

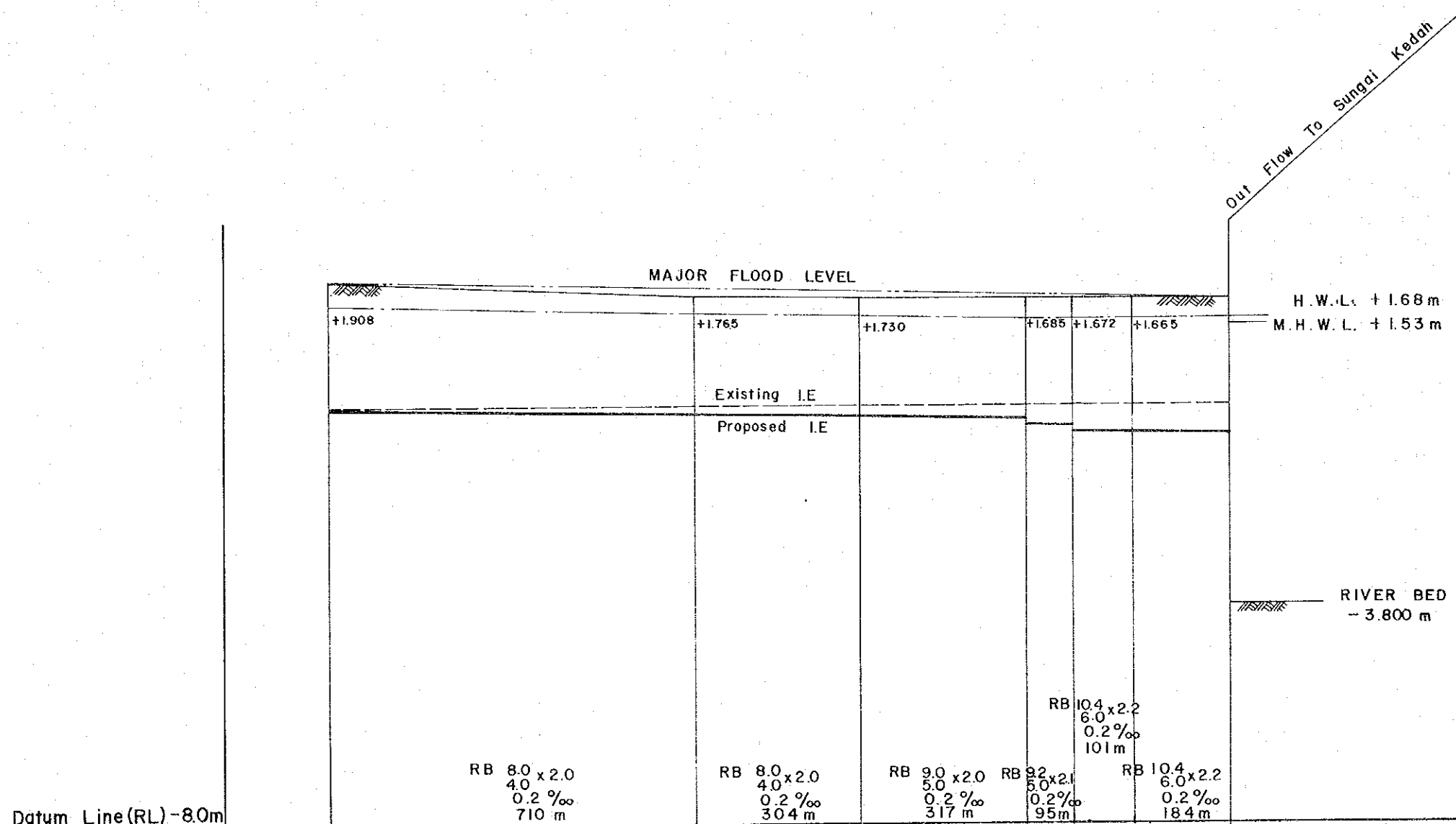
ANNEX B

SUPPLEMENTAL FIGURES AND
TABLES FOR DRAINAGE SYSTEM
PLANNING

TRUNK DRAIN IN BASIN A

LEGEND

- I. E Invert Elevation
- Water Level in Initial Storm
- ‰ 1/1000 Slope
- RB Rubble Wall Channel
- 7.0
3.0x2.0 Upper Width
7.0 m
- Bottom Width
3.0 m
- Depth
2.0 m



Point	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇
Elevation Ground Surface(m)	2.40	2.08	2.07	2.07	2.07	2.07	2.00
Sewer Invert Elevation (m)	-0.012	-0.154	-0.215	-0.278 -0.378	-0.397 -0.497	-0.517	-0.554
Total Length (m)	0.00	710	1014	1331	1426	1527	1711

Refer to FIGURE 4.4

Scale : Horizontal 1:25,000
Vertical 1:100

MASTER PLAN AND FEASIBILITY STUDY FOR
SEWERAGE AND DRAINAGE SYSTEM PROJECT IN
ALOR SETAR AND ITS URBAN ENVIRONS
PROFILE OF TRUNK DRAIN

FIGURE
B.1

TABLE B-1

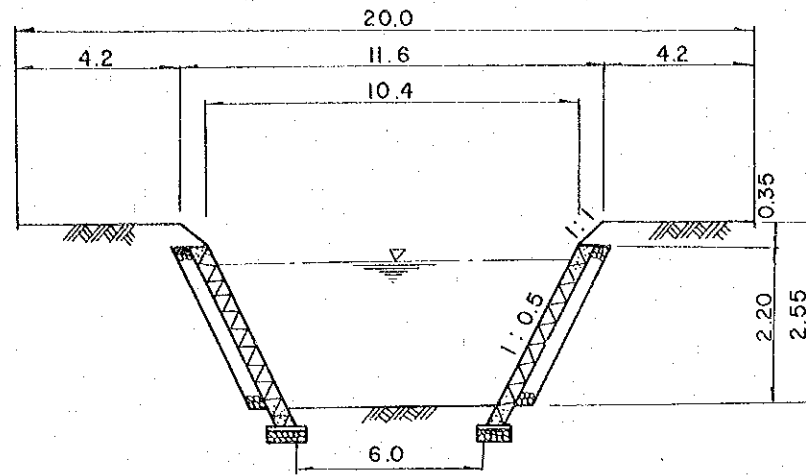
Analysis of Proposed Drainage System

Line NO.	Year 1979				Year 2000				Details of Proposed Drains to accept runoff						Existing Drain		Runoff Major Storm m ³ /S	Reserve Width m
	Total Area ha	Runoff Coefficient	Storage Coefficient	Runoff m ³ /S	Total Area ha	Runoff Coefficient	Storage Coefficient	Runoff m ³ /S	Length m	Slope of Sewer ‰	Velocity m/S	Time of Concentration min	Capacity m ³ /S	Size m	Size m	Capacity m ³ /S		
Contributing area	• 15.9	0.3			◦ 60.9	0.65						45.8						
A1 - A2	• 9.7 2.7	0.3 0.4	0.80	1.655	6.8	0.65	0.91	9.571	710	0.2	1.03	57.3	10.794	RB 8.0 4.0 x 2.0	E 15.0 7.0 x 2.0	5.128	14.885	30.00
A2 - A3	11.7	0.4	0.78	2.242	9.6	0.65	0.88	10.081	304	0.2	1.03	62.2	10.794	RB 8.0 4.0 x 2.0	E 14.0 7.0 x 2.0	4.140	15.808	30.00
A3 - A4	• 51.5 • 24.0	0.3 0.3	0.76	5.333	14.3	0.65	0.86	11.189	317	0.2	1.07	67.1	13.125	RB 9.0 5.0 x 2.0	E 14.0 7.0 x 2.0	4.140	17.632	30.00
A4 - A5	2.2	0.4	0.75	5.333	19.9 1.0	0.65 0.85	0.86	13.621	95	0.2	1.10	68.5	14.448	RB 9.2 5.0 x 2.1	E 14.0 7.0 x 2.0	4.140	21.489	30.00
A5 - A6	13.9	0.4	0.75	5.759	◦ 6.5 8.0 2.3	0.65 0.65 0.85	0.85	15.335	101	0.2	1.16	70.0	18.631	RB 10.4 6.0 x 2.2	E 15.0 7.0 x 2.0	5.930	24.264	20.00
A6 - A7	4.4	0.65	0.74	5.785	◦ 11.6 1.0 13.1	0.65 0.65 0.85	0.84	18.264	184	0.2	1.16	72.6	18.631	RB 10.4 6.0 x 2.2	E 15.0 7.0 x 2.0	5.930	28.897	20.00

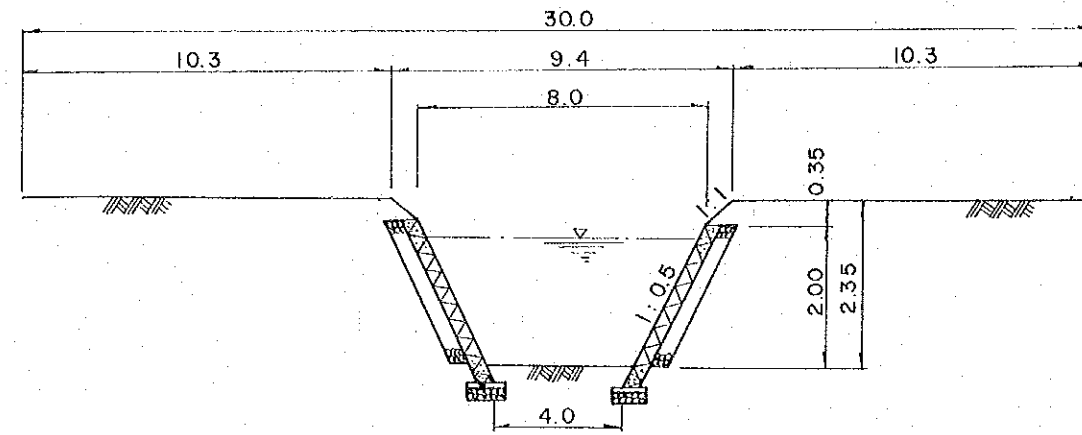
LEGEND

- E: Earth Drain
- RB: Rubble wall channel
- Paddy Field
- Contributing Area
- ‰ 1/1000

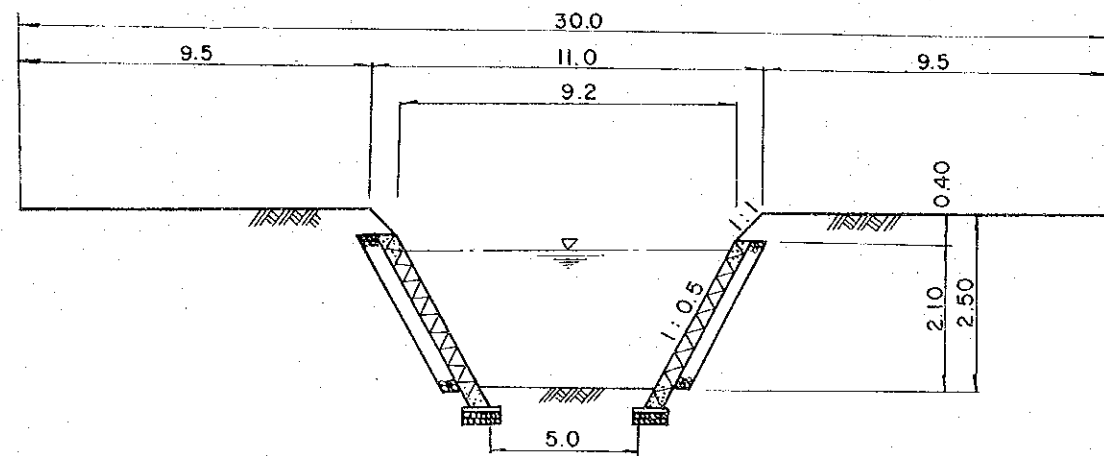
A-7 ~ A-5 (m)



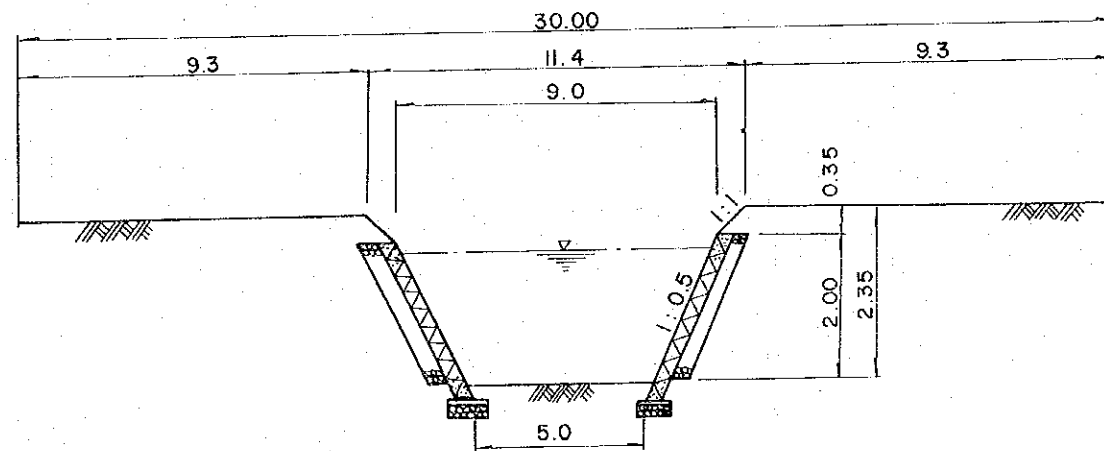
A-3 ~ A-1 (m)



A-5 ~ A-4 (m)



A-4 ~ A-3 (m)



LEGEND

- Water Level in Initial Storm
- A - 7 Section Point

Refer to FIGURE 4.4

MASTER PLAN AND FEASIBILITY STUDY FOR
SEWERAGE AND DRAINAGE SYSTEM PROJECT IN
ALOR SETAR AND ITS URBAN ENVIRONS

PROPOSED CROSS SECTION

FIGURE
B.2

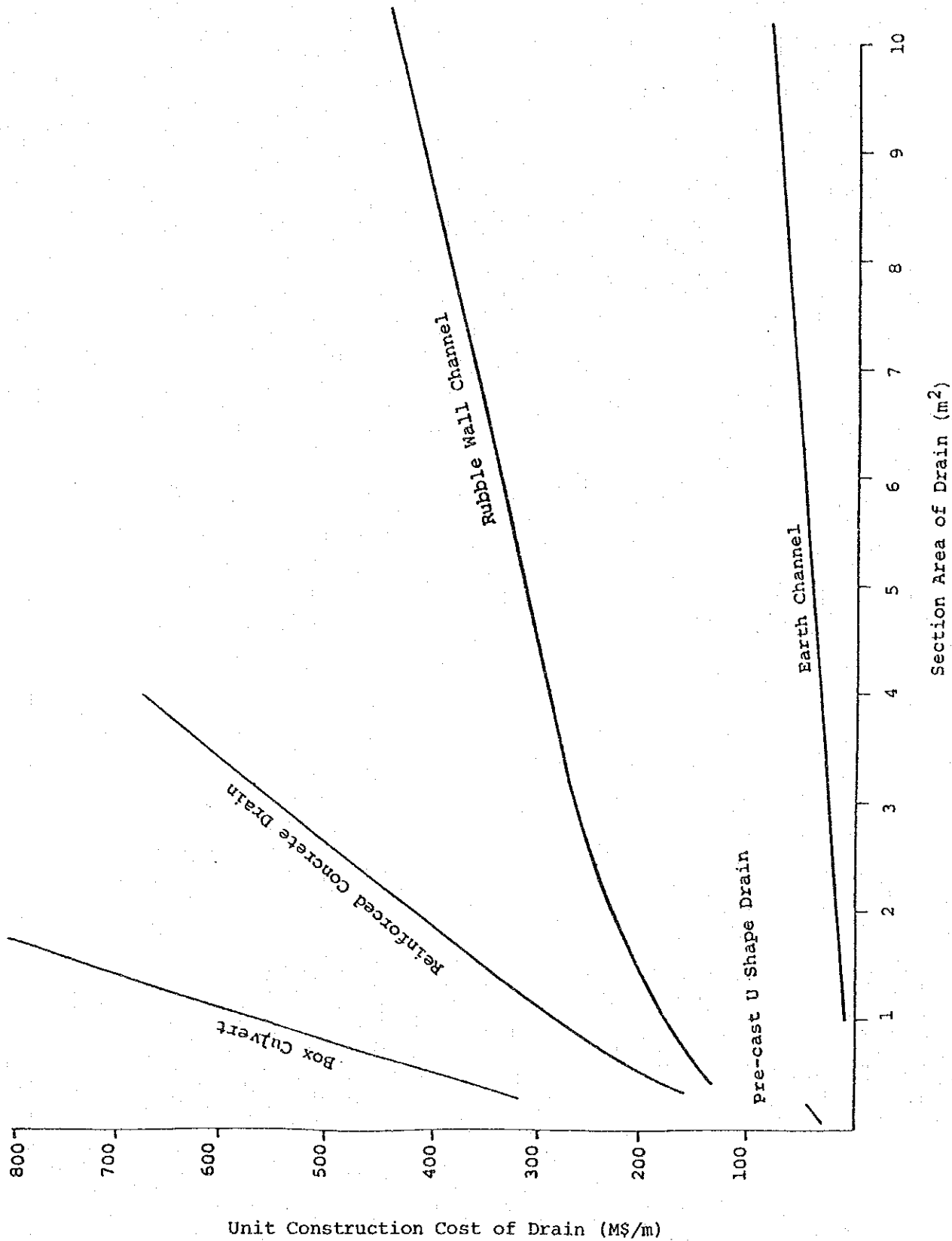
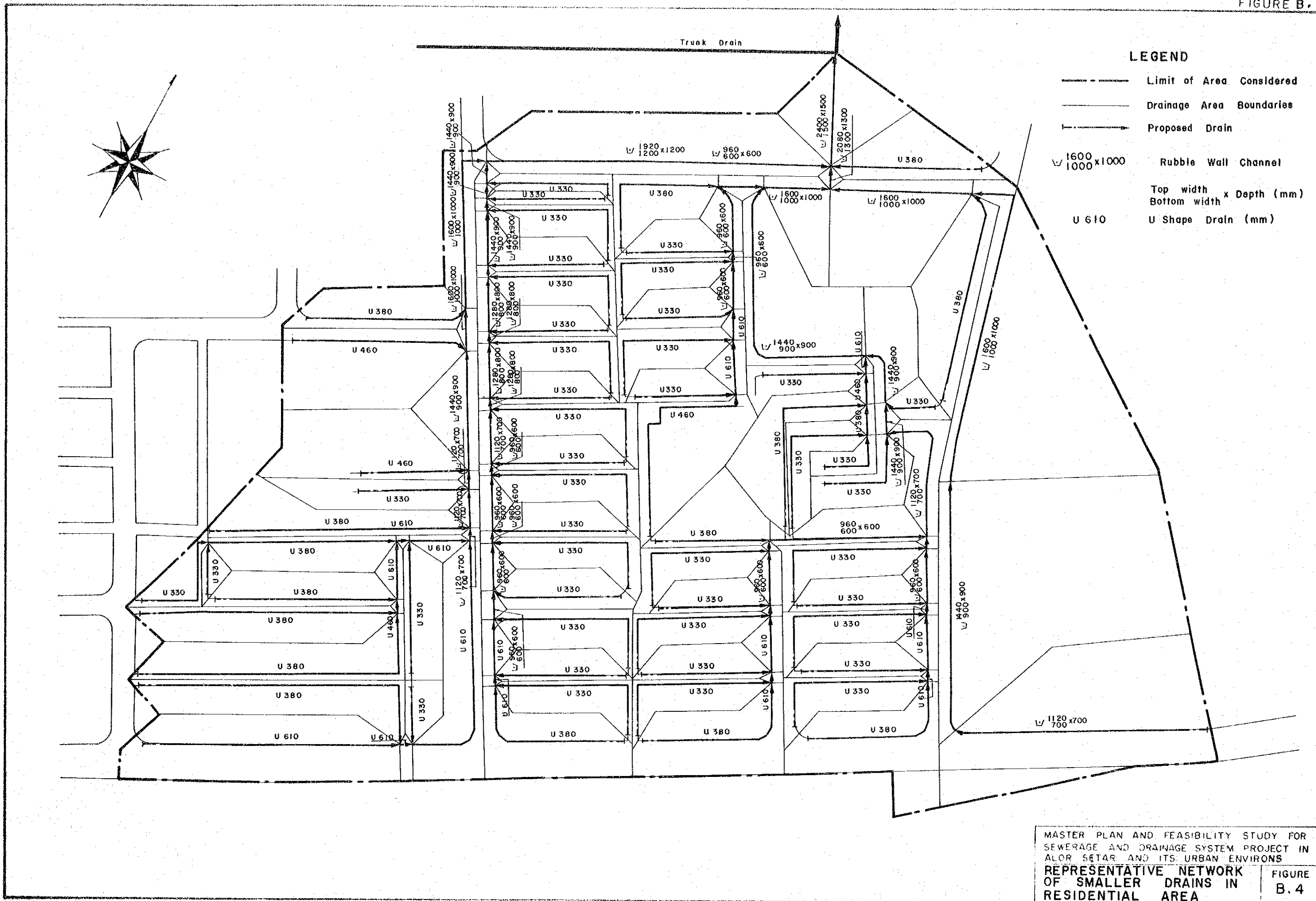
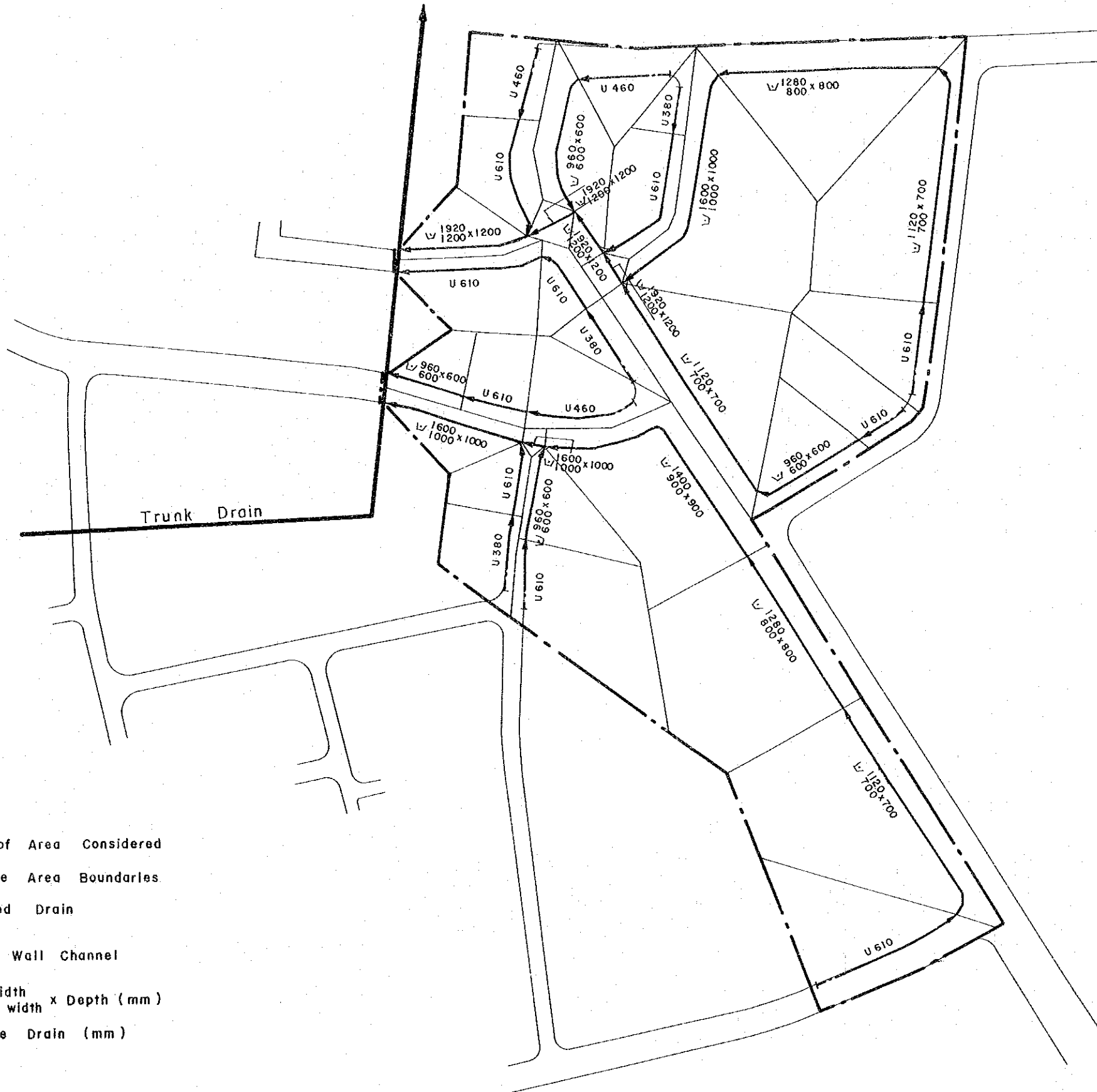


Figure B.3 CONSTRUCTION COST CURVES OF DRAIN

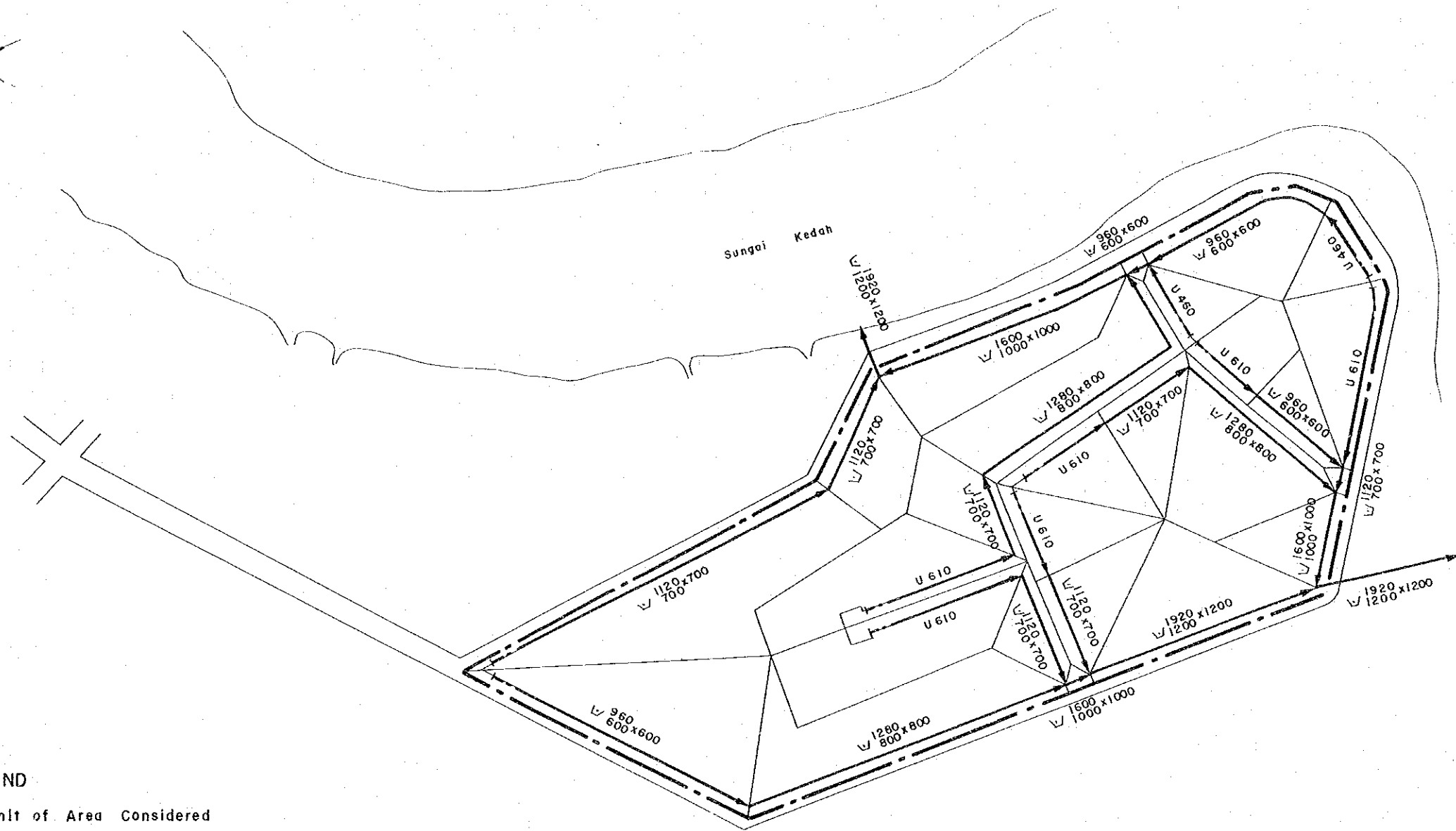




LEGEND

- Limit of Area Considered
- Drainage Area Boundaries
- Proposed Drain
- 1600
1000 x 1000 Rubble Wall Channel
- Top width
Bottom width x Depth (mm)
- U 610 U Shape Drain (mm)

MASTER PLAN AND FEASIBILITY STUDY FOR SEWERAGE AND DRAINAGE SYSTEM PROJECT IN ALOR SETAR AND ITS URBAN ENVIRONS
REPRESENTATIVE NETWORK OF SMALLER DRAINS IN RESIDENTIAL & COMMERCIAL AREA **FIGURE B. 5**



LEGEND

- Limit of Area Considered
- Drainage Area Boundaries
- .-.- Proposed Drain
- ∇ 1600
1000x1000 Rubble Wall Channel
- Top width x Depth (mm)
Bottom width
- U 610 U Shape Drain (mm)

MASTER PLAN AND FEASIBILITY STUDY FOR SEWERAGE AND DRAINAGE SYSTEM PROJECT IN ALOR SETAR AND ITS URBAN ENVIRONS
REPRESENTATIVE NETWORK OF SMALLER DRAINS IN INDUSTRIAL AREA

ANNEX C
LIST OF REFERENCES

- (1) Planning and Design Procedure No.1, "URBAN DRAINAGE DESIGN STANDARDS AND PROCEDURES FOR PENINSULAR MALAYSIA" (1975) DID
- (2) Hydrological Procedure No.1 "ESTIMATION OF THE DESIGN RAINSTORM" (1973) DID
- (3) Hydrological Procedure No.11 "DESIGN FLOOD HYDROGRAPH ESTIMATION FOR RURAL CATCHMENTS IN PENINSULAR MALAYSIA" (1976) DID
- (4) Hydrological Procedure No.16 "FLOOD ESTIMATION FOR URBAN AREAS IN PENINSULAR MALAYSIA" (1976) DID
- (5) Hydrological Procedure No.18 "HYDROLOGICAL DESIGN OF AGRICULTURAL DRAINAGE SYSTEMS" (1977) DID
- (6) "WPCF MANUAL OF PRACTICE NO.9" (USA) (1970)
- (7) "MANUAL OF SEWERAGE FACILITIES DESIGN" (JAPAN) (1972)
- (8) "THE ROLE OF INFILTRATION IN THE HYDROLOGIC CYCLE TRANS. AGO, Vol. 14" (1933) R.F. HORTON
- (9) "CIVIL ENGINEERING 29, 174" (1959) W.S. KERBY

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