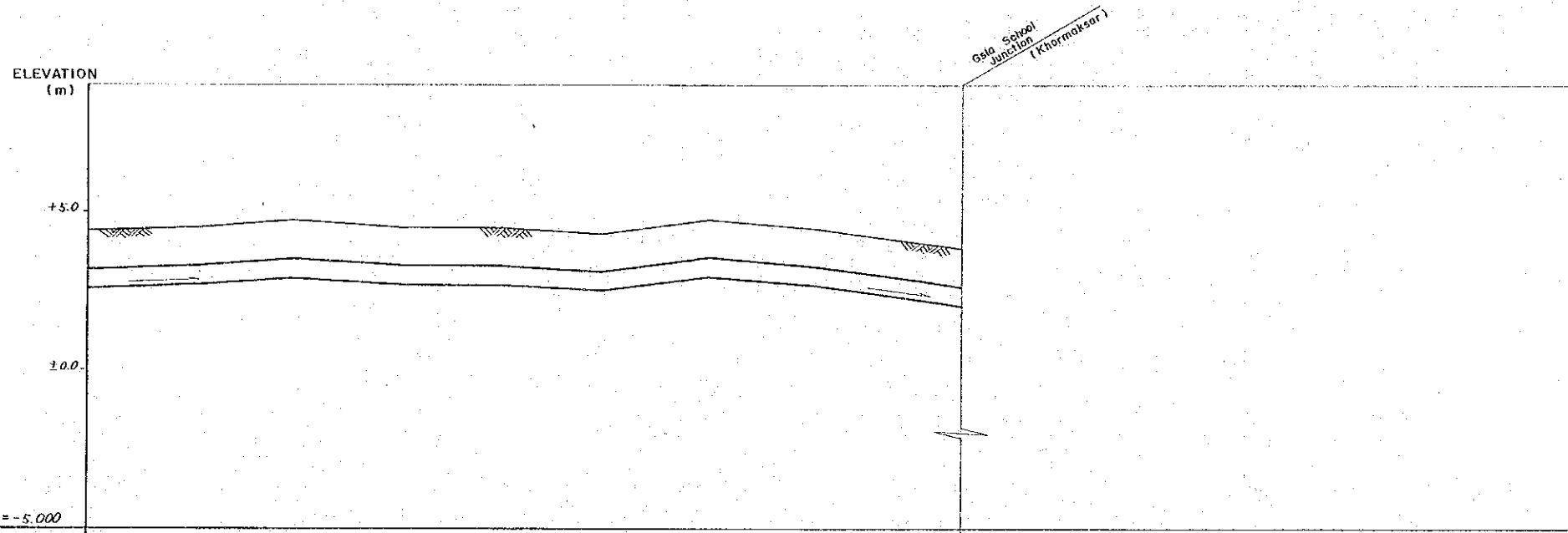


Sewer Number	3										
Diameter (mm)	ø 600										
Slope (‰)	4.445										
Length (m)	4,445										
Elevation (m) Ground Surface	7.17	7.42	7.44	8.16	10.12	5.18	5.15	2.10	5.13	4.98	4.40
Earth Covering (m)	1.71	1.94	1.48	2.00	1.50	1.50	1.50	1.50	1.50	1.50	1.20
Sewer Invert Elevation (m)	4.860	4.860	5.330	6.050	8.010	3.070	3.640	0.640	3.020	2.970	2.970
Total Length (m)	0	60	140	265	380	550	700	808	940	1,140	1,710

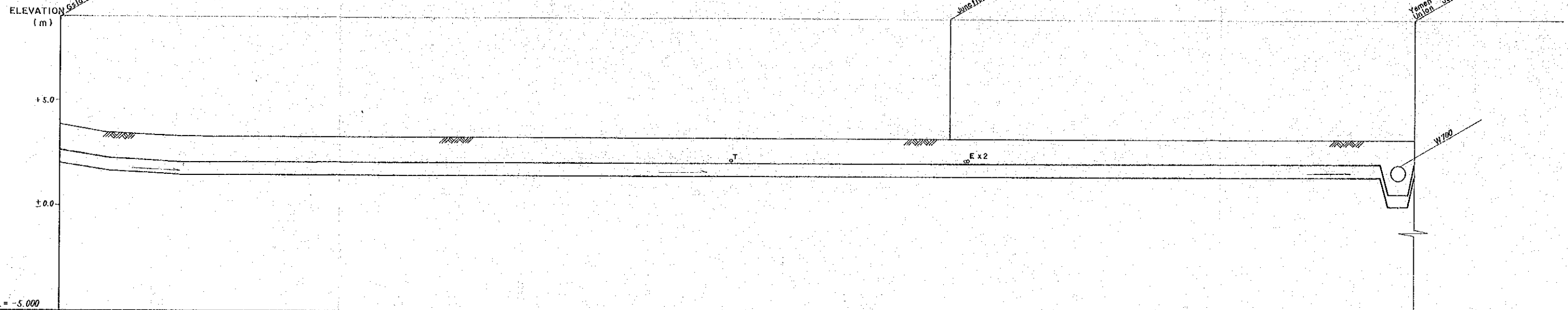


Sewer Number	3	
Diameter (mm)	ø 600	
Slope (‰)	4.445	
Length (m)	4,445	
Elevation (m) Ground Surface	4.40	3.82
Earth Covering (m)	1.20	1.20
Sewer Invert Elevation (m)	2.990	2.020
Total Length (m)	1,710	2,450

LEGEND	
*E	PECP CABLE
*H	PHC WATER PIPE
*T	MOTC TELEPHONE CABLE
O.S.	EXISTING SEWER PIPE

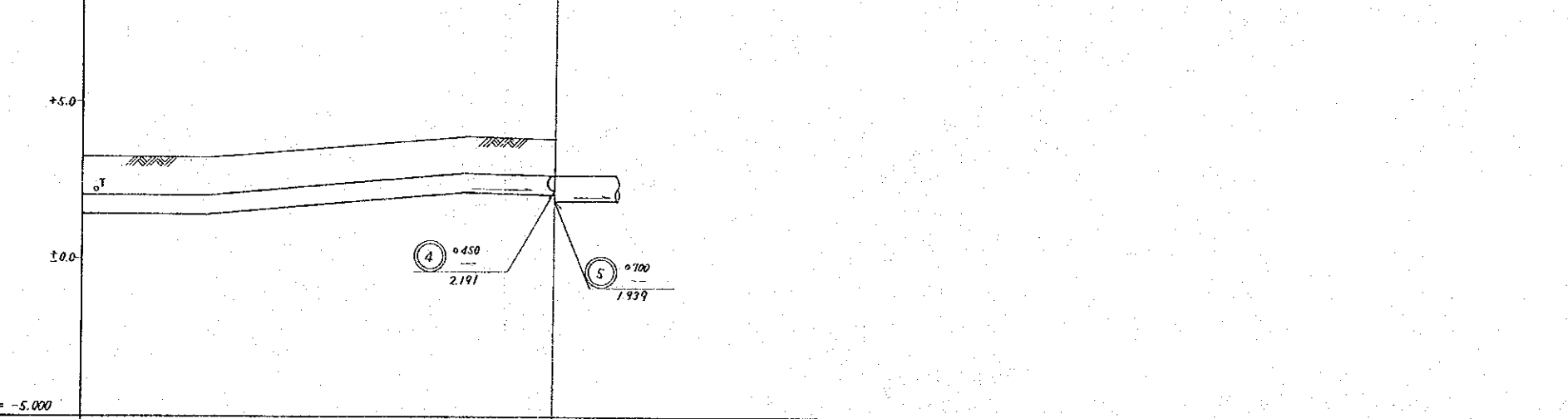
FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM	DATE	JAN. 1990	JICA
	SCALE	SV 1:100 SH 1:2,500	DRAWING NO. 41
FORCE MAIN PROFILE (6/9)			

Gala School Junction



Sewer Number	3
Diameter (mm)	600
Slope (‰)	4.445
Length (m)	4.445
Elevation (m) Ground Surface	3.82
Earth Covering (m)	1.20
Sewer Invert Elevation (m)	2.62
Total Length (m)	2.450

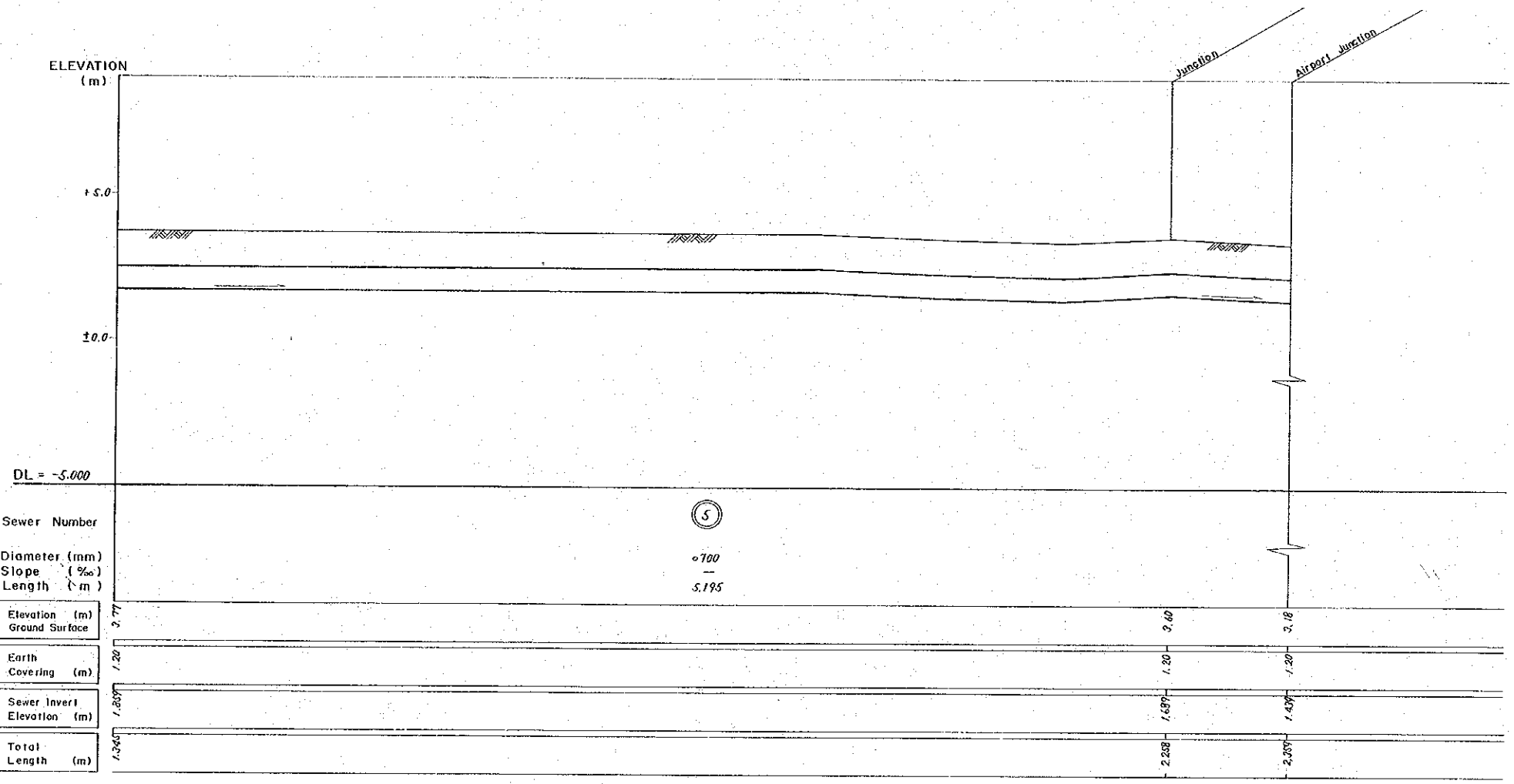
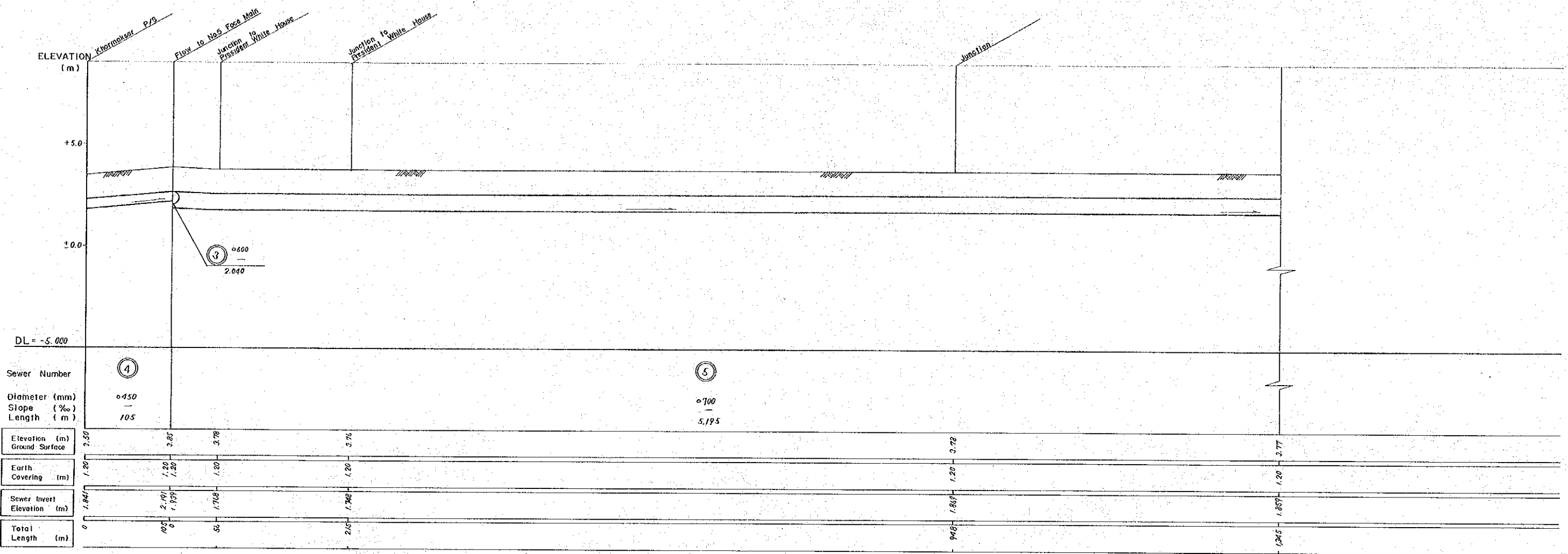
Yemen Union Junction
 Author's Junction
 Flow to No. 5 Force Main



Sewer Number	3
Diameter (mm)	600
Slope (‰)	4.445
Length (m)	4.445
Elevation (m) Ground Surface	3.28
Earth Covering (m)	1.20
Sewer Invert Elevation (m)	2.08
Total Length (m)	2.450

LEGEND	
*E	PECP CABLE
*W	PVC WATER PIPE
*T	MOTC TELEPHONE CABLE
OS	EXISTING SEWER PIPE

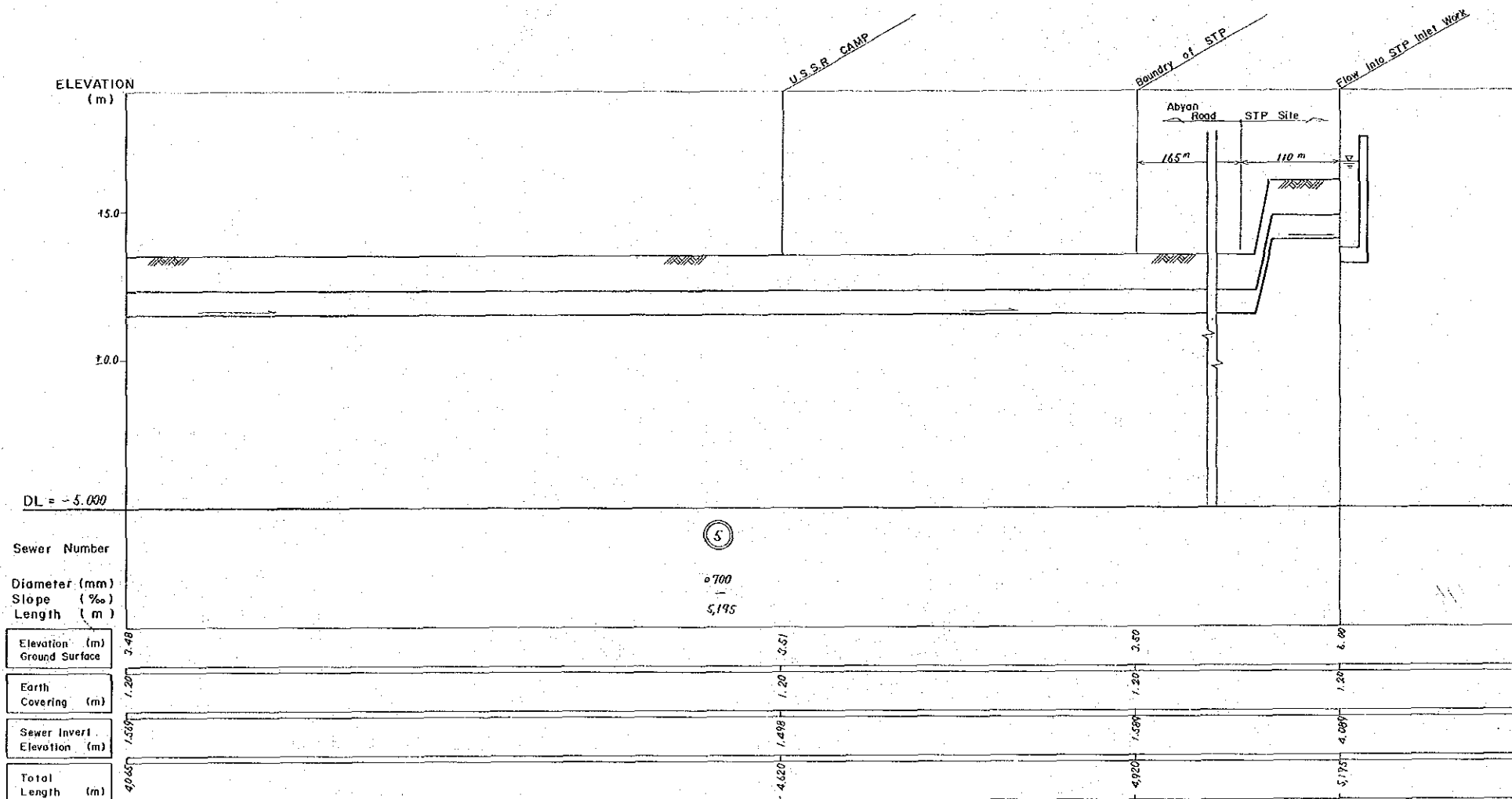
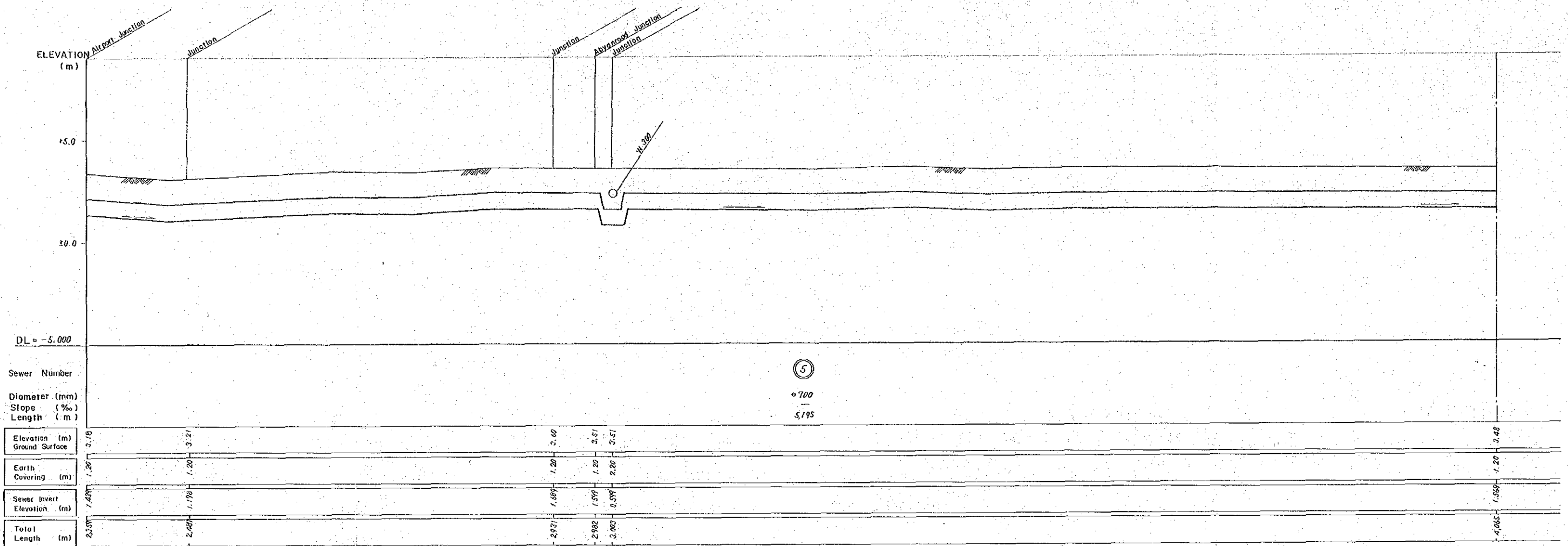
FEASIBILITY STUDY ON THE IMPROVEMENT OF MAALLA AND TAWAHI SEWERAGE SYSTEM	DATE	JICA
	JAN. 1990	
FORCE MAIN PROFILE (7/9)	SCALE	DRAWING NO.
	SV 1:100 SH 1:2,500	42



LEGEND

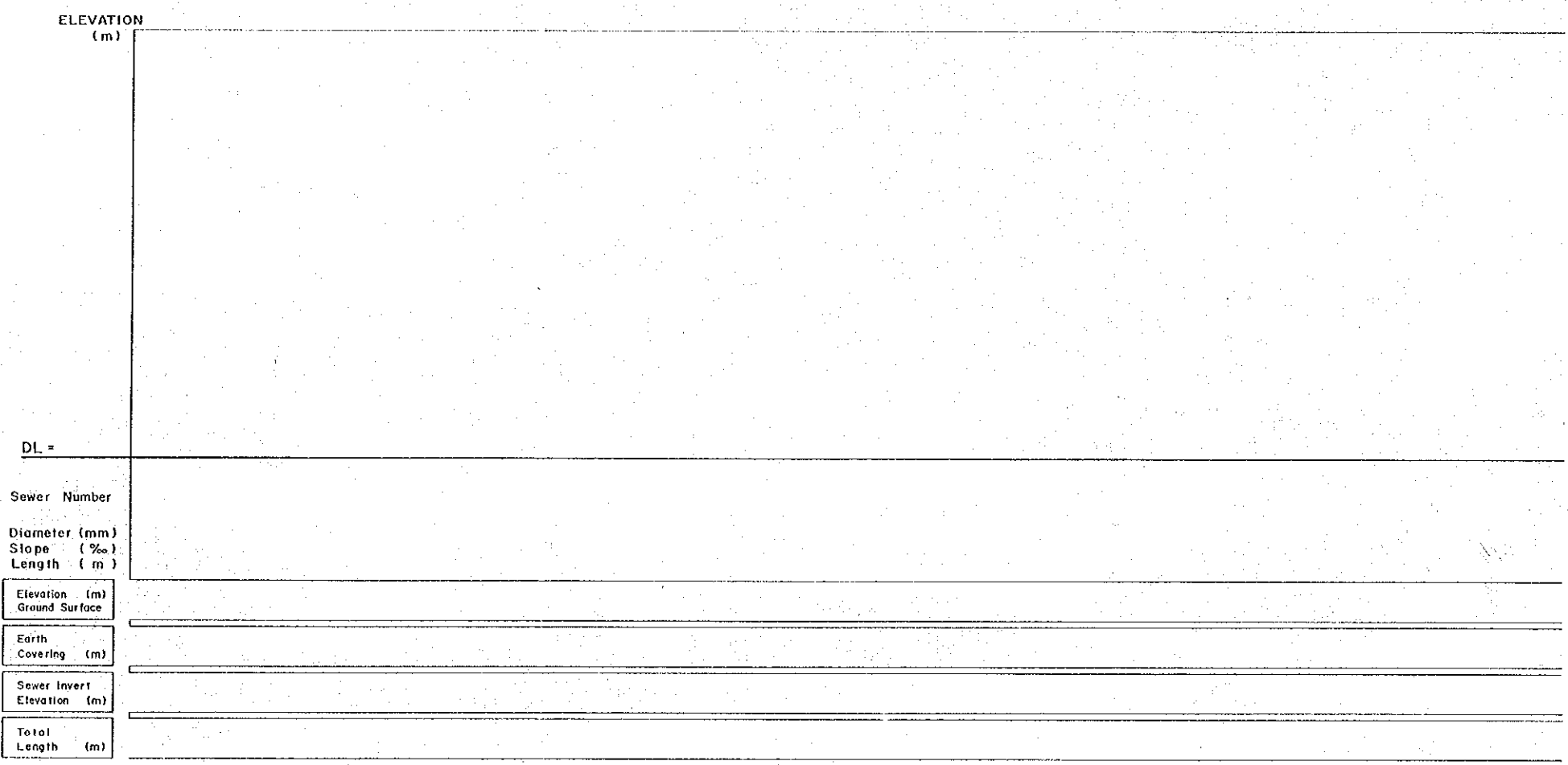
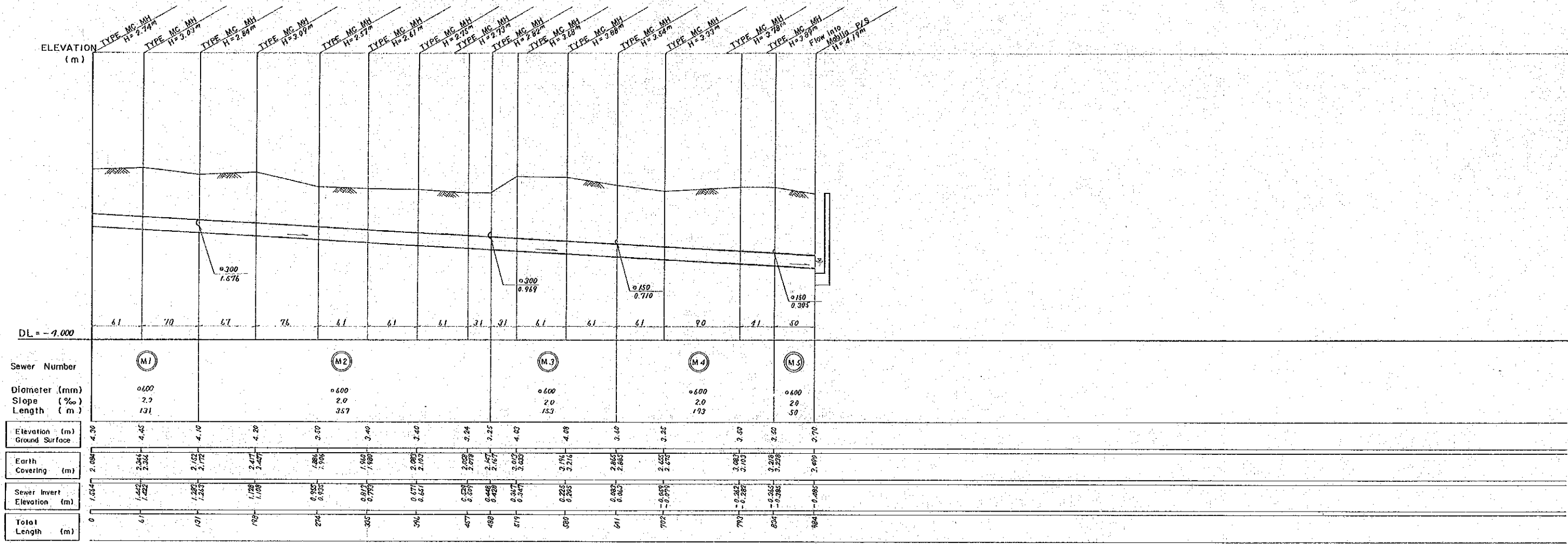
- *E PECP CABLE
- *W PVC WATER PIPE
- *T MOC TELEPHONE CABLE
- OS EXISTING SEWER PIPE

FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM	DATE	JICA
	JAN. 1990	DRAWING NO.
	SCALE	43
FORCE MAIN PROFILE (8 / 9)	SV 1:100 SH 1:2,500	



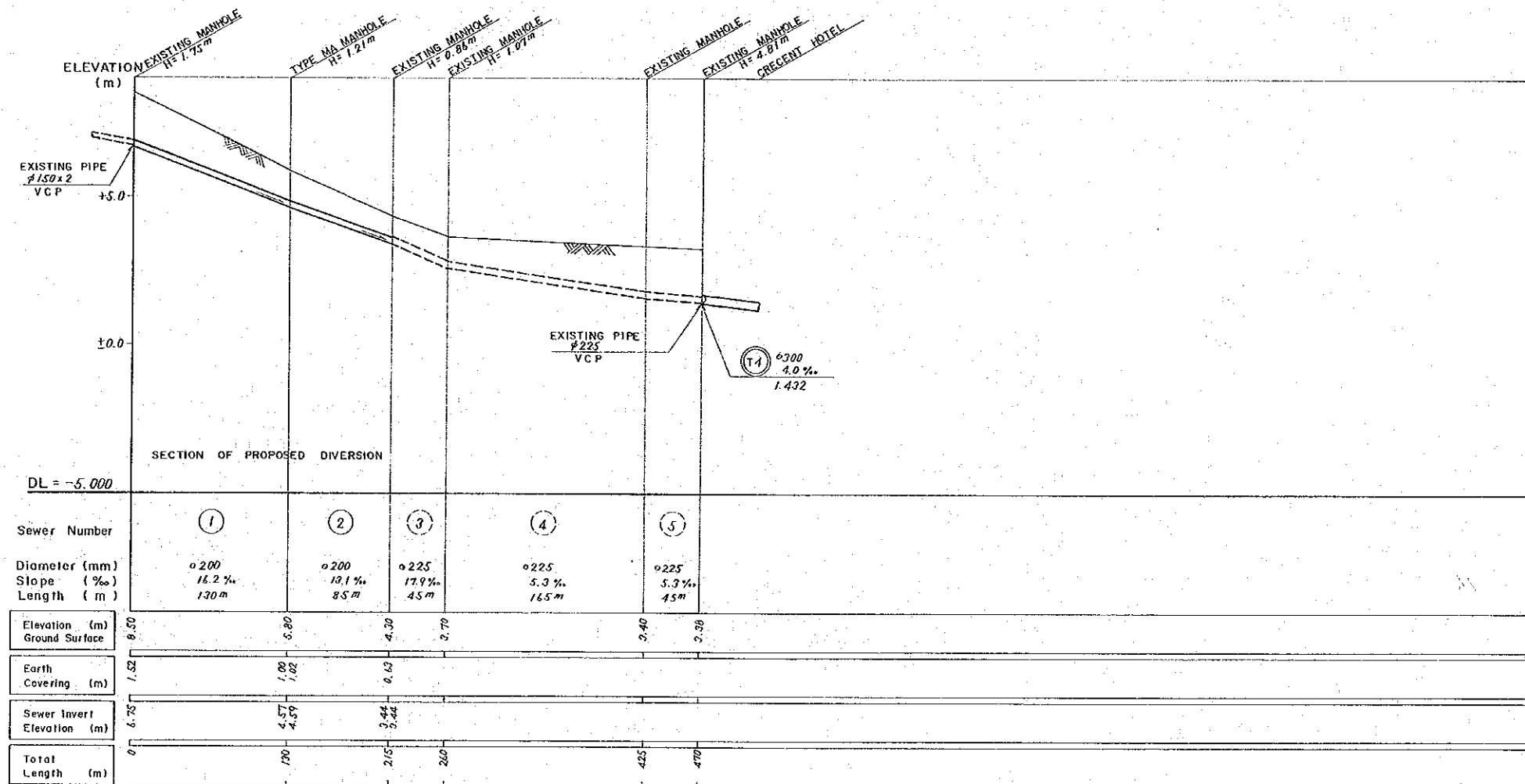
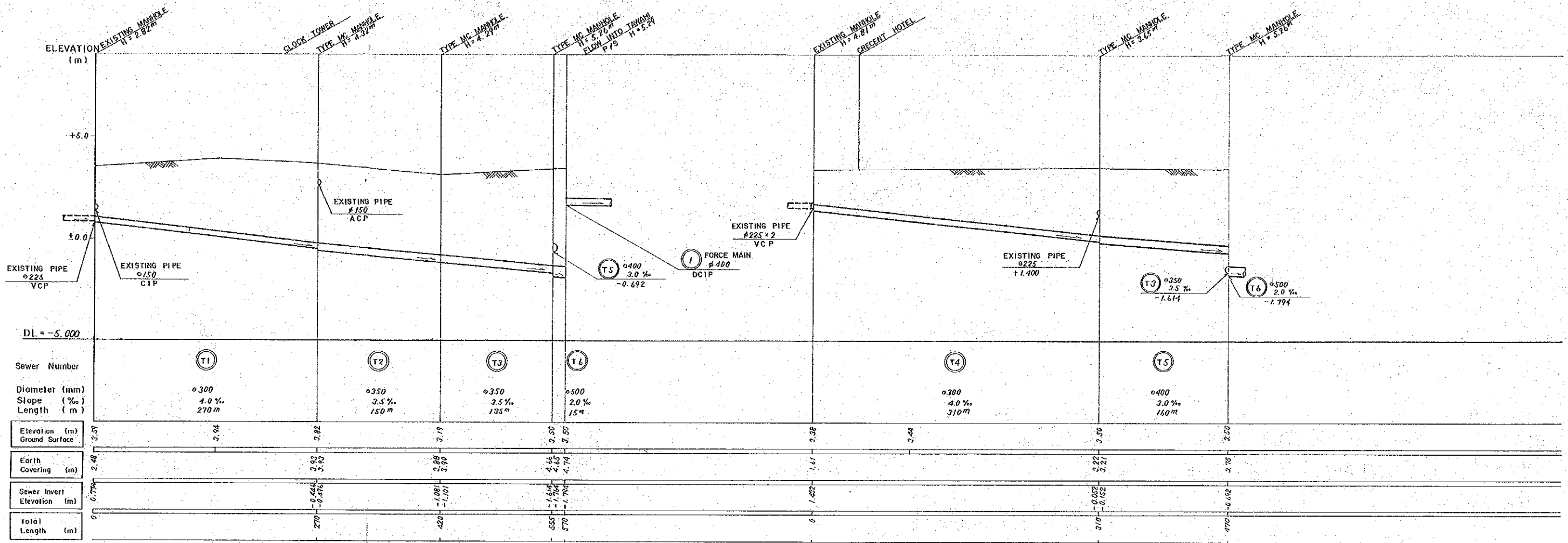
LEGEND	
*E	PECP CABLE
*W	PHC WATER PIPE
*T	MOTC TELEPHONE CABLE
OS	EXISTING SEWER PIPE

FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM	DATE	JICA
	JAN. 1990	
	SCALE	DRAWING NO.
FORCE MAIN PROFILE (9/9)	SV 1:100	44
	SH 1:2,500	



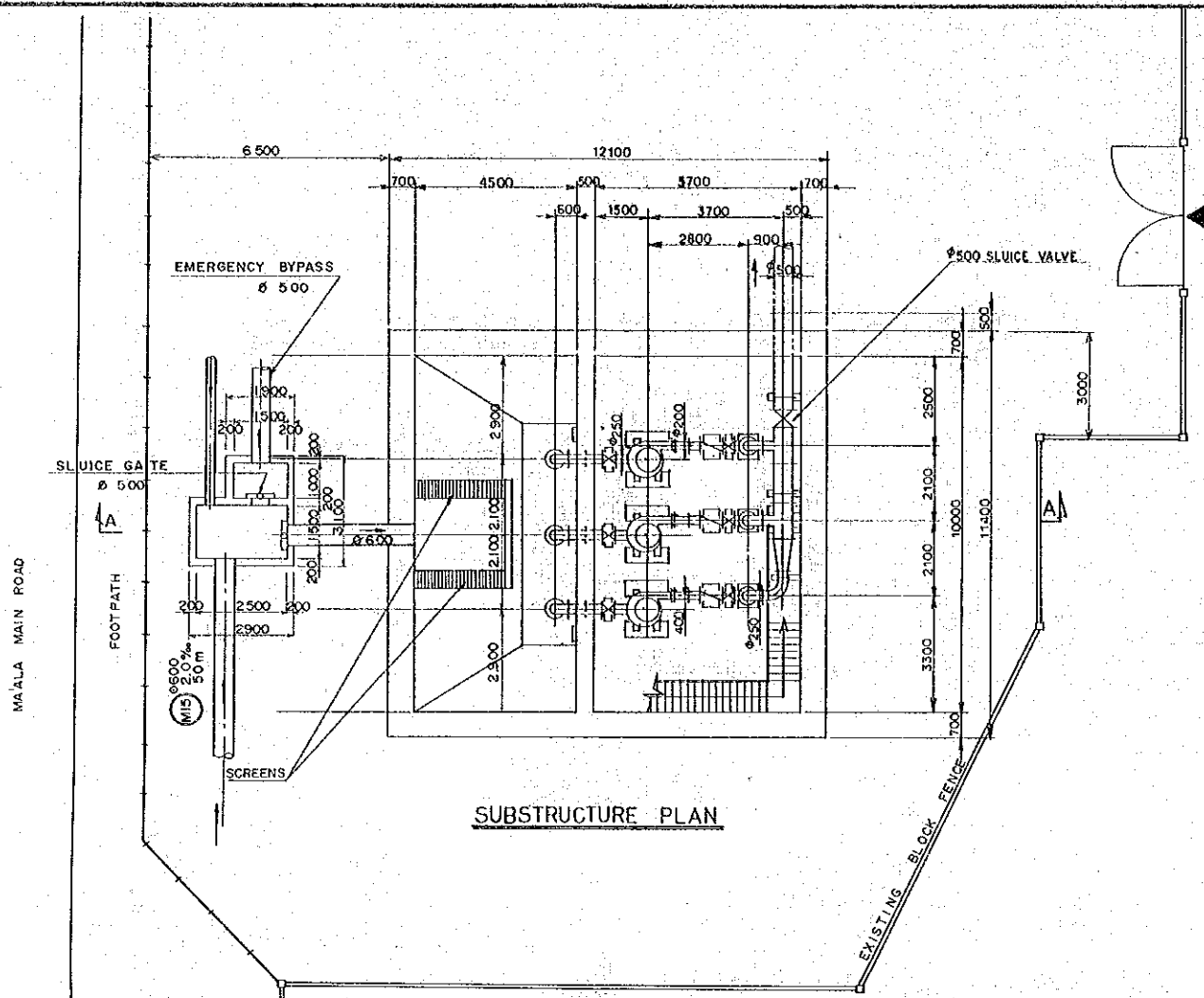
LEGEND	
*E	PECP CABLE
*W	PWC WATER PIPE
*T	MOTC TELEPHONE CABLE
OS	EXISTING SEWER PIPE

FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM	DATE	JICA
	JAN. 1990	
GRAVITY SEWER PROFILE IN MA'ALLA DISTRICT	SCALE	DRAWING NO.
	SV 1:100 SH 1:2,500	45

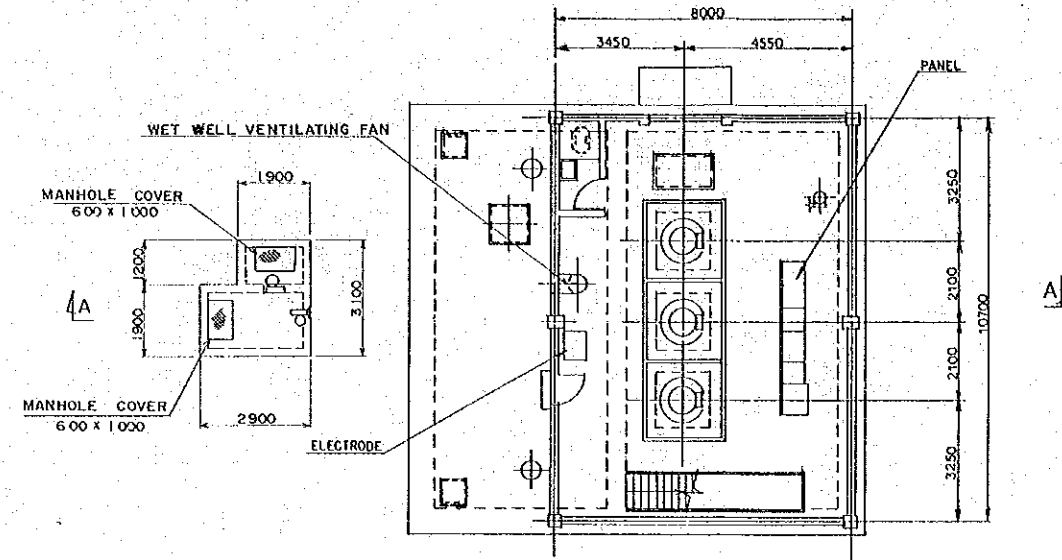


LEGEND	
*E	PECP CABLE
*W	PVC HAYER PIPE
*T	MOTC TELEPHONE CABLE
OS	EXISTING SEWER PIPE

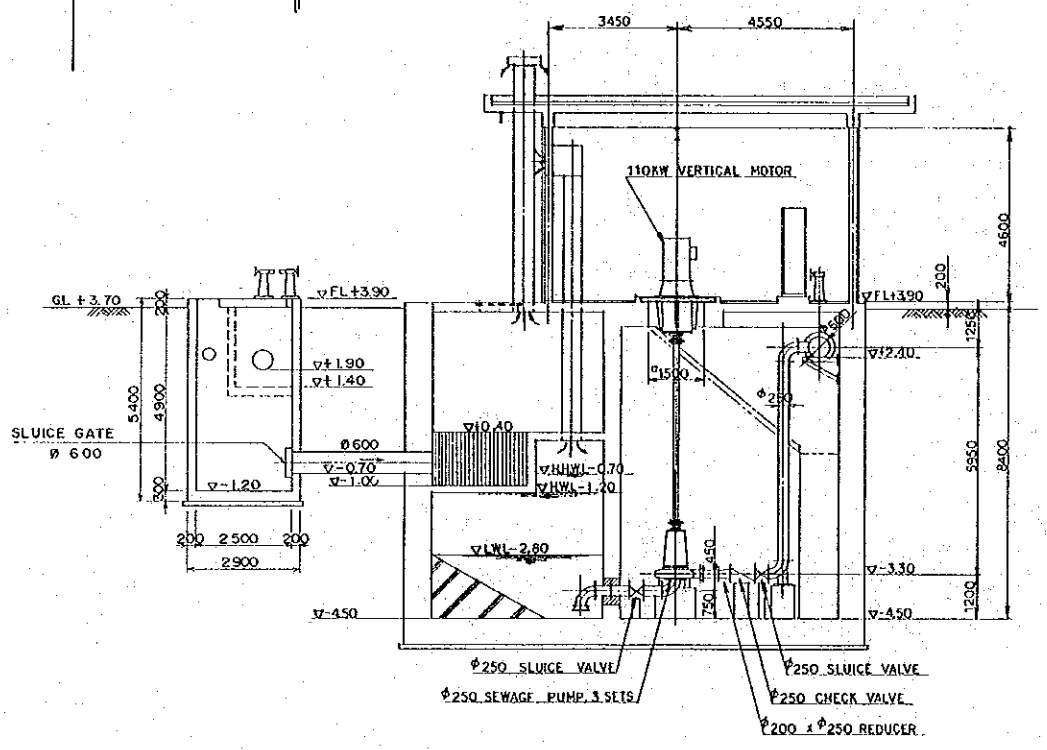
FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM		DATE	JICA
		JAN. 1990	
GRAVITY SEWER PROFILE IN TAWAHI DISTRICT		SCALE	DRAWING NO.
		SV 1:100 SH 1:2,500	46



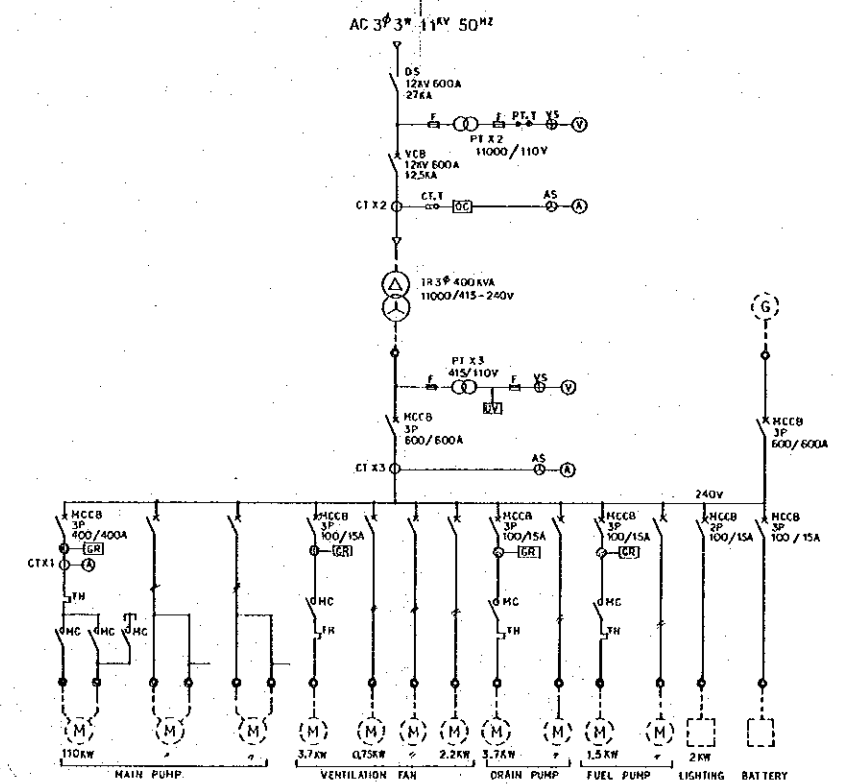
SUBSTRUCTURE PLAN



MOTOR ROOM PLAN

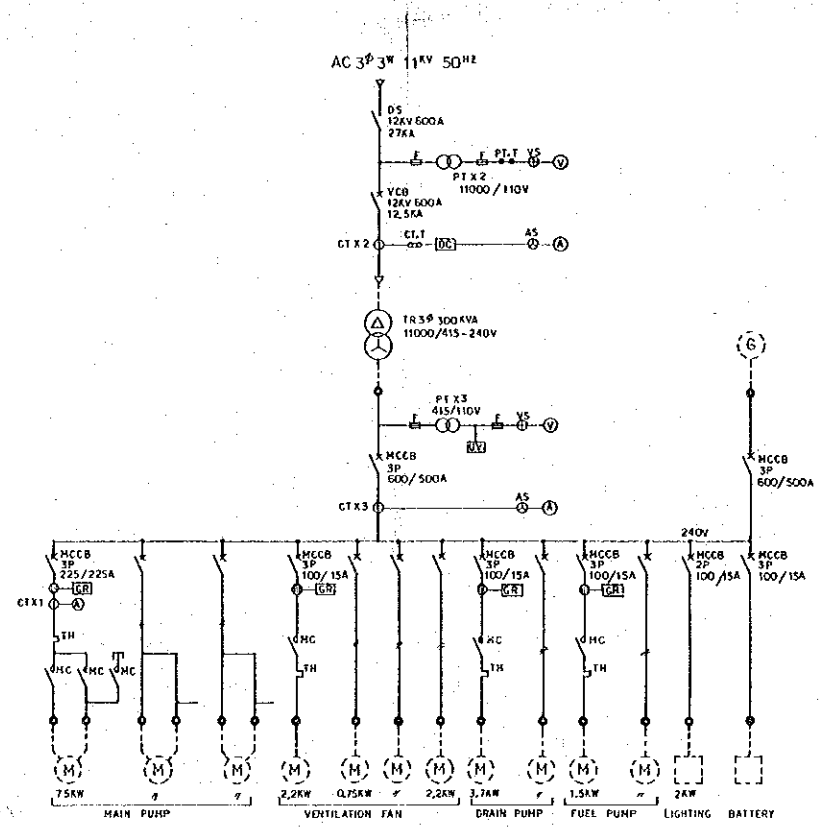
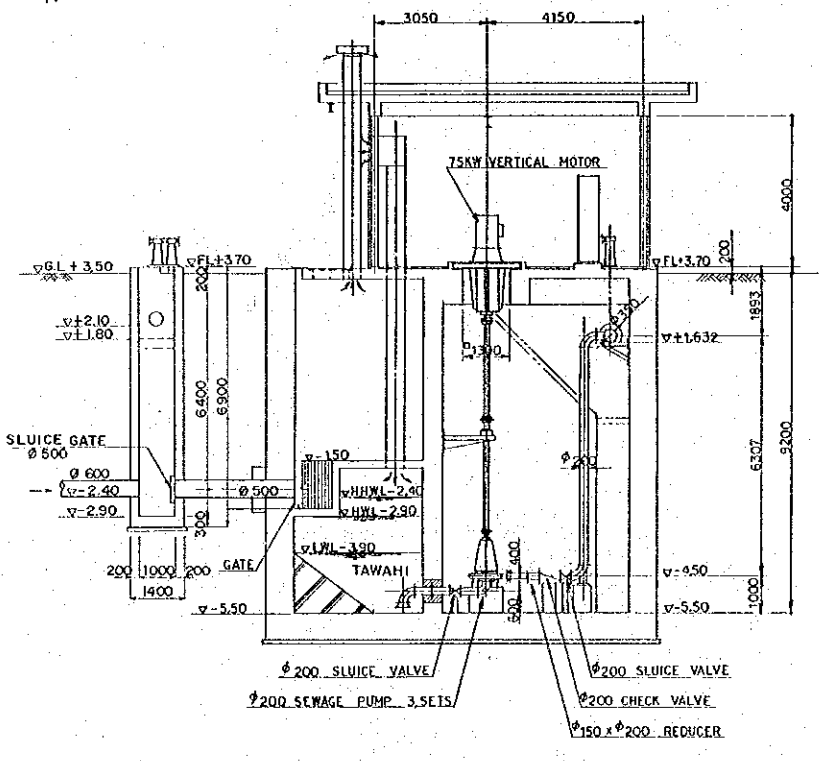
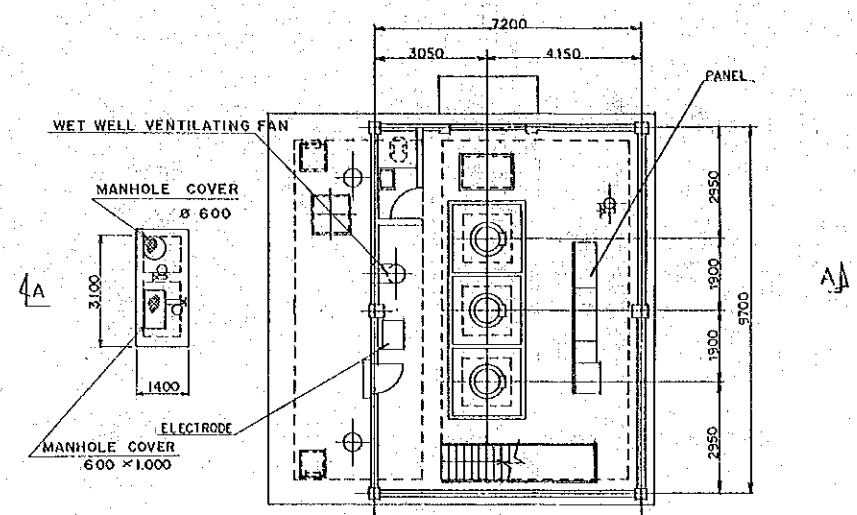
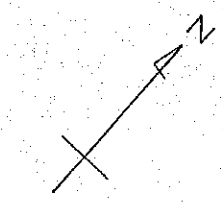
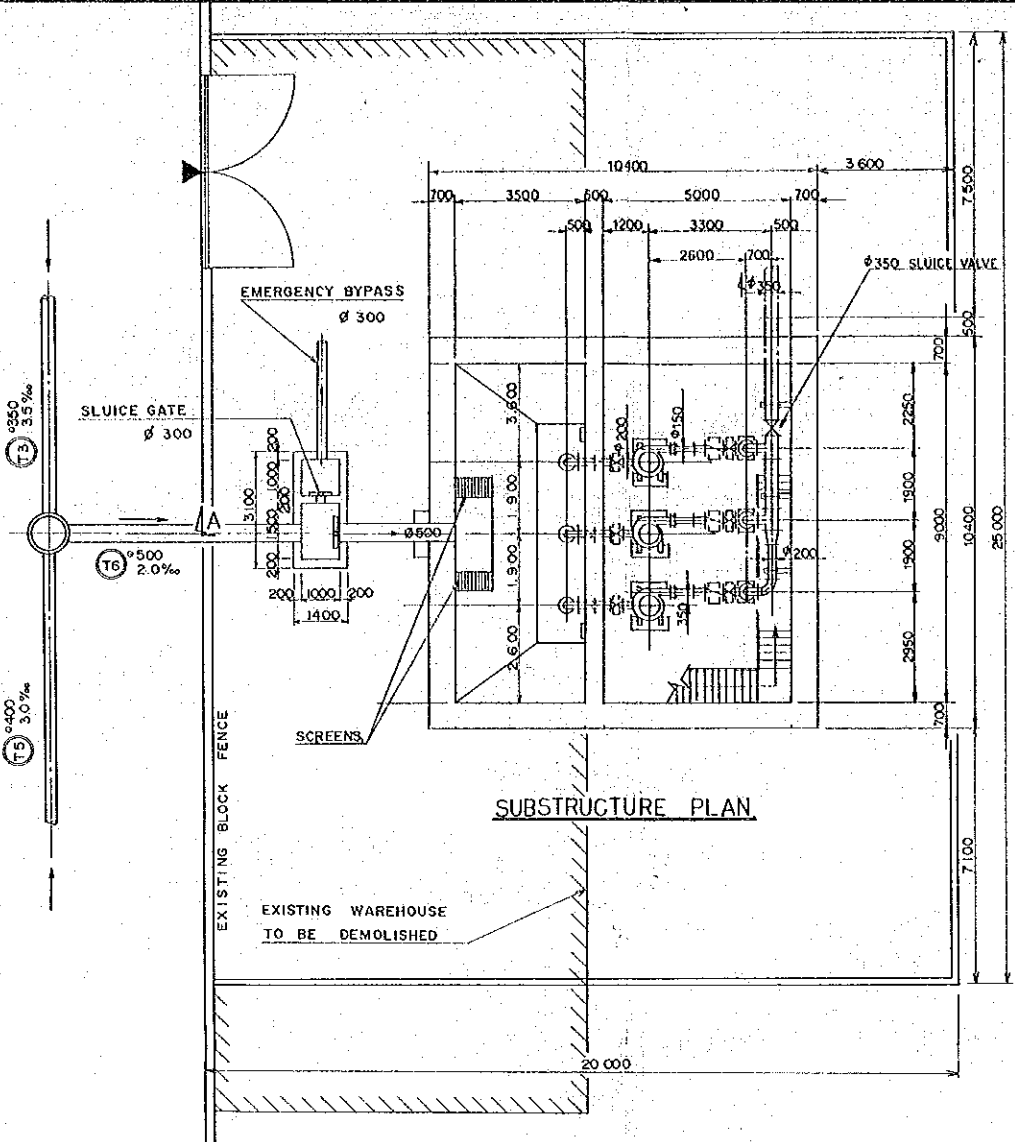


SECTION A-A



SINGLE LINE DIAGRAM

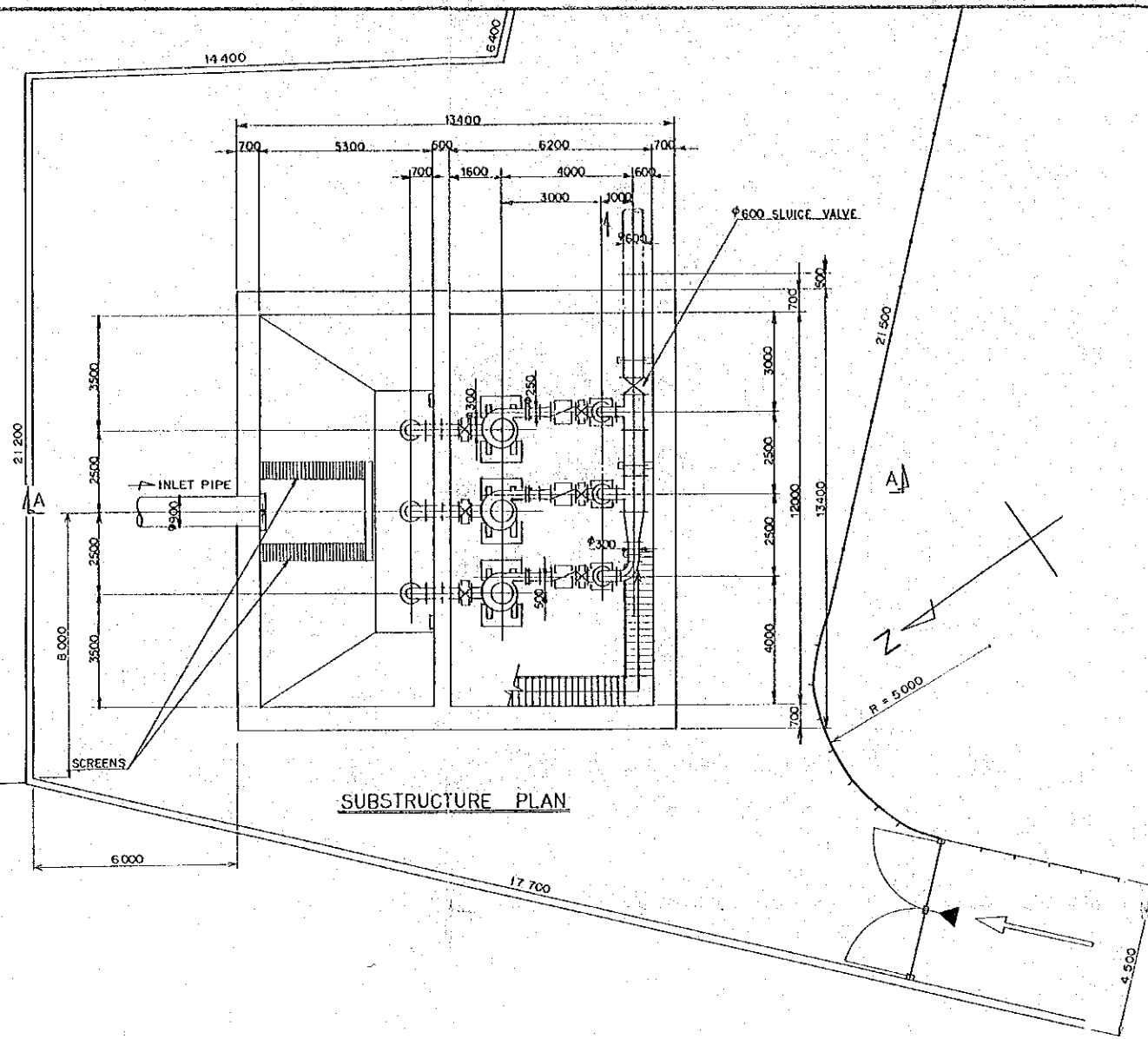
FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM PLANS AND SECTION FOR MA'ALLA PUMPING STATION	DATE	JICA
	JAN. 1990	
	SCALE	DRAWING NO.
1:100	47	



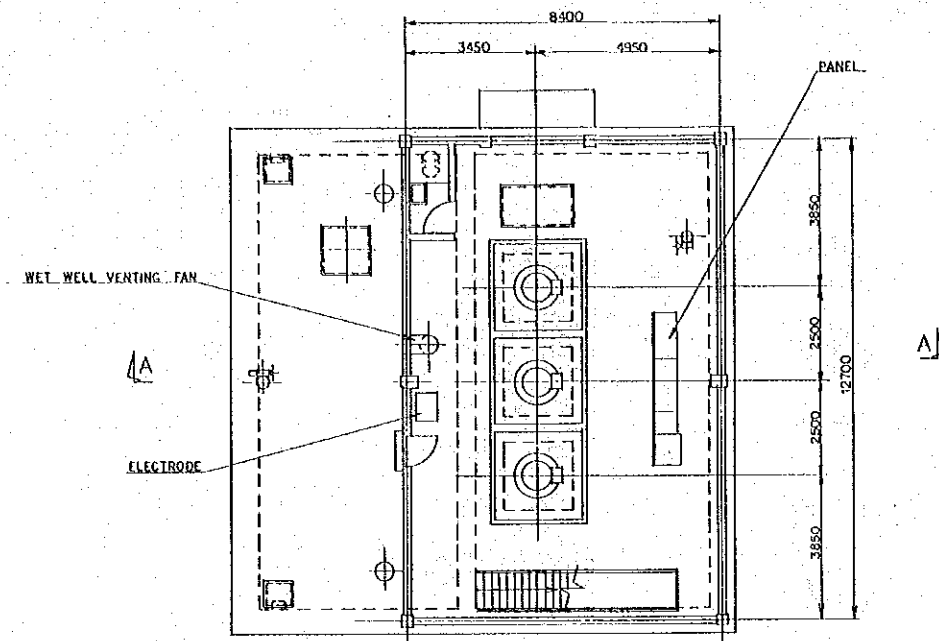
SINGLE LINE DIAGRAM

FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM PLANS AND SECTION FOR TAWAHI PUMPING STATION	DATE	JICA
	JAN. 1990	DRAWING NO.
	SCALE	48
	1 : 100	

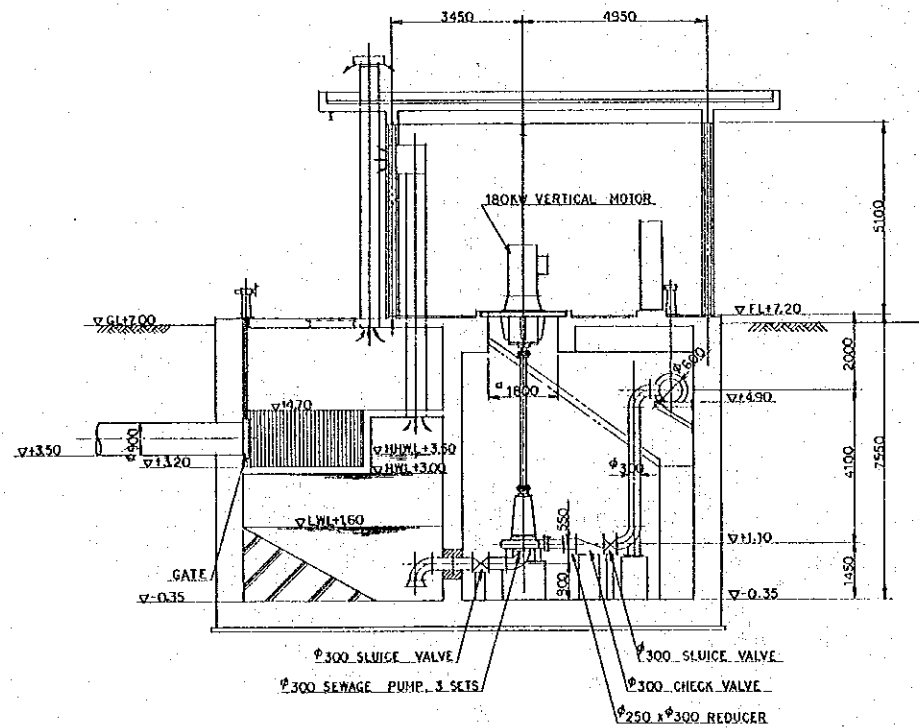
IMMIGRATION DEPARTMENT



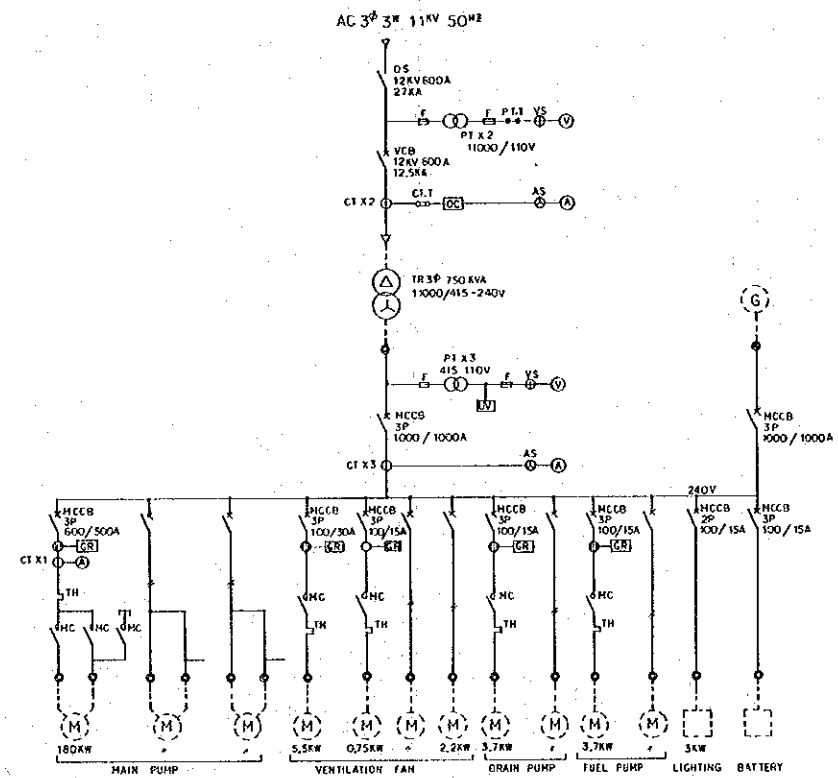
SUBSTRUCTURE PLAN



MOTOR ROOM PLAN



SECTION A - A

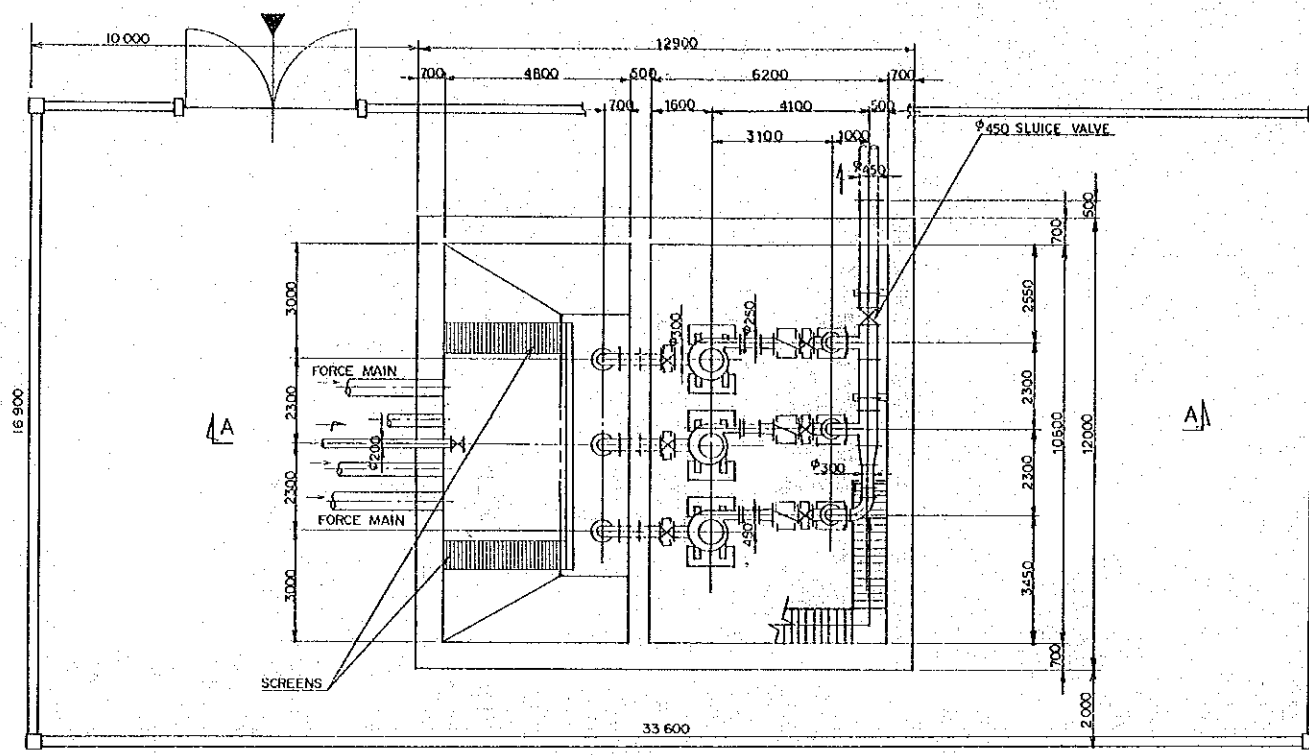


SINGLE LINE DIAGRAM

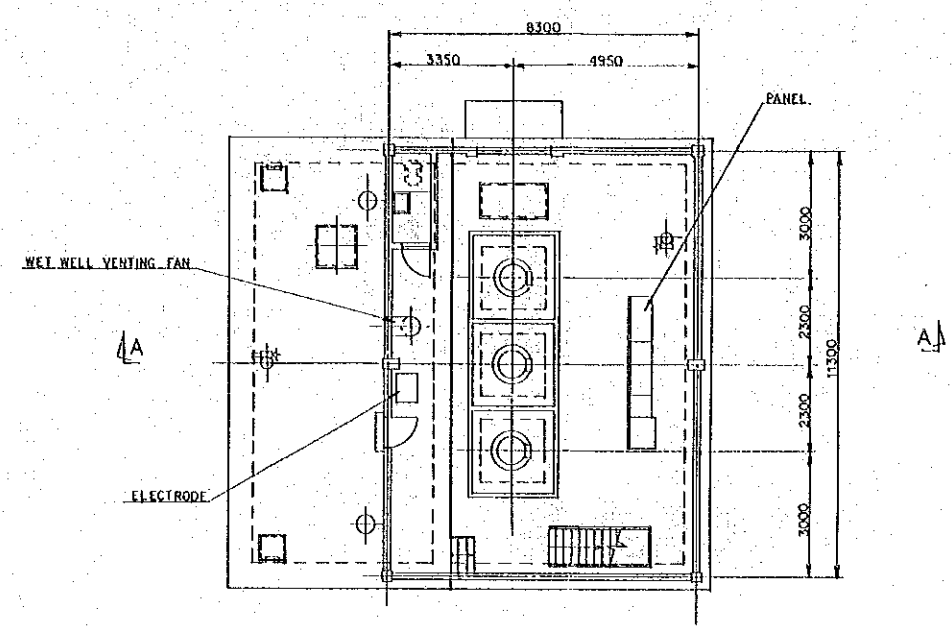
FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM

PLANS AND SECTION FOR CRATER PUMPING STATION

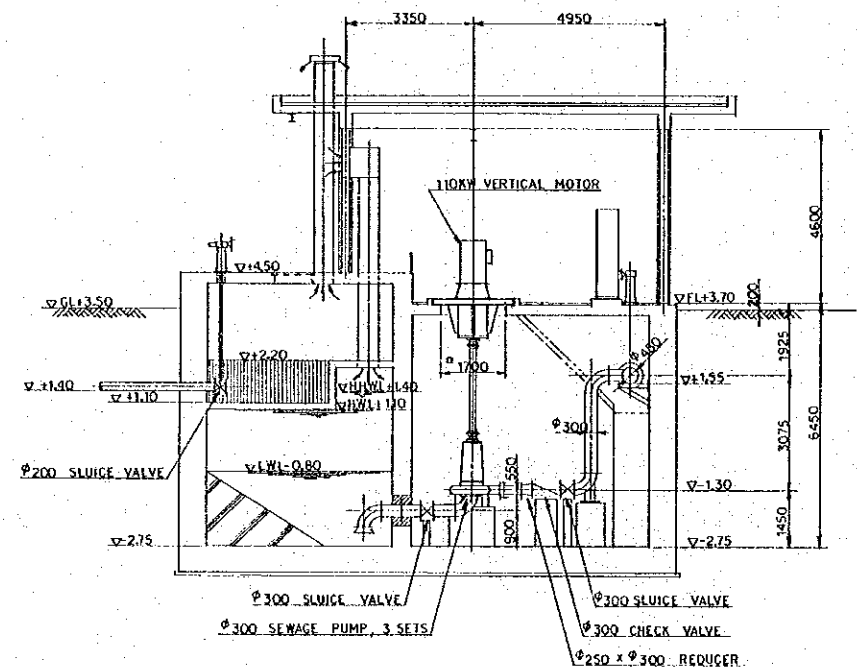
DATE	JICA
JAN. 1990	DRAWING NO.
SCALE	49
1 : 100	



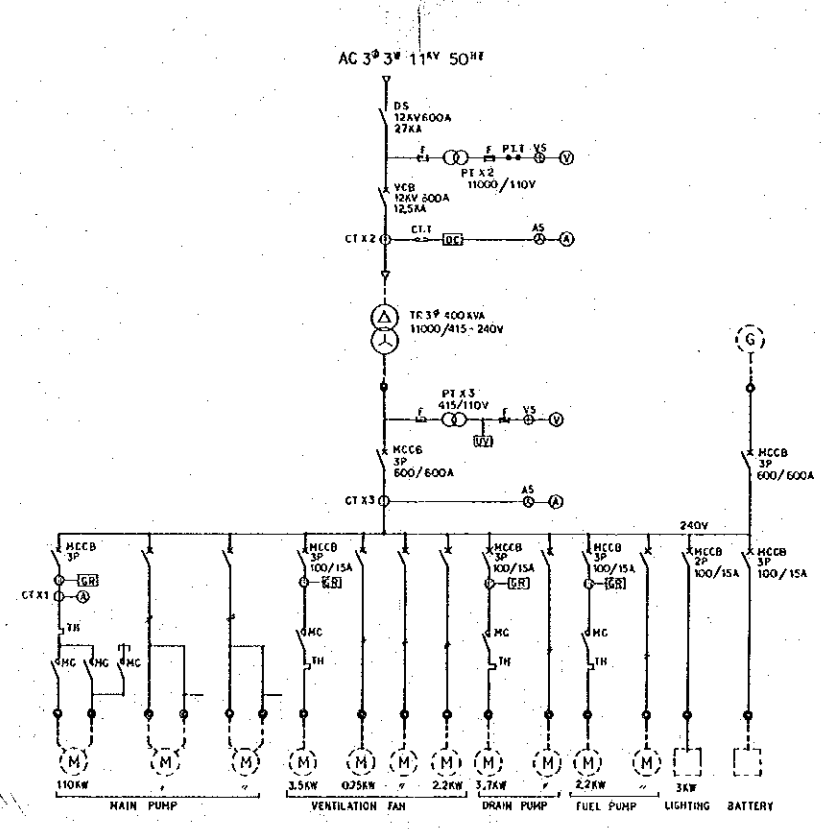
SUBSTRUCTURE PLAN



MOTOR ROOM PLAN

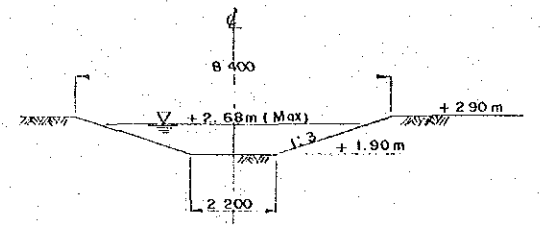
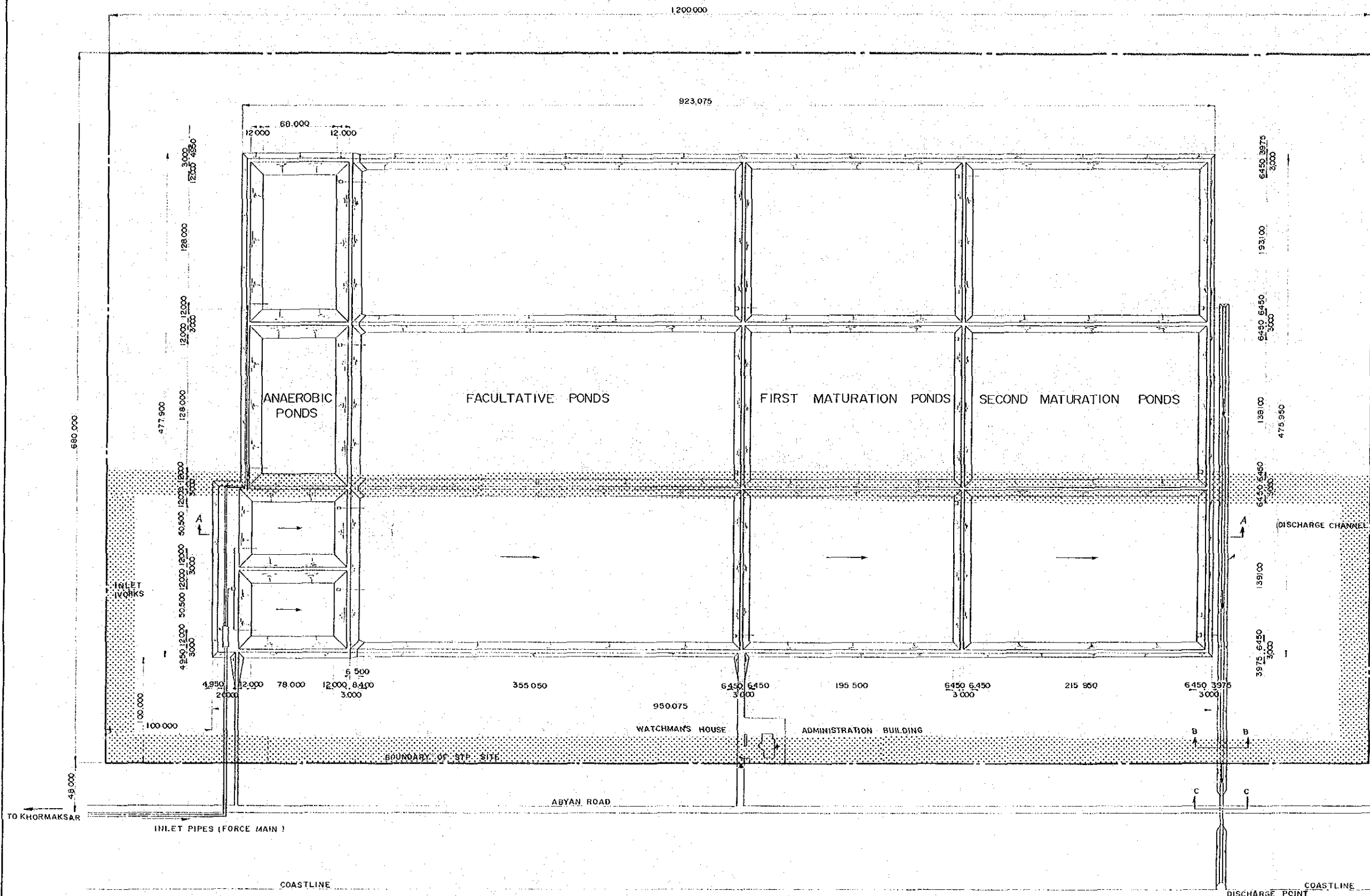


SECTION A-A

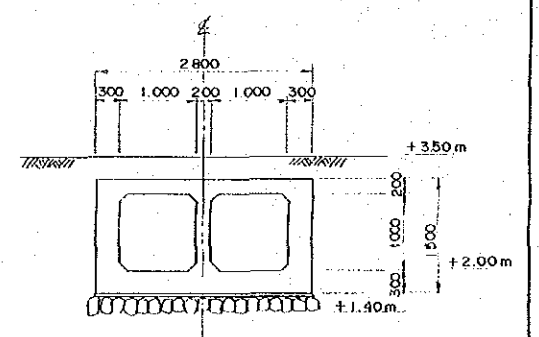


SINGLE LINE DIAGRAM

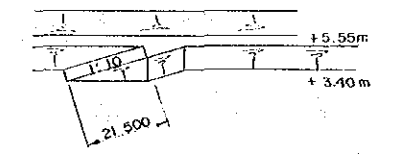
FEASIBILITY STUDY ON THE IMPROVEMENT OF M'ALLA AND TAWAHI SEWERAGE SYSTEM		DATE	JICA
		JAN. 1990	
PLANS AND SECTION FOR KHORMAKSAR PUMPING STATION		SCALE	DRAWING NO.
		1:100	50



SECTION B-B (1:100)



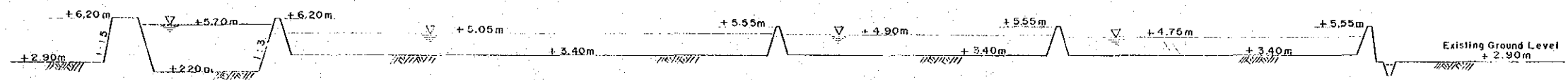
SECTION C-C (1:50)



ACCESS ROAD (1:1000)

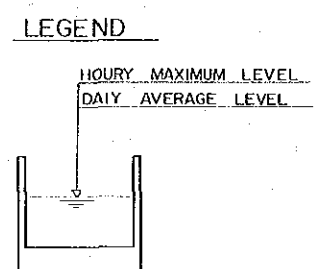
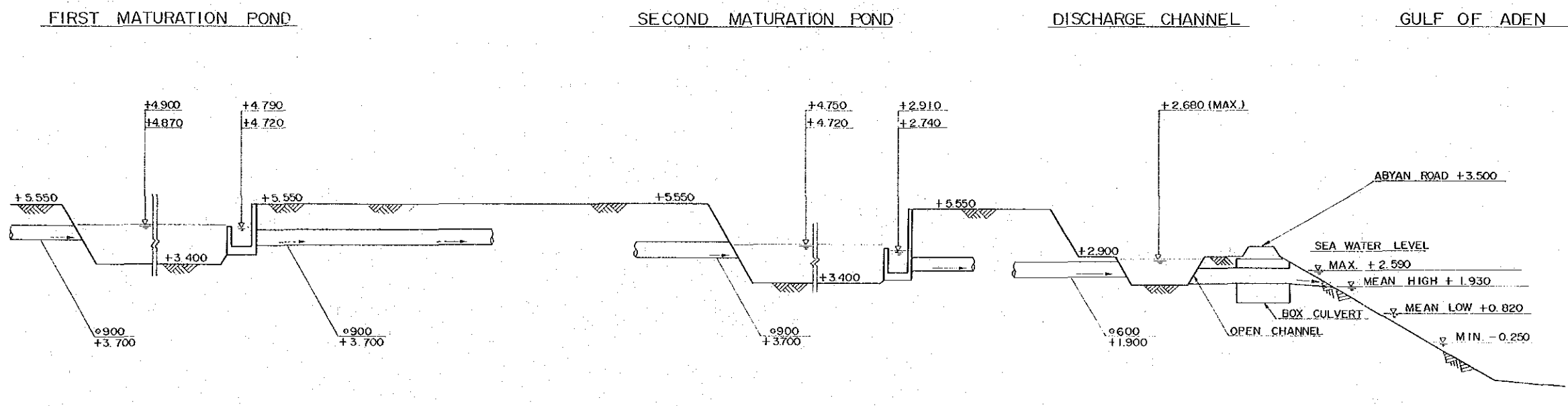
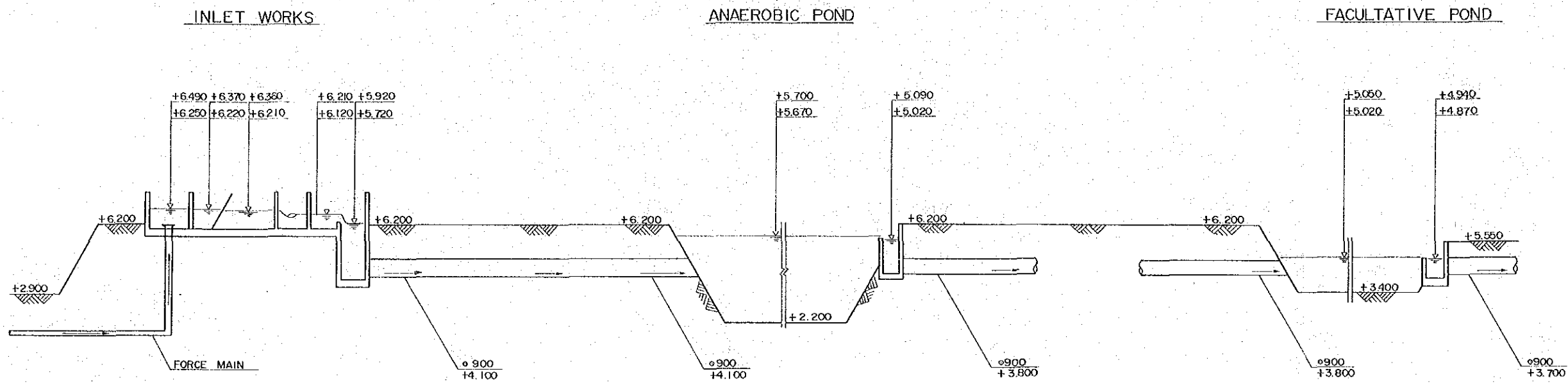
NOTE :

FIRST PHASE PROGRAM (UP TO 2000)

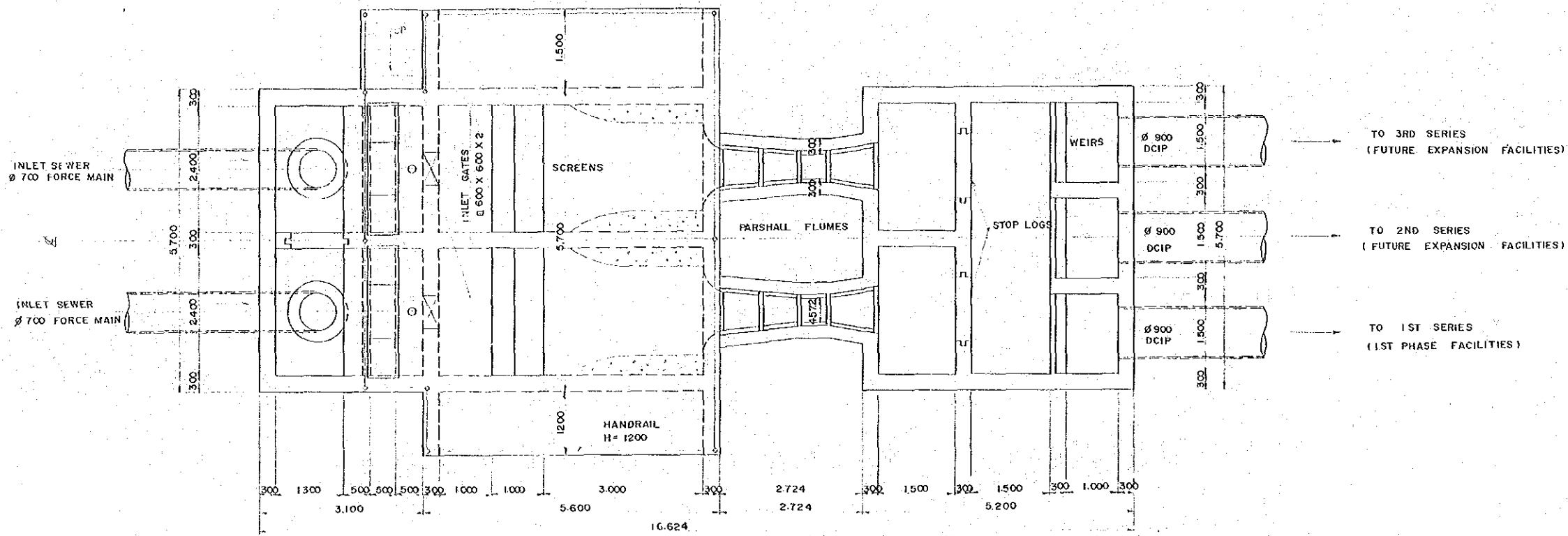


LONGITUDINAL SECTION A-A (SV 1:200)

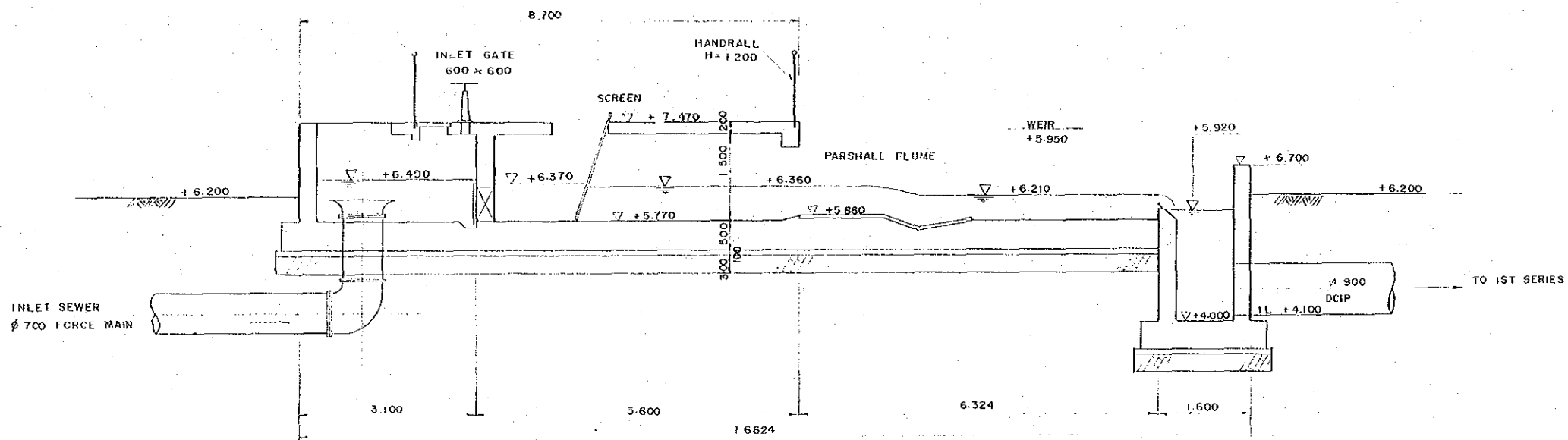
FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM		DATE	JICA
PROPOSED LAYOUT PLAN FOR ABYAN ROAD STP		JAN. 1990	DRAWING NO.
		SCALE	AS SHOWN
			51



FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM	DATE	JICA
	JAN. 1990	
	SCALE	DRAWING NO.
	SV 1:100 SH NONE	52



PLAN

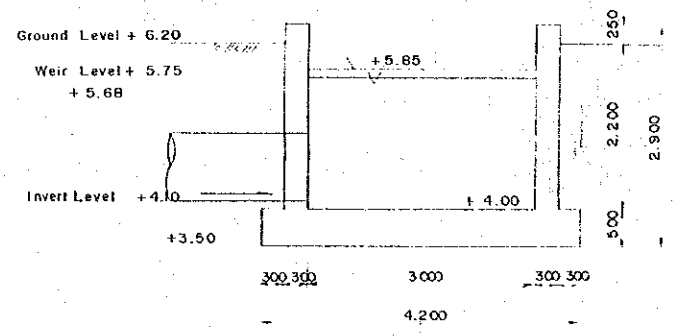
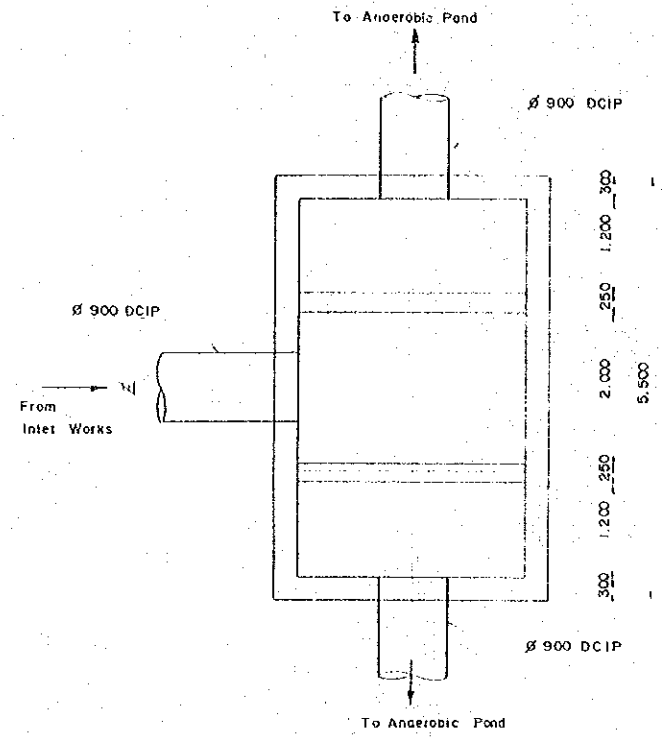


SECTION

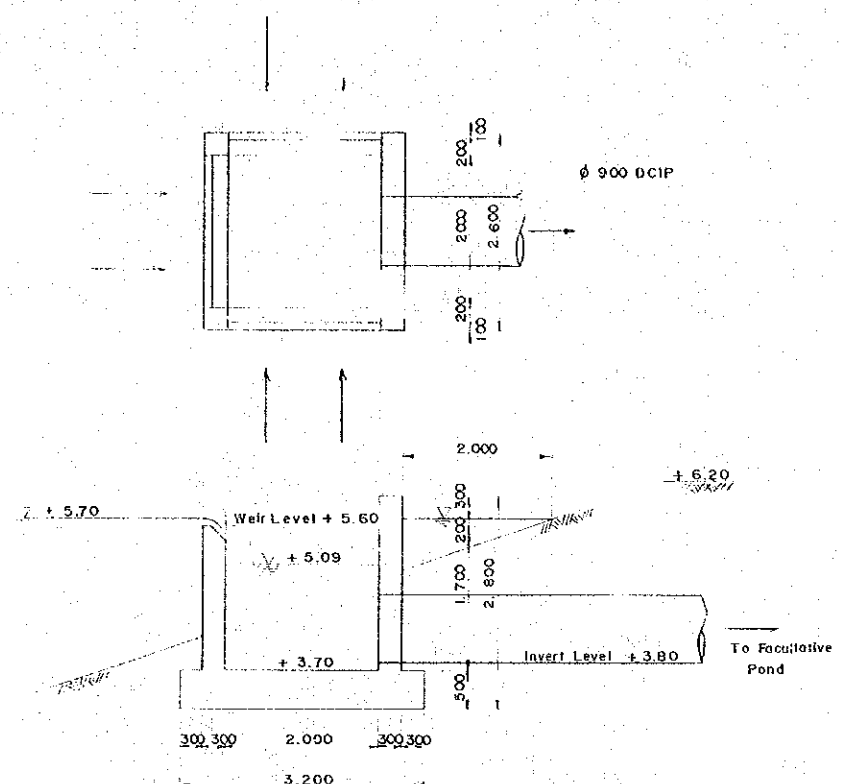
FEASIBILITY STUDY ON THE IMPROVEMENT
OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM

INLET WORKS FOR ABYAN ROAD STP
PLAN AND SECTION

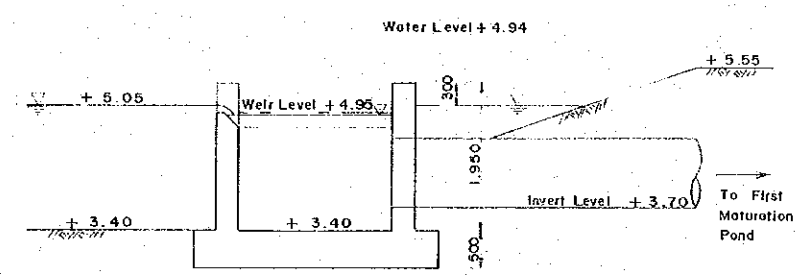
DATE	JICA
JAN. 1990	DRAWING NO.
SCALE	53
1:50	



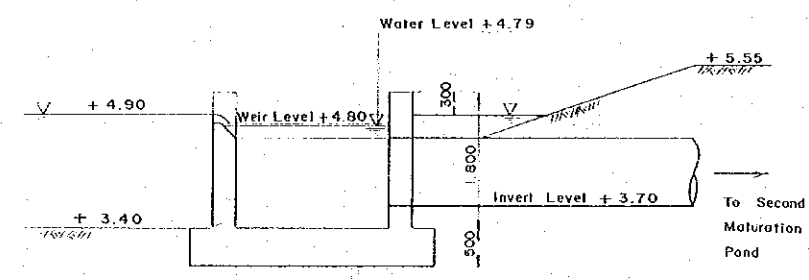
DISTRIBUTION CHAMBER



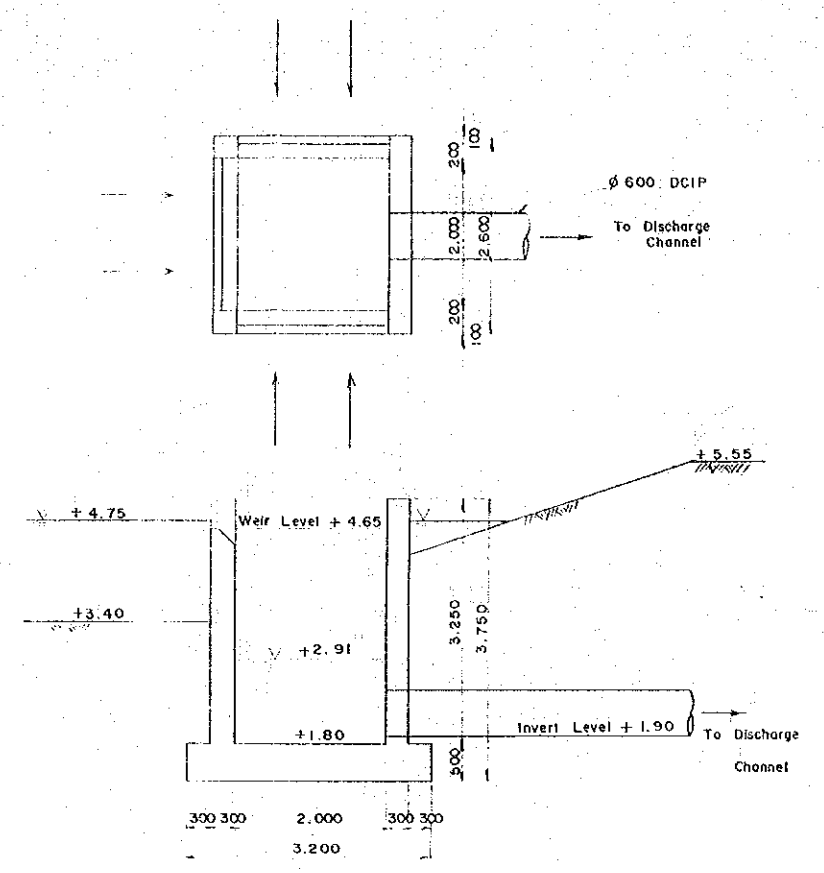
OUTLET CHAMBER OF ANAEROBIC POND



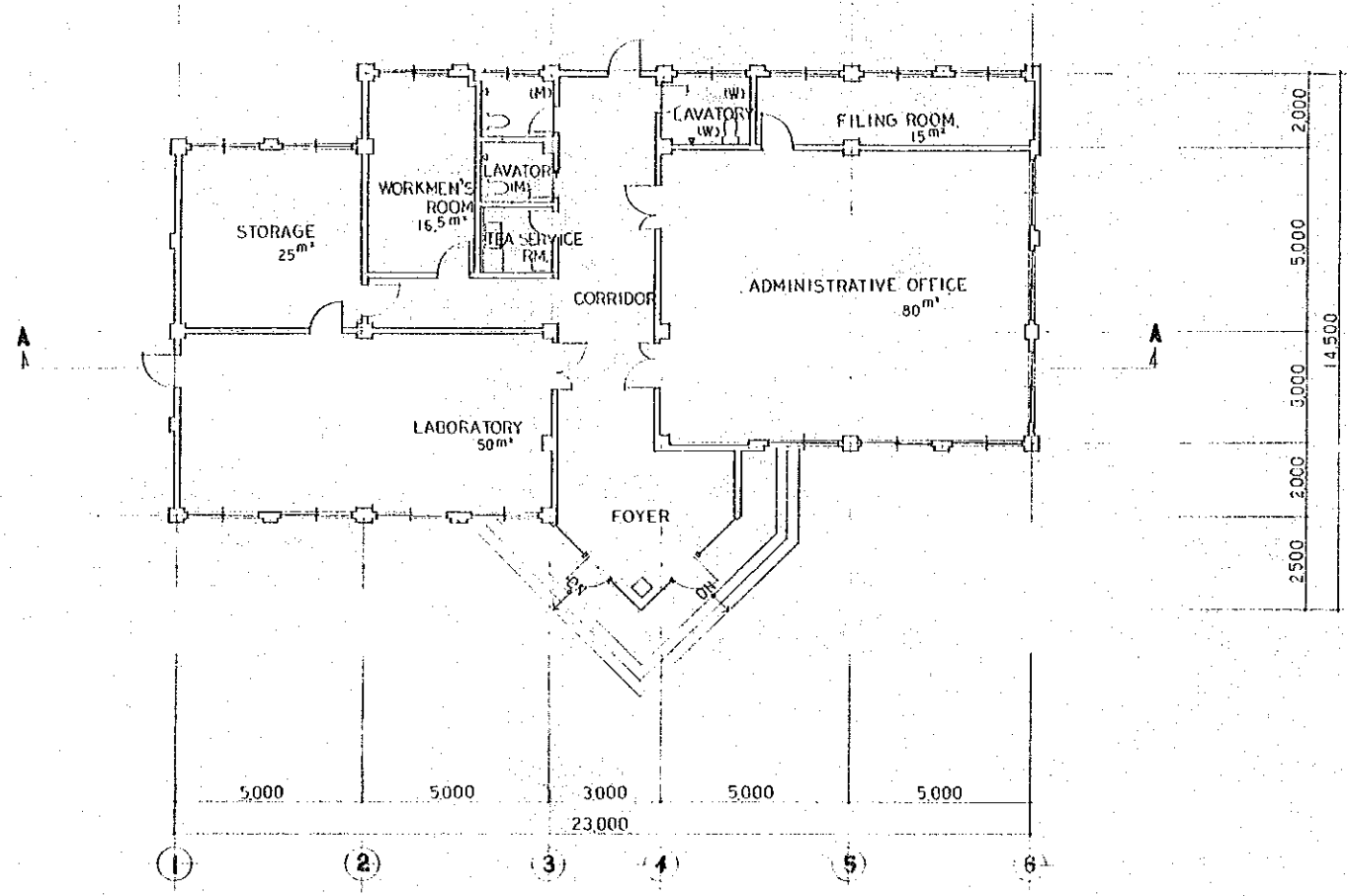
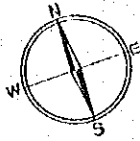
OUTLET CHAMBER OF FACULTATIVE POND



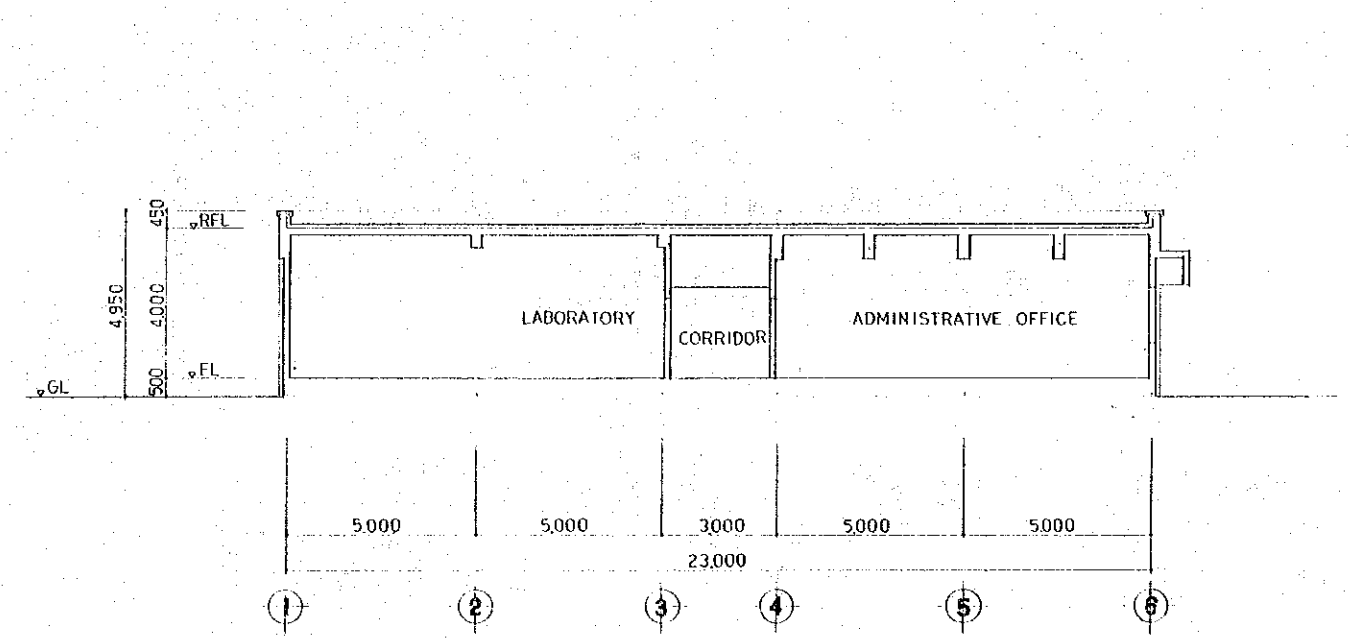
OUTLET CHAMBER OF FIRST MATURATION POND



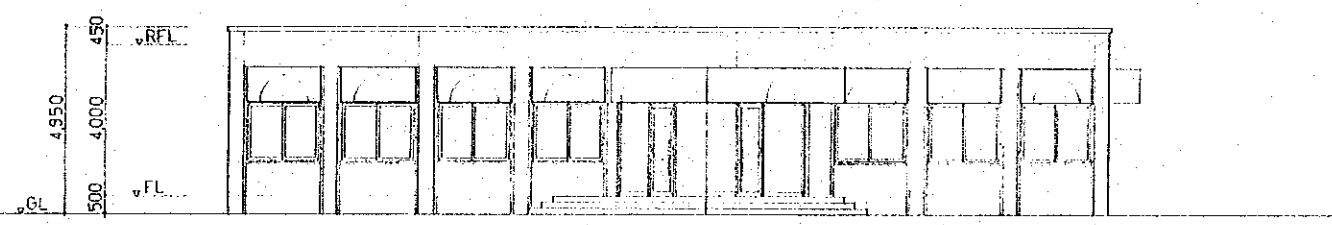
OUTLET CHAMBER OF SECOND MATURATION POND



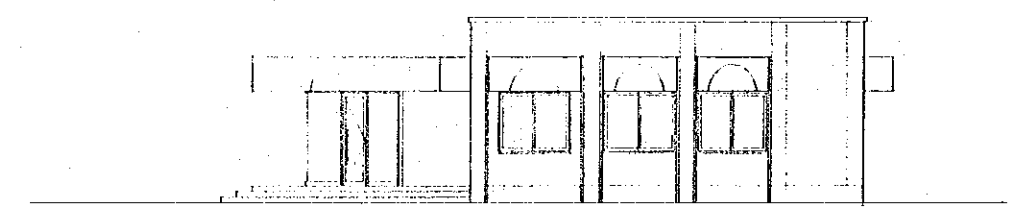
GROUND FLOOR PLAN 1/100



A-A SECTION 1/100

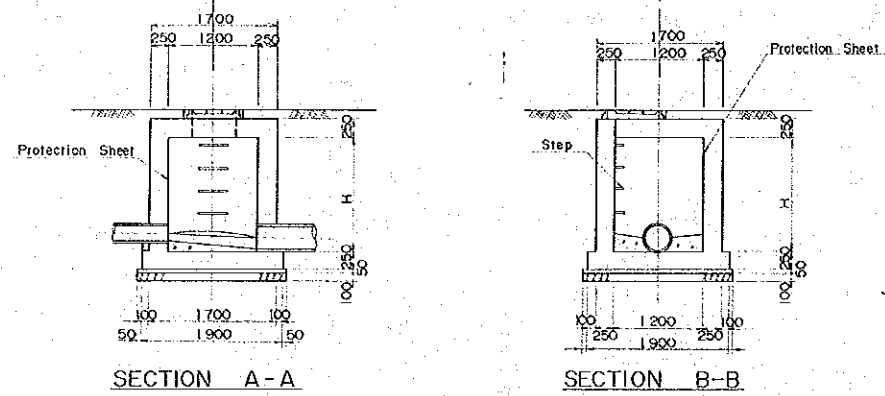
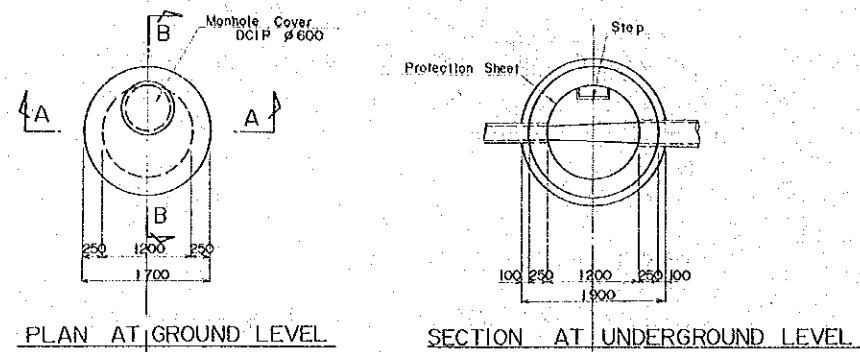


SOUTH ELEVATION 1/100

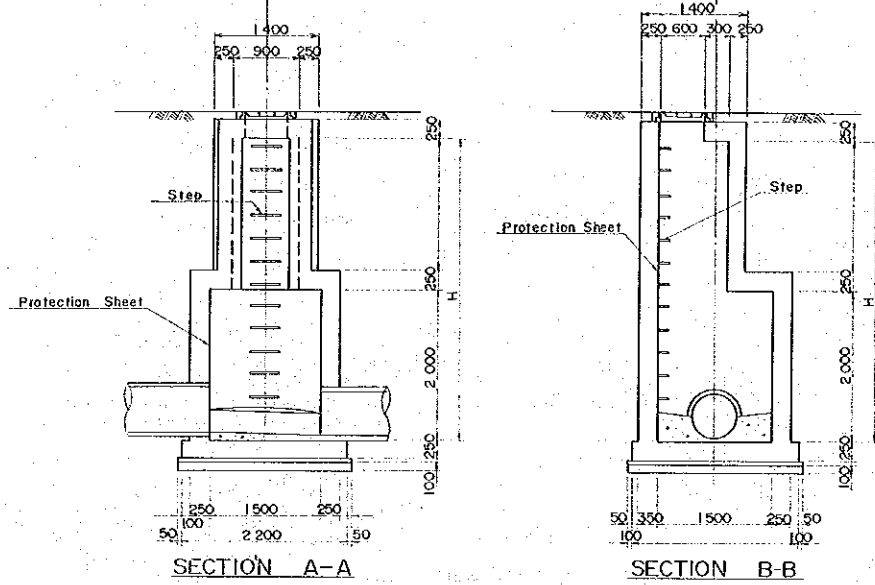
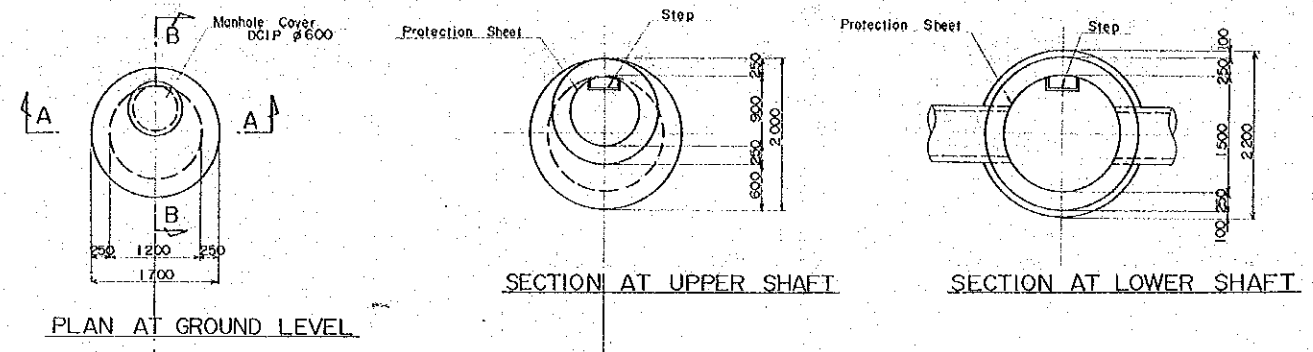


EAST ELEVATION 1/100

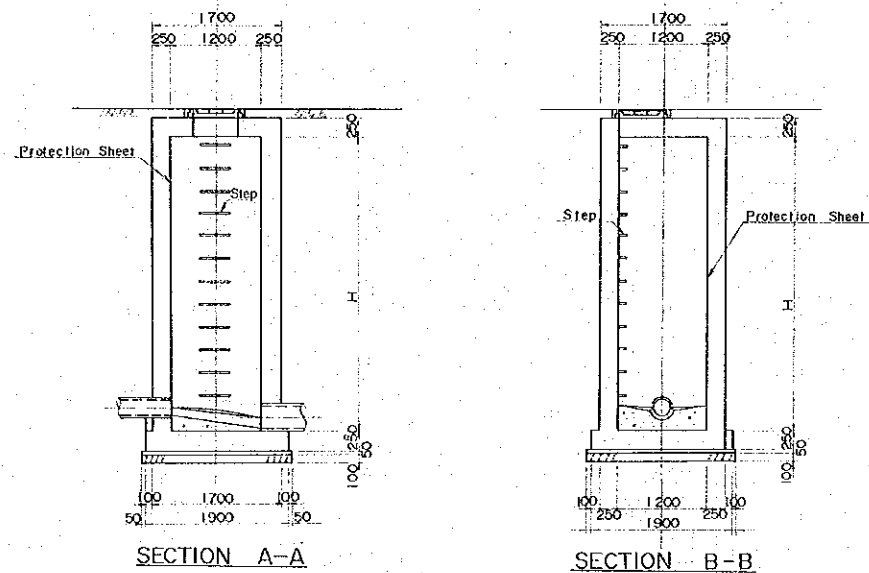
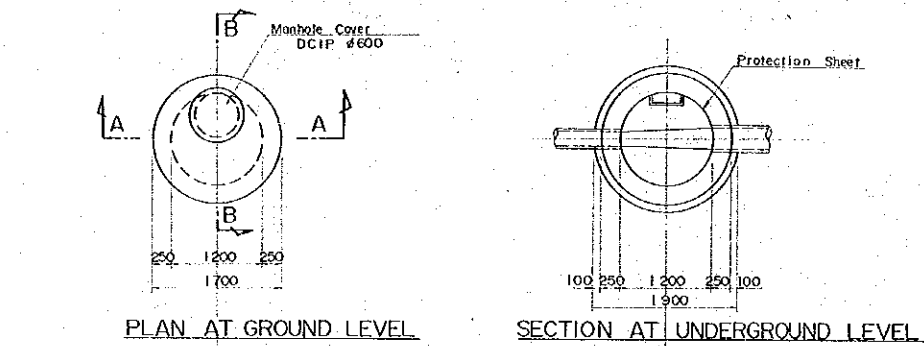
FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM PLAN, SECTION AND ELAVATIONS ADMINISTRATION BUILDING	DATE	JICA
	JAN. 1990	DRAWING NO.
	SCALE	55
	1 : 100	



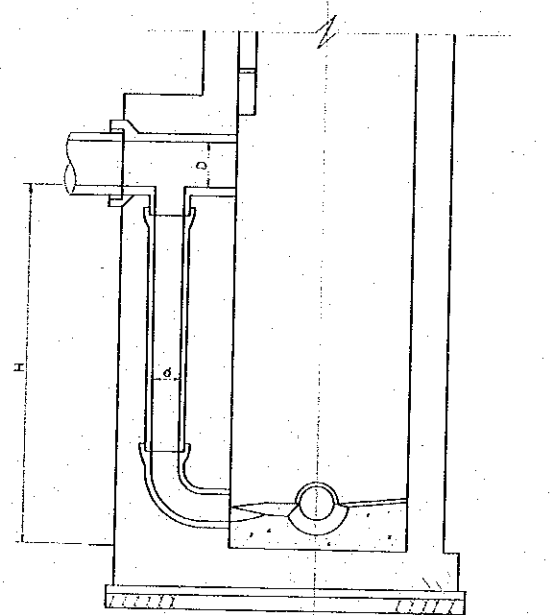
SHALLOW MANHOLE PIPES NOT EXCEEDING 500mm DIAMETER



DEEP MANHOLE PIPES EXCEEDING 600mm DIAMETER



DEEP MANHOLE PIPES NOT EXCEEDING 500mm DIAMETER



D mm	d mm
200	200
250	200
300	200
350	200
400	200
450	200
500	200
600	200

NOTE: H > 60 cm

FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM

DATE
JAN. 1990

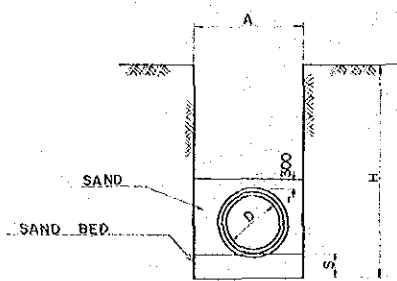
JICA

STRUCTURAL STANDARD DETAILS (1/2)

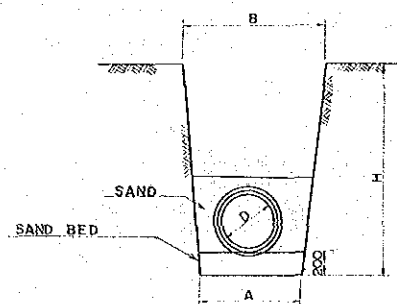
SCALE
1:50

DRAWING NO.

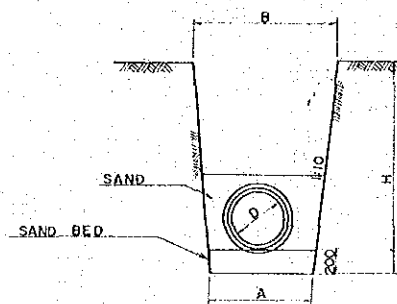
56



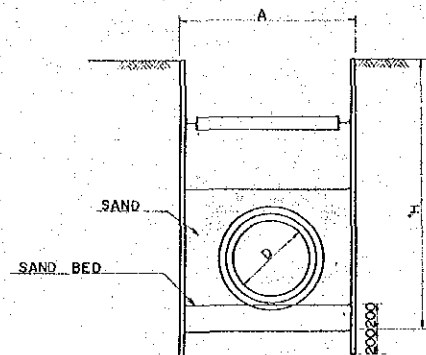
OPEN-CUT AT ROCKY SITE



OPEN-CUT AT SOIL

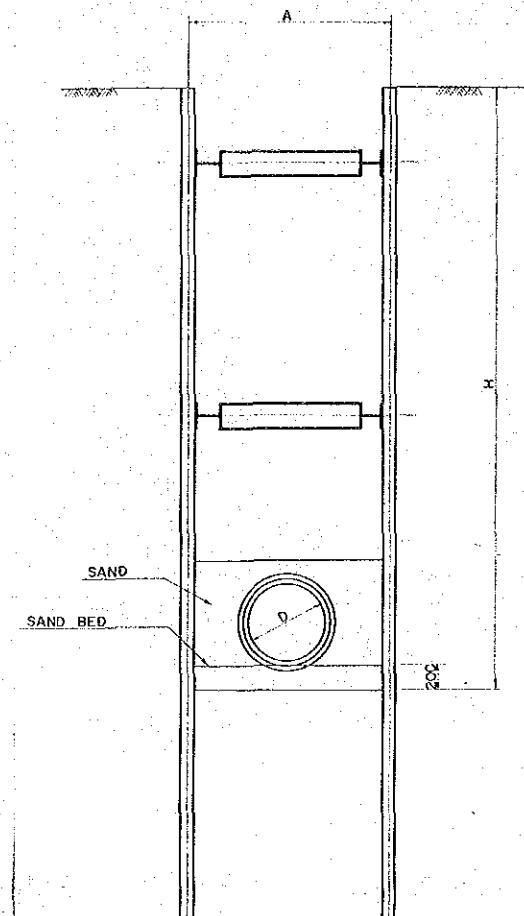


OPEN-CUT WITHOUT SHEETING



OPEN-CUT WITH TRENCH SHEET

OPEN CUT AT GRAVITY SEWER



OPEN-CUT WITH SHEET PILE

OPEN-CUT AT FORCE MAIN

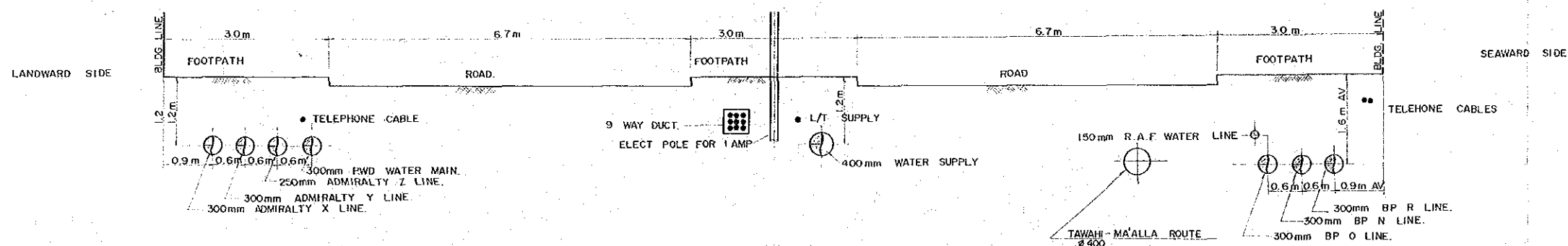
Dia	D mm	A m	H m	S mm
100	100	0.50	1.40	200
150	150	"	"	"
200	200	0.60	1.50	"
250	250	"	"	"
300	300	"	1.60	"
350	350	0.70	"	"
400	400	0.80	1.80	"
450	450	0.90	"	"
500	500	1.10	1.90	"
600	600	1.30	2.20	"
700	700	1.50	2.30	300
800	800	1.70	2.40	"
900	900	1.90	2.50	"

Dia	D mm	A m	B m	H m
100	100	0.50	0.80	1.40
150	150	"	"	"
200	200	0.60	0.90	1.50
250	250	"	"	"
300	300	"	"	1.60
350	350	0.70	1.00	"
400	400	0.80	1.20	1.80
450	450	0.90	1.30	"
500	500	1.10	1.50	1.90
600	600	1.30	1.70	2.20
700	700	1.50	2.00	2.30
800	800	1.70	2.20	2.40
900	900	1.90	2.40	2.50

φ mm	A m
200	800
250	"
300	"
350	900
400	"
450	1000
500	"
600	1200

D mm	A mm
200	800
250	900
300	"
350	1000
400	"
450	1100
500	1200
600	"

D mm	A mm
200	1300
250	"
300	"
350	"
400	1500
450	"
500	"
600	"

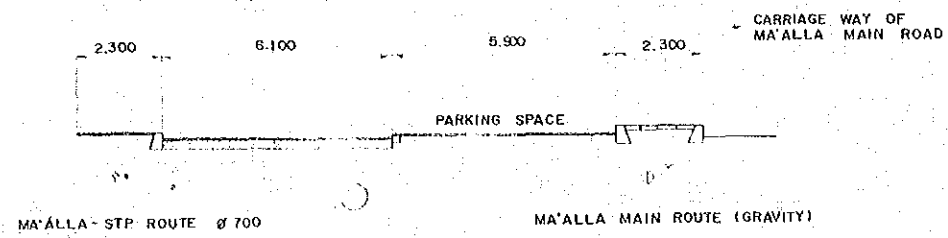


GENERAL SECTION OF DUAL CARRIAGEWAY IN TAWAHI
Scale 1:50

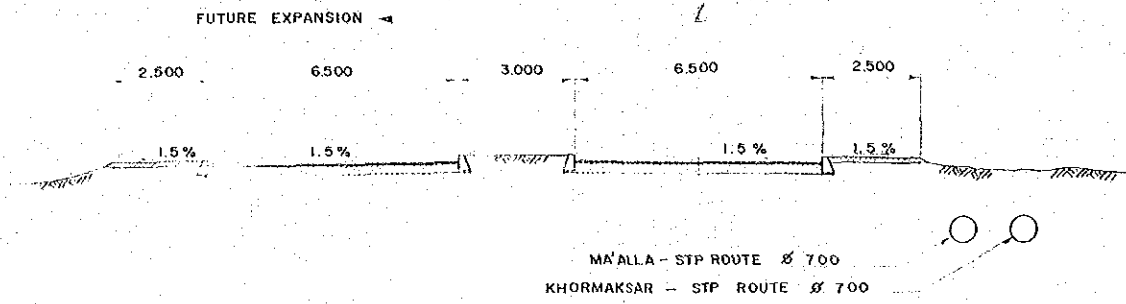
NOTE: SERVICES AS NOTED DOWN FROM PWD DRWG

FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM	DATE	JICA
	JAN. 1990	
	SCALE	DRAWING NO.
	AS SHOWN	57

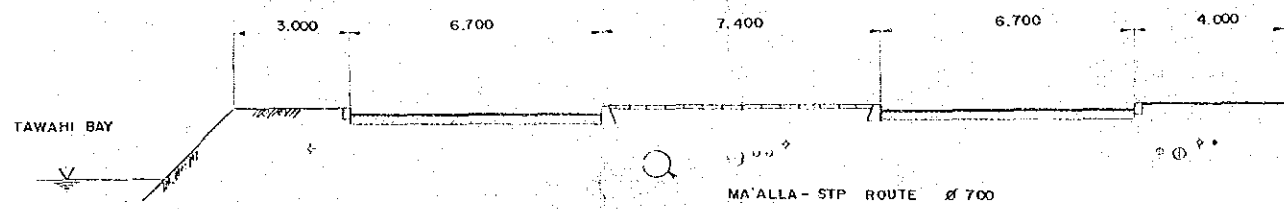
STRUCTURAL STANDARD DETAILS (2/2)



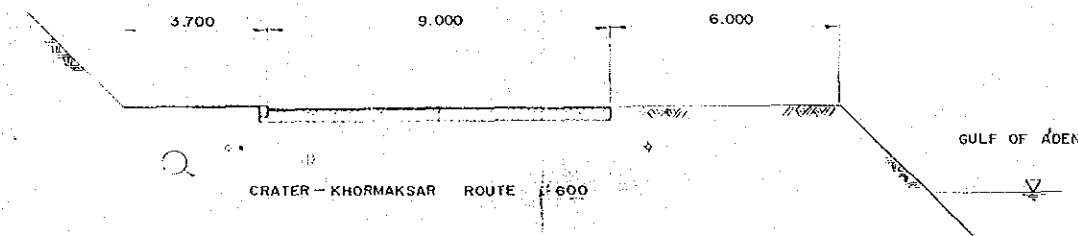
TYPICAL CROSS SECTION OF MA'ALLA SERVICE ROAD



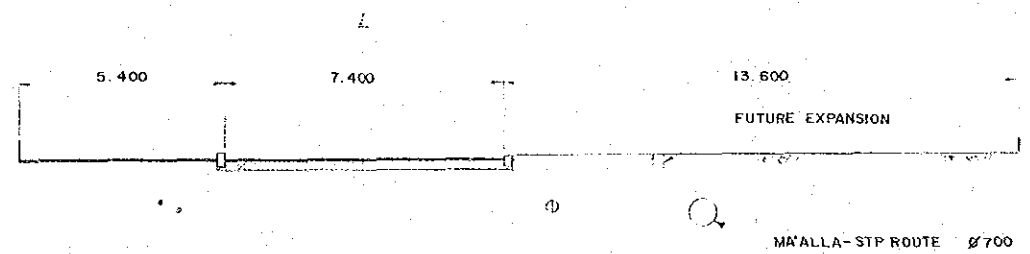
TYPICAL CROSS SECTION OF KHORMAKSAR BEACH ROAD



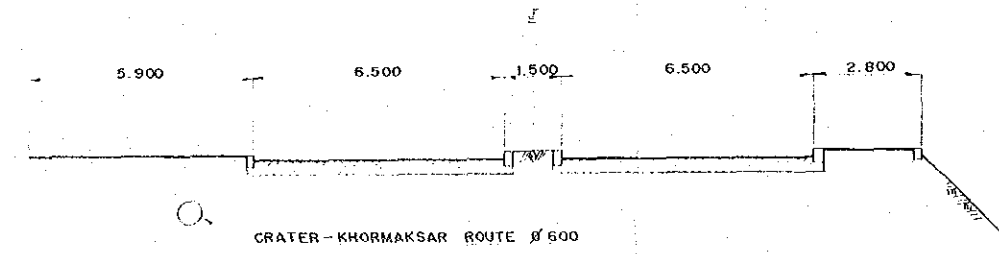
TYPICAL CROSS SECTION BETWEEN MA'ALLA AND KHORMAKSAR



TYPICAL CROSS SECTION BETWEEN CRATER AND KHORMAKSAR



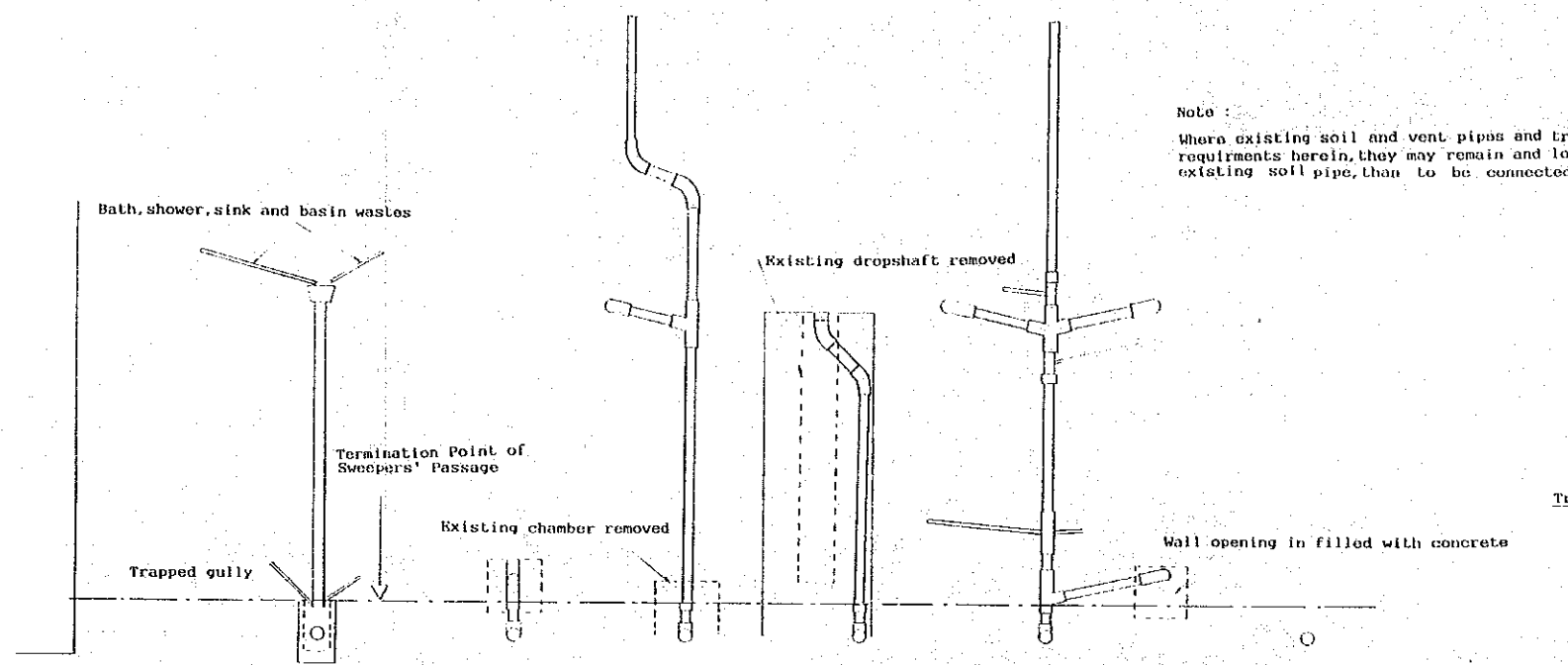
TYPICAL CROSS SECTION BETWEEN HOSPITAL ROUNDABOUT AND YEMEN AUTHOR UNION JUNCTION



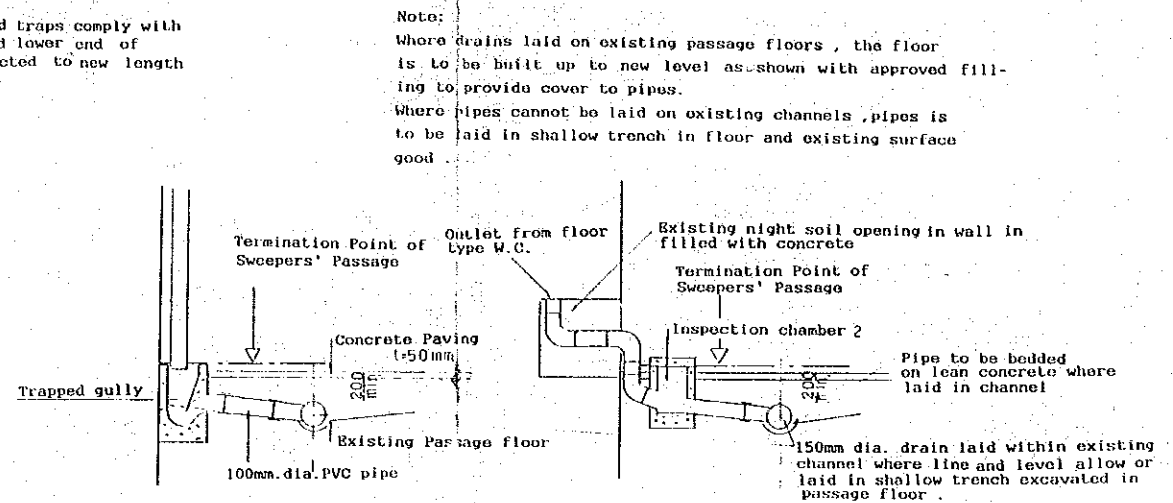
TYPICAL CROSS SECTION OF CRATER BEACH ROAD

LEGEND	
○	PROPOSED FORCE MAIN
↓	WATER PIPE
⊕	OIL PIPE
●	TELEPHONE CABLE
⚡	ELECTRIC CBLE

FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM TYPICAL CROSS SECTIONS FOR FORCE MAIN	DATE	JICA
	JAN. 1990	
	SCALE	DRAWING NO.
	1 : 100	58

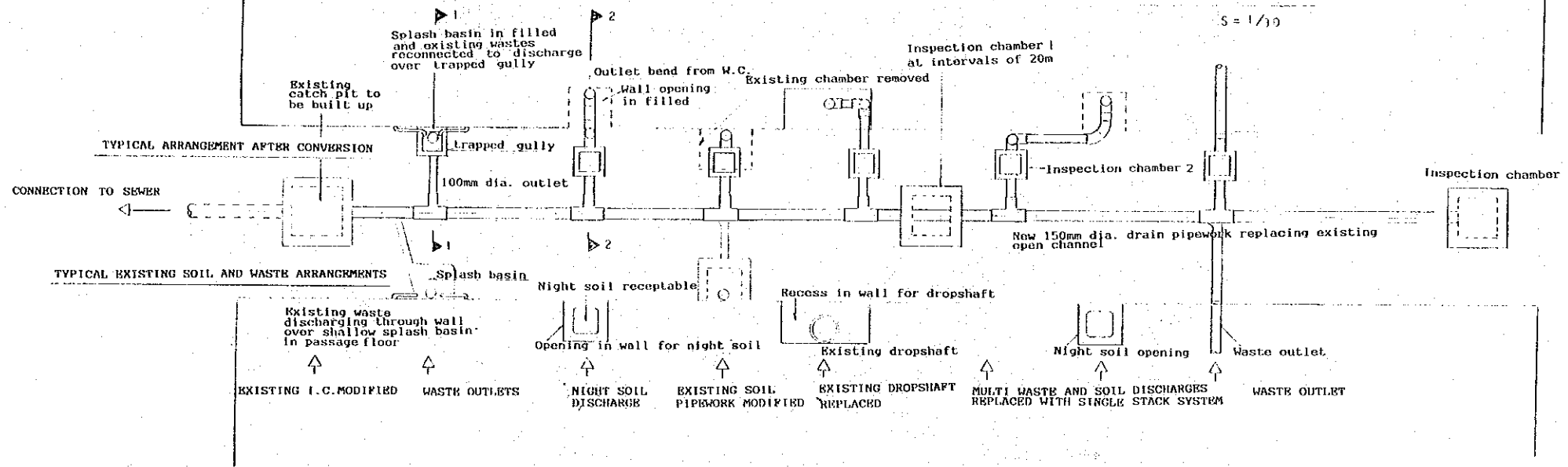


Note:
Where existing soil and vent pipes and traps comply with requirements herein, they may remain and lower end of existing soil pipe, than to be connected to new length

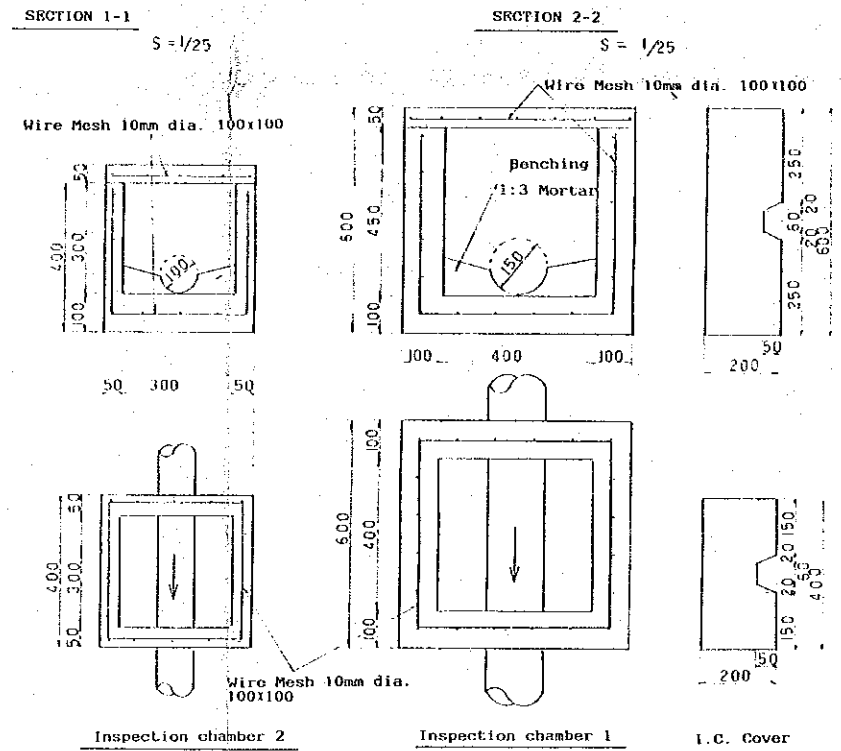


Note:
Where drains laid on existing passage floors, the floor is to be built up to new level as shown with approved filling to provide cover to pipes.
Where pipes cannot be laid on existing channels, pipes is to be laid in shallow trench in floor and existing surface good.

ELEVATION OF TYPICAL WALL SHOWING SOIL, WASTE AND VENT PIPE WORK FOR CONVERSION OR CONNECTION OF TYPICAL EXISTING ARRANGEMENTS



PLAN OF TYPICAL PASSAGE SHOWING TYPICAL DRAINAGE DETAILS AND CONNECTION OR CONVERSION ARRANGEMENTS



DETAIL OF INSPECTION CHAMBER

FEASIBILITY STUDY ON THE IMPROVEMENT OF MA'ALLA AND TAWAHI SEWERAGE SYSTEM	DATE	JICA
	JAN. 1990	
	SCALE	DRAWING NO.
	AS SHOWN	59

