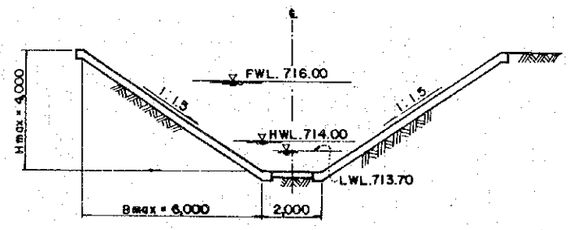


DETAIL A

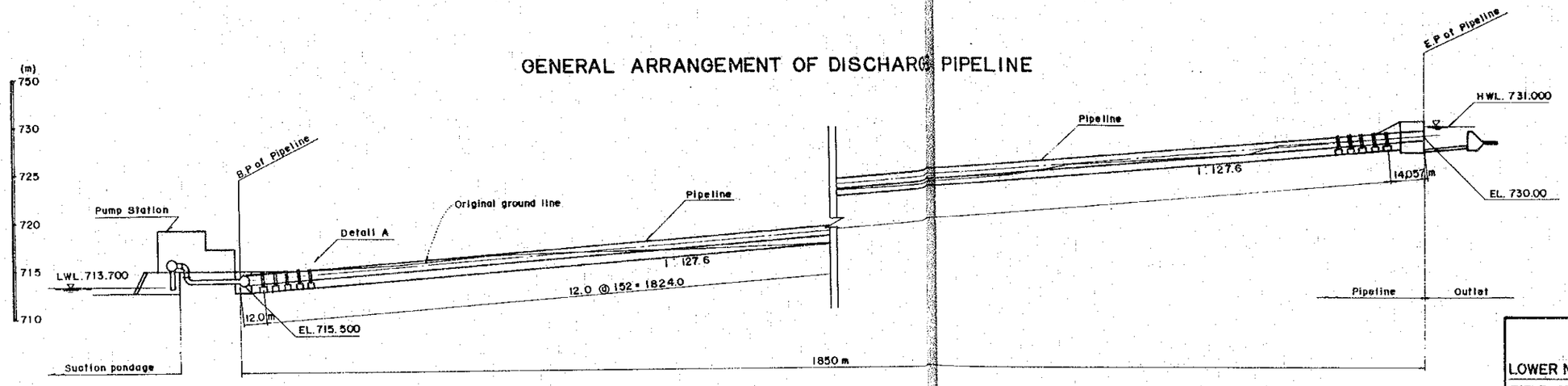


SECTION B

TYPICAL CROSS SECTION OF INLET CHANNEL



GENERAL ARRANGEMENT OF DISCHARGE PIPELINE



PROFILE

THE UNITED REPUBLIC OF TANZANIA
KILIMANJARO REGION

LOWER MOSHI AGRICULTURAL DEVELOPMENT PROJECT

TITLE OF DRAWING

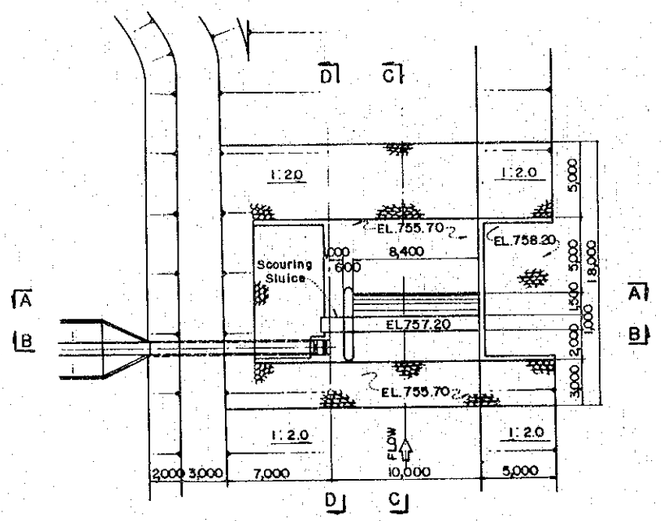
MIWALENI PUMP STATION 2/2

JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO

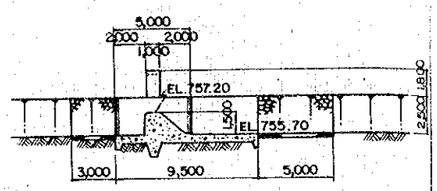
DWG. NO.
2 - 02

PLATE NO. 20

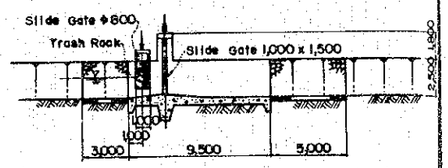
UPPER MABOGINI INTAKE WEIR



PLAN



SECTION C-C



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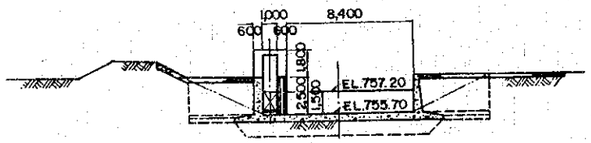
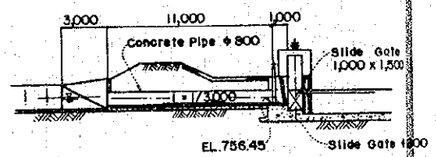


SECTION A-A



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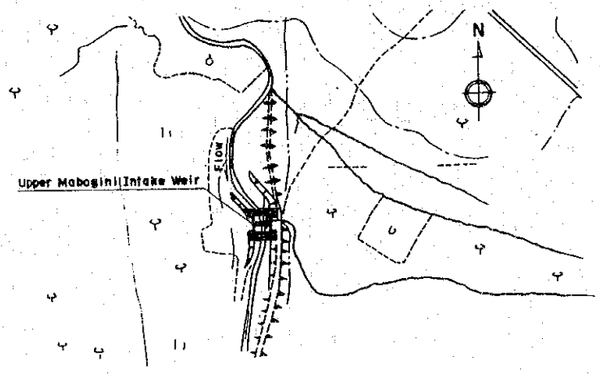
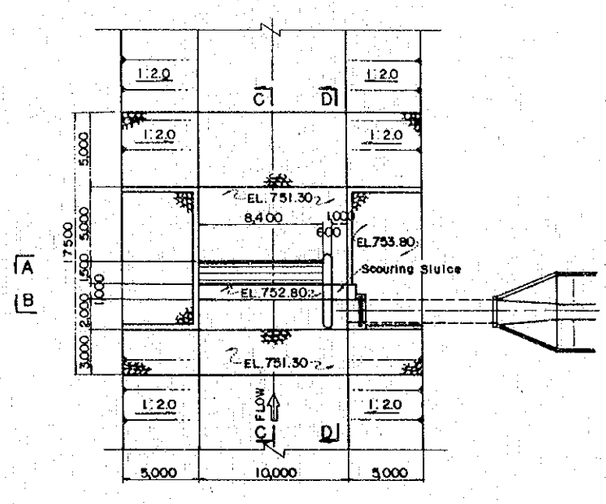


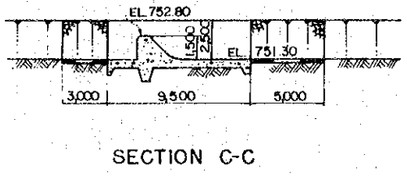
KEY PLAN

SCALE
0 100m

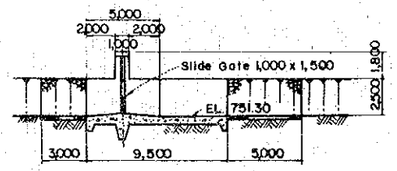
MABOGINI INTAKE WEIR.



PLAN



SECTION C-C



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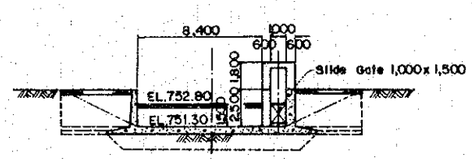
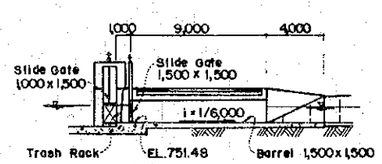


SECTION A-A



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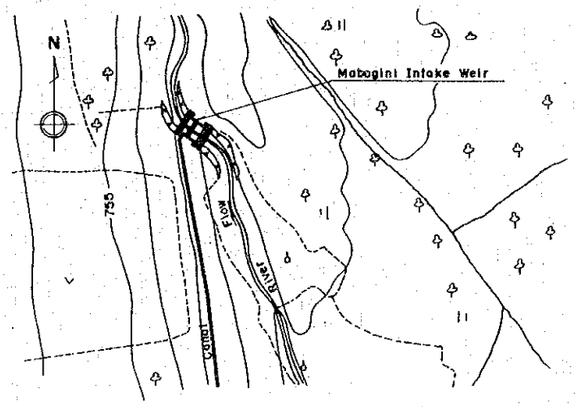


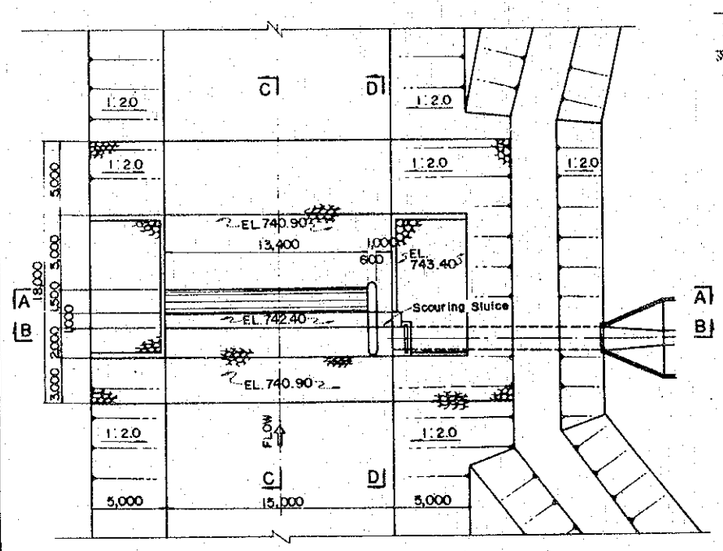
KEY PLAN

SCALE
0 100m

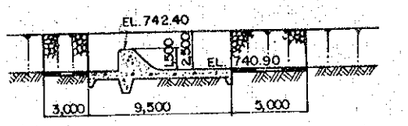
THE UNITED REPUBLIC OF TANZANIA KILIMANJARO REGION LOWER MOSHI AGRICULTURAL DEVELOPMENT PROJECT	
TITLE OF DRAWING INTAKE WEIR 1/2	
JAPAN INTERNATIONAL COOPERATION AGENCY TOKYO	DWG. NO. 2 - 03

PLATE NO. 21

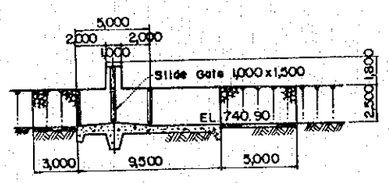
RAU YA KATI INTAKE WEIR



PLAN



SECTION C-C



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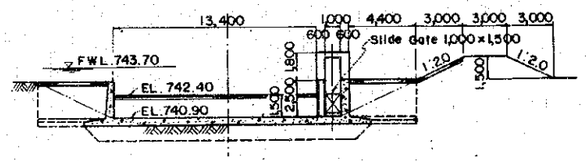
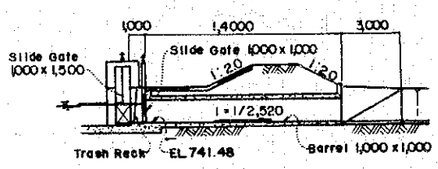


SECTION A-A



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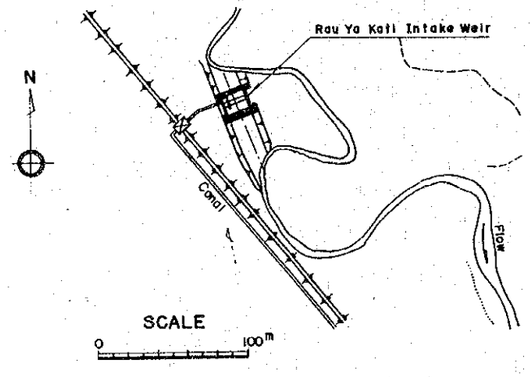
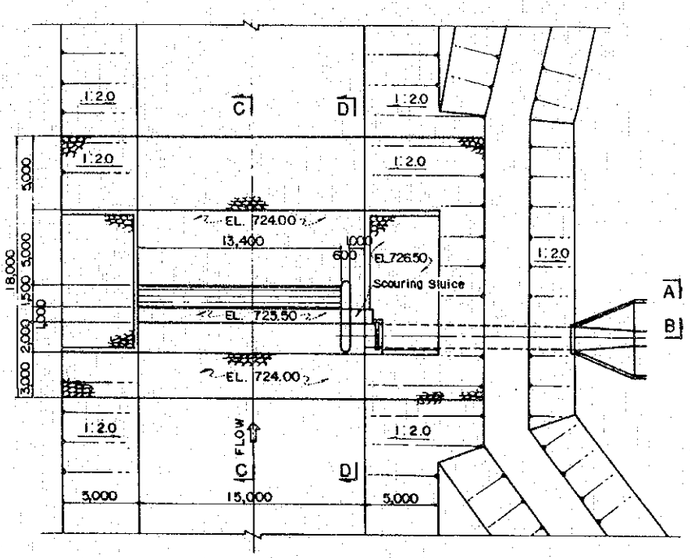
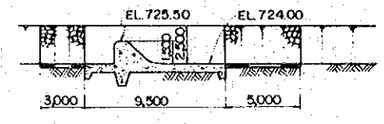


KEY PLAN

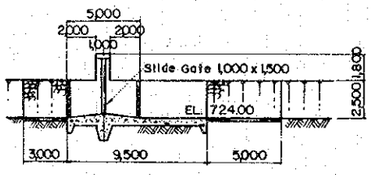
CHEKERENI INTAKE WEIR



PLAN



SECTION C-C



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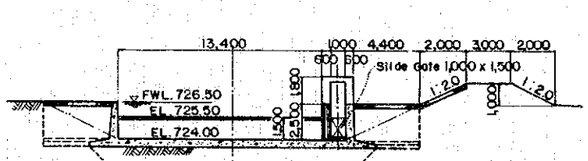

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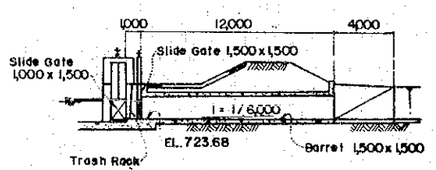
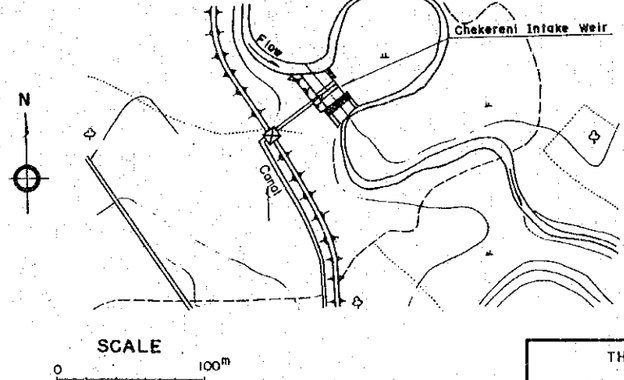


SECTION B-B



KEY PLAN

THE UNITED REPUBLIC OF TANZANIA
KILIMANJARO REGION

LOWER MOSHI AGRICULTURAL DEVELOPMENT PROJECT

TITLE OF DRAWING

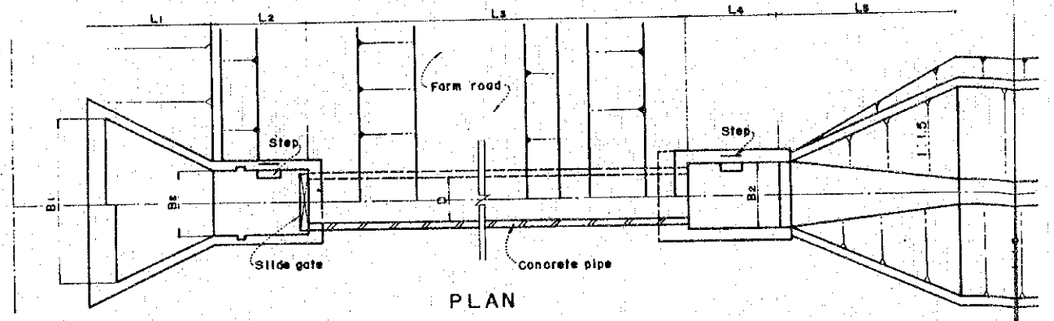
INTAKE WEIR 2/2

JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO

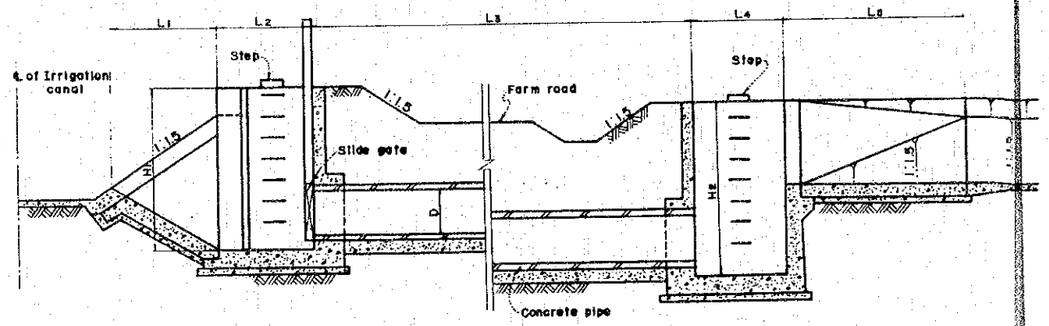
DWG. NO. 2 - 04

PLATE NO. 22

TURNOUT
TYPE – A

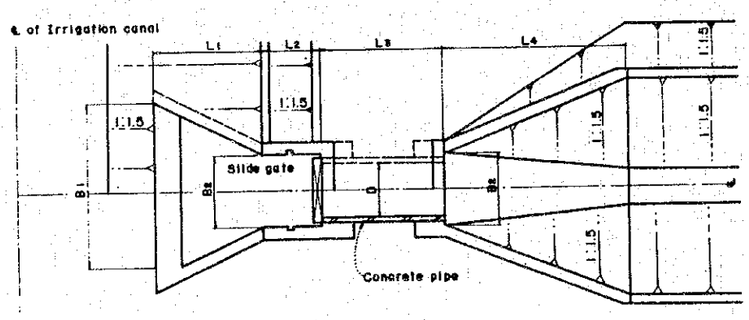


PLAN

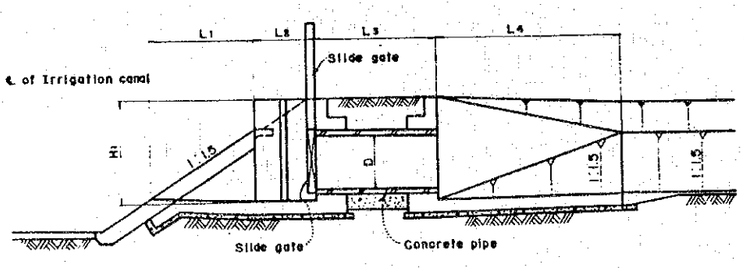


PROFILE

TYPE – B

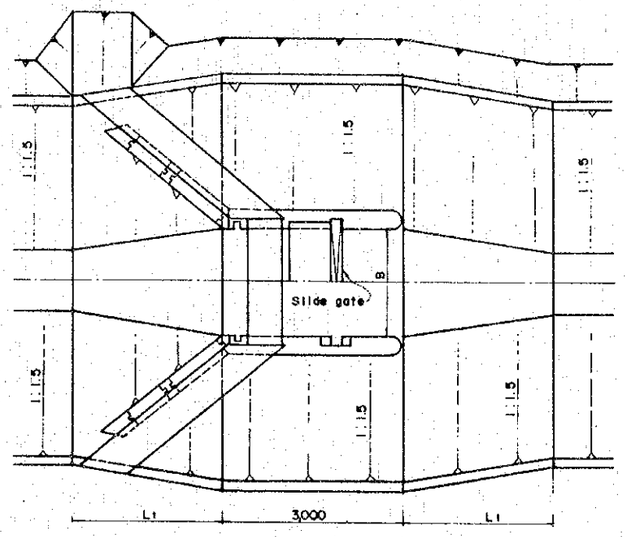


PLAN

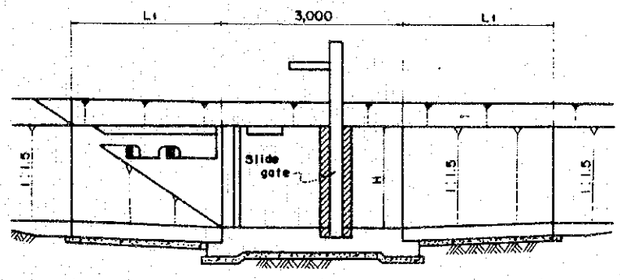


PROFILE

CHECK



PLAN



PROFILE

DIMENSION TABLE

TURNOUT (mm)					
	TYPE - A			TYPE - B	
D	L2	L4	B2	L2	B2
400	800	800	600	800	600
500	900	900	700	900	700
600	1,100	1,050	800	1,100	850
700	1,300	1,200	1,000	1,300	1,000
800	1,400	1,300	1,100	1,400	1,100

THE UNITED REPUBLIC OF TANZANIA
KILIMANJARO REGION
LOWER MOSHI AGRICULTURAL DEVELOPMENT PROJECT

TITLE OF DRAWING

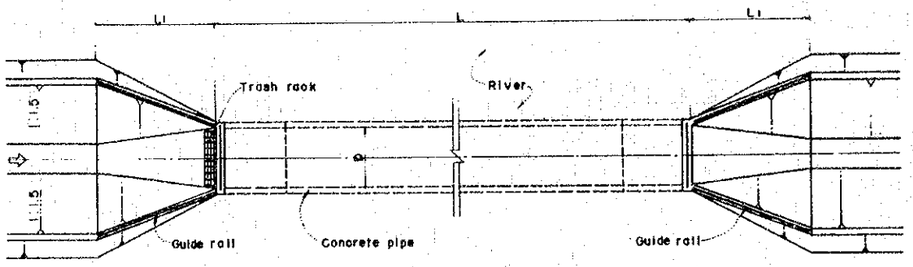
TURNOUT & CHECK

JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO

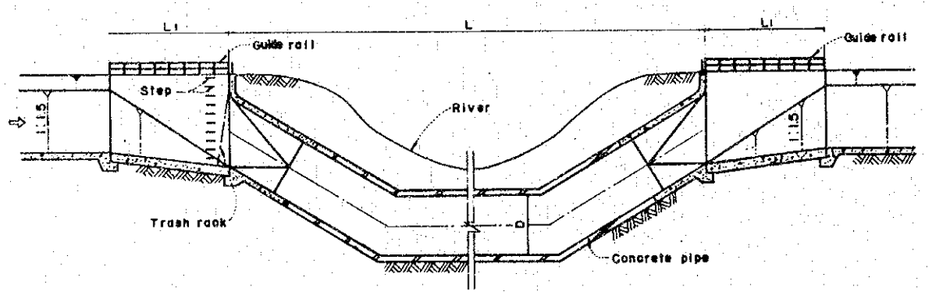
DWG. NO. 2-05

PLATE NO. 23

SIPHON

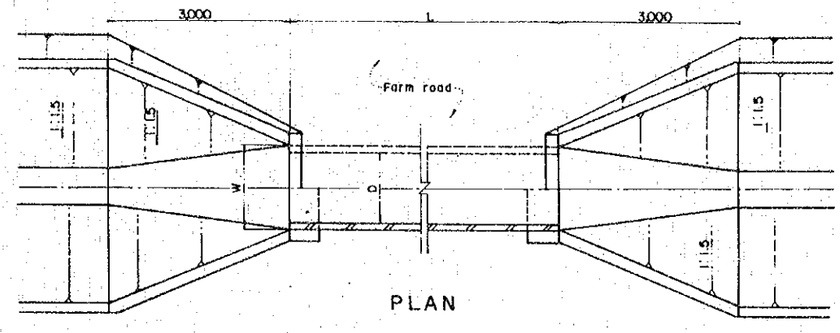


PLAN

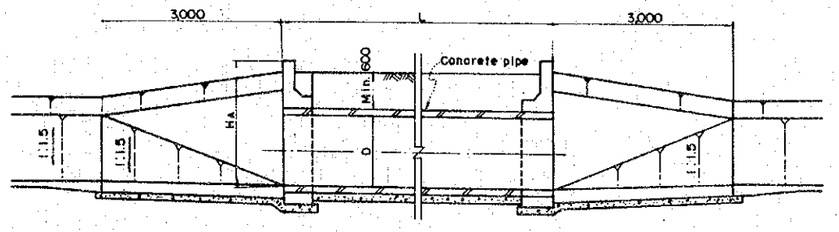


PROFILE

CULVERT

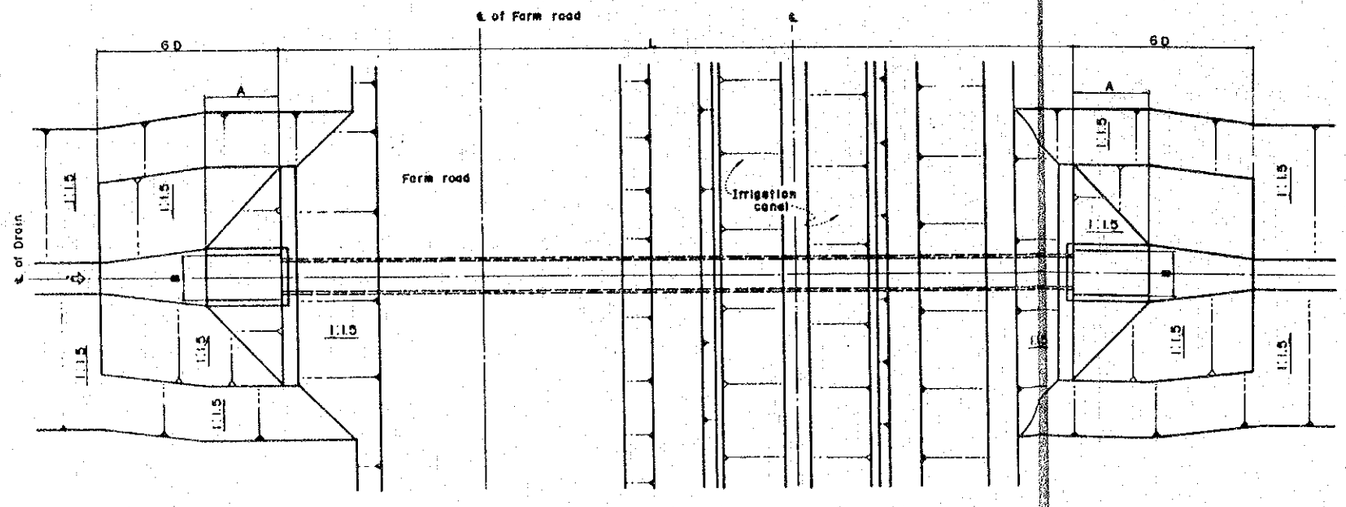


PLAN

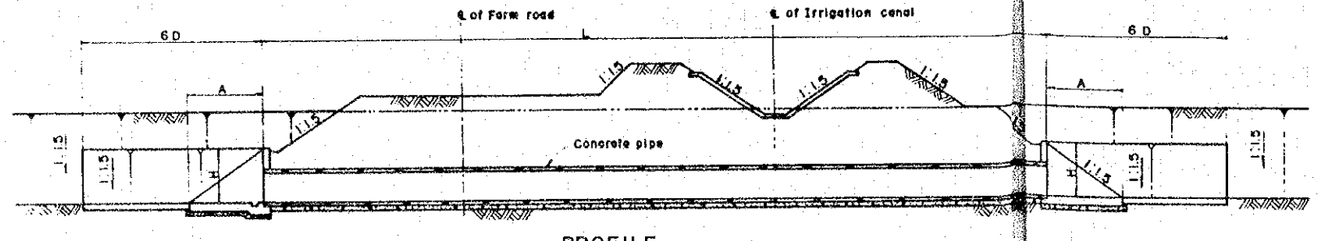


PROFILE

CROSSDRAIN



PLAN



PROFILE

DIMENSION TABLE

SIHON. (mm)	
D	L
700	3,000
800	3,000
900	3,500
1,000	4,000

CROSSDRAIN (mm)			
D	A	B	H
500	900	700	750
600	1,125	850	900
700	1,350	1,000	1,000
800	1,500	1,100	1,100
900	1,725	1,250	1,250
1,000	1,950	1,400	1,400

CULVERT (mm)		
D	W	HA
300	360	1,100
400	480	1,200
500	600	1,300
600	720	1,400
700	840	1,500
800	960	1,600
900	1,080	1,700
1,000	1,200	1,800

THE UNITED REPUBLIC OF TANZANIA
KILIMANJARO REGION
LOWER MOSHI AGRICULTURAL DEVELOPMENT PROJECT

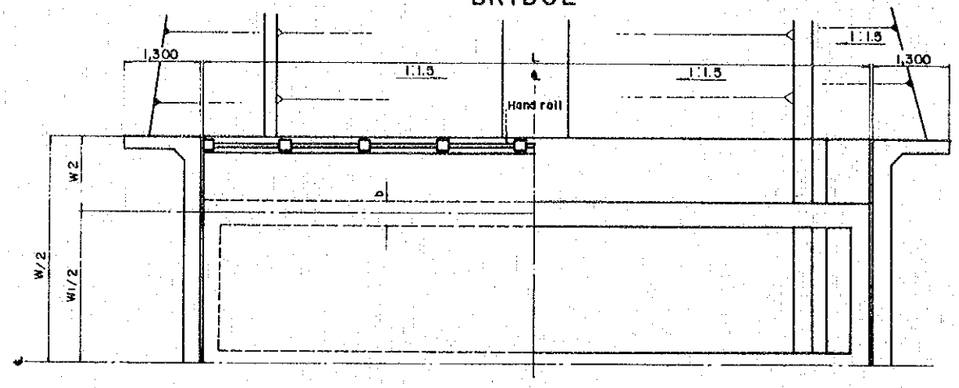
TITLE OF DRAWING

SIPHON, CROSSDRAIN & CULVERT

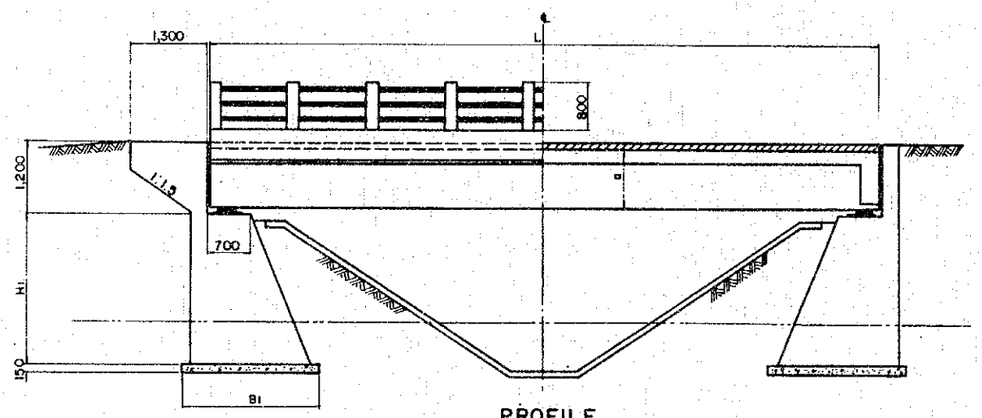
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO

DWG. NO. 2 - 06

BRIDGE

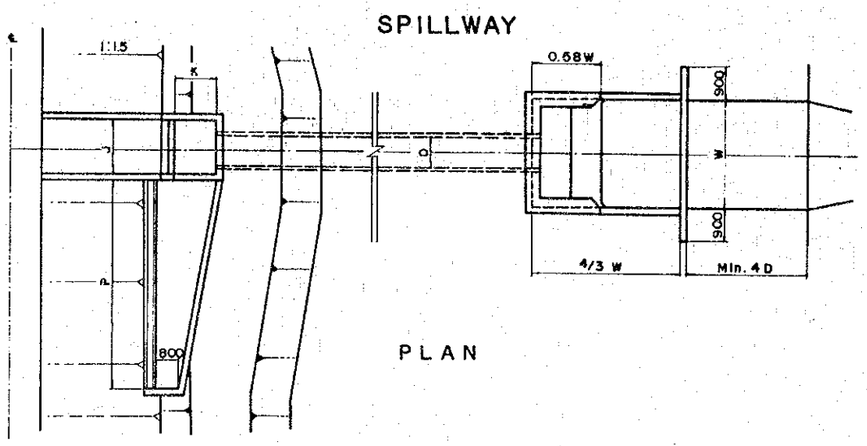


PLAN

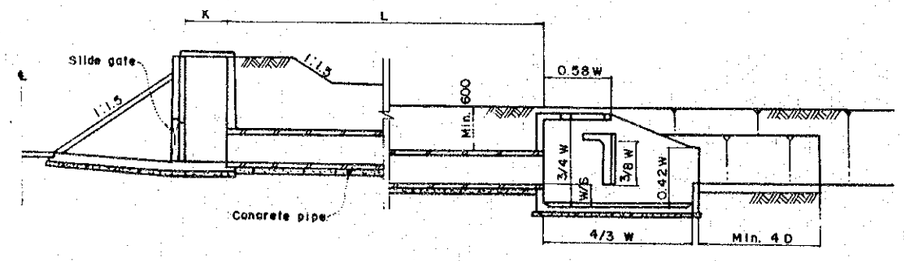


PROFILE

SPILLWAY

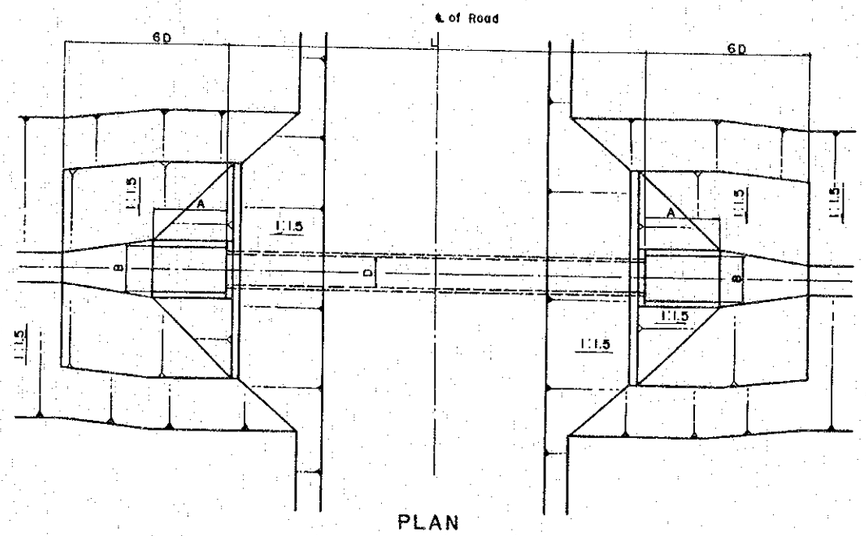


PLAN

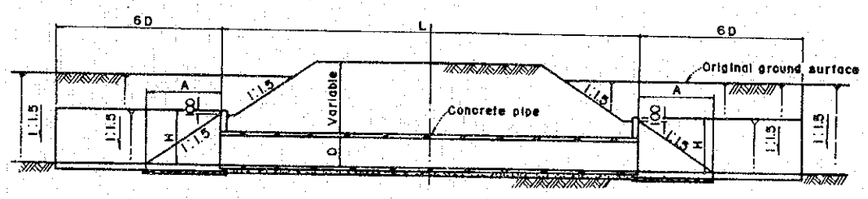


PROFILE

DRAINAGE CULVERT



PLAN



PROFILE

DIMENSION TABLE

DRAINAGE CULVERT (mm)			
D	A	B	H
400	750	600	600
500	900	700	750
600	1,125	850	900
700	1,350	1,000	1,000
800	1,500	1,100	1,100

SPILLWAY (mm)			
D	J	K	W
400	600	1,000	1,200
500	700	1,100	1,500
600	850	1,200	1,700

THE UNITED REPUBLIC OF TANZANIA
KILIMANJARO REGION
LOWER MOSHI AGRICULTURAL DEVELOPMENT PROJECT

TITLE OF DRAWING

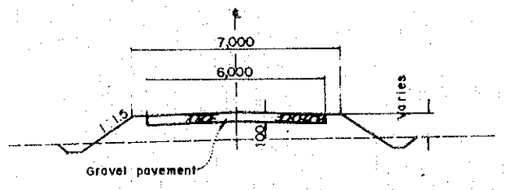
BRIDGE, SPILLWAY & DRAINAGE CULVERT

JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO

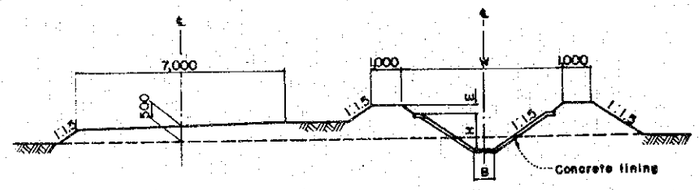
DWG. NO. 2-07

PLATE NO. 25

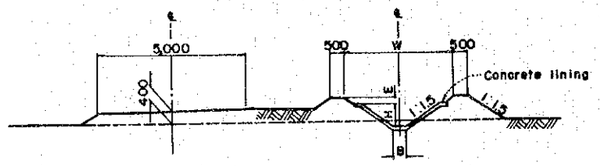
CROSS SECTION OF ROAD AND CANAL



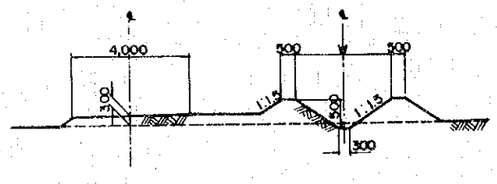
TRUNK FARM ROAD



MAIN FARM ROAD MAIN CANAL



SECONDARY FARM ROAD SECONDARY CANAL



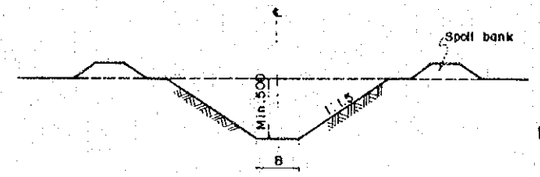
TERTIARY FARM ROAD TERTIARY CANAL

DIMENSION TABLE OF CANAL

TYPE	B (m)	h max(m)	H (m)	f (m)	W (m)
A1	0.60	0.90	1.10	0.30	5.00
A2	〃	0.80	1.00	〃	4.70
B1	0.40	0.65	0.85	0.20	3.70
B2	〃	0.55	0.75	〃	3.40
C1	0.30	0.48	0.70	0.20	3.15
C2	〃	0.35	0.55	〃	2.70

h max : maximum water depth

CROSS SECTION OF DRAIN

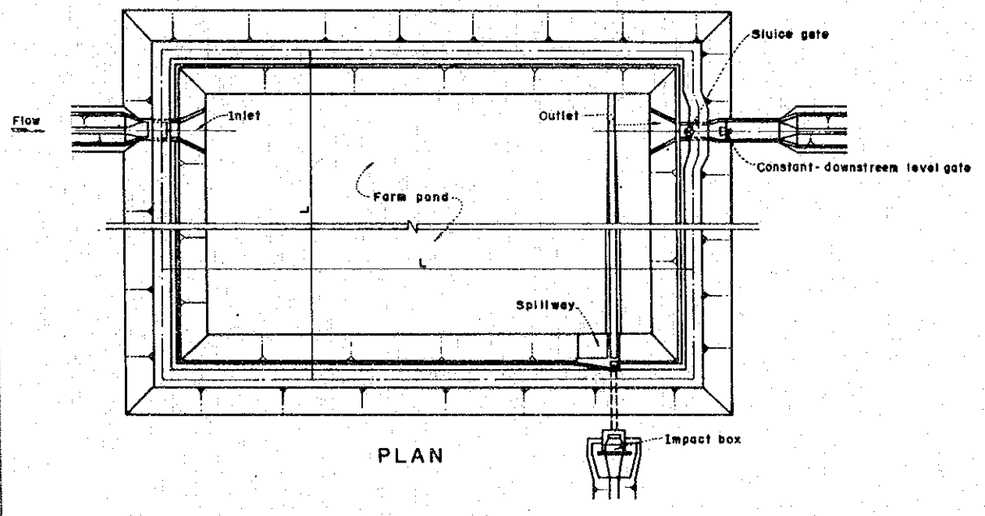


DRAIN

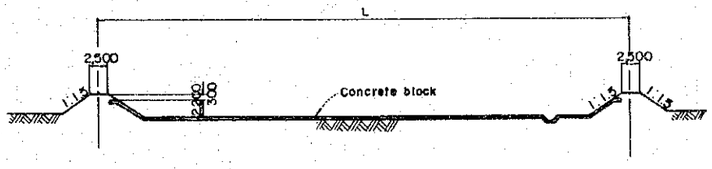
DIMENSION TABLE OF DRAIN

NAME OF DRAIN	B (m)
Main	2.0 ~ 1.0
Secondary	1.0 ~ 0.5
Tertiary	0.5 ~ 0.3

FARM POND



PLAN



PROFILE

THE UNITED REPUBLIC OF TANZANIA
KILIMANJARO REGION
LOWER MOSHI AGRICULTURAL DEVELOPMENT PROJECT

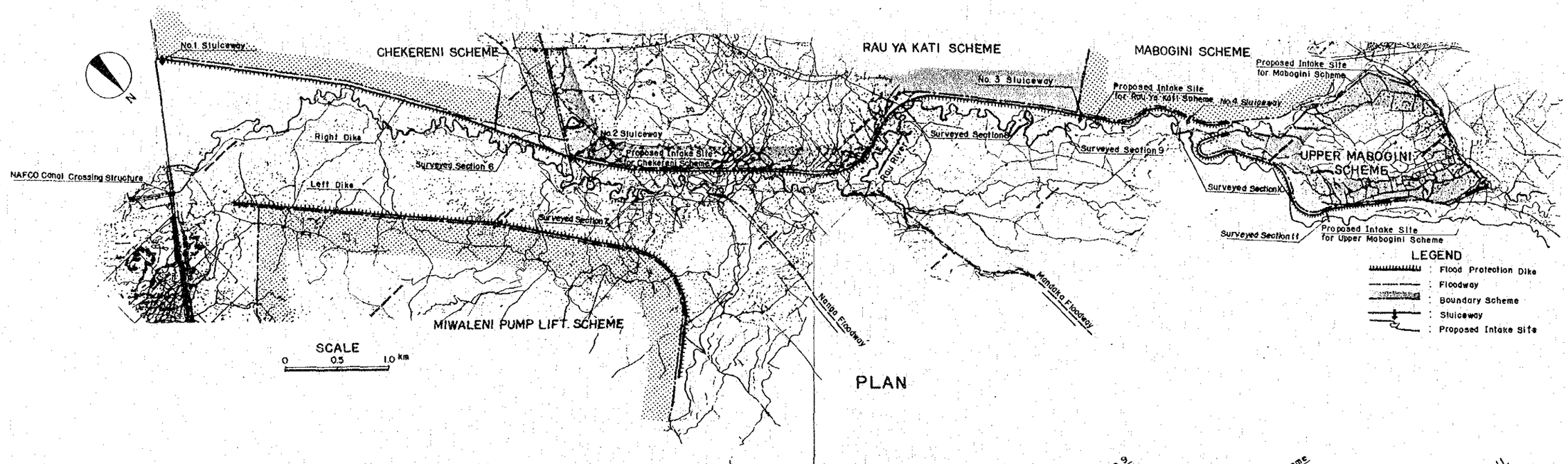
TITLE OF DRAWING

TYPICAL CROSS SECTION OF ROAD, CANAL & DRAIN, AND FARM POND

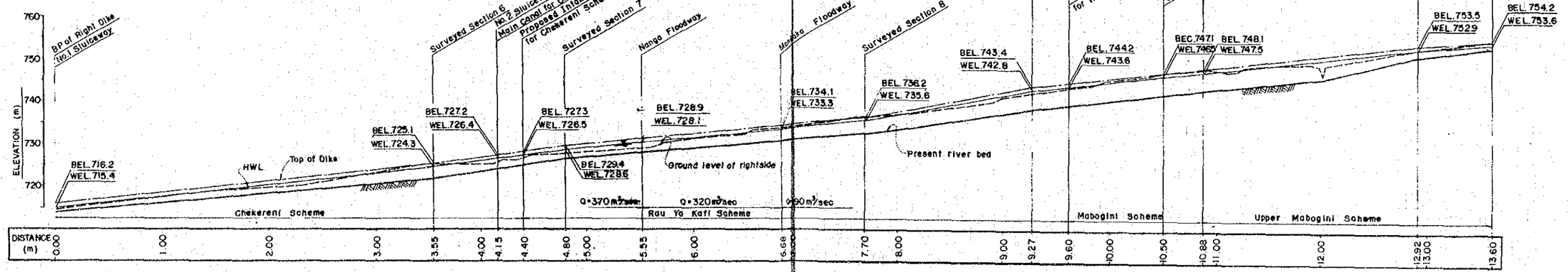
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO

DWG. NO. 2 - 08

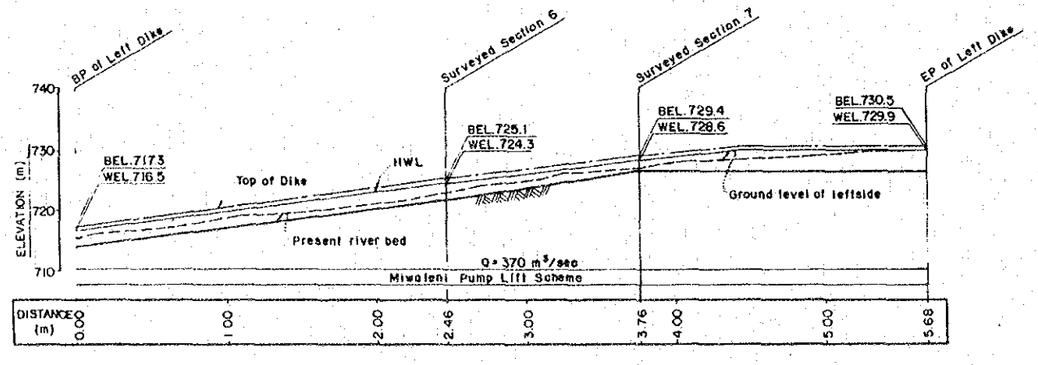
PLATE NO. 28



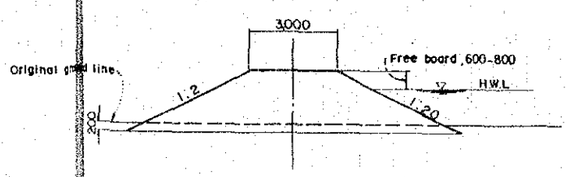
PLAN



PROFILE

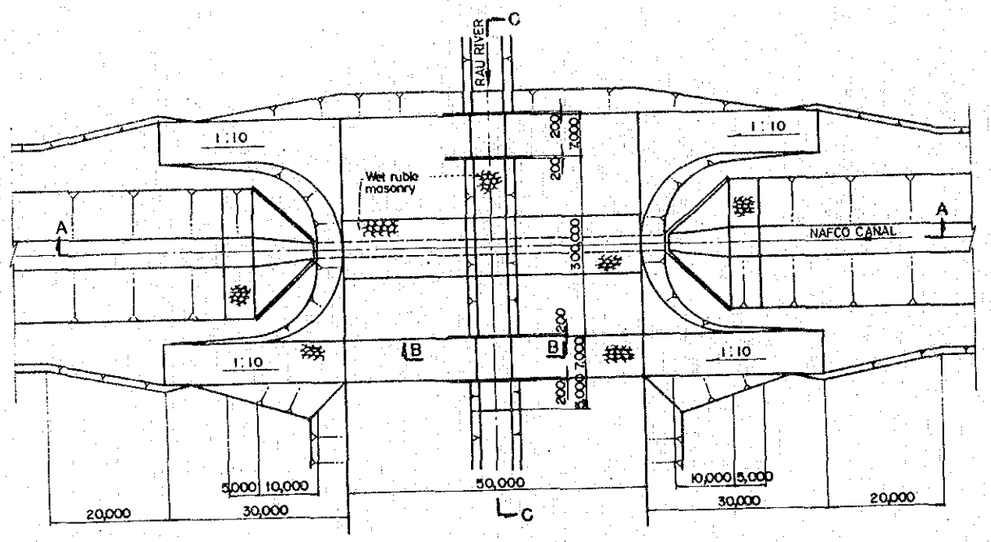


TYPICAL CROSS SECTION OF DIKE

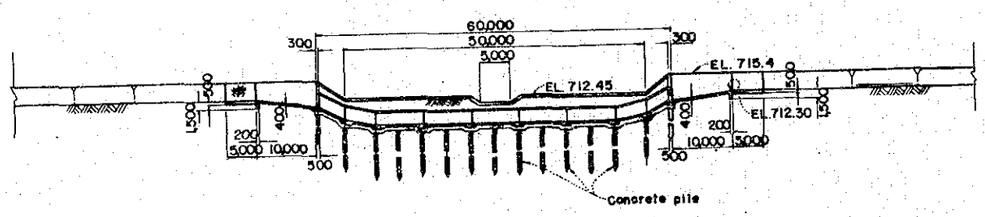


THE UNITED REPUBLIC OF TANZANIA
KILIMANJARO REGION
LOWER MOSHI AGRICULTURAL DEVELOPMENT PROJECT
TITLE OF DRAWING
RAU RIVER FLOOD PROTECTION
1/2
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO
DWG.NO.
3-01

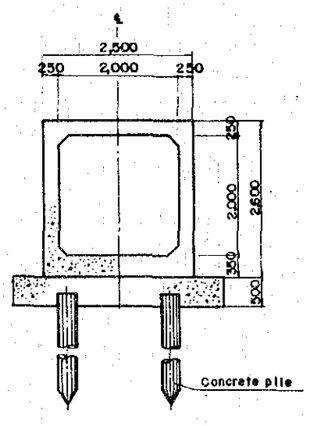
NAFCO CANAL CROSSING STRUCTURE



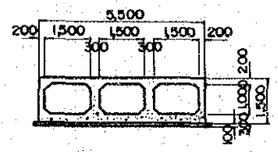
PLAN



SECTION A-A



BOX SECTION



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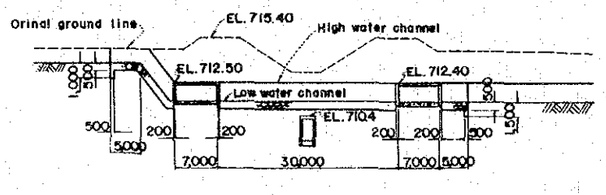
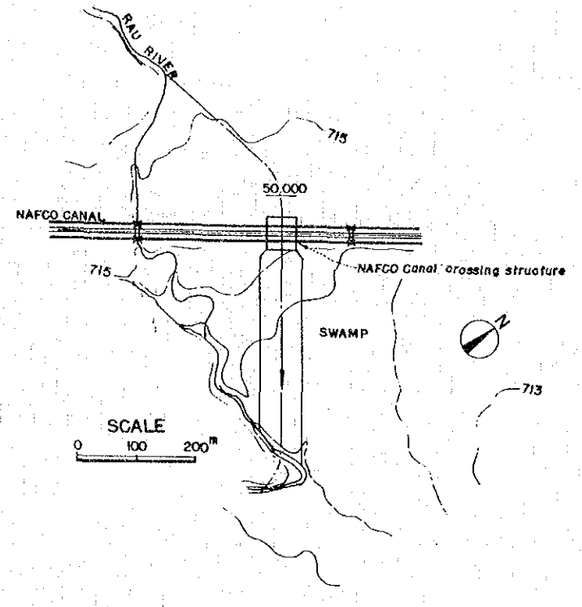
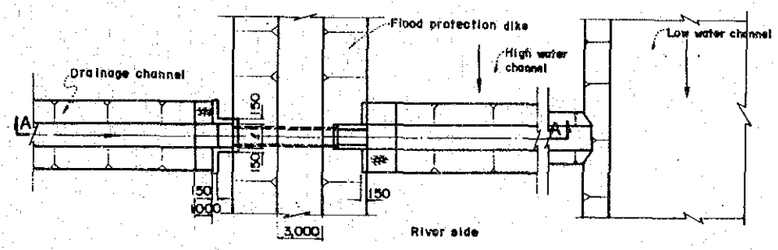


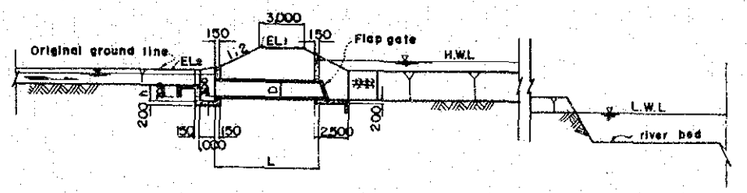
SECTION C-C



SLUICEWAY



SECTION A-A



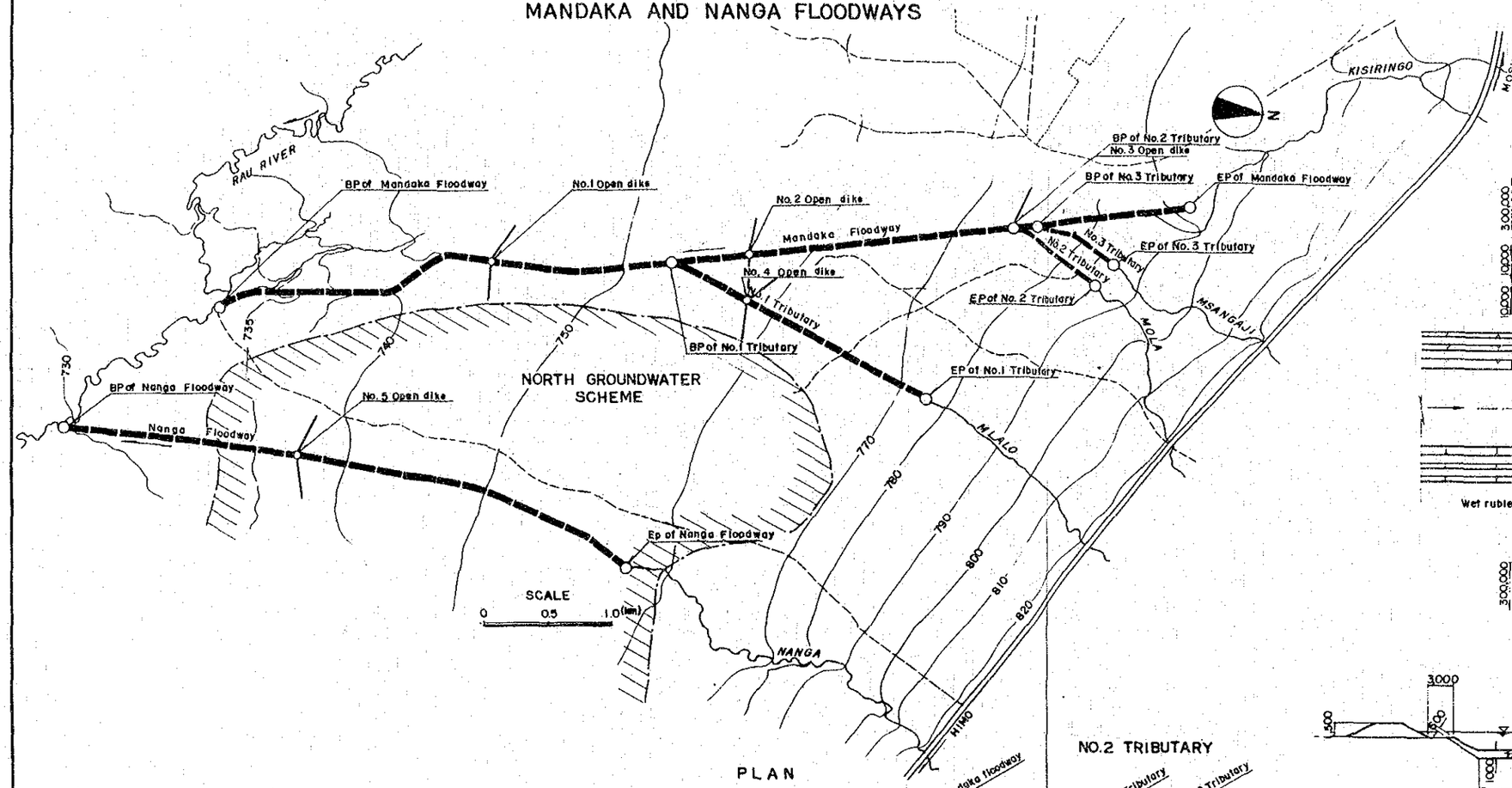
DIMENSION TABLE OF SLUICEWAY

Name	EL.1	EL.2	Discharge (m^3/sec)	D (mm)	L (m)	h (mm)	ℓ (m)
No. 1 Sluiceway	715.8	714.5	4.5	1,300×1,300	7	1,100	2.0
No. 2 Sluiceway	727.2	725.5	2.4	1,000	8	1,000	1.7
No. 3 Sluiceway	744.5	743.0	1.1	800	8	1,000	1.5
No. 4 Sluiceway	747.0	746.5	0.2	500	6	600	1.1

THE UNITED REPUBLIC OF TANZANIA
KILIMANJARO REGION
LOWER MOSHI AGRICULTURAL DEVELOPMENT PROJECT
TITLE OF DRAWING
RAU RIVER FLOOD PROTECTION
2/2
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO
DWG. NO.
3-02

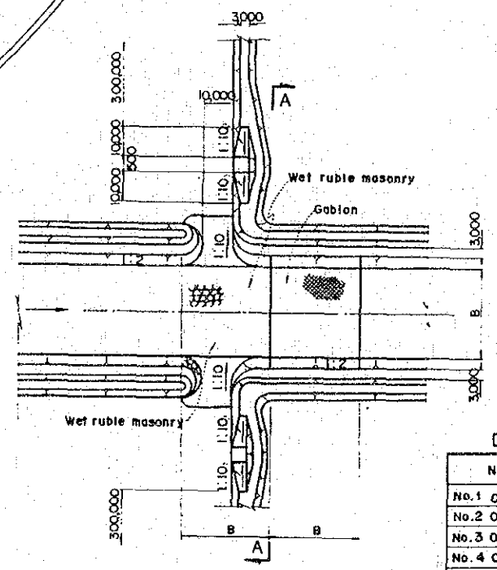
PLATE NO.28

MANDAKA AND NANGA FLOODWAYS



PLAN

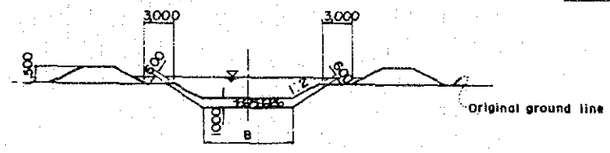
OPEN DIKE



PLAN

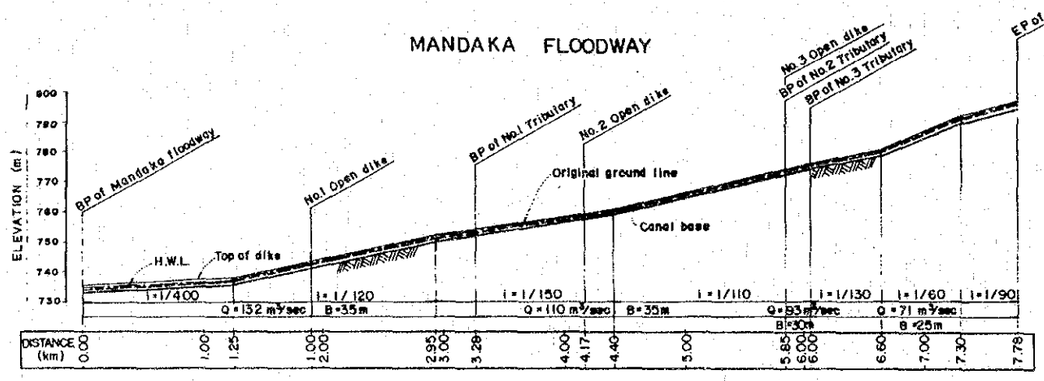
DIMENSION TABLE

Name	B (m)	Remarks
No.1 Open dike	35	Mandaka floodway
No.2 Open dike	35	-do-
No.3 Open dike	35	-do-
No.4 Open dike	15	-do-
No.5 Open dike	20	Nanga floodway
No.6 Open dike	20	Miwaleni floodway

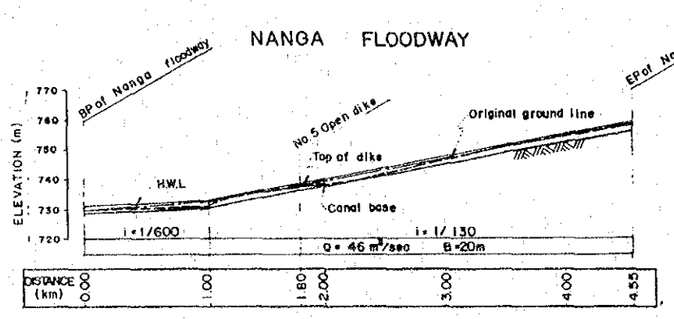


SECTION A-A

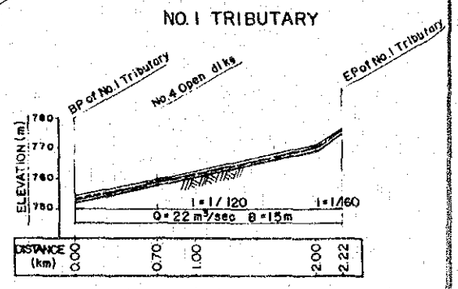
MANDAKA FLOODWAY



NANGA FLOODWAY



NO.1 TRIBUTARY



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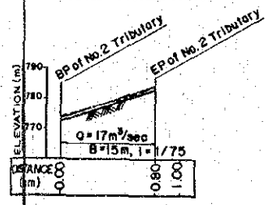

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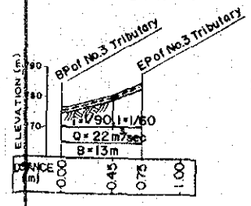
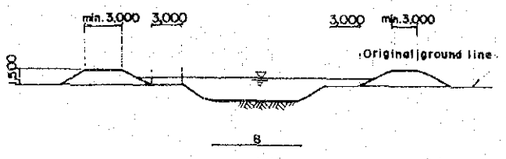
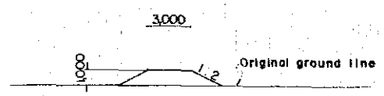


TYPICAL CROSS SECTION OF FLOODWAY



TYPICAL CROSS SECTION OF DIKE



THE UNITED REPUBLIC OF TANZANIA
KILIMANJARO REGION
LOWER MOSHI AGRICULTURAL DEVELOPMENT PROJECT

TITLE OF DRAWING

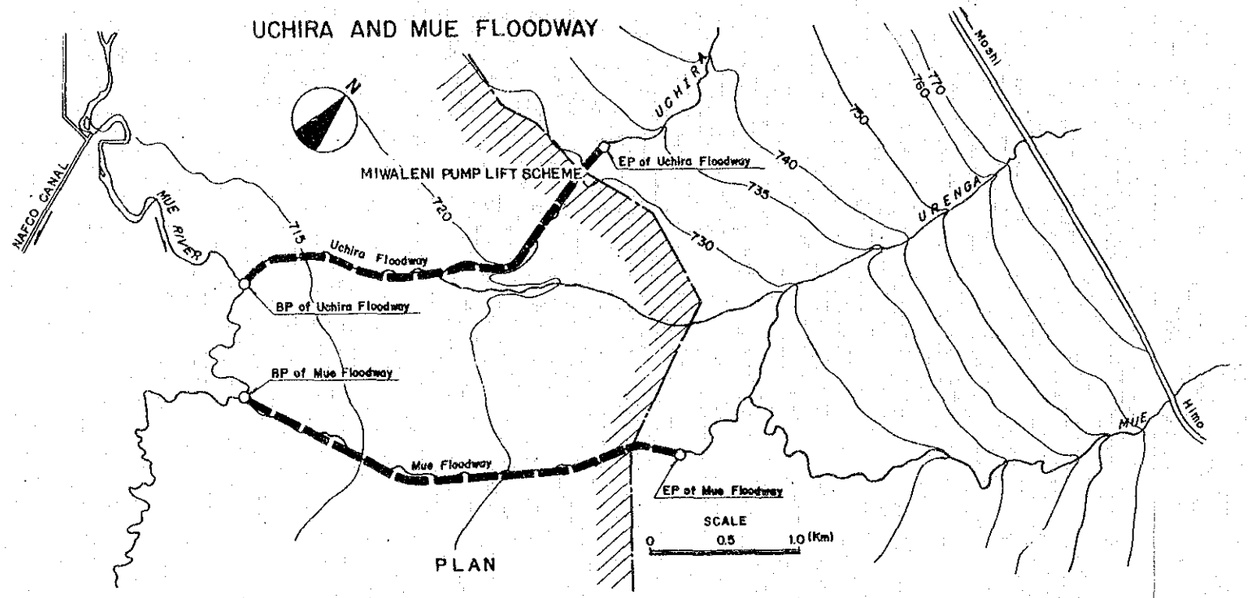
MANDAKA & NANGA FLOODWAYS

JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO

DWG. NO. 3-03

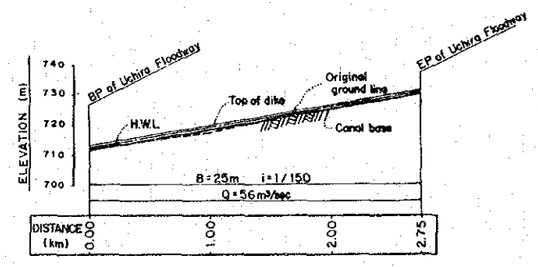
PLATE NO. 29

UCHIRA AND MUE FLOODWAY

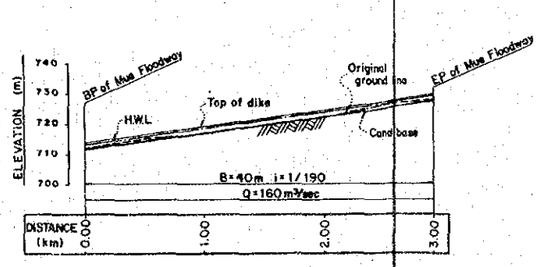


PLAN

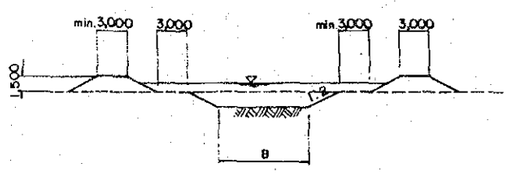
UCHIRA FLOODWAY



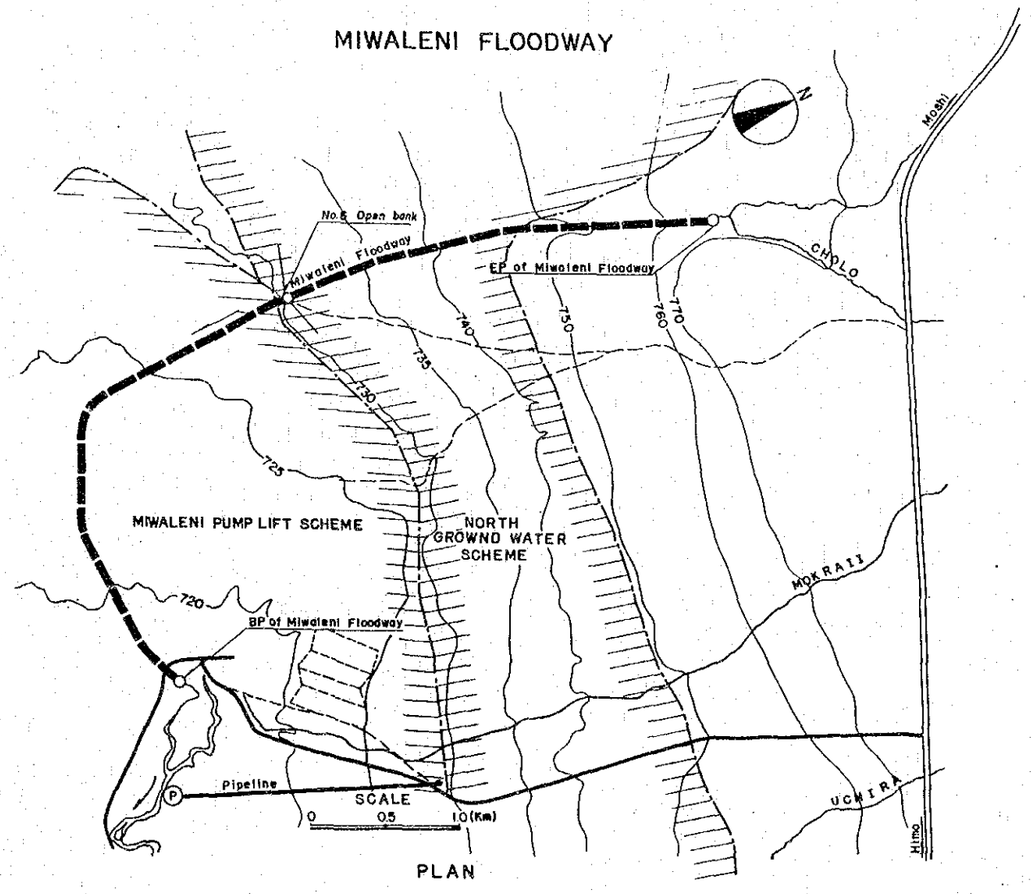
MUE FLOODWAY



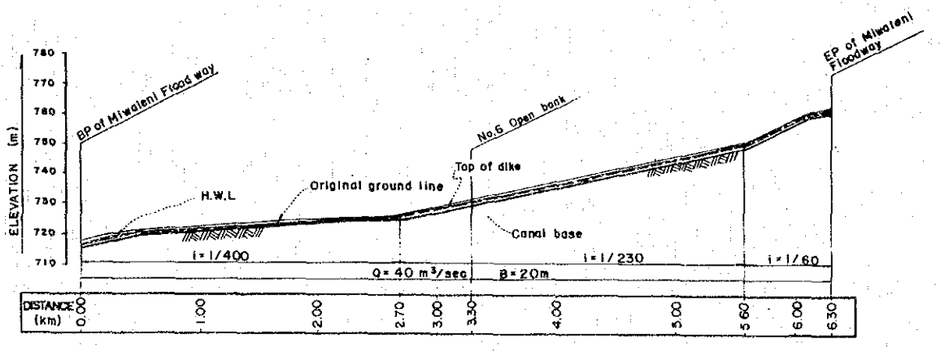
TYPICAL CROSS SECTION OF FLOODWAY



MIWALENI FLOODWAY



PLAN



PROFILE

THE UNITED REPUBLIC OF TANZANIA
KILIMANJARO REGION

LOWER MOSHI AGRICULTURAL DEVELOPMENT PROJECT

TITLE OF DRAWING

MIWALENI & MUE FLOODWAYS

JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO

DWG.NO. 3-04