

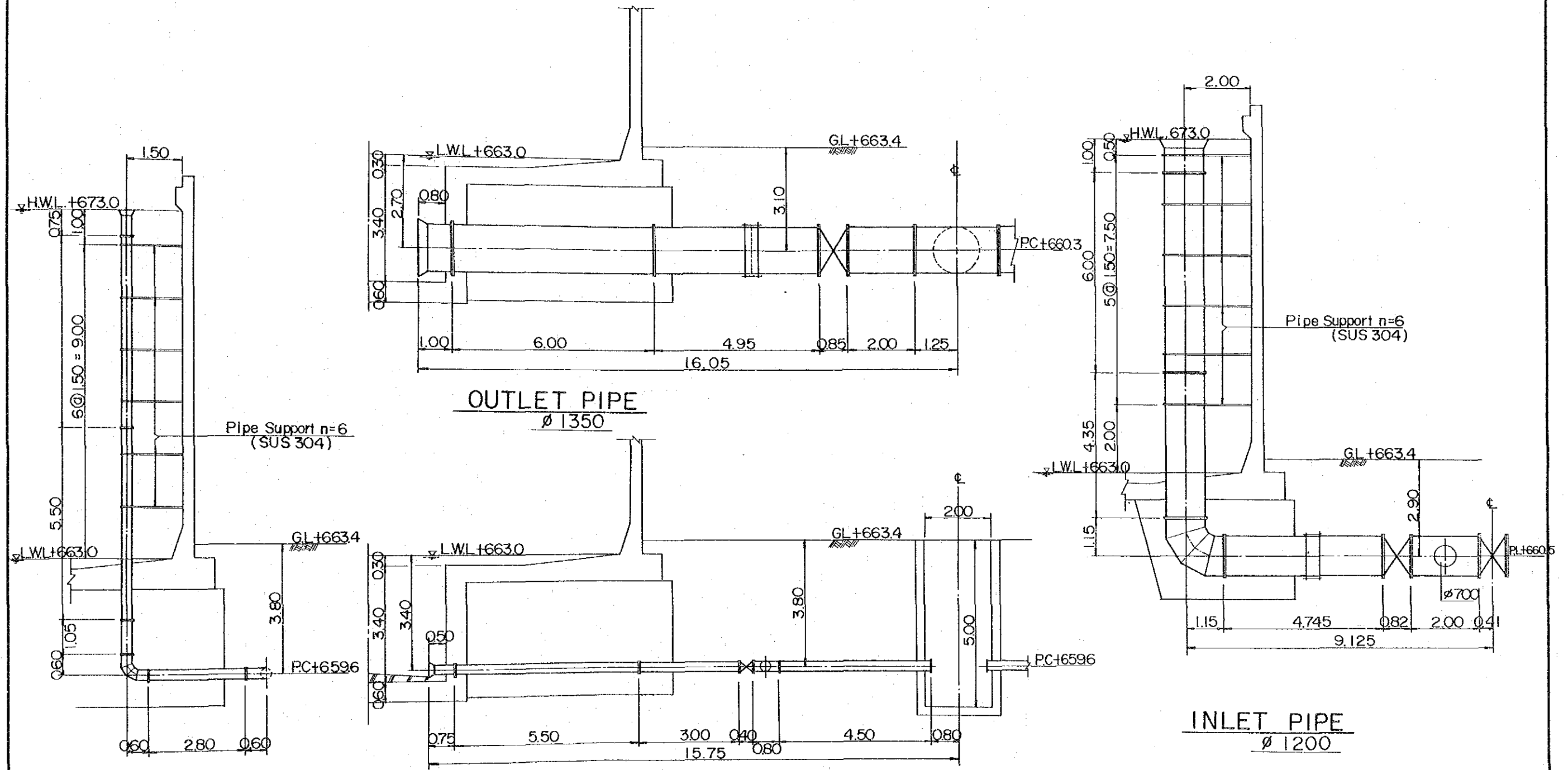
SECTION

SIDE ELEVATION

# TYPICAL SECTION

SCALE 1 : 200  
0 5m 10m

THE ISLAMIC REPUBLIC OF PAKISTAN CAPITAL DEVELOPMENT AUTHORITY			
THE CONDUCTION OF WATER FROM KHANPUR TO ISLAMABAD/RAWALPINDI			
GOLRA-I SERVICE RESERVOIR TYPICAL SECTION			
DATE		DWG. NO	31
JAPAN INTERNATIONAL COOPERATION AGENCY			



THE ISLAMIC REPUBLIC OF PAKISTAN CAPITAL DEVELOPMENT AUTHORITY			
THE CONDUCTION OF WATER FROM KHANPUR TO ISLAMABAD/RAWALPINDI			
GOLRA-I SERVICE RESERVOIR PIPE SECTION			
DATE		DWG.NO	32
JAPAN INTERNATIONAL COOPERATION AGENCY			

# DIMENSION OF RESERVOIR (GOLRA-2)

STRUCTURE	PRESTRESSED CONCRETE TANK
EFFECTIVE CAPACITY	$V = 16,600 \text{ cu.m} \times 1 \text{ UNIT}$
HIGH WATER LEVEL	HWL $624.5^m (2,048\text{ft})$
LOW WATER LEVEL	LWL $614.5^m (2,015\text{ft})$
MAXIMUM INFLOW DISCHARGE	$Q_{MAX} = 0.768 \text{ cu.m/sec}$
MAXIMUM OUTFLOW DISCHARGE	$Q_{MAX} = 1.152 \text{ cu.m/sec}$
PLANNING GROUND ELEVATION	EL $614.6^m (2,015\text{ft})$
SERVICE AREA	ISLAMABAD LOW ZONE

PLANNING GROUND ELEVATION  
EL  $614.6^m (2,015\text{ft})$

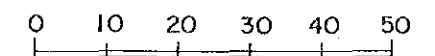
GOLRA-2 SERVICE RESERVOIR

GENERAL PLAN

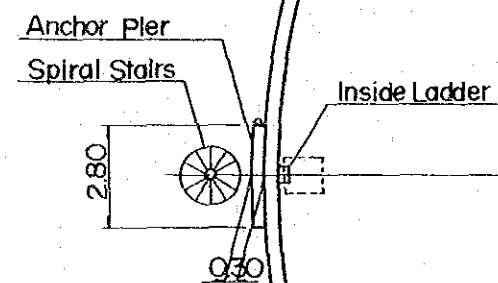
OUTLET PIPE  $\phi 1100$

INLET PIPE  $\phi 800$

SCALE 1:1000



THE ISLAMIC REPUBLIC OF PAKISTAN CAPITAL DEVELOPMENT AUTHORITY			
THE CONDUCTION OF WATER FROM KHANPUR TO ISLAMABAD/RAWALPINDI			
SERVICE RESERVOIR GOLRA-2 GENERAL PLAN			
DATE		DWG.NO	33
JAPAN INTERNATIONAL COOPERATION AGENCY			

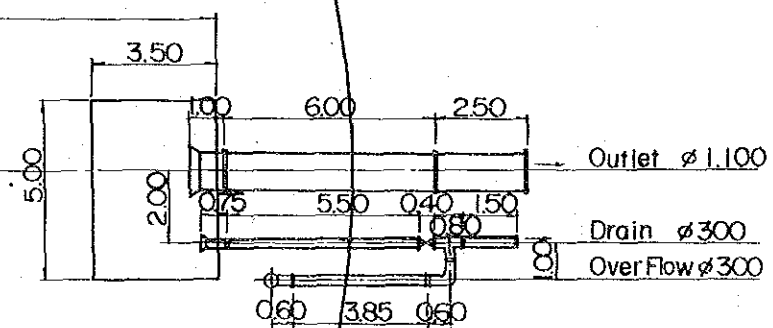
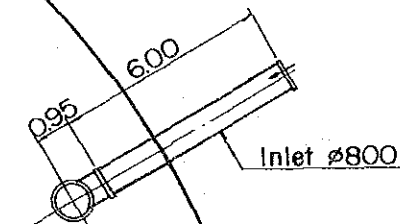


$V_e = 16600 \text{ }^\dagger$

PLAN

$\phi 47.95$

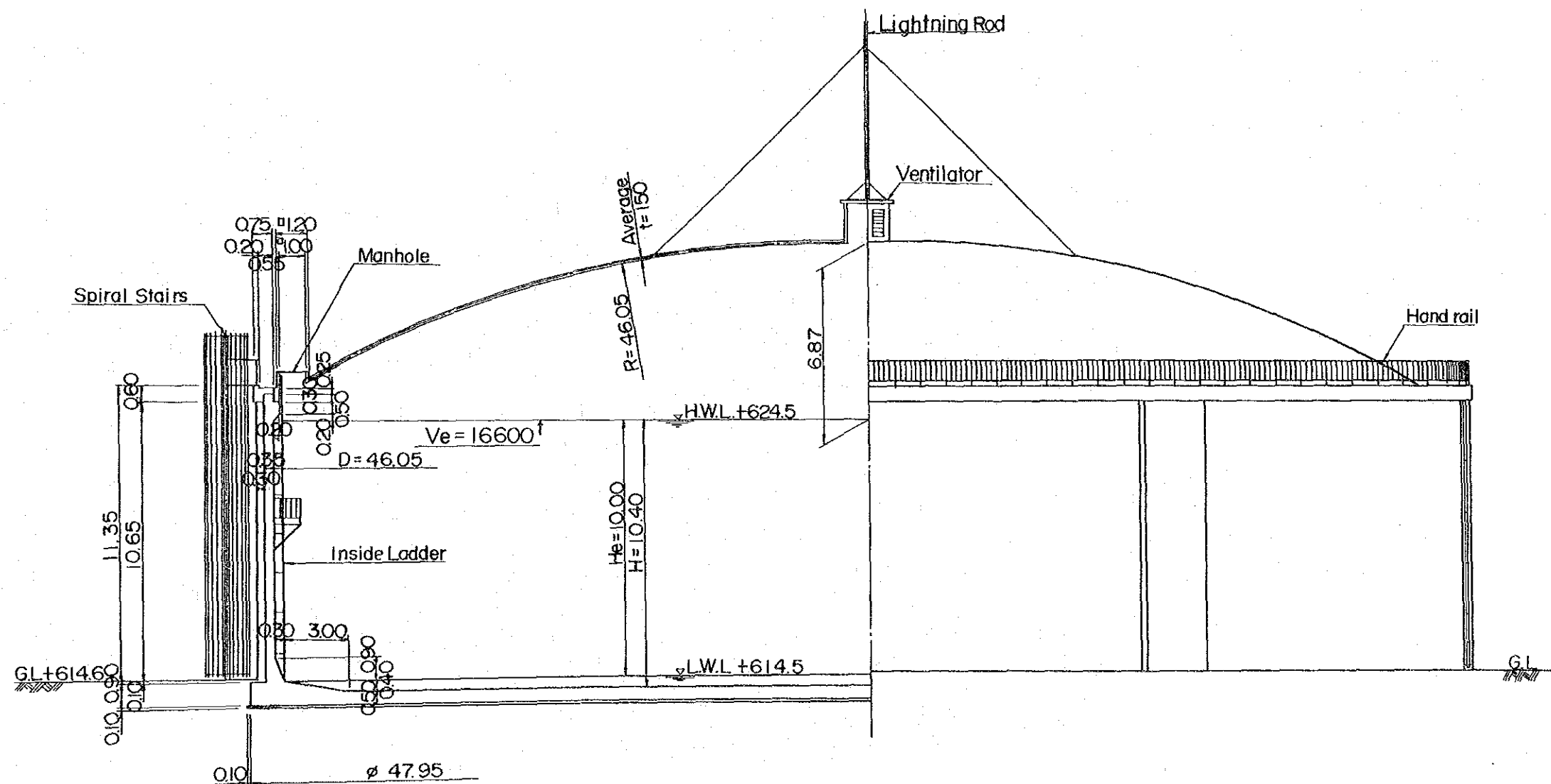
20.00



SCALE 1 : 200

0 5m 10m

THE ISLAMIC REPUBLIC OF PAKISTAN CAPITAL DEVELOPMENT AUTHORITY			
THE CONDUCTION OF WATER FROM KHANPUR TO ISLAMABAD / RAWALPINDI			
GOLRA-2 SERVICE RESERVOIR PLAN			
DATE		DWG. NO	34
JAPAN INTERNATIONAL COOPERATION AGENCY			



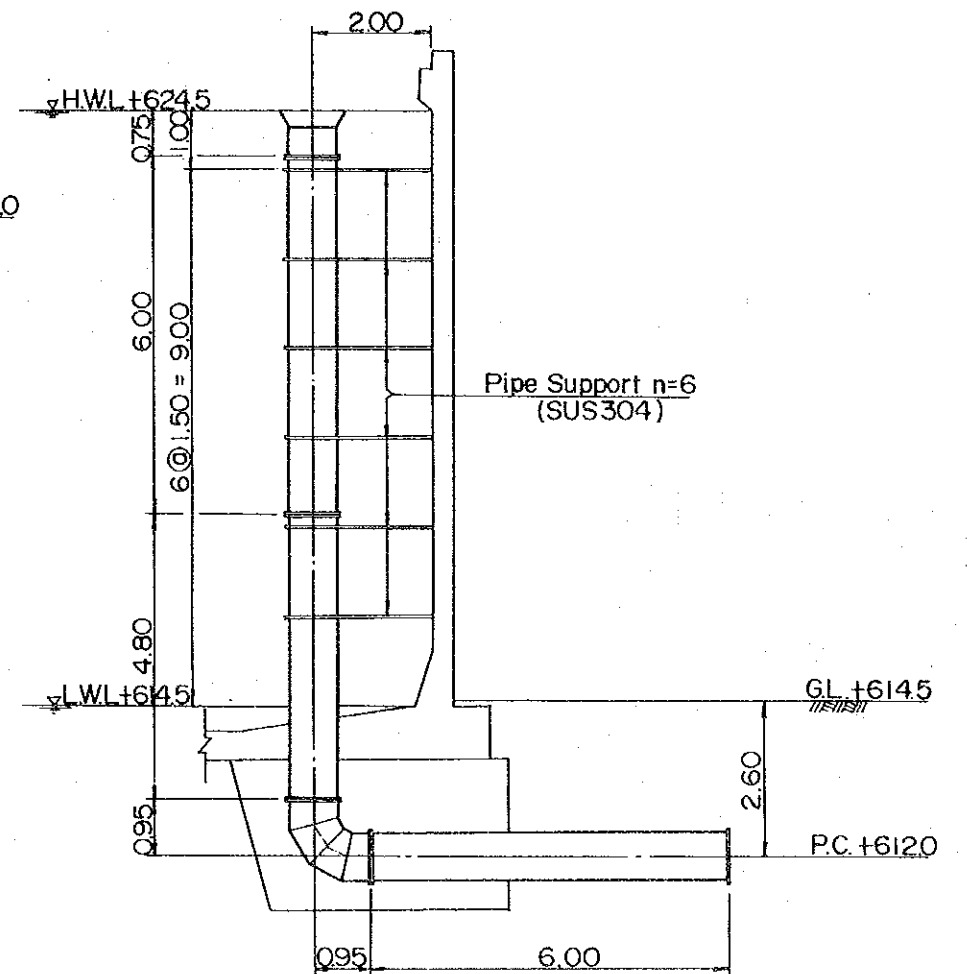
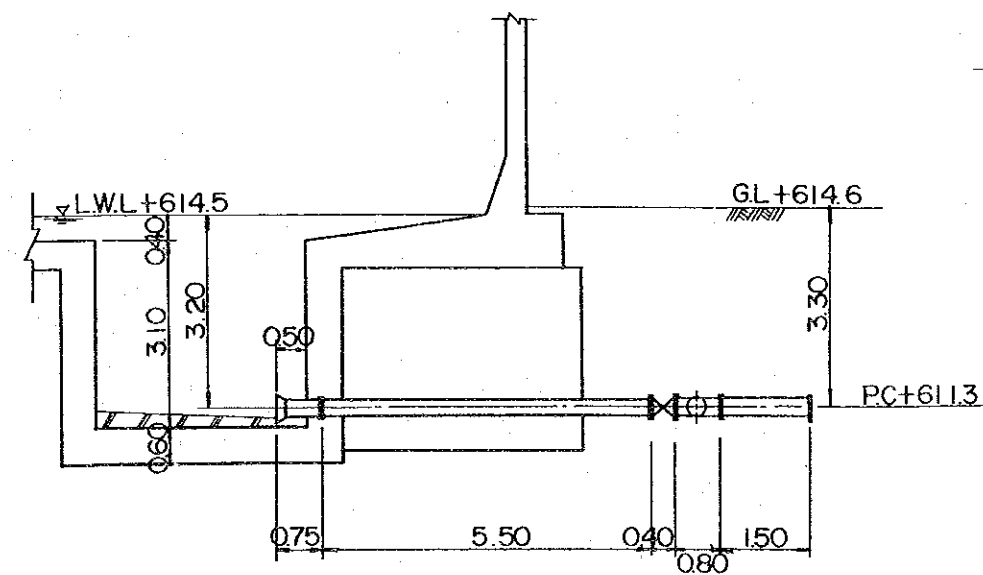
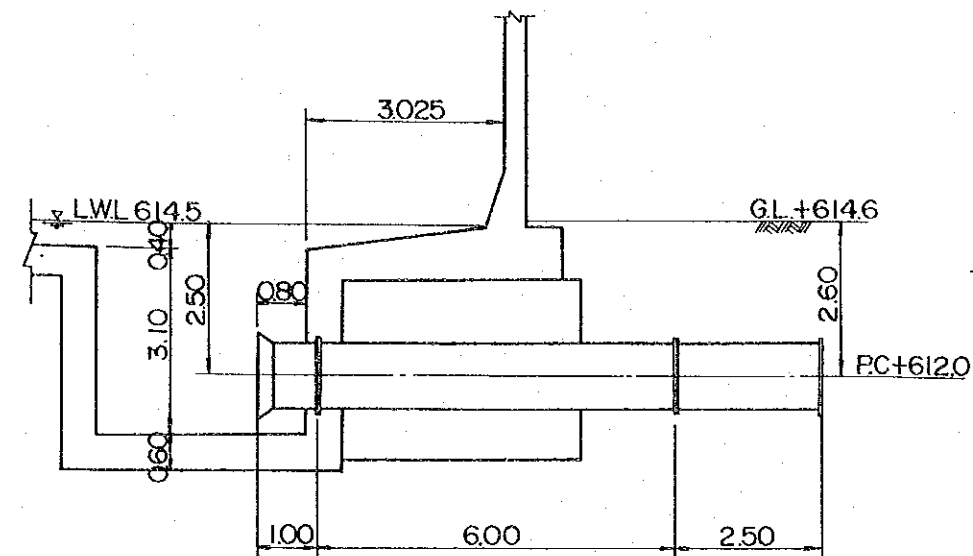
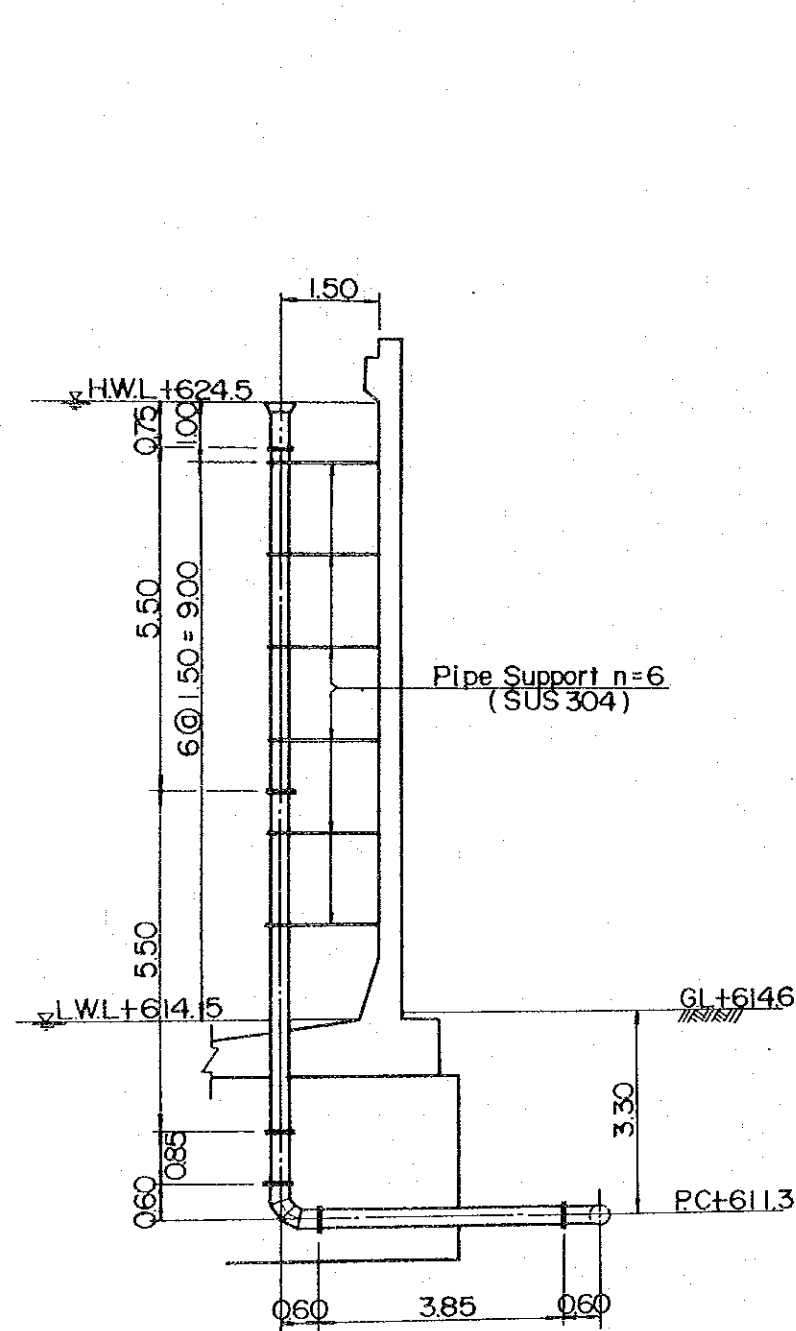
SECTION

SIDE ELEVATION

# TYPICAL SECTION

SCALE 1 : 200  
0 5m 10m

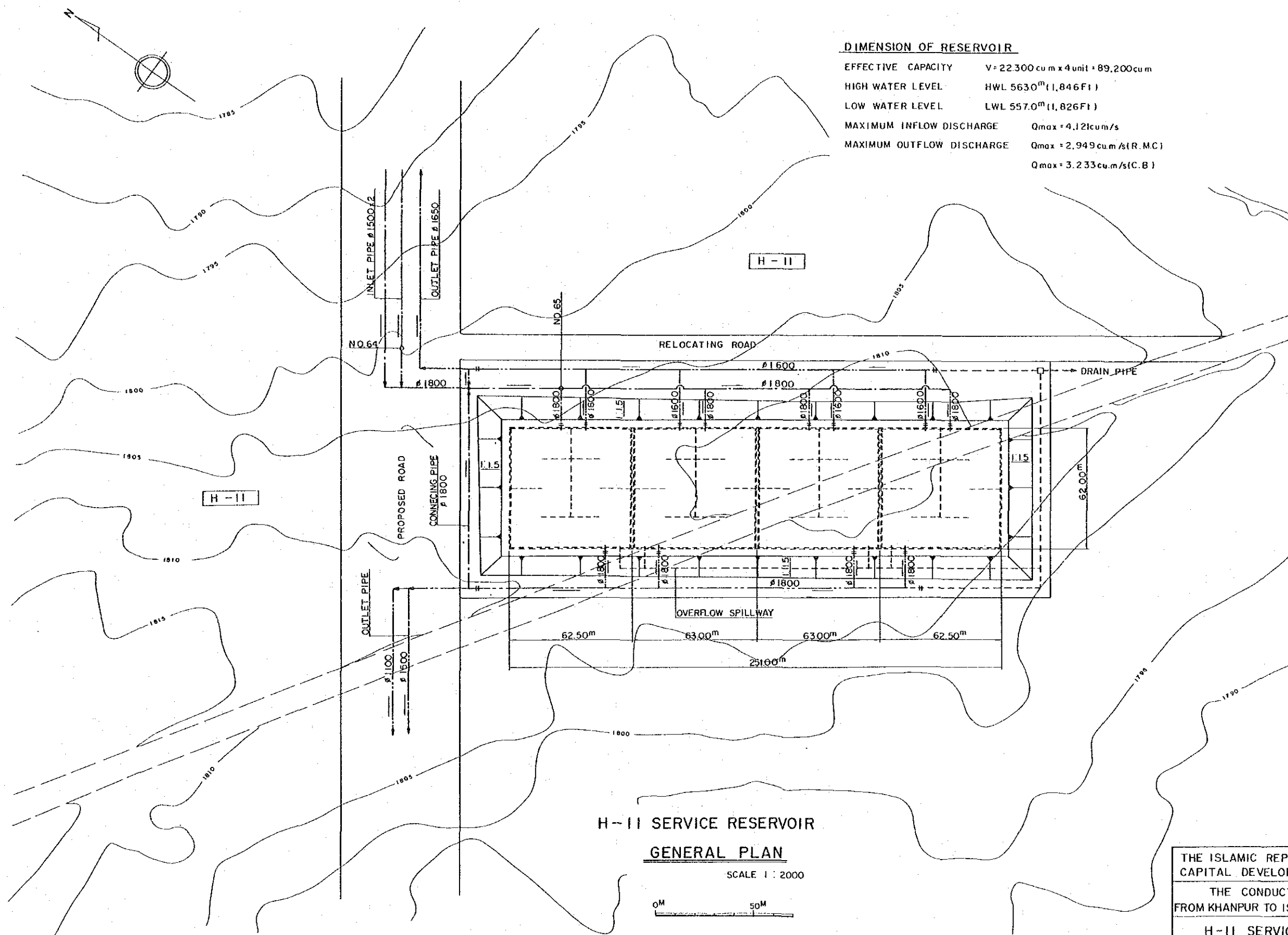
THE ISLAMIC REPUBLIC OF PAKISTAN CAPITAL DEVELOPMENT AUTHORITY			
THE CONDUCTION OF WATER FROM KHANPUR TO ISLAMABAD/RAWALPINDI			
GOLRA-2 SERVICE RESERVOIR TYPICAL SECTION			
DATE		DWG. NO	35
JAPAN INTERNATIONAL COOPERATION AGENCY			



SCALE 1 : 120

0 5m

THE ISLAMIC REPUBLIC OF PAKISTAN CAPITAL DEVELOPMENT AUTHORITY			
THE CONDUCTION OF WATER FROM KHANPUR TO ISLAMABAD/RAWALPINDI			
GOLRA-2 SEVICE RESERVOIR PIPE SECTION			
DATE		DWG. NO	36
JAPAN INTERNATIONAL COOPERATION AGENCY			



# DIMENSION OF RESERVOIR

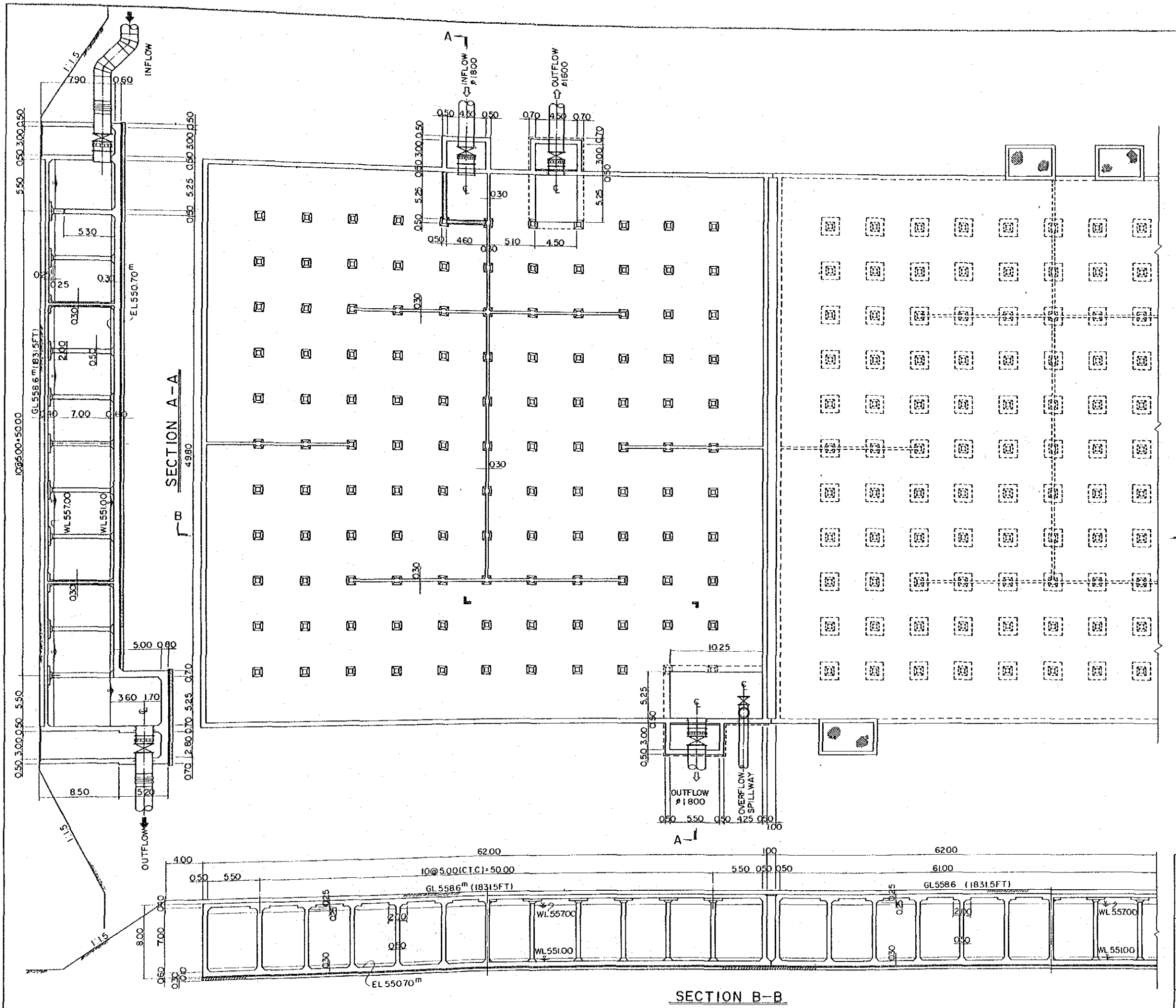
EFFECTIVE CAPACITY	$V = 22,300 \text{ cu m} \times 4 \text{ unit} = 89,200 \text{ cu m}$
HIGH WATER LEVEL	HWL 563.0 <sup>m</sup> (1,846 Ft)
LOW WATER LEVEL	LWL 557.0 <sup>m</sup> (1,826 Ft)
MAXIMUM INFLOW DISCHARGE	$Q_{\text{max}} = 4.12 \text{ cu m/s}$
MAXIMUM OUTFLOW DISCHARGE	$Q_{\text{max}} = 2.949 \text{ cu m/s (R.M.C.)}$
	$Q_{\text{max}} = 3.233 \text{ cu m/s (C.B.)}$

## H-II SERVICE RESERVOIR GENERAL PLAN

SCALE 1 : 2000

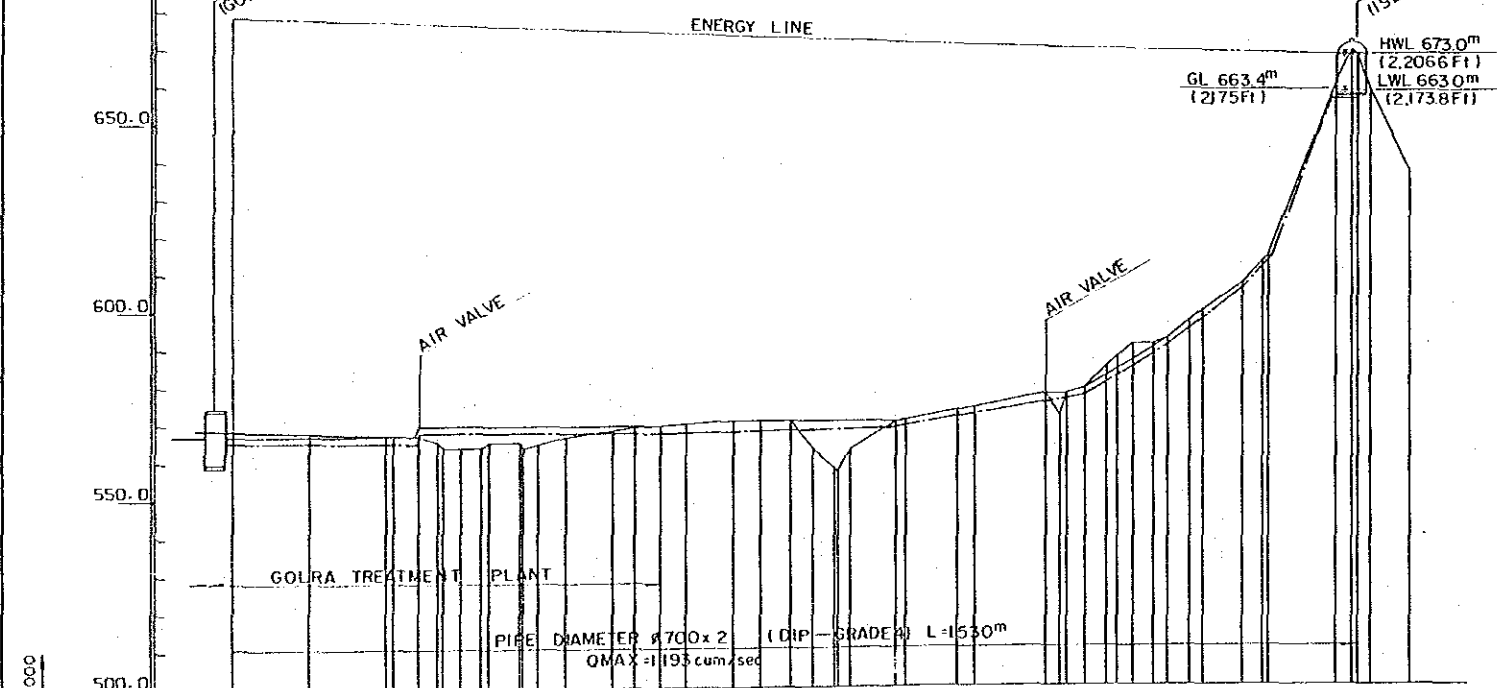
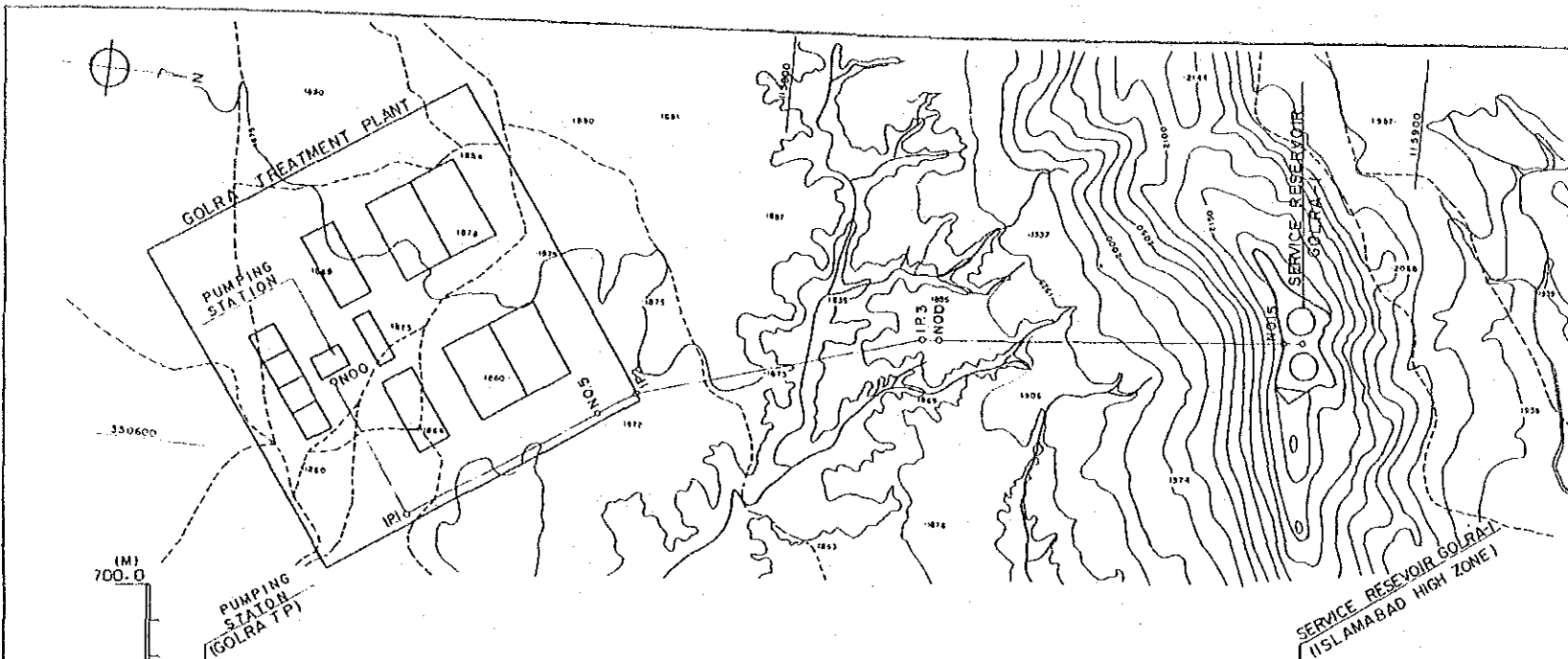


THE ISLAMIC REPUBLIC OF PAKISTAN CAPITAL DEVELOPMENT AUTHORITY		
THE CONDUCTION OF WATER FROM KHANPUR TO ISLAMABAD/RAWALPINDI		
H-II SERVICE RESERVOIR GENERAL PLAN		
DATE	DWG. NO	37
JAPAN INTERNATIONAL COOPERATION AGENCY		

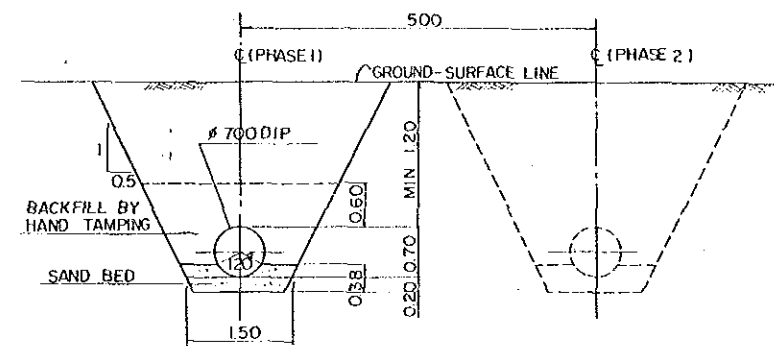


THE ISLAMIC REPUBLIC OF PAKISTAN CAPITAL DEVELOPMENT AUTHORITY		
THE CONDUCTION OF WATER FROM KHANPUR TO ISLAMABAD/RAWALPINDI		
H-II SERVICE RESERVOIR PLAN AND SECTION		
DATE	DWG. NO	38
JAPAN INTERNATIONAL COOPERATION AGENCY		

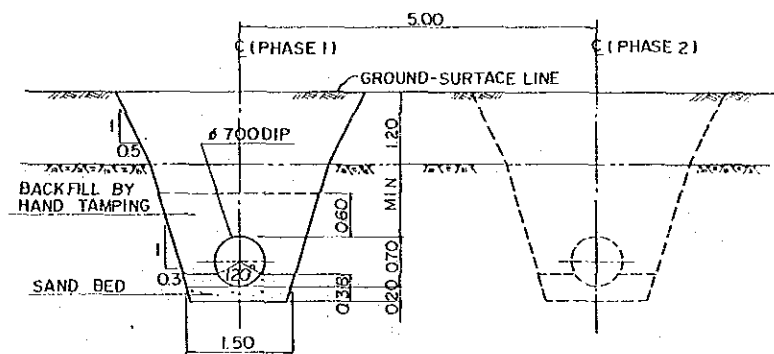




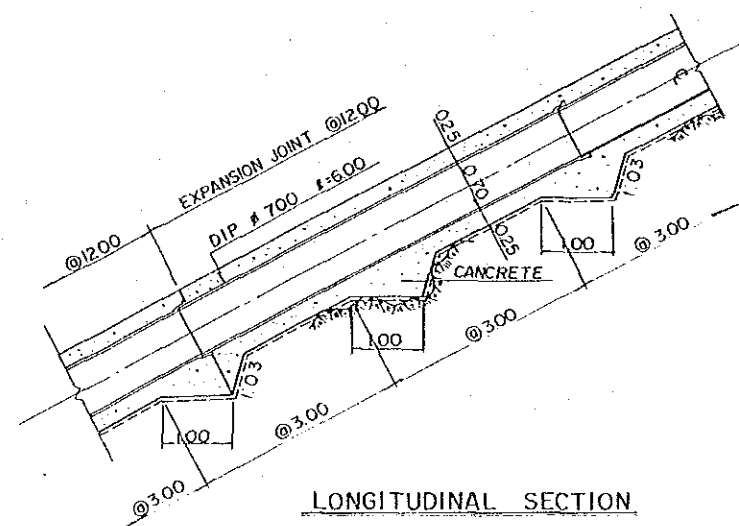
STATION	DISTANCE	TOTAL DISTANCE	EXISTING ELEVATION	GROUND ELEVATION	PIPE CENTER ELEVATION	COVERING	ENERGY ELEVATION
0+00	0.00	0.00	565.5	567.2	565.6	1.2	679.0
0+100	100.00	100.00	565.0	567.2	565.6	1.2	678.8
0+200	200.00	200.00	567.5	567.2	565.6	1.2	679.2
0+300	300.00	300.00	567.3	567.2	565.6	1.2	679.2
0+400	400.00	400.00	568.2	567.2	565.6	1.2	679.2
0+500	500.00	500.00	568.2	567.2	565.6	1.2	679.2
0+600	600.00	600.00	568.2	567.2	565.6	1.2	679.2
0+700	700.00	700.00	568.2	567.2	565.6	1.2	679.2
0+800	800.00	800.00	568.2	567.2	565.6	1.2	679.2
0+900	900.00	900.00	568.2	567.2	565.6	1.2	679.2
0+1000	1000.00	1000.00	568.2	567.2	565.6	1.2	679.2
0+1100	1100.00	1100.00	568.2	567.2	565.6	1.2	679.2
0+1200	1200.00	1200.00	568.2	567.2	565.6	1.2	679.2
0+1300	1300.00	1300.00	568.2	567.2	565.6	1.2	679.2
0+1400	1400.00	1400.00	568.2	567.2	565.6	1.2	679.2
0+1500	1500.00	1500.00	568.2	567.2	565.6	1.2	679.2
0+1600	1600.00	1600.00	568.2	567.2	565.6	1.2	679.2
0+1700	1700.00	1700.00	568.2	567.2	565.6	1.2	679.2
0+1800	1800.00	1800.00	568.2	567.2	565.6	1.2	679.2
0+1900	1900.00	1900.00	568.2	567.2	565.6	1.2	679.2
0+2000	2000.00	2000.00	568.2	567.2	565.6	1.2	679.2
0+2100	2100.00	2100.00	568.2	567.2	565.6	1.2	679.2
0+2200	2200.00	2200.00	568.2	567.2	565.6	1.2	679.2
0+2300	2300.00	2300.00	568.2	567.2	565.6	1.2	679.2
0+2400	2400.00	2400.00	568.2	567.2	565.6	1.2	679.2
0+2500	2500.00	2500.00	568.2	567.2	565.6	1.2	679.2
0+2600	2600.00	2600.00	568.2	567.2	565.6	1.2	679.2
0+2700	2700.00	2700.00	568.2	567.2	565.6	1.2	679.2
0+2800	2800.00	2800.00	568.2	567.2	565.6	1.2	679.2
0+2900	2900.00	2900.00	568.2	567.2	565.6	1.2	679.2
0+3000	3000.00	3000.00	568.2	567.2	565.6	1.2	679.2



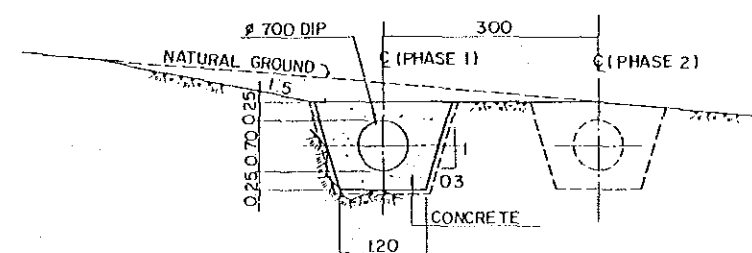
TYPICAL SECTION  
(EARTH ZONE)



TYPICAL SECTION  
(ROCR ZONE)



LONGITUDINAL SECTION



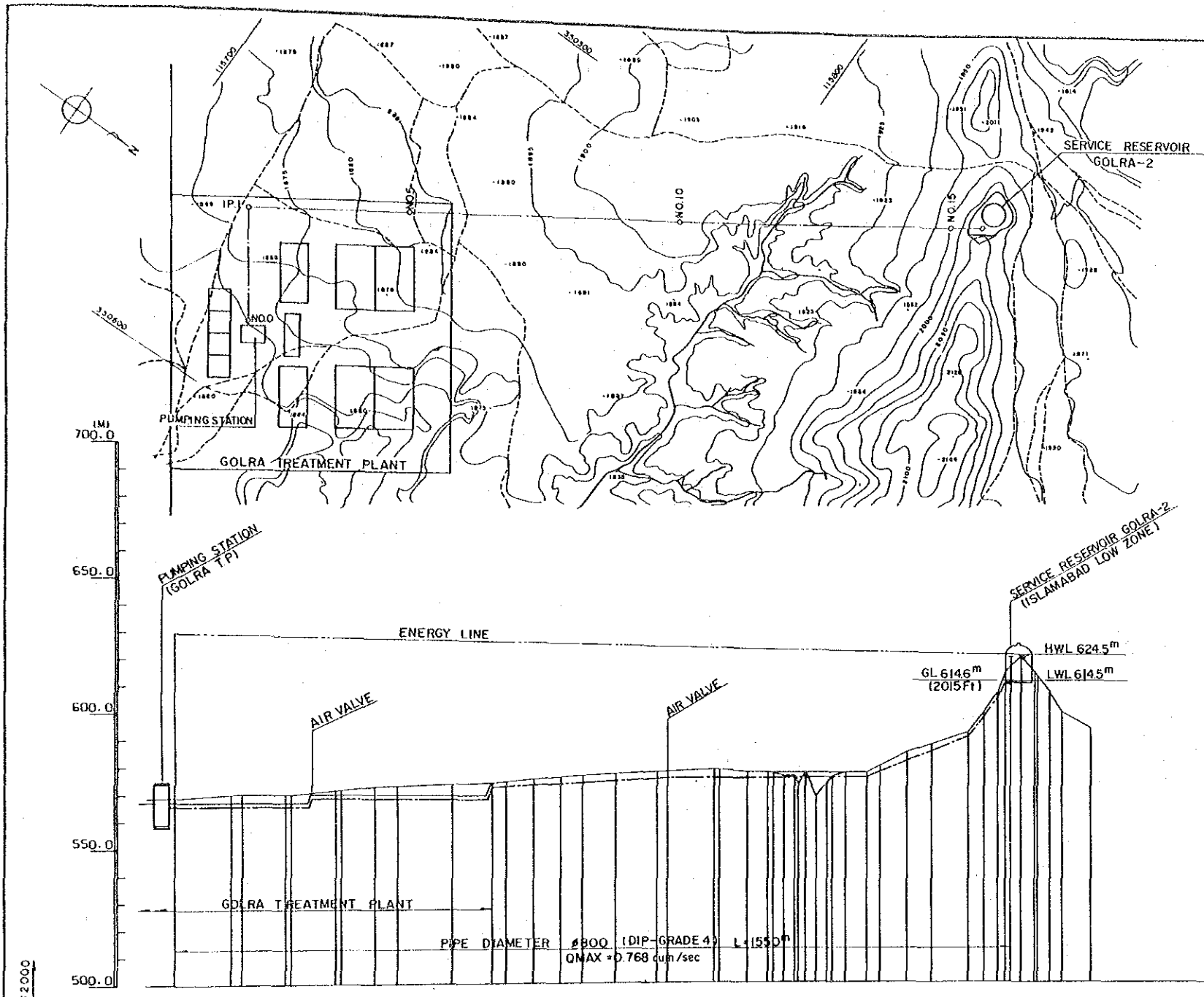
CROSS SECTION

TYPICAL SECTION  
(INCLINED ZONE)

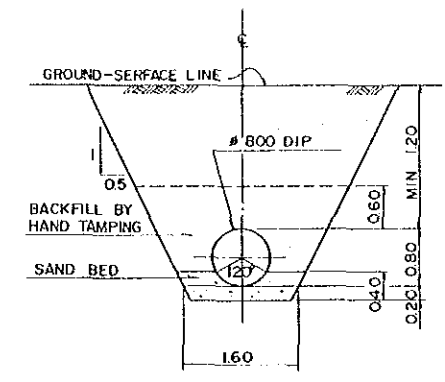
Unit: meter

THE ISLAMIC REPUBLIC OF PAKISTAN  
CAPITAL DEVELOPMENT AUTHORITY  
THE CONDUCTION OF WATER  
FROM KHANPUR TO ISLAMABAD/RAWALPINDI  
DISTRIBUTION MAIN FOR ISLAMABAD  
HIGH ZONE PLAN AND PROFILE

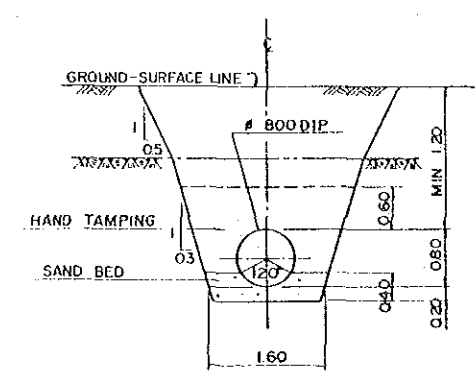
DATE	DWG NO	39
JAPAN INTERNATIONAL COOPERATION AGENCY		



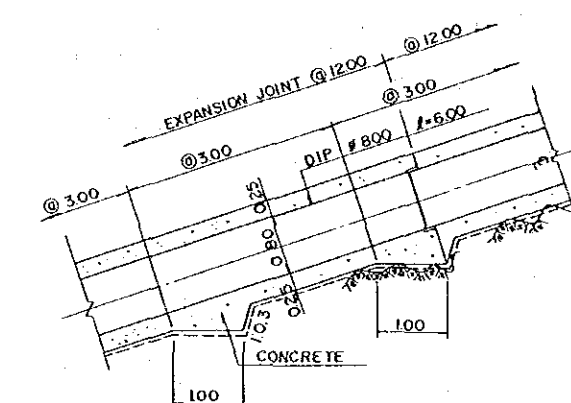
STATION	DISTANCE	PIPE CENTER ELEVATION	COVERING ELEVATION	ENERGY ELEVATION
0+00	0.0	567.2	565.6	629.5
0+10	100.0	567.2	565.6	629.5
0+20	200.0	567.2	565.6	629.5
0+30	300.0	567.2	565.6	629.5
0+40	400.0	570.2	568.6	628.2
0+50	500.0	570.2	568.6	627.9
0+60	600.0	574.4	573.3	627.6
0+70	700.0	574.4	573.3	627.3
0+80	800.0	577.3	576.6	626.9
0+90	900.0	577.3	576.6	626.6
1+00	1000.0	579.7	579.0	626.3
1+10	1100.0	580.3	579.0	626.0
1+20	1200.0	579.5	579.0	625.7
1+30	1300.0	579.5	579.0	625.4
1+40	1400.0	582.0	587.6	625.0
1+50	1500.0	587.1	593.1	624.7
1+60	1600.0	584.7	601.3	624.5
1+70	1700.0	582.4	608.4	
1+80	1800.0	582.4	608.4	
1+90	1900.0	582.4	608.4	
2+00	2000.0	582.4	608.4	
2+10	2100.0	582.4	608.4	
2+20	2200.0	582.4	608.4	
2+30	2300.0	582.4	608.4	
2+40	2400.0	582.4	608.4	
2+50	2500.0	582.4	608.4	
2+60	2600.0	582.4	608.4	
2+70	2700.0	582.4	608.4	
2+80	2800.0	582.4	608.4	
2+90	2900.0	582.4	608.4	
3+00	3000.0	582.4	608.4	



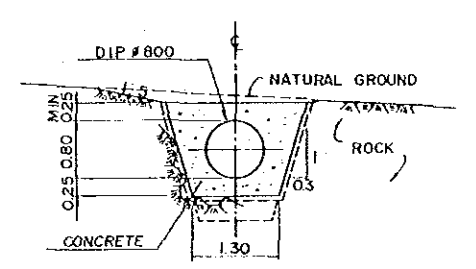
TYPICAL SECTION  
(EARTH ZONE)



TYPICAL SECTION  
(POCK ZONE)



LONGITUDINAL SECTION

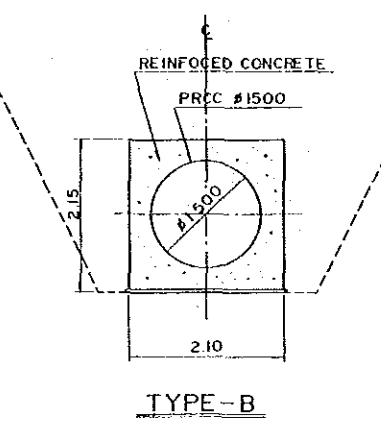
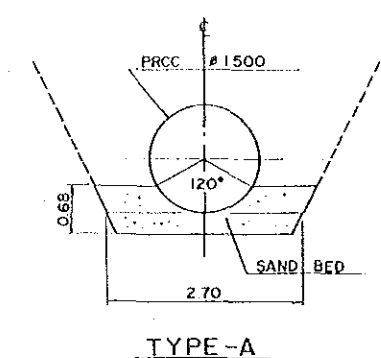
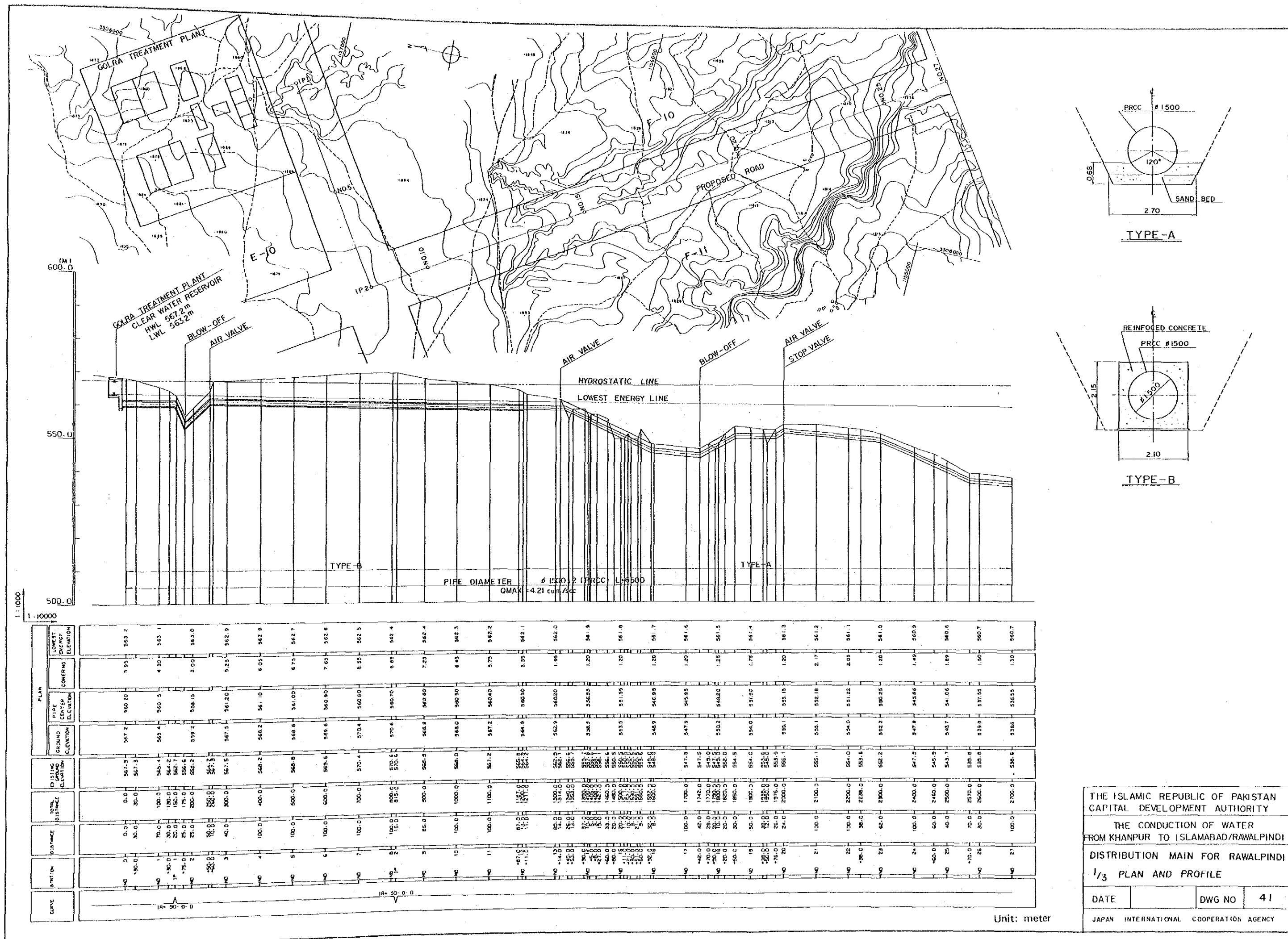


CROSS SECTION

TYPICAL SECTION  
(INCLINED ZONE)

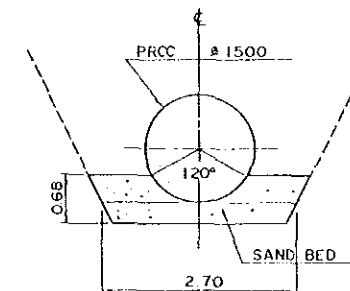
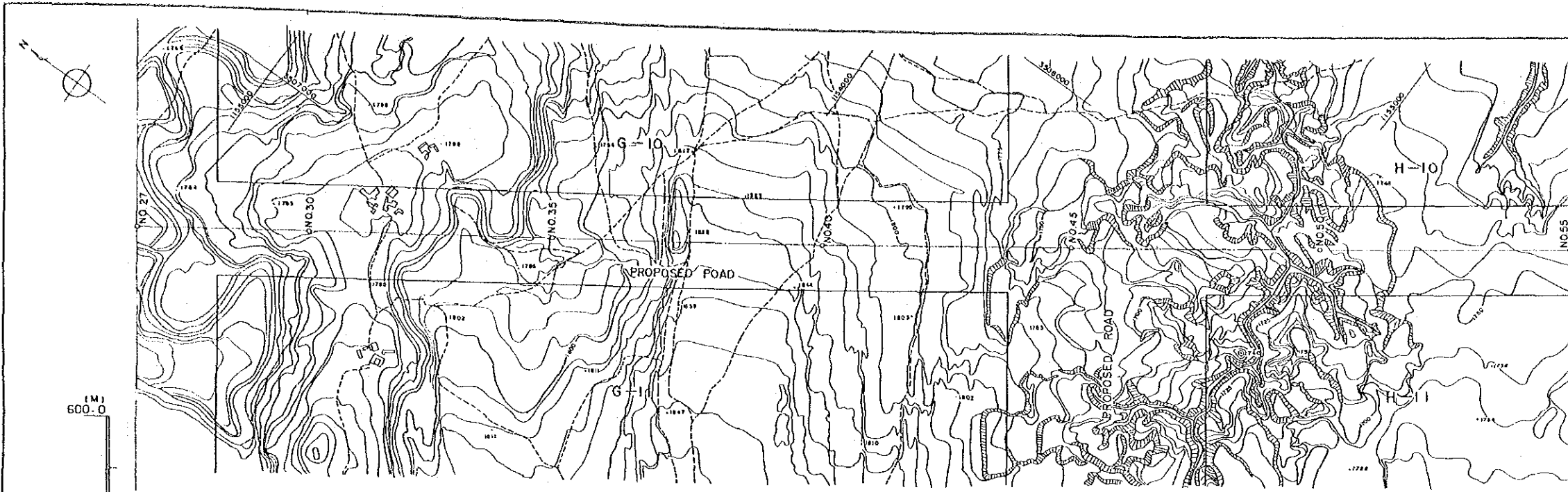
Unit: meter

THE ISLAMIC REPUBLIC OF PAKISTAN CAPITAL DEVELOPMENT AUTHORITY			
THE CONDUCTION OF WATER FROM KHANPUR TO ISLAMABAD/RAWALPINDI			
DISTRIBUTION MAIN FOR ISLAMABAD LOW ZONE PLAN AND PROFILE			
DATE		DWG. NO	40
JAPAN INTERNATIONAL COOPERATION AGENCY			

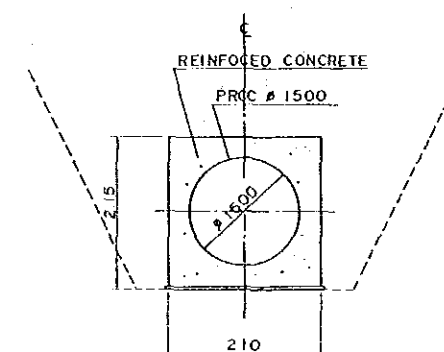


THE ISLAMIC REPUBLIC OF PAKISTAN CAPITAL DEVELOPMENT AUTHORITY			
THE CONDUCTION OF WATER FROM KHANPUR TO ISLAMABAD/RAWALPINDI			
DISTRIBUTION MAIN FOR RAWALPINDI			
1/3 PLAN AND PROFILE			
DATE		DWG NO	41
JAPAN INTERNATIONAL COOPERATION AGENCY			

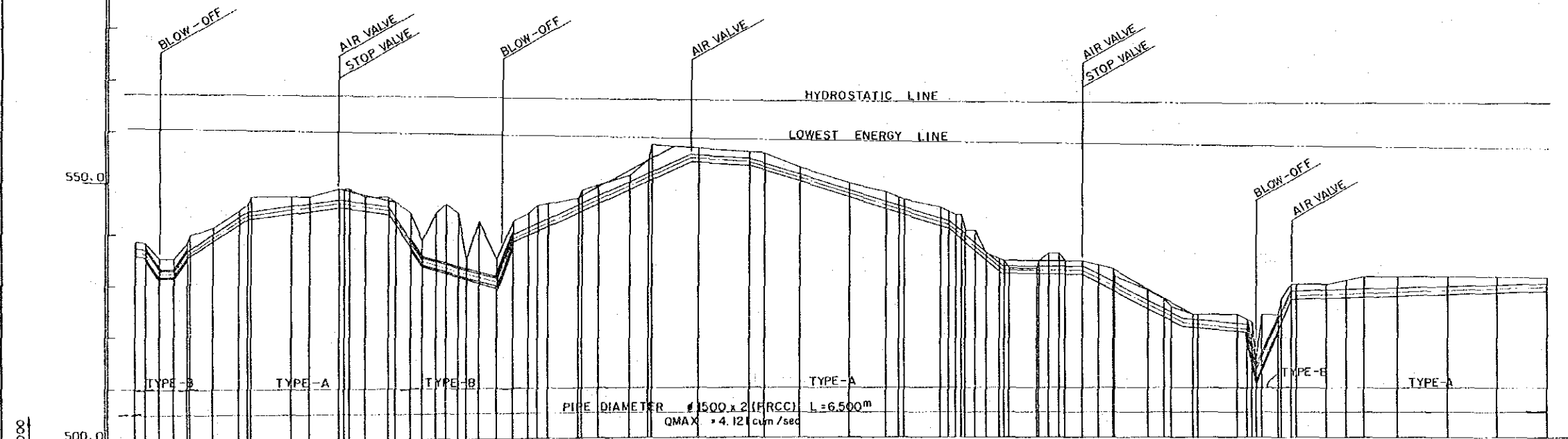
Unit: meter



TYPE-A



TYPE-B



STATION	CHISEL	DISTANCE	TOTAL DISTANCE	EXISTING GROUND ELEVATION	GROUND ELEVATION	PIPE CENTER ELEVATION	COVERING	LOWEST ENERGY ELEVATION
1+00	27	0.0	270.0	538.6	538.6	536.55	1.30	540.7
1+10	20.0	20.0	290.0	538.0	538.0	536.55	1.20	540.6
1+20	40.0	40.0	330.0	538.0	538.0	536.55	1.20	540.5
1+30	45.0	45.0	375.0	541.4	541.4	542.60	1.75	540.4
1+40	22	30.0	405.0	544.5	544.5	542.00	2.15	540.3
1+50	10.0	40.0	445.0	547.5	547.5	543.00	2.75	540.2
1+60	10.0	50.0	500.0	547.5	547.5	543.00	11.35	540.1
1+70	33	83.0	583.0	544.4	544.4	533.50	3.25	540.0
1+80	42.0	125.0	708.0	546.3	546.3	531.00	2.99	539.9
1+90	42.0	167.0	875.0	546.3	546.3	543.60	1.80	539.8
2+00	42.0	209.0	1084.0	551.1	551.1	547.10	2.60	539.7
2+10	42.0	251.0	1236.0	557.5	557.5	555.65	1.20	539.6
2+20	42.0	293.0	1378.0	556.8	556.8	554.85	1.20	539.5
2+30	42.0	335.0	1520.0	556.8	556.8	554.85	1.20	539.4
2+40	42.0	377.0	1662.0	550.7	550.7	548.75	1.20	539.3
2+50	42.0	419.0	1804.0	547.9	547.9	545.70	1.45	539.2
2+60	42.0	461.0	1946.0	545.1	545.1	542.65	1.70	539.1
2+70	42.0	503.0	2088.0	536.0	536.0	533.90	1.35	539.0
2+80	42.0	545.0	2230.0	535.3	535.3	533.35	1.20	539.0
2+90	42.0	587.0	2372.0	534.5	534.5	531.80	1.05	538.9
3+00	42.0	629.0	2514.0	529.4	529.4	526.60	2.05	538.8
3+10	42.0	671.0	2656.0	524.6	524.6	522.60	1.25	538.7
3+20	42.0	713.0	2798.0	523.6	523.6	521.65	1.20	538.6
3+30	42.0	755.0	2940.0	530.7	530.7	528.61	1.34	538.5
3+40	42.0	797.0	3082.0	531.5	531.5	528.84	1.91	538.4
3+50	42.0	839.0	3224.0	532.2	532.2	529.07	2.36	538.3
3+60	42.0	881.0	3366.0	532.2	532.2	529.30	2.15	538.2
3+70	42.0	923.0	3508.0	532.2	532.2	529.53	1.92	538.1
3+80	42.0	965.0	3650.0	532.0	532.0	529.86	1.49	538.0

Unit: meter

