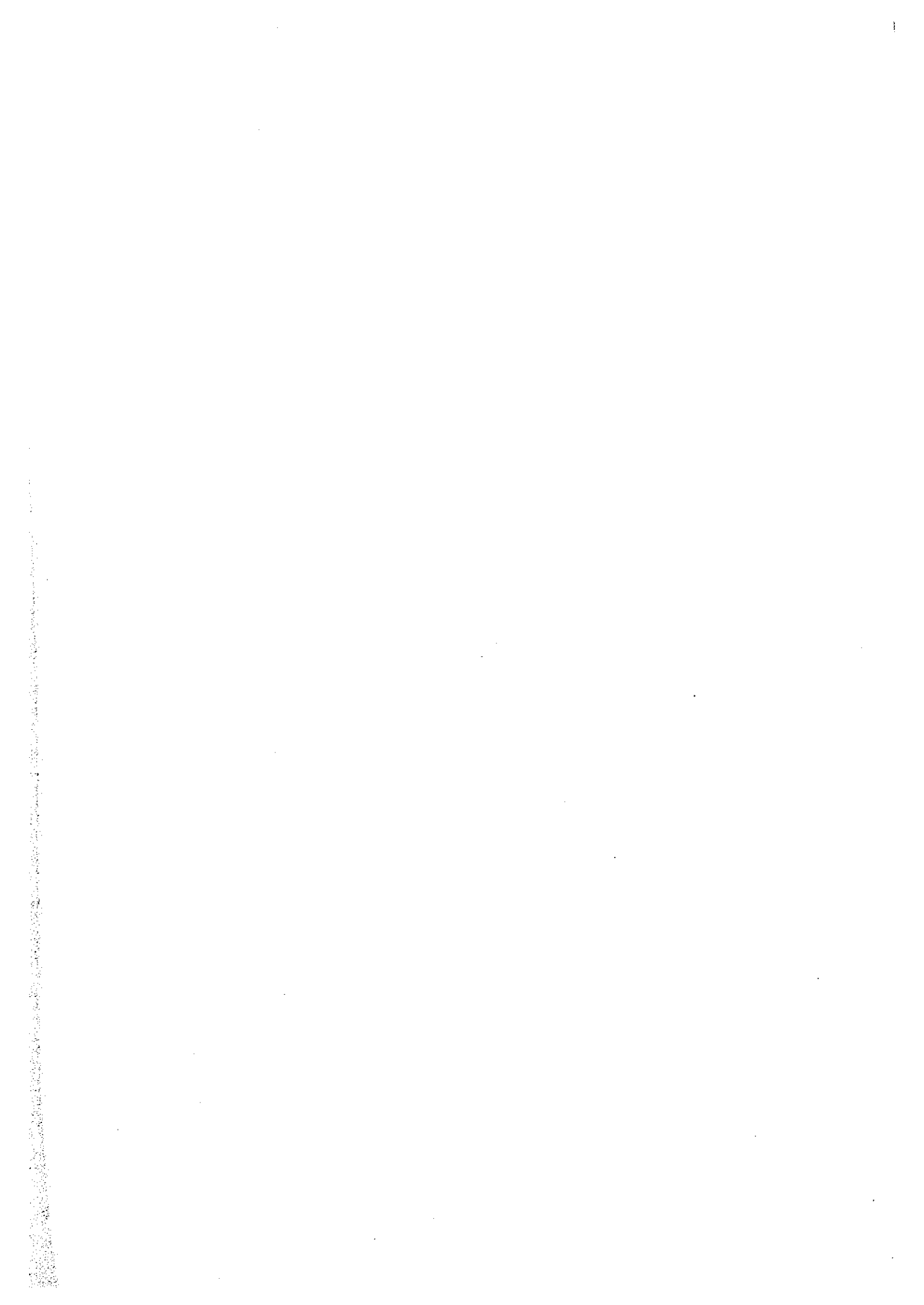
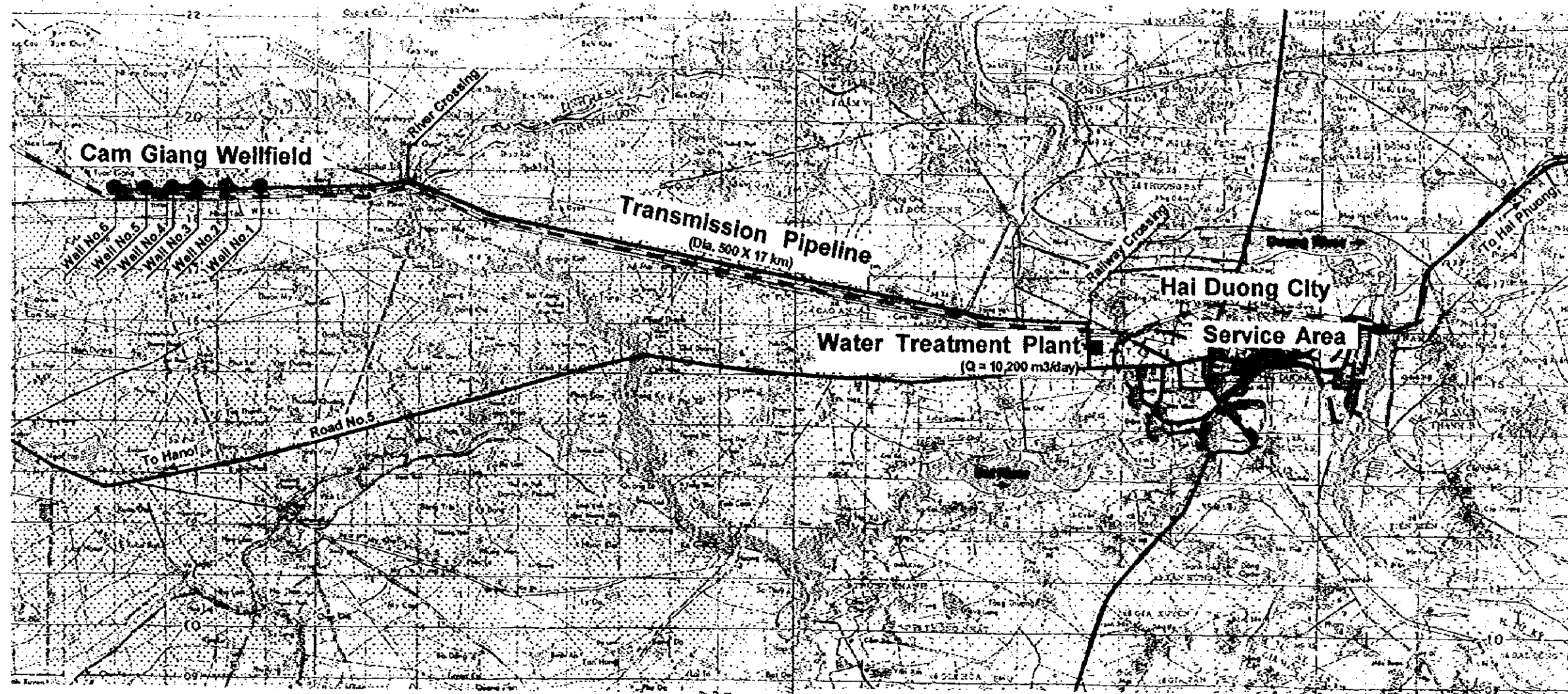
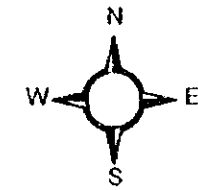


DRAWINGS

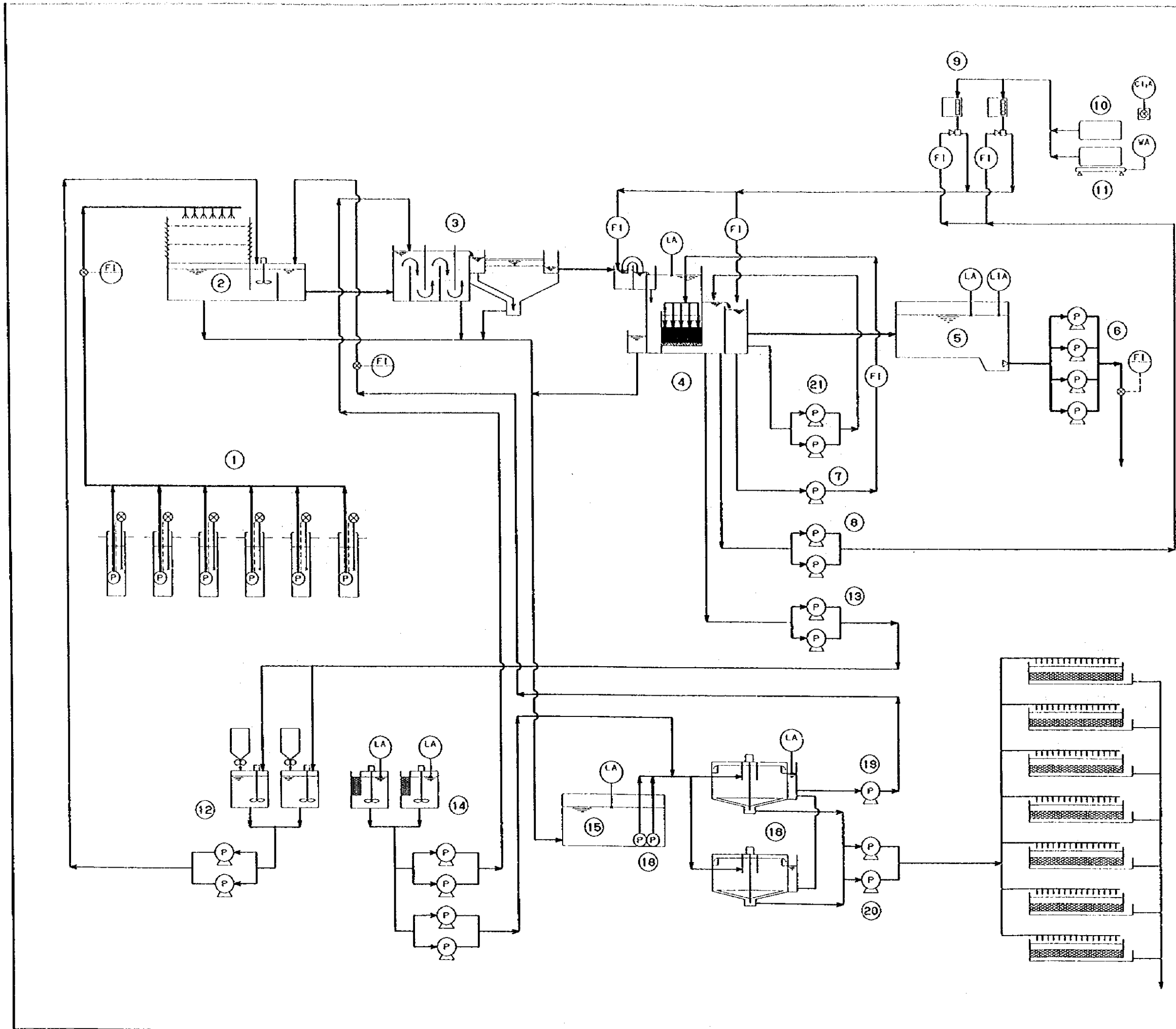
LIST OF DRAWINGS

No.	Category	Name of Drawing	Scale
1	General	General Arrangement	1/120,000
2	"	Flow Sheet	Non
3	Intake Facility	Structure of Intake Well	Non
4	"	Intake Pump Building	1/200
5	Water Treatment Plant	Layout Plan	1/800
6	"	Hydraulic Profile	Non
7	"	Aeration Facility	1/200
8	"	Coagulation/Sedimentation Tank	1/200
9	"	Rapid Sand Filtration Facility (1/2)	1/120
10	"	Rapid Sand Filtration Facility (2/2)	1/200
11	"	Sludge Treatment Facility	1/200
12	"	Sludge Drying Bed	1/400
13	Distribution Facility	Clean Water Reservoir	1/200
14	"	Distribution Pump Building	1/200
15	Pipeline	Typical Section for Pipe Laying	1/30
16	"	Section for Railroad / River Crossing	1/100
17	"	Water Pipe Bridge	1/200
18	"	Distribution Pipeline Route	Non





THE SOCIALIST REPUBLIC OF VIET NAM HAI DUONG PEOPLE'S COMMITTEE		
BASIC DESIGN STUDY ON THE PROJECT FOR EXPANSION OF WATER SUPPLY SYSTEMS IN HAI DUONG CITY IN THE SOCIALIST REPUBLIC OF VIET NAM		
DRAW NAME General Arrangement		
Feb. 1999	SCALE: 1/120000	DRAW No. 1
JAPAN INTERNATIONAL COOPERATION AGENCY		



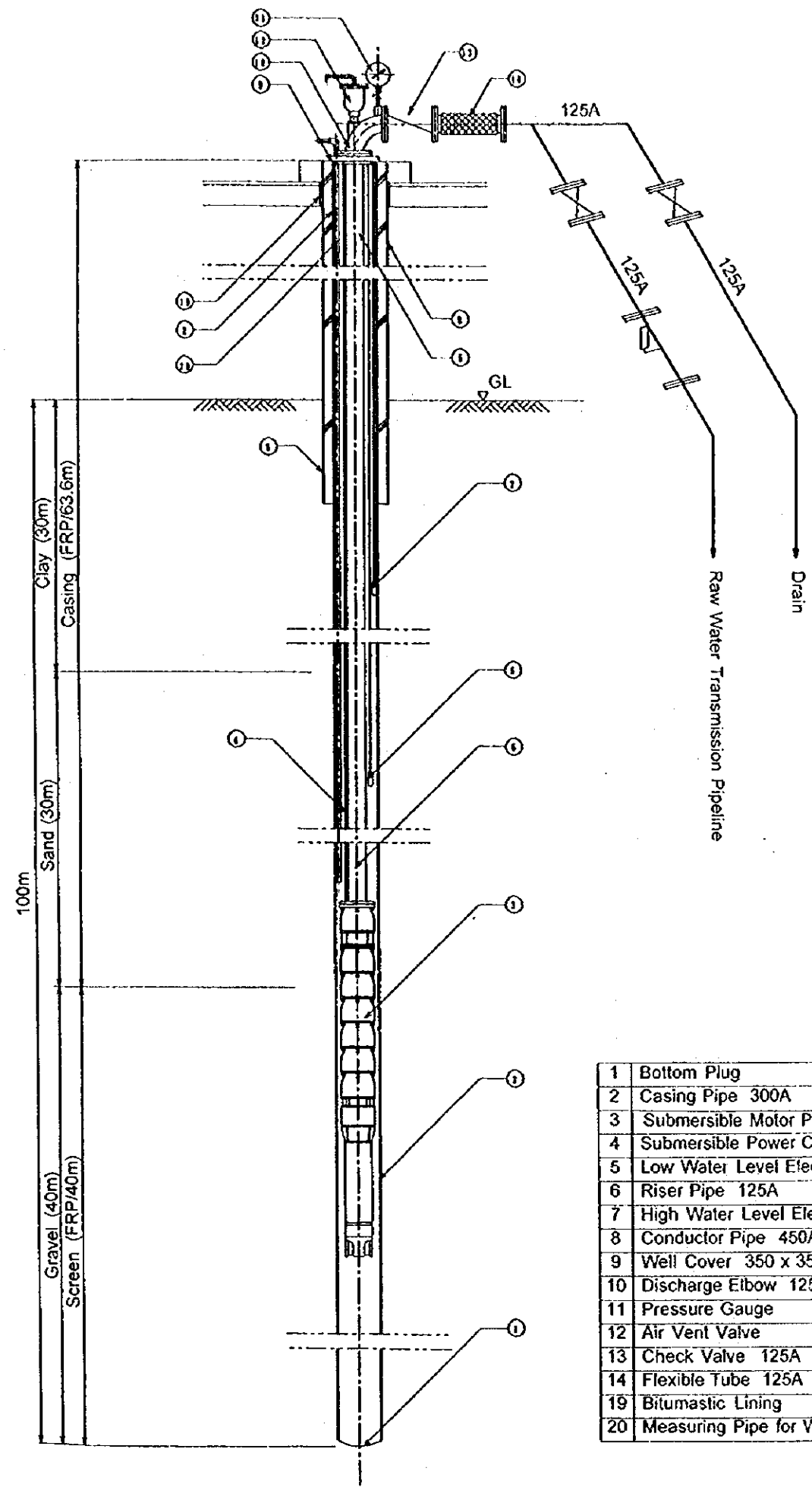
LEGEND

- ① INTAKE PUMP
- ② AERATION EQUIPMENT
- ③ SEDIMENTATION BASIN
- ④ FILTRATION BASIN
- ⑤ RESERVOIR
- ⑥ DISTRIBUTION PUMP
- ⑦ SURFACE WASHING PUMP
- ⑧ PRESSURIZED WATER SUPPLY PUMP
- ⑨ CHLORINATOR
- ⑩ CHLORINE CONTAINER
- ⑪ CONTAINER SCALE
- ⑫ ALKALI DOSING FACILITY
- ⑬ ALKALI DISSOLVING PUMP
- ⑭ PAC DOSING FACILITY
- ⑮ SLUDGE RESERVOIR BASIN
- ⑯ SLUDGE THICKENING BASIN
- ⑰ SLUDGE DRYING BED
- ⑱ SLUDGE TRANSFER PUMP
- ⑲ CLEAR WATER RETURN PUMP
- ⑳ CONCENTRATED SLUDGE DISCHARGE PUMP
- ㉑ BACKWASH PUMP
- FI FLOW METER
- FI FLOW INDICATOR
- LIA LEVEL INDICATOR, ALARMER
- CIA CHLORINE GAS ALARMER
- WA CHLORINE CONTAINER WEIGHT ALARMER
- LA LEVEL ALARMER

THE SOCIALIST REPUBLIC OF VIET NAM
 HAI DUONG PEOPLE'S COMMITTEE
 BASIC DESIGN STUDY ON THE PROJECT
 FOR EXPANSION OF WATER SUPPLY SYSTEM
 IN HAI DUONG CITY
 IN THE SOCIALIST REPUBLIC OF VIET NAM

DRAW. NAME	Flow Sheet	
DATE	Feb. 1999	SCALE : NONE
		DRAW No. 2

JAPAN INTERNATIONAL COOPERATION AGENCY



1	Bottom Plug
2	Casing Pipe 300A
3	Submersible Motor Pump
4	Submersible Power Cable
5	Low Water Level Electrode
6	Riser Pipe 125A
7	High Water Level Electrode
8	Conductor Pipe 450A
9	Well Cover 350 x 350
10	Discharge Elbow 125A
11	Pressure Gauge
12	Air Vent Valve
13	Check Valve 125A
14	Flexible Tube 125A
19	Bitumastic Lining
20	Measuring Pipe for Water Level

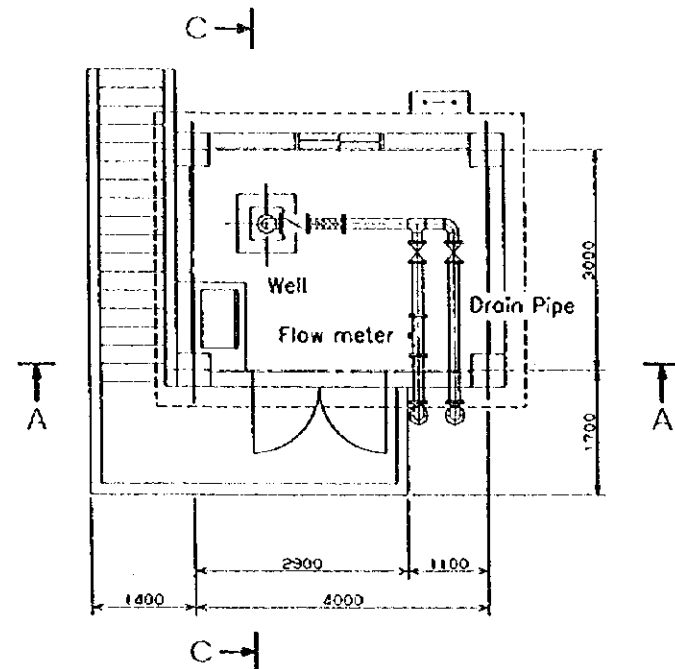
THE SOCIALIST REPUBLIC OF VIET NAM
HAI DUONG PEOPLE'S COMMITTEE

BASIC DESIGN STUDY ON THE PROJECT
FOR EXPANSION OF WATER SUPPLY SYSTEMS
IN HAI DUONG CITY
IN THE SOCIALIST REPUBLIC OF VIET NAM

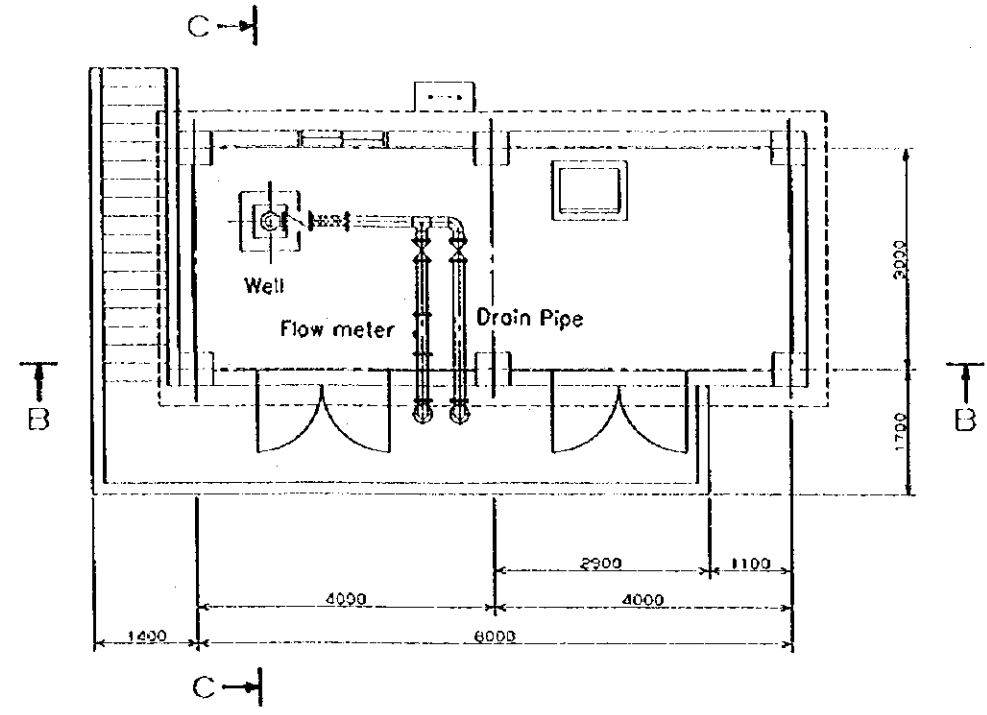
DRAW NAME Structure of Intake Well

DATE Feb. 1999 SCALE: DRAW No. 3

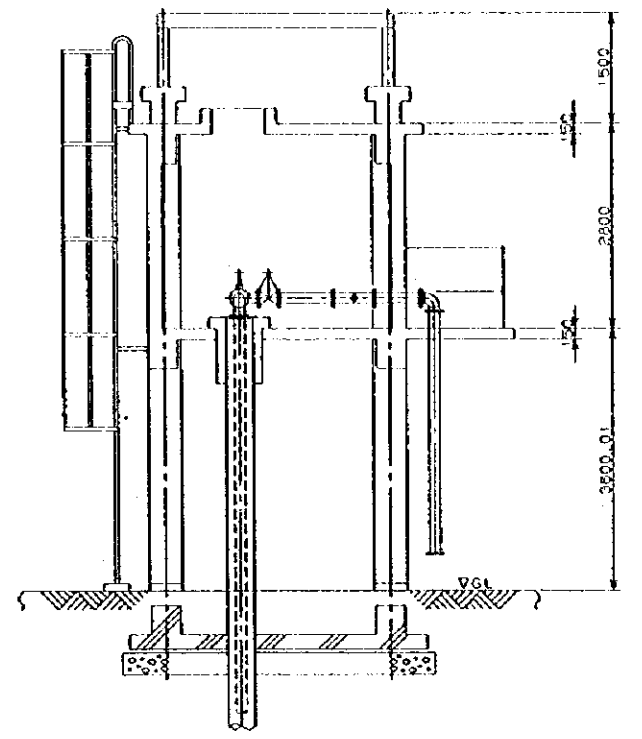
JAPAN INTERNATIONAL COOPERATION AGENCY



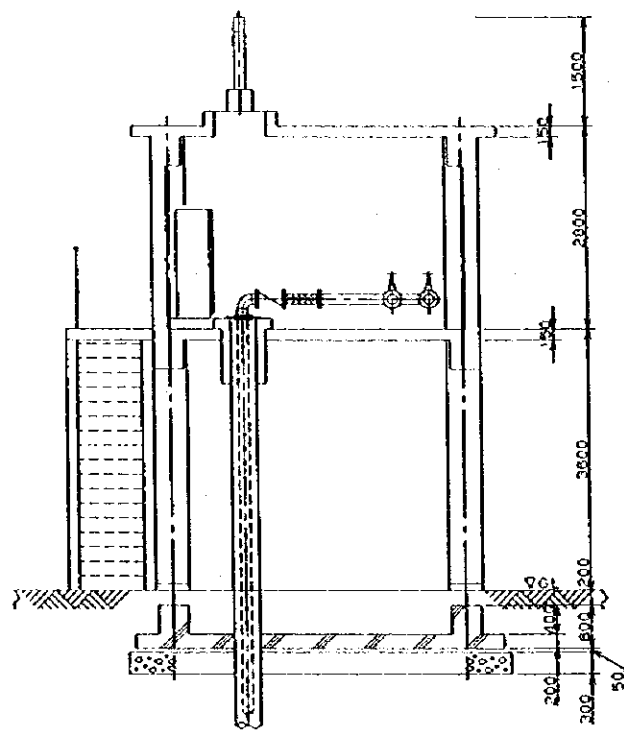
PLAN VIEW
(5 buildings)



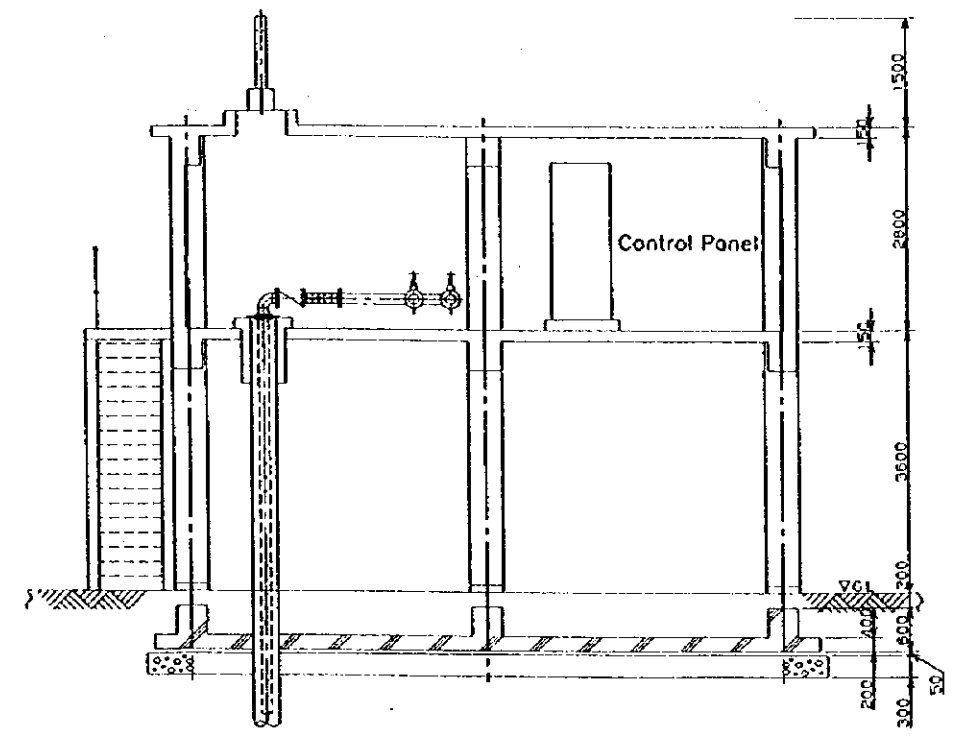
PLAN VIEW
(1 building)



VIEW C~C
(6 buildings)



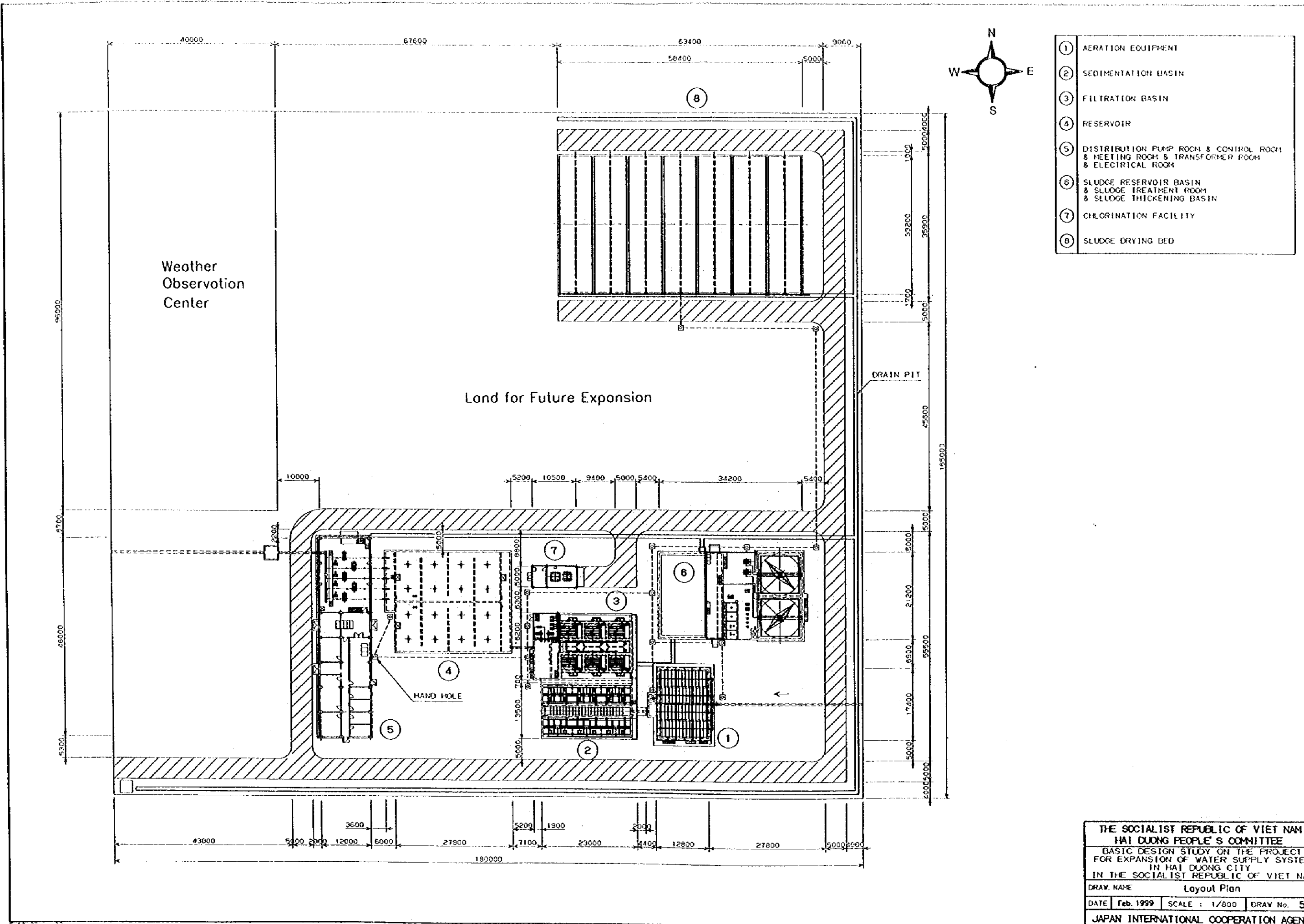
VIEW A~A
(5 buildings)



VIEW B~B
(1 building)

PAINTING SYSTEM
 A: TO BE APPLIED FOR THE STEEL PIPES WHICH WILL BE BELOW WATER LEVEL OR BELOW GROUND
 INTERIOR SURFACE...TAR EPOXY
 EXTERIOR SURFACE...TAR EPOXY
 B: TO BE APPLIED FOR THE STEEL PIPES WHICH WILL BE IN ATMOSPHERIC AREA
 INTERIOR SURFACE...TAR EPOXY
 EXTERIOR SURFACE...PHTHALIC RESIN PAINT

THE SOCIALIST REPUBLIC OF VIET NAM		
HAI DUONG PEOPLE'S COMMITTEE		
BASIC DESIGN STUDY ON THE PROJECT FOR EXPANSION OF WATER SUPPLY SYSTEM IN HAI DUONG CITY IN THE SOCIALIST REPUBLIC OF VIET NAM		
DRAW. NAME	Intake Pump Building	
DATE	Feb. 1999	SCALE : 1/200
		DRAW No. 4
JAPAN INTERNATIONAL COOPERATION AGENCY		



- ① AERATION EQUIPMENT
- ② SEDIMENTATION BASIN
- ③ FILTRATION BASIN
- ④ RESERVOIR
- ⑤ DISTRIBUTION PUMP ROOM & CONTROL ROOM & MEETING ROOM & TRANSFORMER ROOM & ELECTRICAL ROOM
- ⑥ SLUDGE RESERVOIR BASIN & SLUDGE TREATMENT ROOM & SLUDGE THICKENING BASIN
- ⑦ CHLORINATION FACILITY
- ⑧ SLUDGE DRYING BED

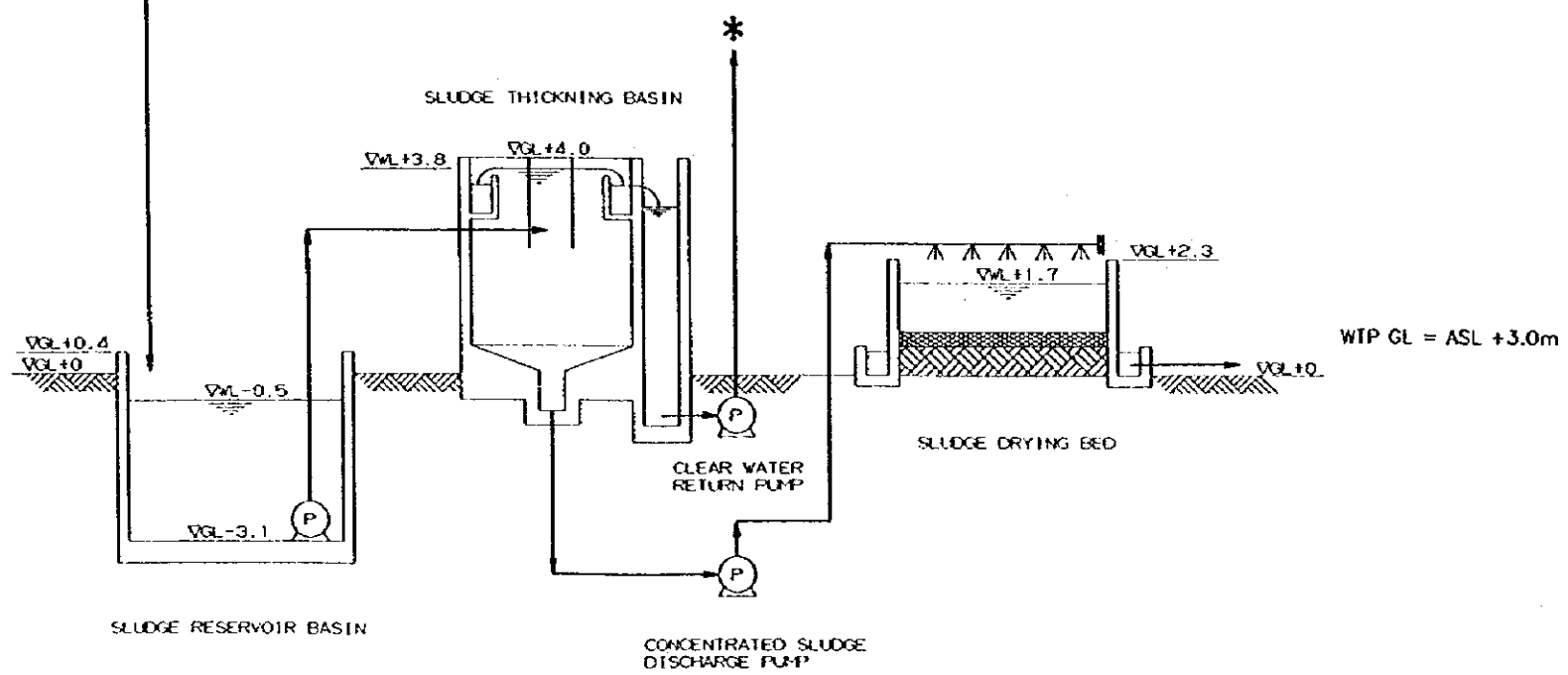
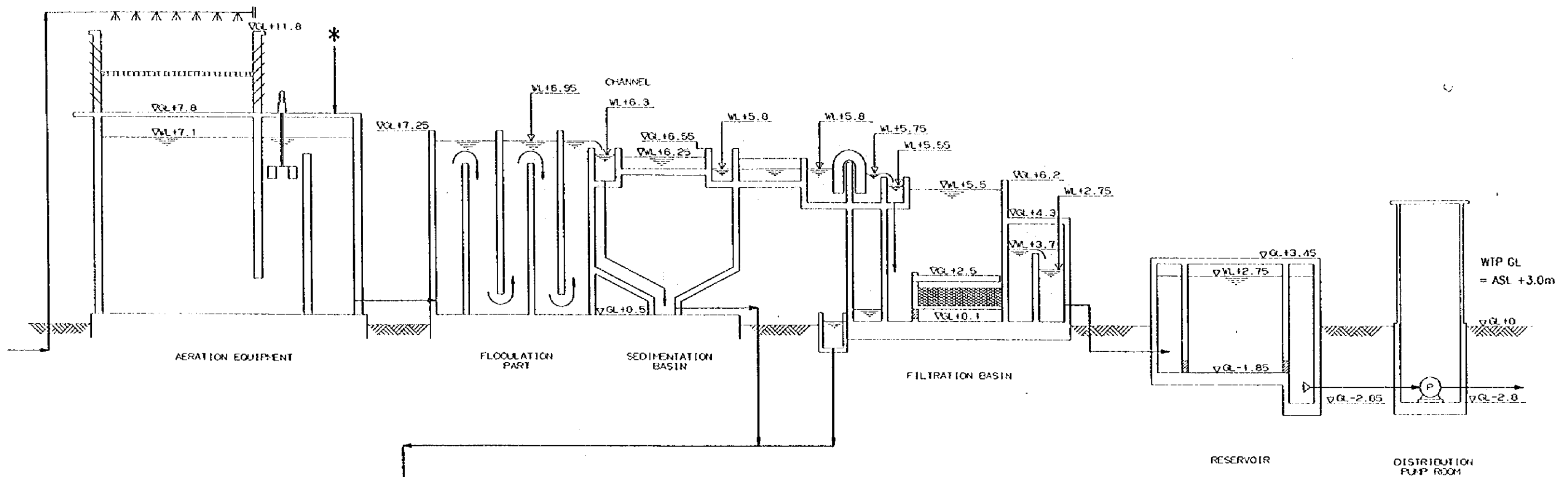
THE SOCIALIST REPUBLIC OF VIET NAM
 HAI DUONG PEOPLE'S COMMITTEE
 BASIC DESIGN STUDY ON THE PROJECT
 FOR EXPANSION OF WATER SUPPLY SYSTEM
 IN HAI DUONG CITY
 IN THE SOCIALIST REPUBLIC OF VIET NAM

DRAW. NAME Layout Plan

DATE Feb. 1999 SCALE : 1/600 DRAW. No. 5

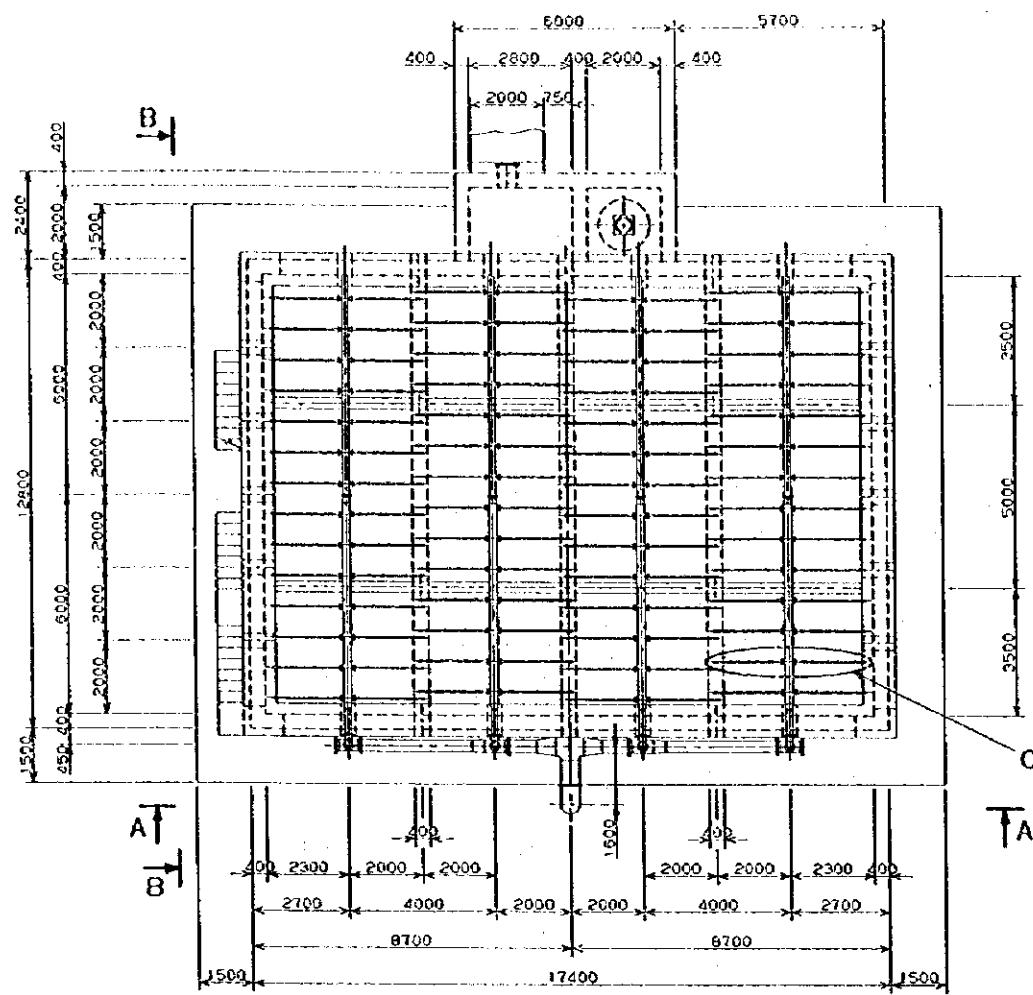
JAPAN INTERNATIONAL COOPERATION AGENCY

WATER LEVEL OF WATER TREATMENT EQUIPMENT

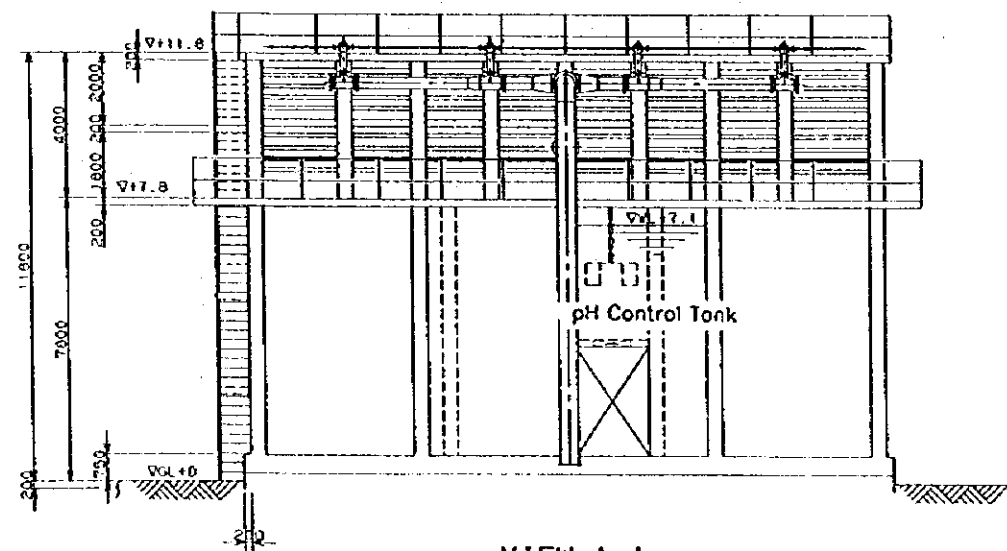


WATER LEVEL OF SLUDGE TREATMENT EQUIPMENT

THE SOCIALIST REPUBLIC OF VIET NAM		
HAI DUONG PEOPLE'S COMMITTEE		
BASIC DESIGN STUDY ON THE PROJECT		
FOR EXPANSION OF WATER SUPPLY SYSTEM		
IN HAI DUONG CITY		
IN THE SOCIALIST REPUBLIC OF VIET NAM		
DRAW. NAME	Hydraulic Profile	
DATE	Feb. 1999	SCALE : NONE
		DRAW No. 6
JAPAN INTERNATIONAL COOPERATION AGENCY		

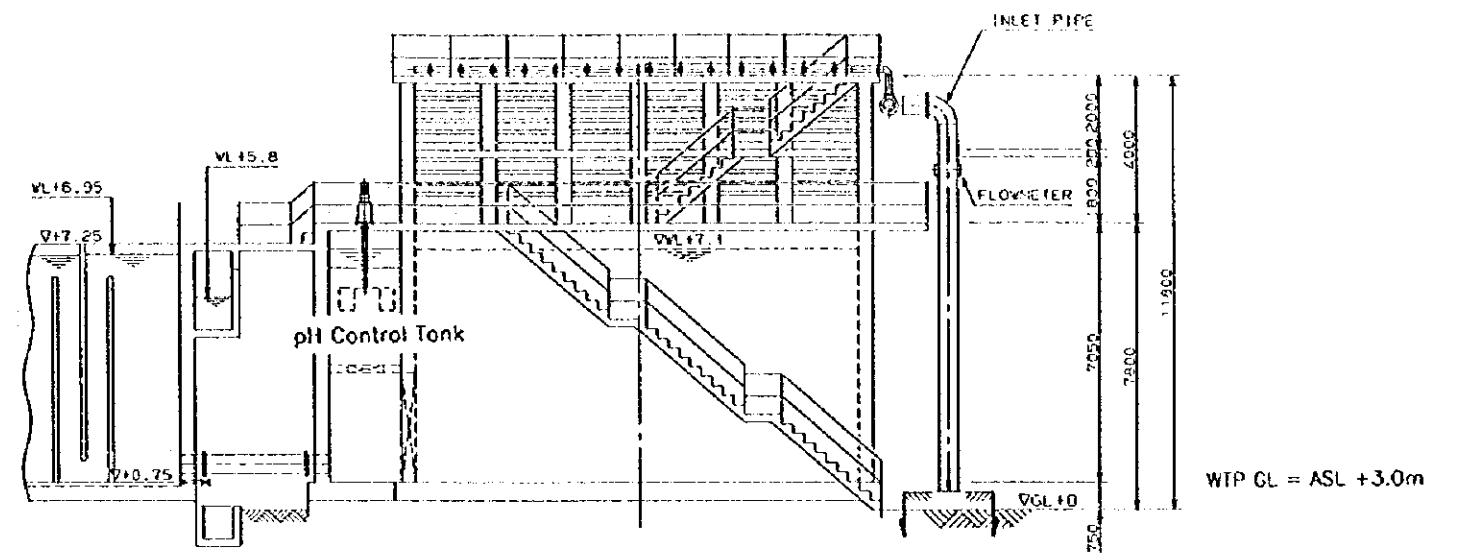


PLAN VIEW



VIEW A~A

WTP GL = ASL + 3.0m



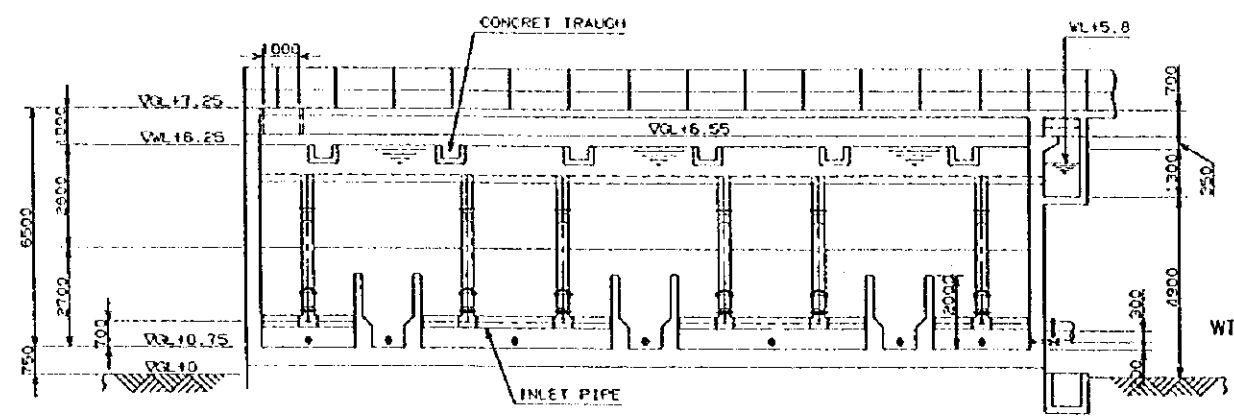
VIEW B~B

WTP GL = ASL + 3.0m

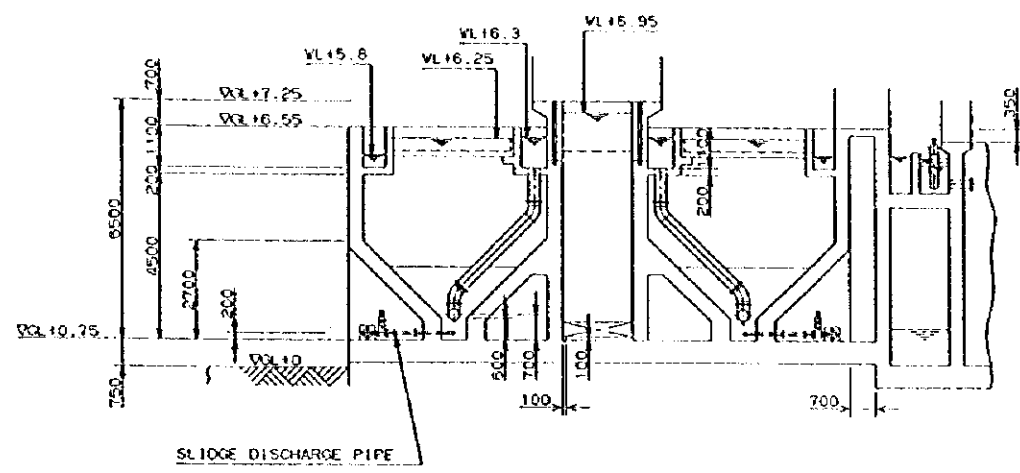
PAINTING SYSTEM

- A: TO BE APPLIED FOR THE STEEL PIPES WHICH WILL BE BELOW WATER LEVEL OR BELOW GROUND
 - INTERIOR SURFACE.....TAR EPOXY
 - EXTERIOR SURFACE.....TAR EPOXY
- B: TO BE APPLIED FOR THE STEEL PIPES WHICH WILL BE IN ATMOSPHERIC AREA
 - INTERIOR SURFACE.....TAR EPOXY
 - EXTERIOR SURFACE.....PHTHALIC RESIN PAINT

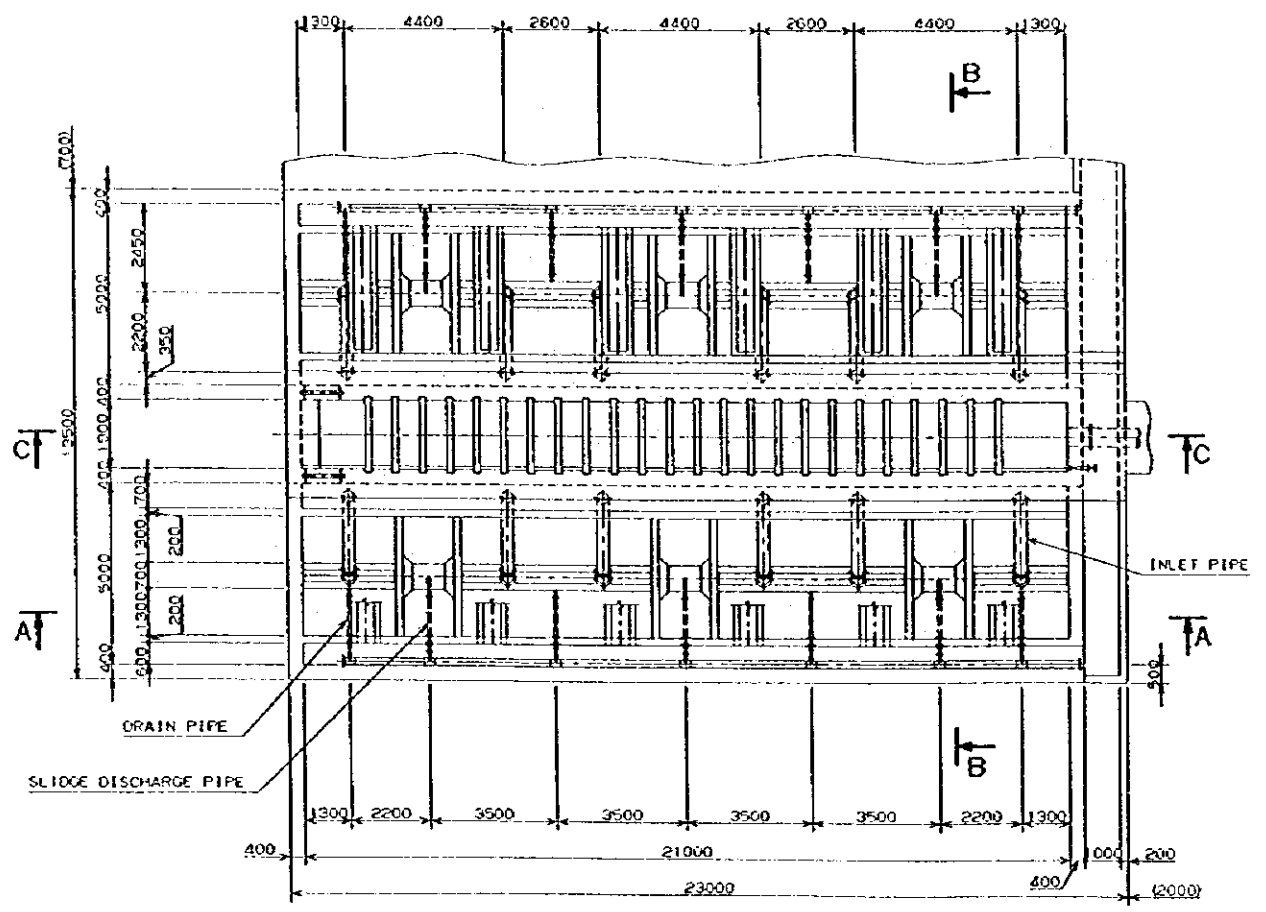
THE SOCIALIST REPUBLIC OF VIET NAM			
HAI DUONG PEOPLE'S COMMITTEE			
BASIC DESIGN STUDY ON THE PROJECT			
FOR EXPANSION OF WATER SUPPLY SYSTEM			
IN HAI DUONG CITY			
IN THE SOCIALIST REPUBLIC OF VIET NAM			
DRAW. NAME	Aeration Facility		
DATE	Feb. 1999	SCALE : 1/200	DRAY No. 7
JAPAN INTERNATIONAL COOPERATION AGENCY			



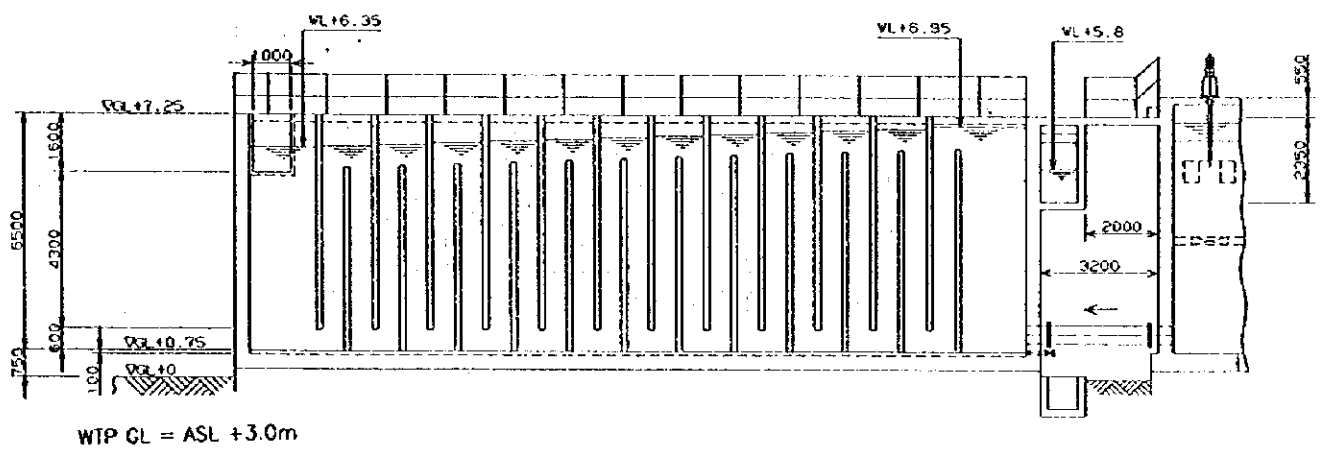
VIEW A~A



VIEW B~B



VIEW C~C



Coagulation / Sedimentation Tank

PAINTING SYSTEM

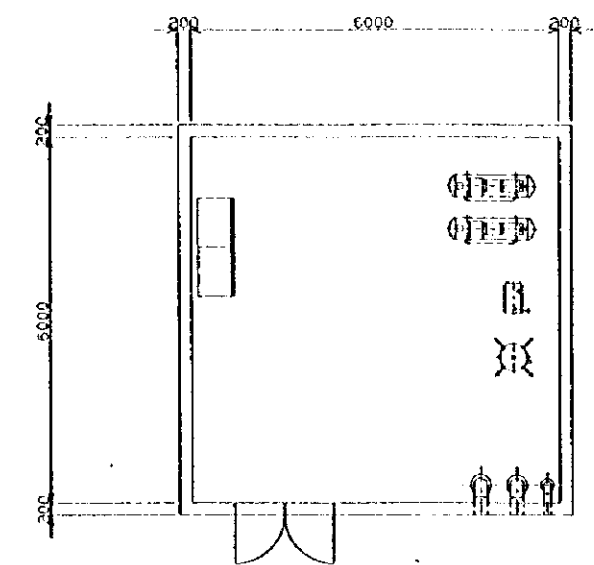
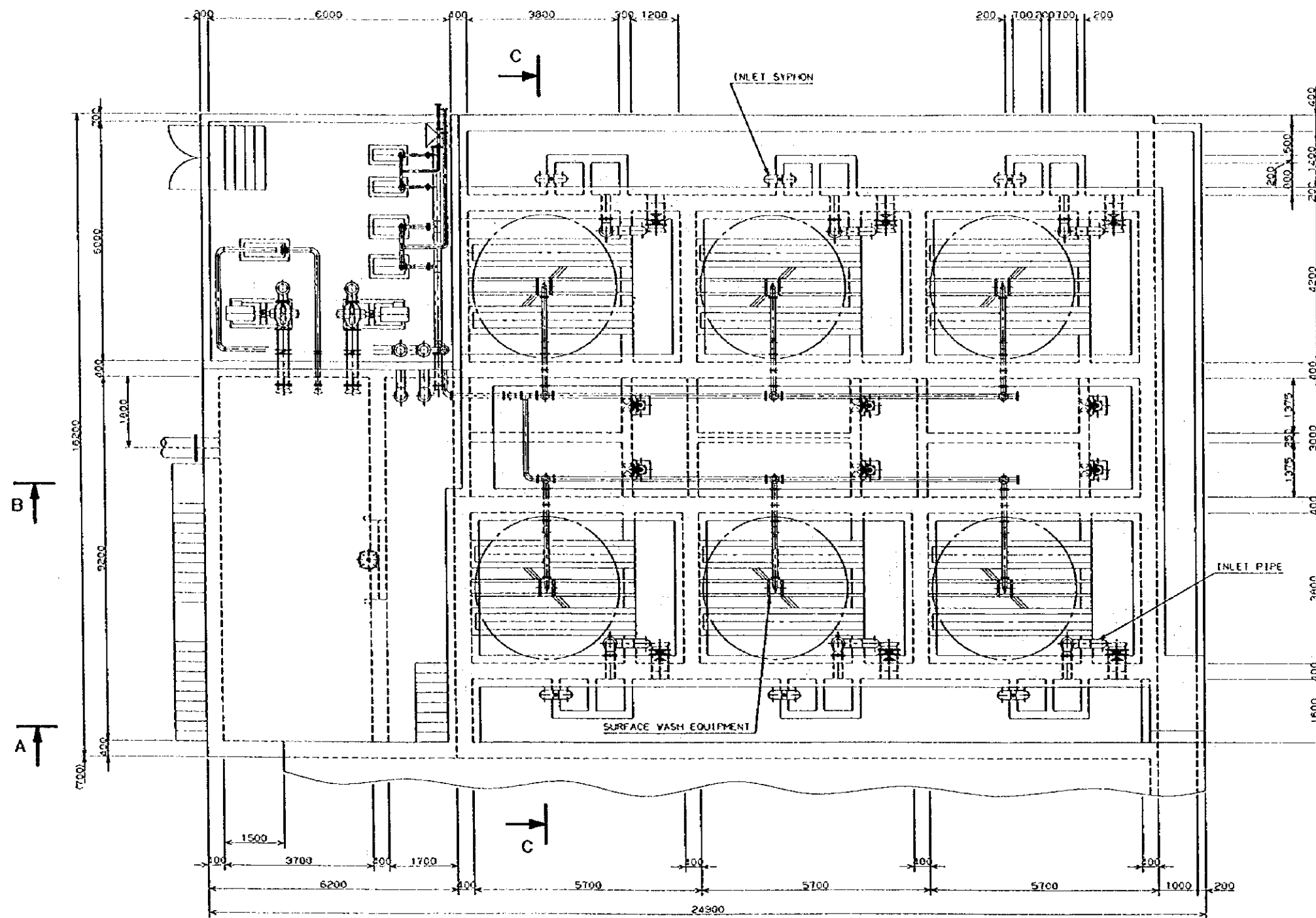
A: TO BE APPLIED FOR THE STEEL PIPES WHICH WILL BE BELOW WATER LEVEL OR BELOW GROUND

INTERIOR SURFACE.....TAR EPOXY
EXTERIOR SURFACE.....TAR EPOXY

B: TO BE APPLIED FOR THE STEEL PIPES WHICH WILL BE IN ATMOSPHERIC AREA

INTERIOR SURFACE.....TAR EPOXY
EXTERIOR SURFACE.....PHTHALIC RESIN PAINT

THE SOCIALIST REPUBLIC OF VIET NAM			
HAI DUONG PEOPLE'S COMMITTEE			
BASIC DESIGN STUDY ON THE PROJECT			
FOR EXPANSION OF WATER SUPPLY SYSTEM			
IN HAI DUONG CITY			
IN THE SOCIALIST REPUBLIC OF VIET NAM			
DRAW NAME Coagulation/Sedimentation Tank			
DATE	Feb. 1999	SCALE	1/200
DRAW No.		8	
JAPAN INTERNATIONAL COOPERATION AGENCY			



FILTRATION BASIN

PAINTING SYSTEM

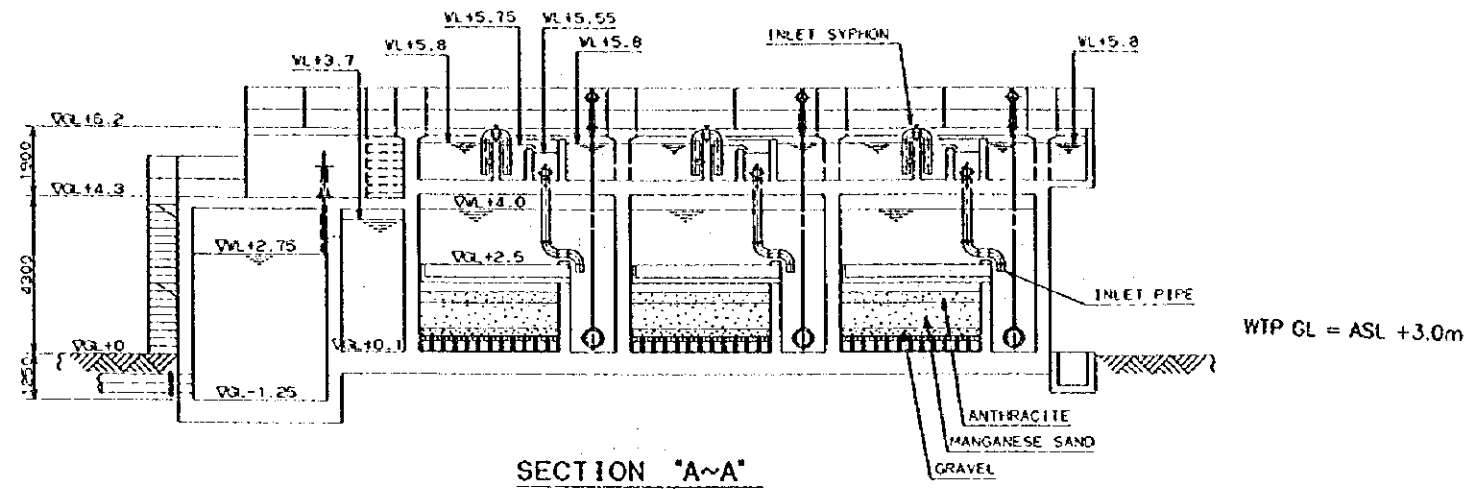
A: TO BE APPLIED FOR THE STEEL PIPES WHICH WILL BE BELOW WATER LEVEL OR BELOW GROUND

INTERIOR SURFACE.....TAR EPOXY
EXTERIOR SURFACE.....TAR EPOXY

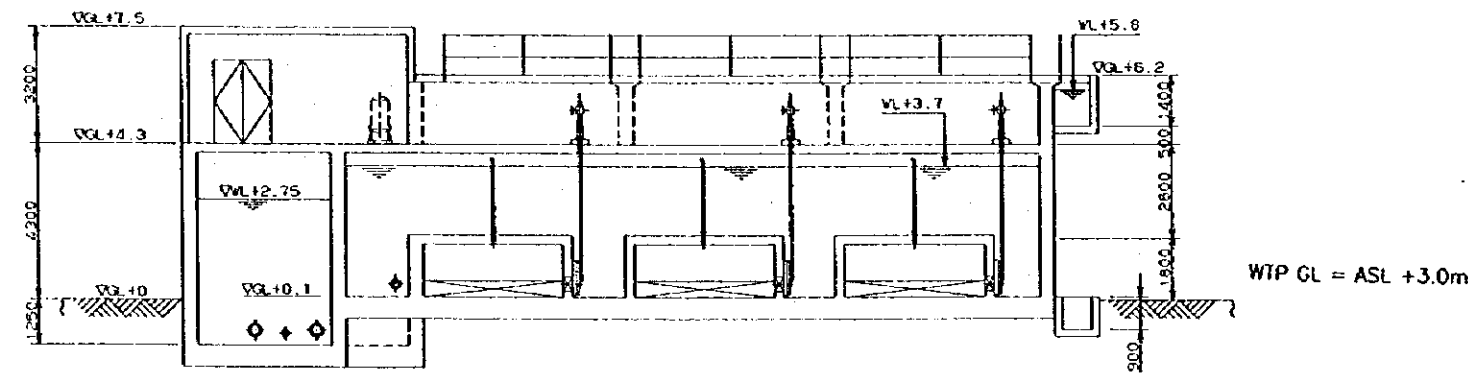
B: TO BE APPLIED FOR THE STEEL PIPES WHICH WILL BE IN ATMOSPHERIC AREA

INTERIOR SURFACE.....TAR EPOXY
EXTERIOR SURFACE.....PHTHALIC RESIN PAINT

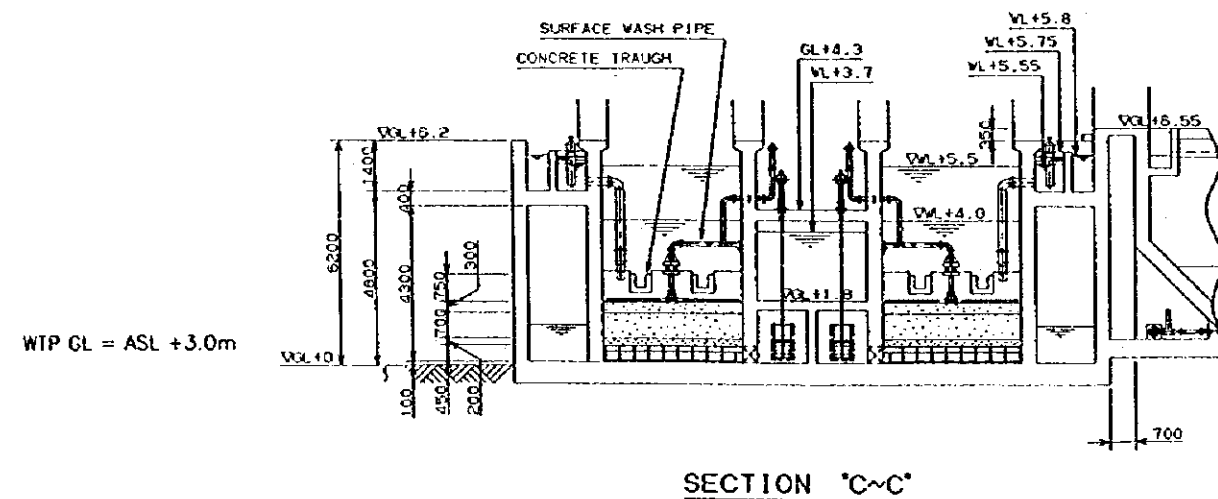
THE SOCIALIST REPUBLIC OF VIET NAM		
HAI DUONG PEOPLE'S COMMITTEE		
BASIC DESIGN STUDY ON THE PROJECT		
FOR EXPANSION OF WATER SUPPLY SYSTEM		
IN HAI DUONG CITY		
IN THE SOCIALIST REPUBLIC OF VIET NAM		
DRAW. NAME	Rapid Sand Filtration Facility (1/2)	
DATE	Feb. 1999	SCALE : 1/200
		DRAW No. 9
JAPAN INTERNATIONAL COOPERATION AGENCY		



SECTION 'A~A'



SECTION 'B~B'



SECTION 'C~C'

PAINTING SYSTEM

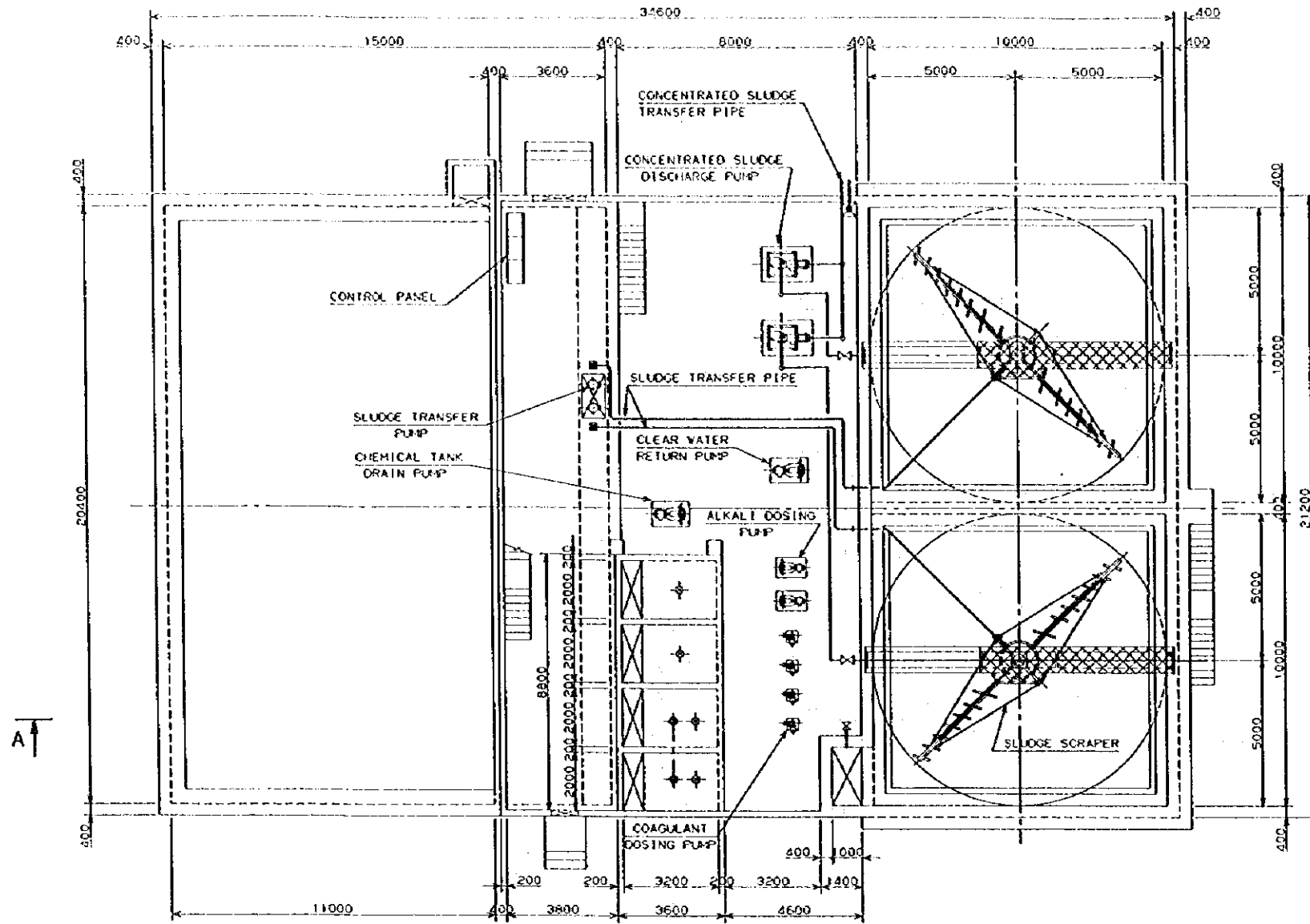
A: TO BE APPLIED FOR THE STEEL PIPES WHICH WILL BE BELOW WATER LEVEL OR BELOW GROUND

INTERIOR SURFACE...TAR EPOXY
EXTERIOR SURFACE...TAR EPOXY

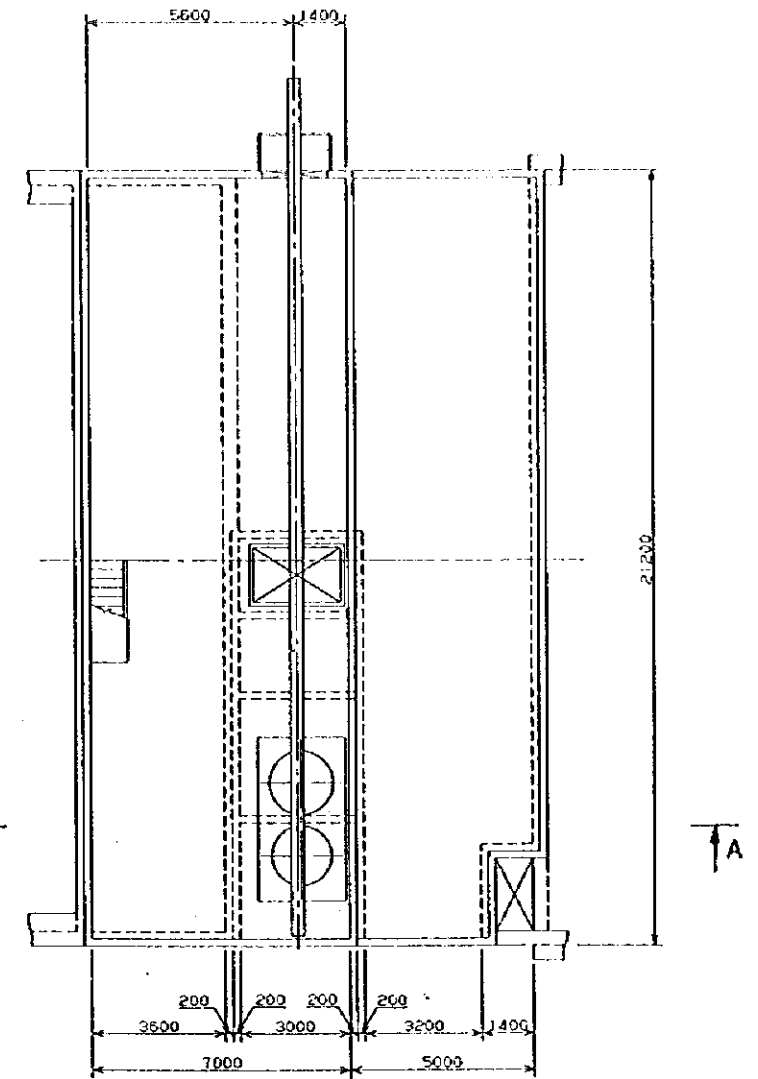
B: TO BE APPLIED FOR THE STEEL PIPES WHICH WILL BE IN ATMOSPHERIC AREA

INTERIOR SURFACE...TAR EPOXY
EXTERIOR SURFACE...PHENALIC RESIN PAINT

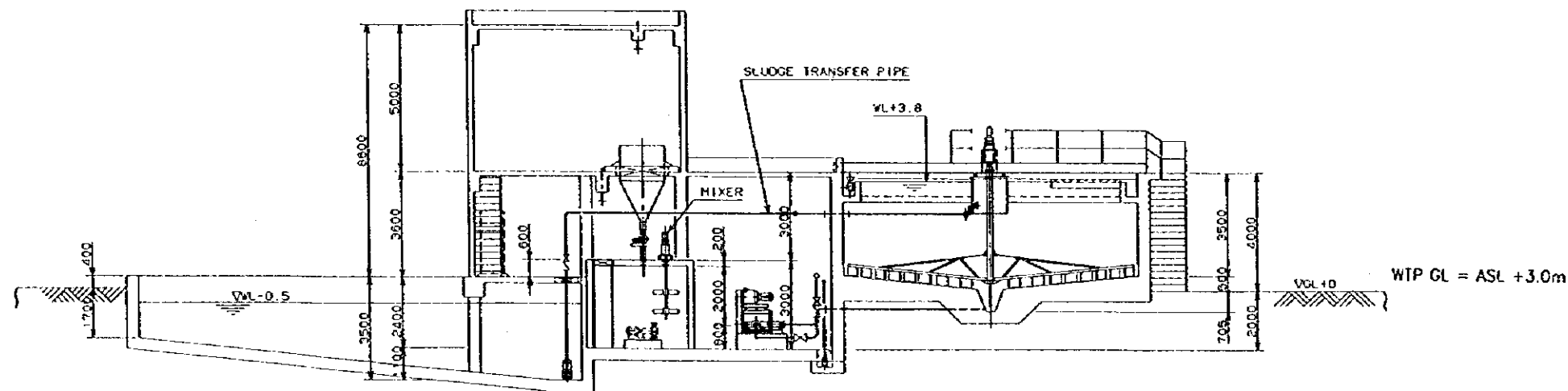
THE SOCIALIST REPUBLIC OF VIET NAM		
HAI DUONG PEOPLE'S COMMITTEE		
BASIC DESIGN STUDY ON THE PROJECT		
FOR EXPANSION OF WATER SUPPLY SYSTEM		
IN HAI DUONG CITY		
IN THE SOCIALIST REPUBLIC OF VIET NAM		
DRAW. NAME Rapid Sand Filtration Facility (2/2)		
DATE	Feb. 1999	SCALE : 1/200
		DRAW. No. 10
JAPAN INTERNATIONAL COOPERATION AGENCY		



FIRST FLOOR



SECOND FLOOR



SECTION A-A

PAINTING SYSTEM

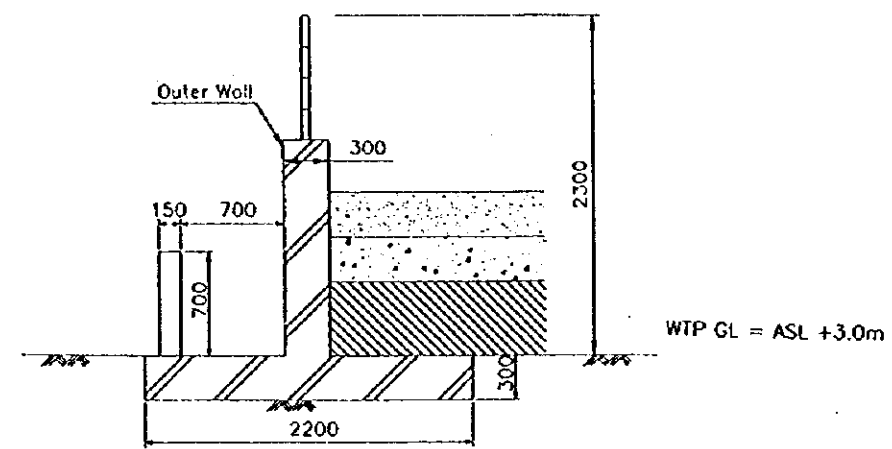
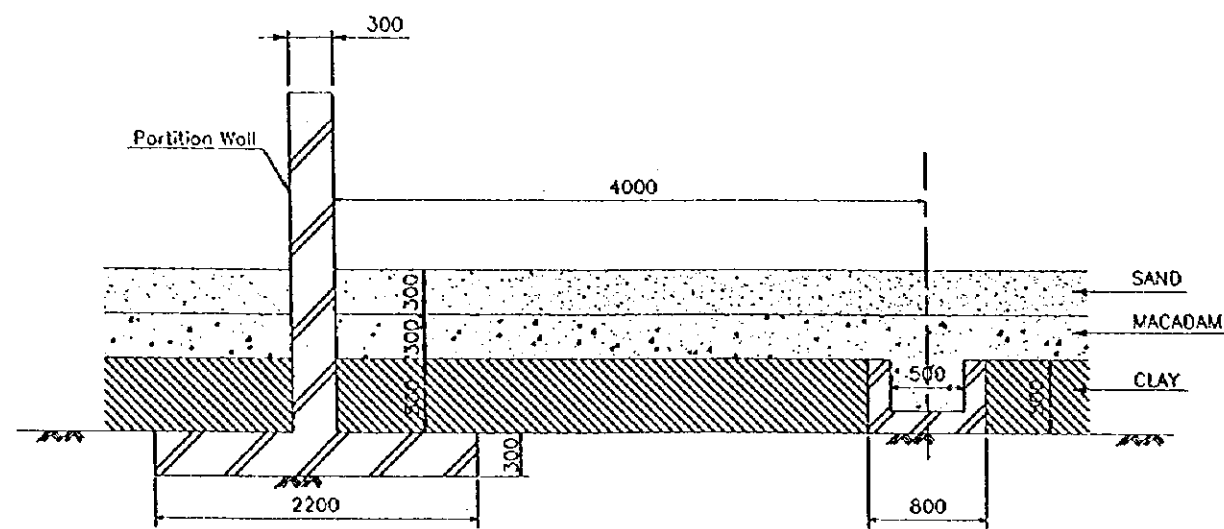
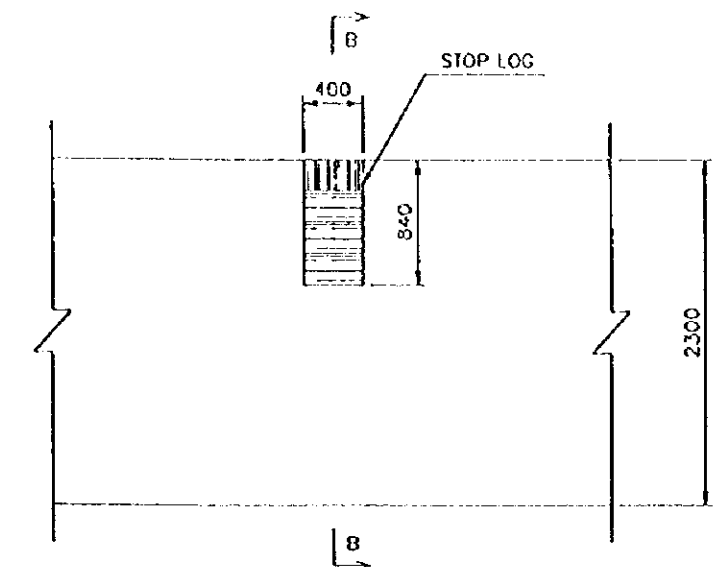
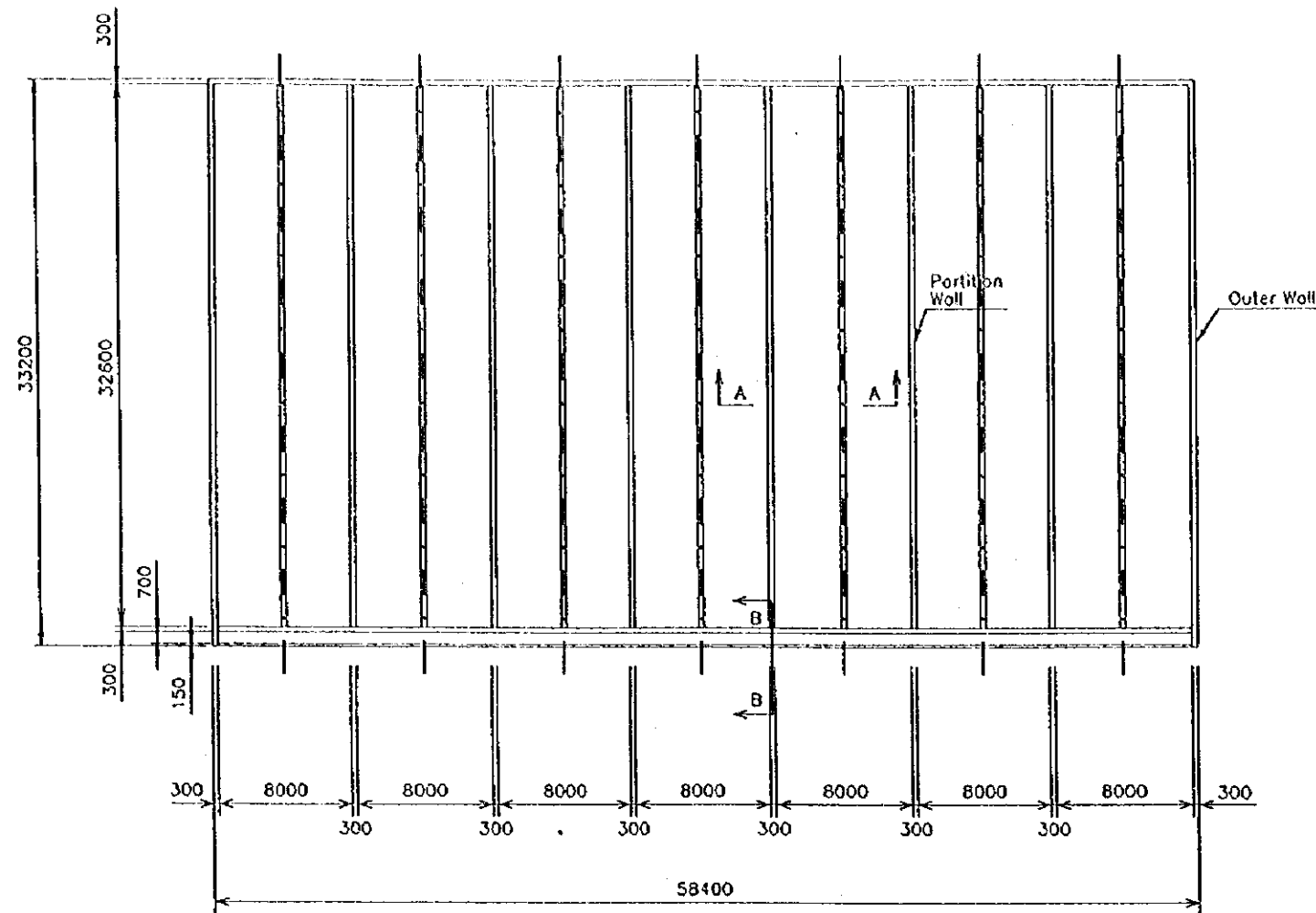
A: TO BE APPLIED FOR THE STEEL PIPES WHICH WILL BE BELOW WATER LEVEL OR BELOW GROUND

INTERIOR SURFACE... TAR EPOXY
EXTERIOR SURFACE... TAR EPOXY

B: TO BE APPLIED FOR THE STEEL PIPES WHICH WILL BE IN ATMOSPHERIC AREA

INTERIOR SURFACE... TAR EPOXY
EXTERIOR SURFACE... PHTHALIC RESIN PAINT

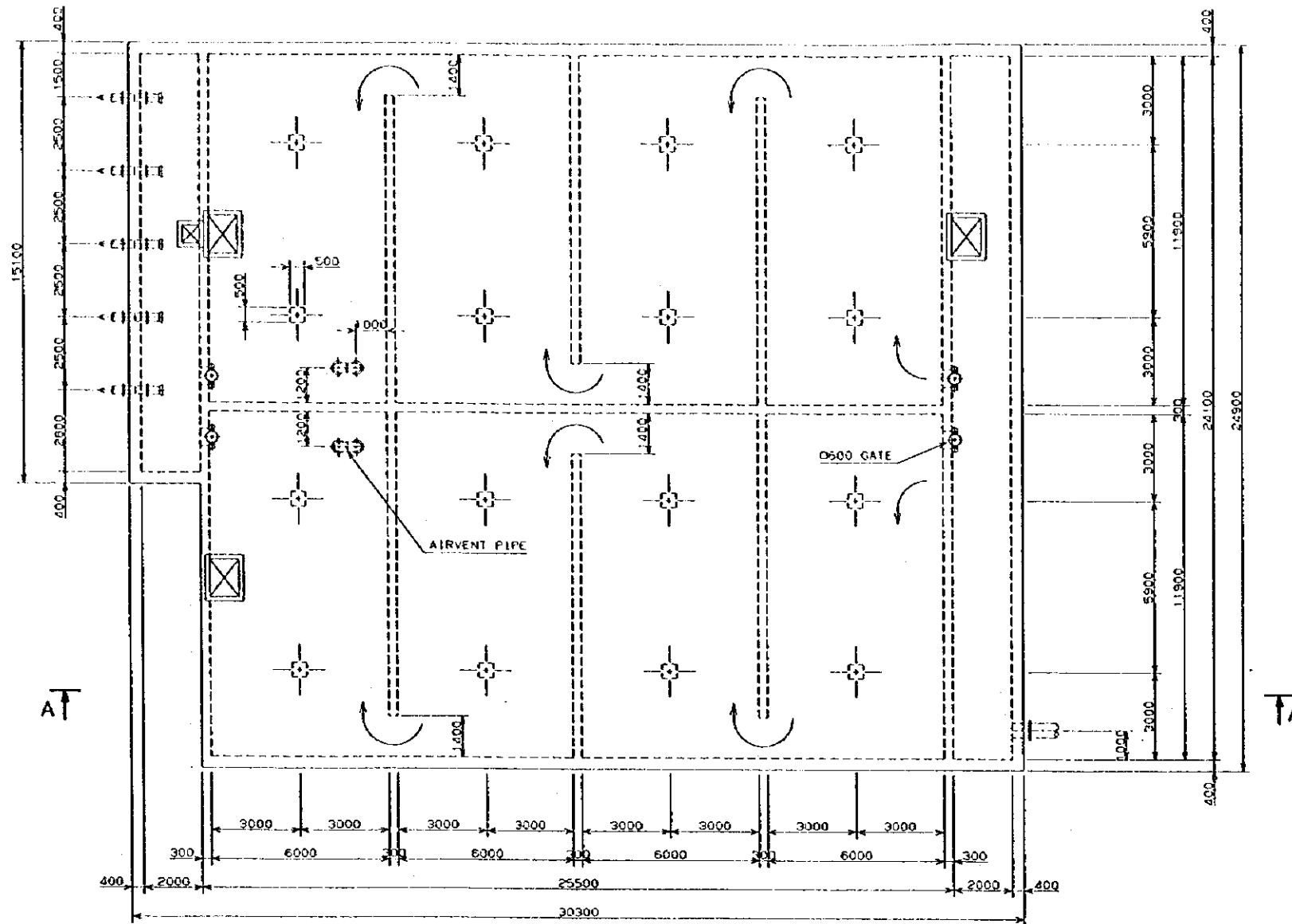
THE SOCIALIST REPUBLIC OF VIET NAM		
HAI DUONG PEOPLE'S COMMITTEE		
BASIC DESIGN STUDY ON THE PROJECT FOR EXPANSION OF WATER SUPPLY SYSTEM IN HAI DUONG CITY IN THE SOCIALIST REPUBLIC OF VIET NAM		
DRAW. NAME	Sludge Treatment Facility	
DATE	Feb. 1999	SCALE : 1/200
DRAY No.	11	
JAPAN INTERNATIONAL COOPERATION AGENCY		



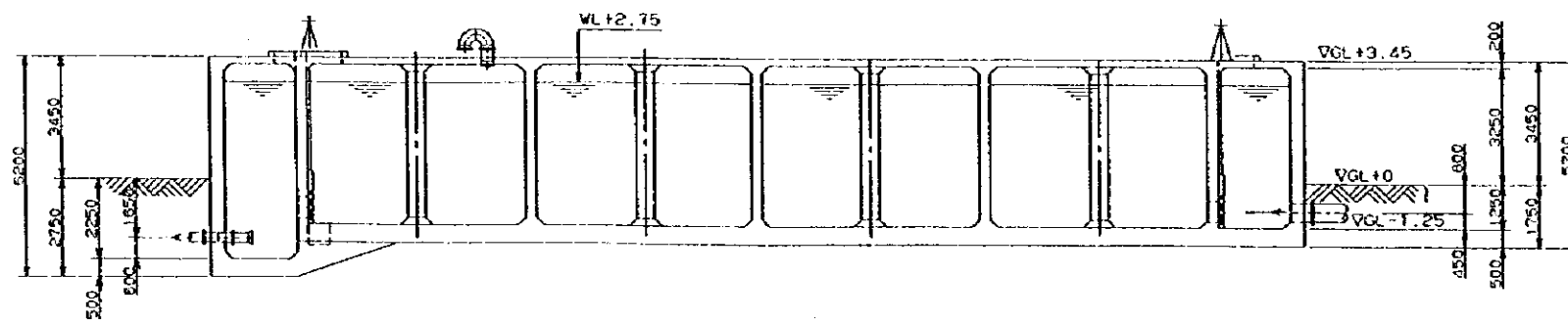
SECTION A-A (s=1:50)

SECTION B-B (s=1:50)

THE SOCIALIST REPUBLIC OF VIET NAM			
HAI DUONG PEOPLE'S COMMITTEE			
BASIC DESIGN STUDY ON THE PROJECT			
FOR EXPANSION OF WATER SUPPLY SYSTEM			
IN HAI DUONG CITY			
IN THE SOCIALIST REPUBLIC OF VIET NAM			
DRAW. NAME	Sludge Drying Bed		
DATE	Feb. 1999	SCALE :	1/400
		DRAW NO.	12
JAPAN INTERNATIONAL COOPERATION AGENCY			



PLAN VIEW



SECTION A-A

WTP GL = ASL + 3.0m

PAINTING SYSTEM

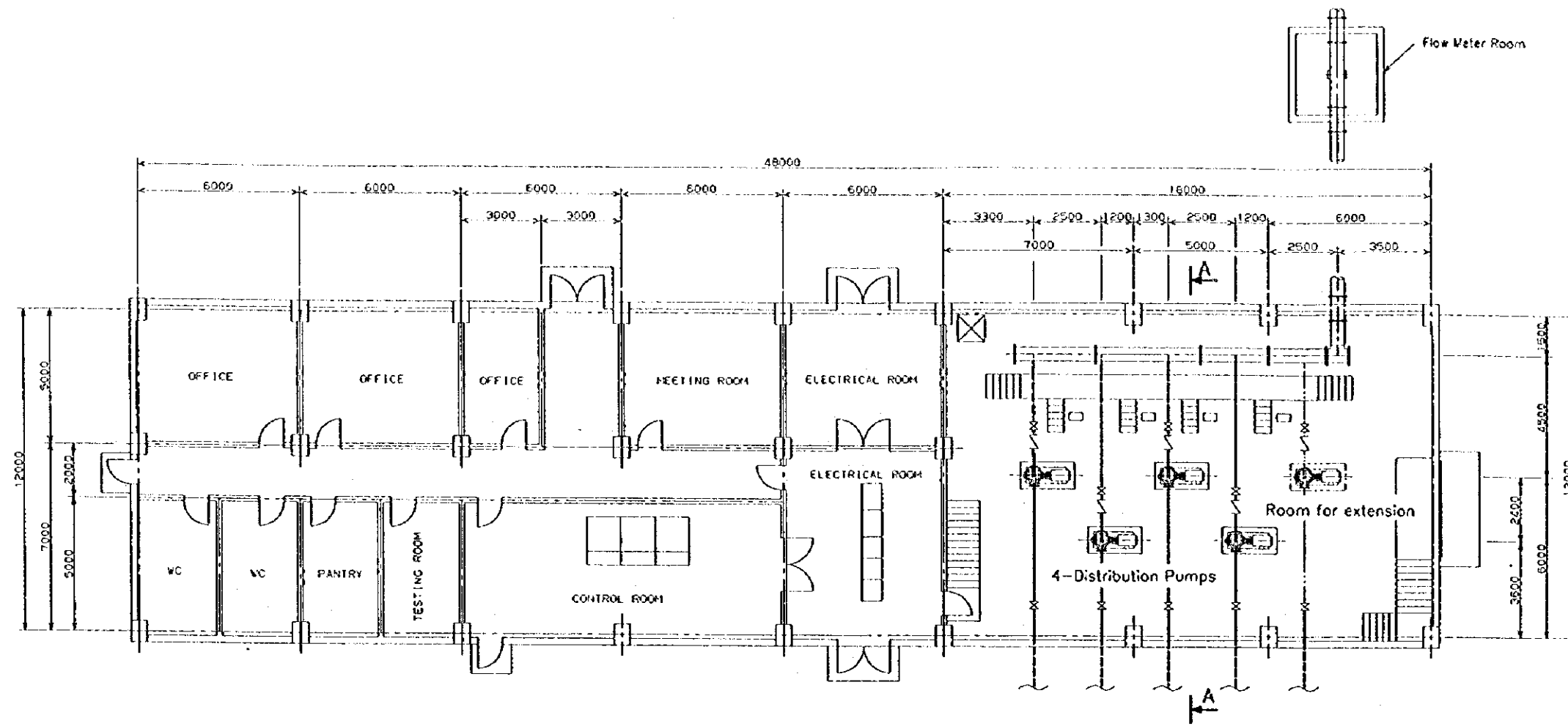
A: TO BE APPLIED FOR THE STEEL PIPES WHICH WILL BE BELOW WATER LEVEL OR BELOW GROUND

INTERIOR SURFACE.....TAR EPOXY
EXTERIOR SURFACE.....TAR EPOXY

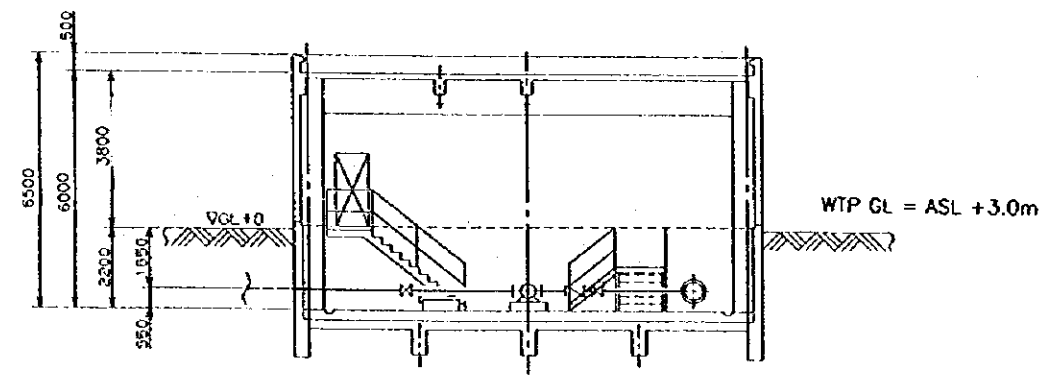
B: TO BE APPLIED FOR THE STEEL PIPES WHICH WILL BE IN ATMOSPHERIC AREA

INTERIOR SURFACE.....TAR EPOXY
EXTERIOR SURFACE.....PHTHALIC RESIN PAINT

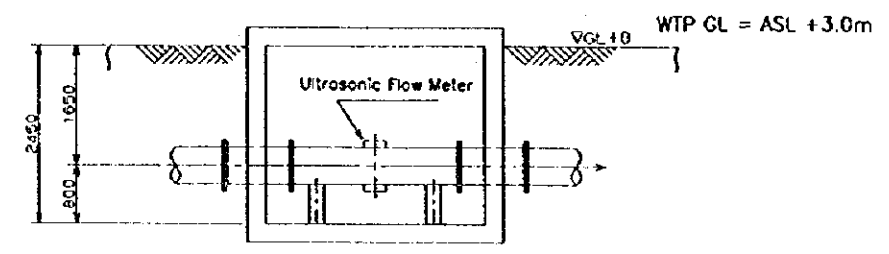
THE SOCIALIST REPUBLIC OF VIET NAM			
HAI DUONG PEOPLE'S COMMITTEE			
BASIC DESIGN STUDY ON THE PROJECT			
FOR EXPANSION OF WATER SUPPLY SYSTEM			
IN HAI DUONG CITY			
IN THE SOCIALIST REPUBLIC OF VIET NAM			
DRAW. NAME	Clean Water Reservoir		
DATE	Feb. 1999	SCALE : 1/200	DRAW No. 13
JAPAN INTERNATIONAL COOPERATION AGENCY			



PLAN VIEW



SECTION A-A



Flow Meter Room

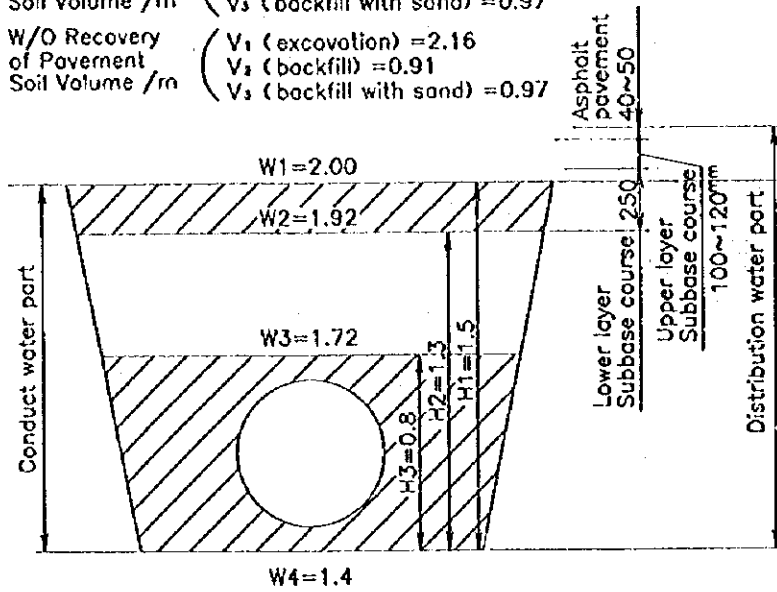
PAINTING SYSTEM
 A: TO BE APPLIED FOR THE STEEL PIPES WHICH WILL BE BELOW WATER LEVEL OR BELOW GROUND
 INTERIOR SURFACE.....TAR EPOXY
 EXTERIOR SURFACE.....TAR EPOXY
 B: TO BE APPLIED FOR THE STEEL PIPES WHICH WILL BE IN ATMOSPHERIC AREA
 INTERIOR SURFACE.....TAR EPOXY
 EXTERIOR SURFACE.....PHTHALIC RESIN PAINT

THE SOCIALIST REPUBLIC OF VIET NAM		
HAI DUONG PEOPLE'S COMMITTEE		
BASIC DESIGN STUDY ON THE PROJECT FOR EXPANSION OF WATER SUPPLY SYSTEM IN HAI DUONG CITY IN THE SOCIALIST REPUBLIC OF VIET NAM		
DRAW. NAME	Distribution Pump Building	
DATE	Feb. 1999	SCALE : 1/200
		DRAW No. 14
JAPAN INTERNATIONAL COOPERATION AGENCY		

ø600

W/ Recovery of Pavement Soil Volume /m
 v_1 (excavation) = 2.55
 v_2 (backfill) = 1.30
 v_3 (backfill with sand) = 0.97

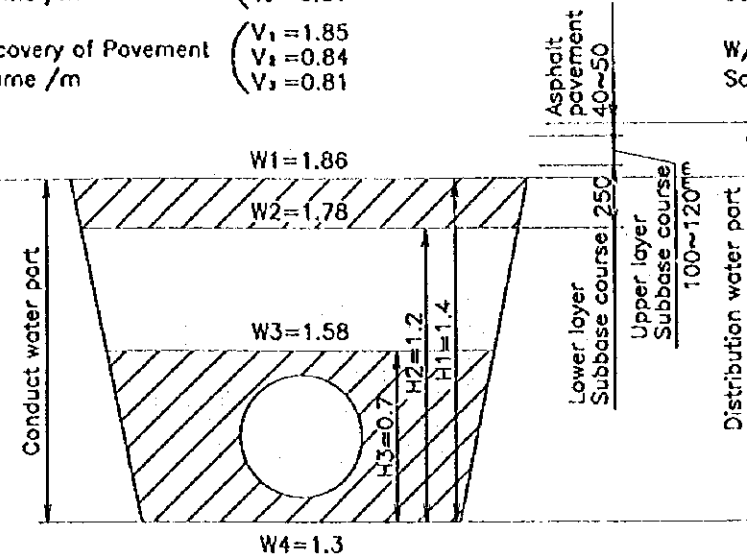
W/O Recovery of Pavement Soil Volume /m
 V_1 (excavation) = 2.16
 V_2 (backfill) = 0.91
 V_3 (backfill with sand) = 0.97



ø500

W/ Recovery of Pavement Soil Volume /m
 v_1 = 2.21
 v_2 = 1.20
 v_3 = 0.81

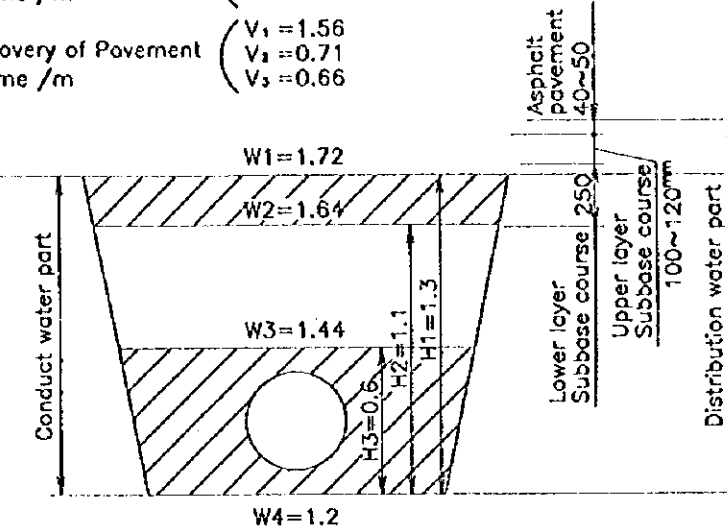
W/O Recovery of Pavement Soil Volume /m
 V_1 = 1.85
 V_2 = 0.84
 V_3 = 0.81



ø350,400

W/ Recovery of Pavement Soil Volume /m
 v_1 = 1.90
 v_2 = 1.11
 v_3 = 0.66

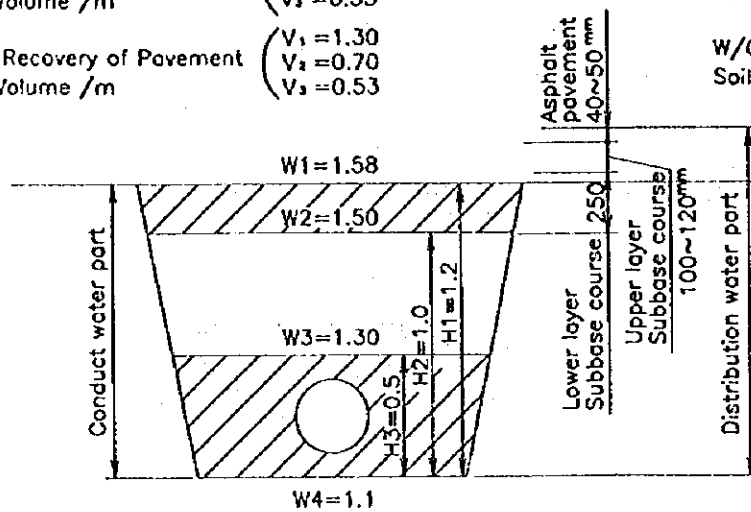
W/O Recovery of Pavement Soil Volume /m
 V_1 = 1.56
 V_2 = 0.71
 V_3 = 0.66



ø250,300

W/ Recovery of Pavement Soil Volume /m
 v_1 = 1.61
 v_2 = 1.01
 v_3 = 0.53

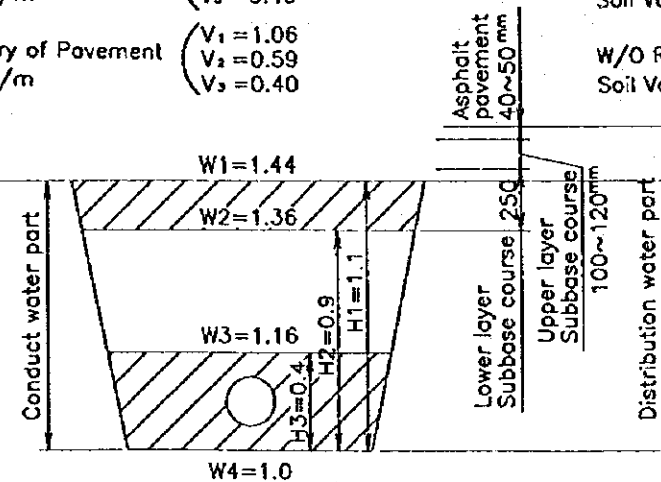
W/O Recovery of Pavement Soil Volume /m
 V_1 = 1.30
 V_2 = 0.70
 V_3 = 0.53



ø150,200

W/ Recovery of Pavement Soil Volume /m
 v_1 = 1.34
 v_2 = 0.91
 v_3 = 0.40

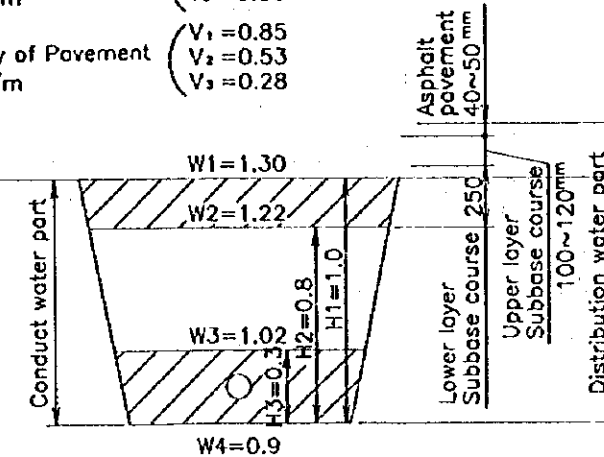
W/O Recovery of Pavement Soil Volume /m
 V_1 = 1.06
 V_2 = 0.59
 V_3 = 0.40



ø75,100

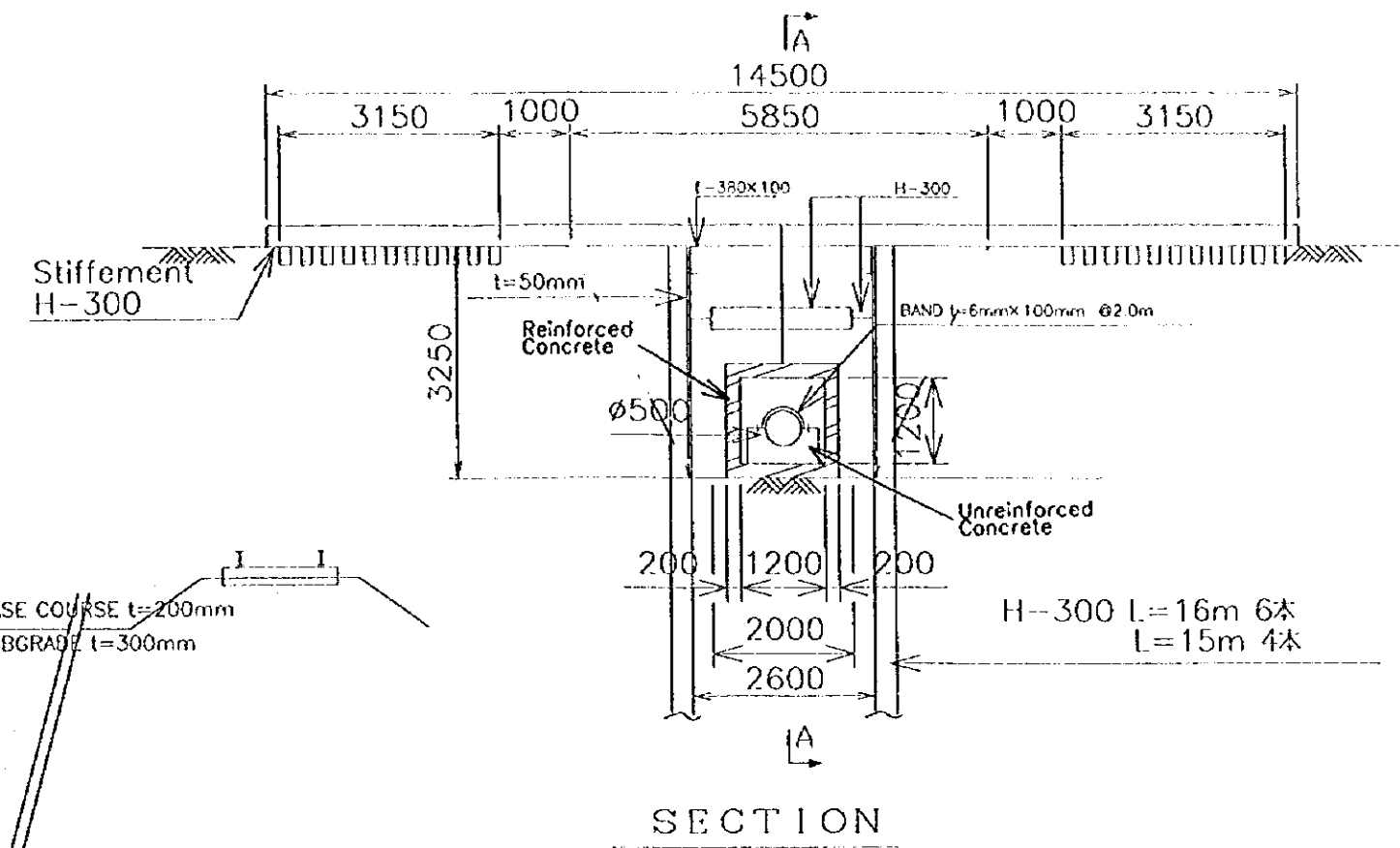
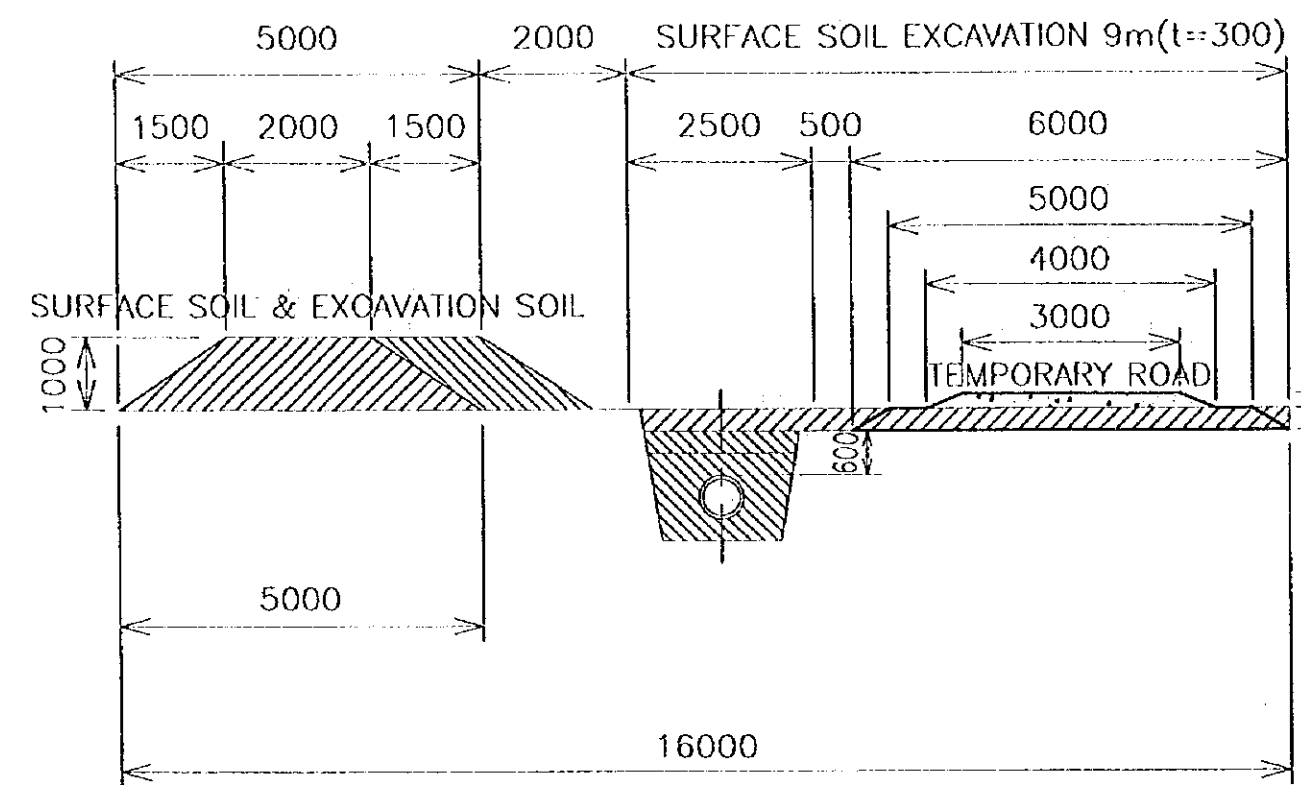
W/ Recovery of Pavement Soil Volume /m
 v_1 = 1.10
 v_2 = 0.81
 v_3 = 0.28

W/O Recovery of Pavement Soil Volume /m
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 V_2 = 0.53
 V_3 = 0.28

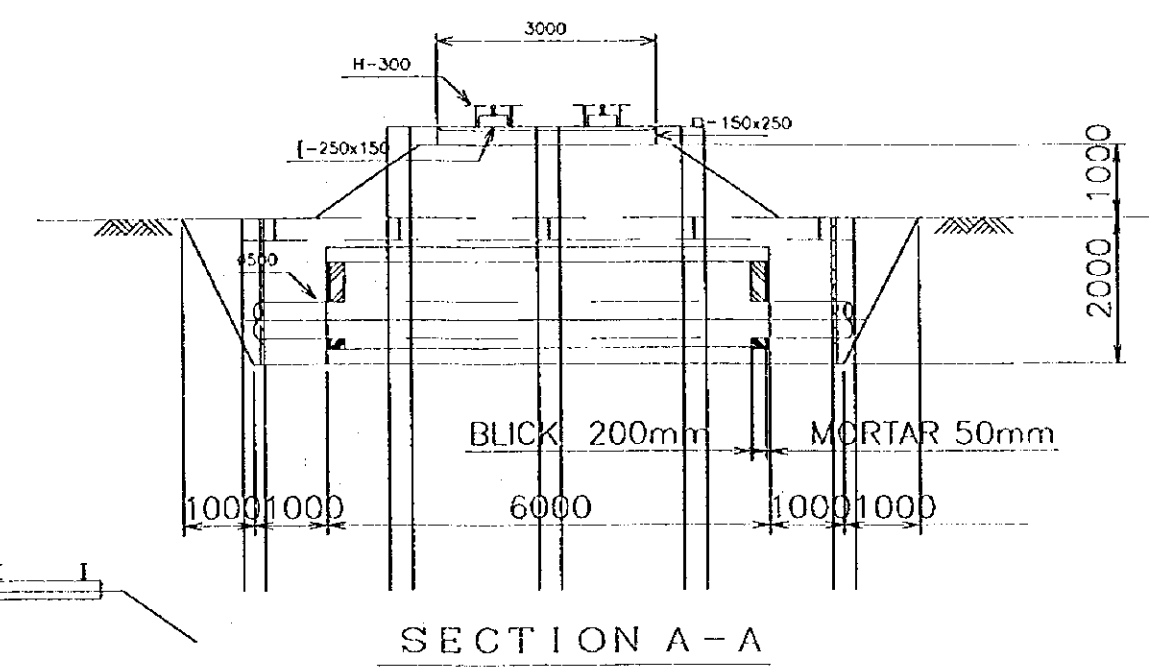
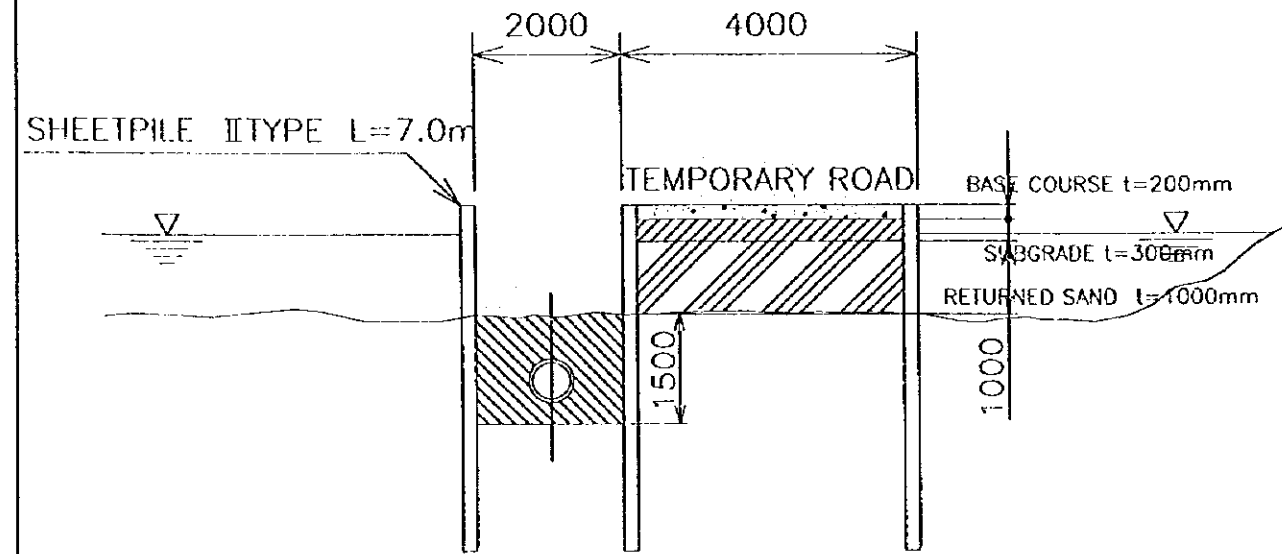


THE SOCIALIST REPUBLIC OF VIET NAM HAI DUONG PEOPLE'S COMMITTEE		
BASIC DESIGN STUDY ON THE PROJECT FOR EXPANSION OF WATER SUPPLY SYSTEM IN HAI DUONG CITY IN THE SOCIALIST REPUBLIC OF VIET NAM		
DRAW NAME		
DATE	Feb. 1999	SCALE : 1/30
		DRAW NO. 15
JAPAN INTERNATIONAL COOPERATION AGENCY		

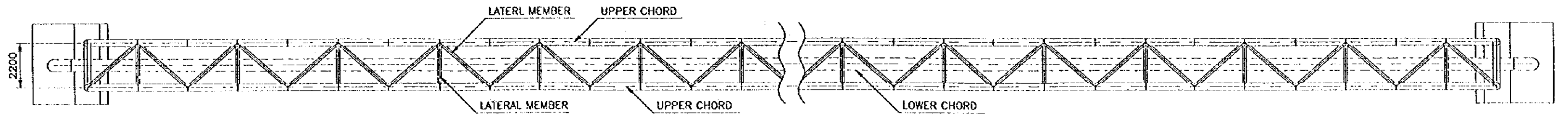
EXCAVATION IN THE RICE FIELD
(L=4,062m)



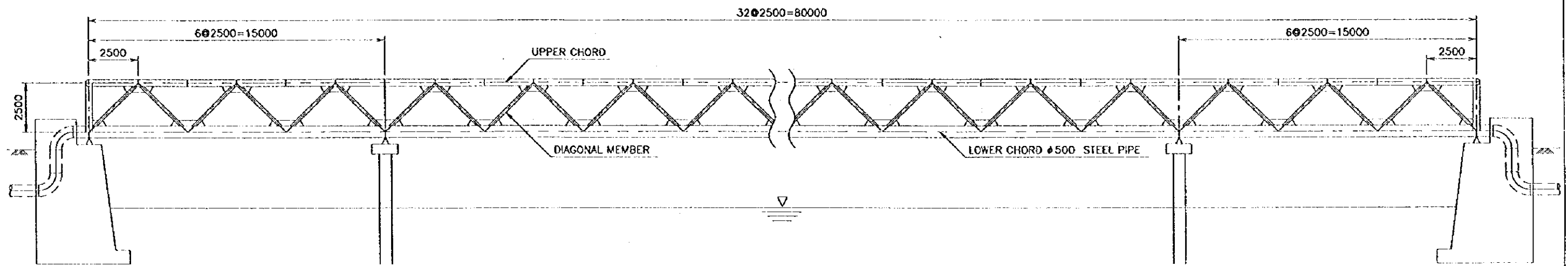
RESERVOIR AND CHANNEL PART
(L=609m)



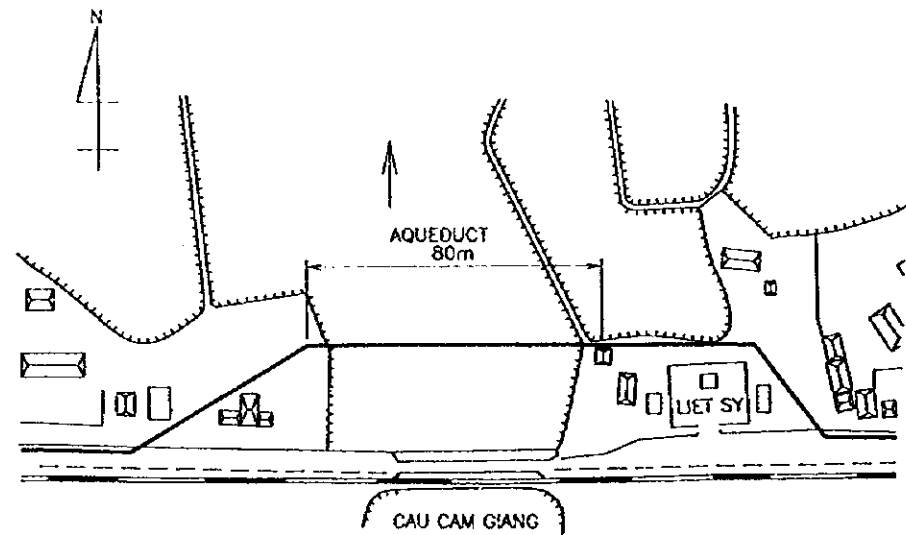
THE SOCIALIST REPUBLIC OF VIET NAM			
HAJ DUONG PEOPLE'S COMMITTEE			
BASIC DESIGN STUDY ON THE PROJECT			
FOR EXPANSION OF WATER SUPPLY SYSTEM			
IN HAI DUONG CITY			
IN THE SOCIALIST REPUBLIC OF VIET NAM			
DRAW NAME	Section for Railroad / River Crossing		
DATE	Feb. 1999	SCALE :	1/100
		DRAW NO.	16
JAPAN INTERNATIONAL COOPERATION AGENCY			



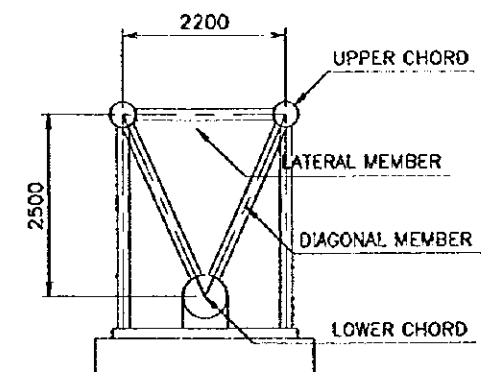
PLAN



PROFILE

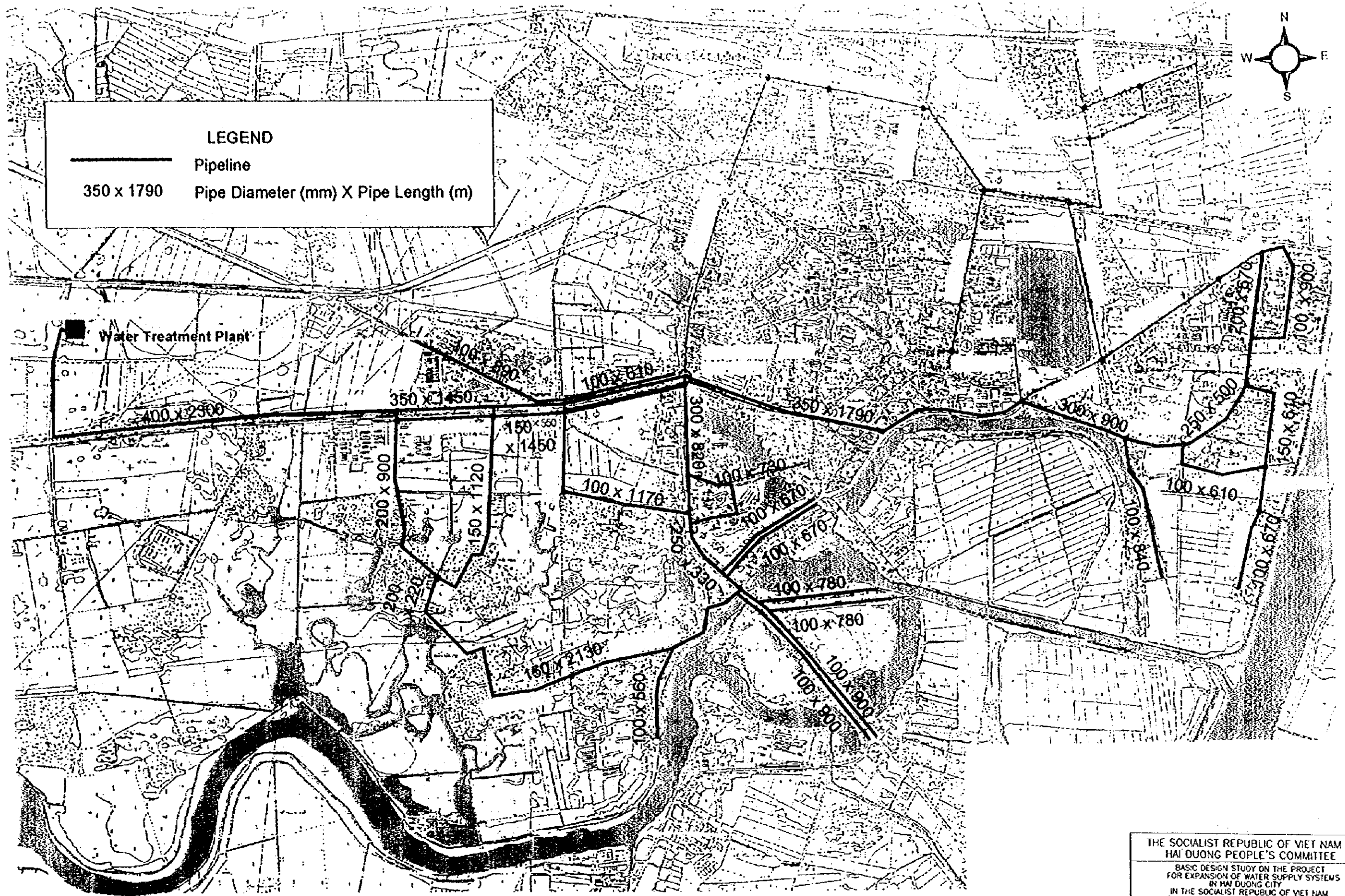


LOCATION MAP



SECTION (s=1:100)

THE SOCIALIST REPUBLIC OF VIET NAM			
HAI DUONG PEOPLE'S COMMITTEE			
BASIC DESIGN STUDY ON THE PROJECT FOR EXPANSION OF WATER SUPPLY SYSTEM IN HAI DUONG CITY IN THE SOCIALIST REPUBLIC OF VIET NAM			
DRAW.NAME	Water Pipe Bridge		
DATE	Feb. 1999	SCALE :	1/200
		DRAW NO.	17
JAPAN INTERNATIONAL COOPERATION AGENCY			



LEGEND

— Pipeline

350 x 1790 Pipe Diameter (mm) X Pipe Length (m)

Water Treatment Plant

THE SOCIALIST REPUBLIC OF VIET NAM
 HAI DUONG PEOPLE'S COMMITTEE

BASIC DESIGN STUDY ON THE PROJECT
 FOR EXPANSION OF WATER SUPPLY SYSTEMS
 IN HAI DUONG CITY
 IN THE SOCIALIST REPUBLIC OF VIET NAM

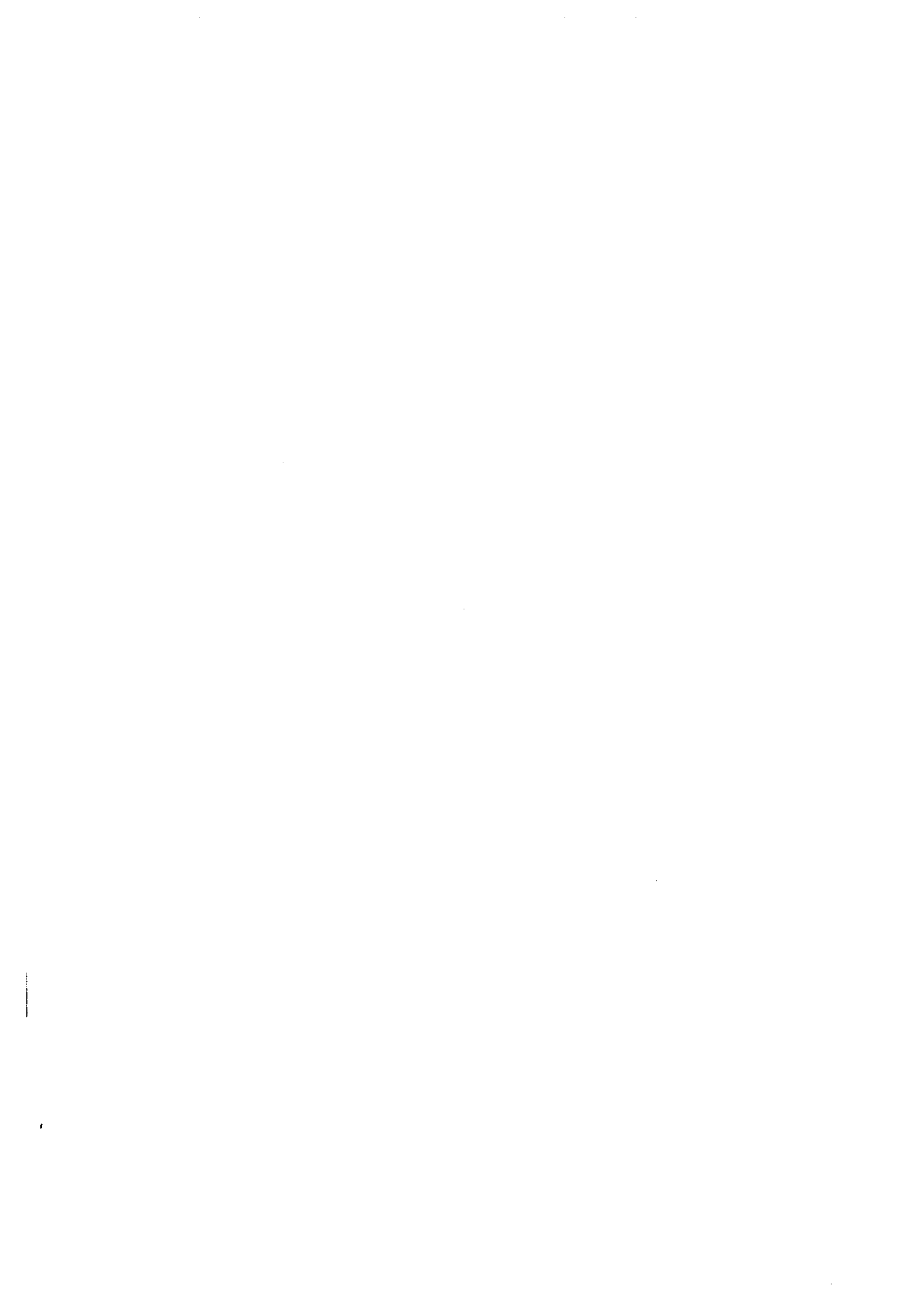
DRAW NAME: Distribution Networks

DATE: Feb. 1999 SCALE: Non DRAW No. 18

JAPAN INTERNATIONAL COOPERATION AGENCY

APPENDICES

Appendix 1 List of Survey Team



Member List of Basic Design Study

-- 1st Year --

1. Team Leader	Mr. Yoshiki OMURA	JICA
2. Treatment Facility Planner	Mr. Masanori ICHINOHE	JWWA
3. Grant Aid Division	Mr. Takuya MITANI	JICA
4. Coordinator	Mr. Shimichi MASUDA	JICA
5. Chief of Survey Staff / Water Supply Management Planner	Mr. Akihiko TOGO	PCI
6. Water Supply Planner / Facility Planner	Mr. Kiyoshi NAKAHARA	PCI
7. Hydrogeologist	Mr. Kenji TAKAYANAGI	PCI
8. Facility Planner I (Mechanical Engineer)	Mr. Masao FUJIWARA	NJS
9. Facility Planner II (Electric Engineer)	Mr. Ryohei KAWANISHI	NJS
10. Piping Engineer	Mr. Nobuki ABE	NJS
11. Cost Estimator / Procurement Planner	Mr. Syun-ichi NAKATAKE	PCI

JICA : Japan International Cooperation Agency

JWWA : Japan Water Works Association

PCI : Pacific Consultants International

NJS : Nippon Jagesuido Sekkdi Co., Ltd.

LIST OF MEMBER FOR EACH FIELD SURVEY

-- 1st Year --

Field Survey from July 30 to September 7, 1996

1. Team Leader	Mr. Yoshiki OMURA	JICA
2. Grant Aid Division	Mr. Takuya MITANI	JICA
3. Chief of Survey Staff / Water Supply Management Planner	Mr. Akihiko TOGO	PCI
4. Water Supply Planner / Facility Planner	Mr. Kiyoshi NAKAHARA	PCI
5. Hydrogeologist	Mr. Kenji TAKAYANAGI	PCI
6. Facility Planner I (Mechanical Engineer)	Mr. Masao FUJIWARA	NJS
7. Facility Planner II (Electric Engineer)	Mr. Ryohei KAWANISHI	NJS
8. Piping Engineer	Mr. Nobuki ABE	NJS
9. Cost Estimator / Procurement Planner	Mr. Syun-ichi NAKATAKE	PCI

Field Survey from November 4 to 12, 1996

1. Team Leader	Mr. Yoshiki OMURA	JICA
2. Coordinator (A)	Mr. Shinichi MASUDA	JICA
3. Chief of Survey Staff / Water Supply Management Planner	Mr. Akihiko TOGO	PCI
4. Water Supply Planner / Facility Planner	Mr. Kiyoshi NAKAHARA	PCI
5. Hydrogeologist	Mr. Kenji TAKAYANAGI	PCI

Field Survey from February 23 to March 1, 1997

1. Team Leader	Mr. Yoshiki OMURA	JICA
2. Chief of Survey Staff / Water Supply Management Planner	Mr. Akihiko TOGO	PCI
3. Water Supply Planner / Facility Planner	Mr. Kiyoshi NAKAHARA	PCI

Field Survey from April 9 to 18, 1997

1. Chief of Survey Staff / Water Supply Management Planner	Mr. Akihiko TOGO	PCI
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Field Survey from May 18 to June 1, 1997

1. Water Supply Planner / Facility Planner	Mr. Kiyoshi NAKAHARA	PCI
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Field Survey from June 28 to July 17, 1997

1. Team Leader	Mr. Yoshiki OMURA	JICA
2. Treatment Facility Planner	Mr. Masanori ICHINOHE	JWWA
3. Chief of Survey Staff / Water Supply Management Planner	Mr. Akihiko TOGO	PCI
4. Water Supply Planner / Facility Planner	Mr. Kiyoshi NAKAHARA	PCI

Field Survey from August 18 to September 1, 1997

1. Chief of Survey Staff / Water Supply Management Planner	Mr. Akihiko TOGO	PCI
2. Water Supply Planner / Facility Planner	Mr. Kiyoshi NAKAHARA	PCI

Member List of Basic Design Study

— 2nd Year —

1. Team Leader	Mr. Takanobu KURODA	MOFA
2. Technical Advisor	Mr. Yoshiki OMURA	JICA
3. Coordinator	Mr. Yuichi SUGANO	JICA
4. Chief Consultant / Maintenance & Operation Planner	Mr. Hiroaki MIYAKOSHI	PCI
5. Water Supply Planner / Facility Planner	Mr. Toshifumi OKAGA	PCI
6. Hydrogeologist	Mr. Toru YORITATE	PCI
7. Cost Estimator / Procurement Planner	Mr. Naoto TOHDA	PCI

MOFA : Ministry of Foreign Affairs

JICA : Japan International Cooperation Agency

JWWA : Japan Water Works Association

PCI : Pacific Consultants International

LIST OF MEMBER FOR EACH FIELD SURVEY

-- 2nd Year --

Field Survey from August 23 to September 16, 1998

1.	Team Leader	Mr. Takanobu KURODA	MOFA
2.	Technical Advisor	Mr. Yoshiki OMURA	JICA
3.	Coordinator	Mr. Yuichi SUGANO	JICA
4.	Chief of Consultant / Maintenance & Operation Planner	Mr. Hiroaki MIYAKOSHI	PCI
5.	Water Supply Planner / Facility Planner	Mr. Toshifumi OKAGA	PCI
6.	Hydrogeologist	Mr. Toru YORITATE	PCI
9.	Cost Estimator / Procurement Planner	Mr. Naoto TOHDA	PCI

Field Survey from November 11 to 19, 1998

1.	Team Leader	Mr. Yoshiki OMURA	JICA
2.	Chief of Consultant / Maintenance & Operation Planner	Mr. Hiroaki MIYAKOSHI	PCI
3.	Water Supply Planner / Facility Planner	Mr. Toshifumi OKAGA	PCI

Appendix 2 Itinerary of Study Team

Itinerary of Basic Design Study Team

- 1st Year -

Date	Work Item
Jul. 30, '96	Travel (Tokyo→Hanoi)
Jul. 30, '96	Courtesy call to Embassy of Japan, JICA, other relating Ministries
Aug. 1 to 15, '96	Meetings and site survey
Aug. 16 to 23, '96	Minutes and Discussions
Aug. 24 to Sep. 8, '96	Field survey
Sep. 9, '96	Travel (Hanoi→Tokyo)
Nov. 4, '96	Travel (Tokyo→Hanoi)
Nov. 5, '96	Courtesy call to Embassy of Japan, JICA, other relating Ministries
Nov. 6 to 8, '96	Discussions on the draft basic design report
Nov. 8, '96	Minutes of Discussions
Nov. 9 to 10, '96	Meeting on the Minutes of Discussions
Nov. 11, '96	Report to Embassy of Japan, JICA
Nov. 12, '96	Travel (Hanoi→Tokyo)
Feb. 23, '97	Travel (Tokyo→Hanoi)
Feb. 24, '97	Courtesy call to Embassy of Japan, JICA, other relating Ministries
Feb. 25, '97	Field Survey
Feb. 26, '97	Meeting on the Minutes of Discussions
Feb. 27, '97	Signing of the Minutes of Discussions
Feb. 28, '97	Report to Embassy of Japan, JICA
Mar. 1, '97	Travel (Hanoi→Tokyo)
Apr. 9, '97	Travel (Tokyo→Hanoi)
Apr. 10, '97	Courtesy call to Embassy of Japan, JICA
Apr. 11 to 16, '97	Preparation for experiment for Water Treatment Process Contract of Test well drilling for Water quality analysis and Pumping test
Apr. 17, '97	Report to Embassy of Japan, JICA
Apr. 18, '97	Travel (Hanoi→Tokyo)
May 18, '97	Travel (Tokyo→Hanoi)
May 19, '97	Courtesy call to JICA
May 20 to 23, '97	Procedures for receiving the pilot plant
May 24 to 28, '97	Set up the pilot plant
May 29 to 31, '97	Test operation and adjustment of the pilot plant
Jun. 1, '97	Travel (Hanoi→Tokyo)
Jun. 28, '97	Travel (Tokyo→Bangkok)
Jun. 29, '97	Travel (Bangkok→Hanoi)
Jun. 31, '97	Courtesy call to JICA, Embassy of Japan
Jul. 1, '97	Meeting with Hai Duong construction service
Jun. 2 to 15, '97	Arrangement of experiment for water treatment process
Jul. 16, '97	Report to JICA
Jul. 17, '97	Travel (Bangkok→Tokyo)
Aug. 18, '97	Travel (Tokyo→Hanoi)
Aug. 19, '97	Courtesy call to Embassy of Japan, JICA
Aug. 20 to 25, '97	Arrangement of experiment for water treatment process
Aug. 26, '97	Report to JICA, Embassy of Japan
Aug. 27 to 31, '97	Arrangement of experiment for water treatment process
Sep. 1, '97	Travel (Hanoi→Tokyo)

Itinerary of Basic Design Study

- 2nd Year -

Date	Day	Work Item		Stay
		Official Member	Consultant Member	
8/23	Sun	Tokyo → Hong Kong → Hanoi		Hanoi
8/24	Mon	Courtesy call to Embassy of Japan and JICA Courtesy call to relating agencies of Vietnam		Hanoi
8/25	Tue	Meeting with Counterpart (C/P)		Hanoi
8/26	Wed	Meeting with C/P		Hanoi
8/27	Thu	Discussion on Minutes of Discussions (M/D)		Hanoi
8/28	Fri	AM: Signing of M/D PM: Report to Embassy of Japan and JICA		Hanoi
8/29	Sat	Hanoi → Hong Kong → Tokyo	Tohda and Yoritake arrival	Hanoi
8/30	Sun		Inner Meeting	Hanoi
8/31	Mon		Meeting with C/P, Field survey	Hai Duong
9/1	Tue		Meeting with C/P, Field survey	Hai Duong
9/2	Wed		Meeting with C/P, Field survey	Hai Duong Hanoi
9/3	Thu		Meeting with C/P, Field survey Meeting with K2 (Okaga, Yoritake)	Hai Duong Hanoi
9/4	Fri		Meeting with C/P, Field survey	Hai Duong
9/5	Sat		Meeting with C/P, Field survey	Hanoi
9/6	Sun		Holiday	Hanoi
9/7	Mon		Meeting with VIWASE	Hanoi
9/8	Tue		Discussion on Technical Note (T/N)	Hanoi
9/9	Wed		Meeting with C/P, Field survey	Hai Duong
9/10	Thu		Meeting with C/P, Field survey	Hai Duong
9/11	Fri		Data Analyzing	Hanoi
9/12	Sat		Okaga and Yoritake leaving	Hanoi
9/13	Sun		Holiday	Hanoi
9/14	Mon		Signing of T/N	Hanoi
9/15	Tue		Report to Embassy of Japan and JICA	Hanoi
9/16	Wed		Miyakoshi and Tohda leaving	

Date	Day	Work Item		Stay
		Official Member	Consultant Member	
11/11	Wed	Tokyo → Hong Kong → Hanoi		Hanoi
11/12	Thu	Courtesy call to Embassy of Japan and JICA Courtesy call to relating agencies of Vietnam		Hanoi
11/13	Fri	Meeting with Counterpart (C/P)		Hanoi
11/14	Sat	Holiday		Hanoi
11/15	Sun	Holiday		Hanoi
11/16	Mon	Meeting with Counterpart (C/P)		Hanoi
11/17	Tue	Meeting with Counterpart (C/P)		Hanoi
11/18	Wed	AM: Signing of Minutes of Discussion PM: Report to Embassy of Japan and JICA		Hanoi
11/19	Thu	Hanoi → Hong Kong → Tokyo		

Appendix 3 List of Officers Concerned

List of Officers Concerned

1. Embassy of Japan

Mr. Masao Miyazaki	Secretary
Mr. Mitsunori Ida	Secretary

2. Ministry of Construction

Mr. Nguyen Tan Van	Vice Minister
Dr. Dang Nghiem Chinh	Vice Minister
Mr. Bui Dinh Khoa	Deputy General Director

3. People's Committee of Hai Duong Province

Mr. Nguyen Van Chien	Chairman
Mr. Nguyen Trong Nhung	Vice Chairman
Mr. Dao Xuan The	Deputy Chief of Administration Office

4. Hai Duong Construction Service

Mr. Bui Dinh Nghien	Director
Mr. Vuong Trac	Manager, Planning Department
Ms. Nguyen Thi Phuong Lies	Manager, Urban Development Planning Department
Ms. Pham Phuong Nga	Manager, Planning Department

5. Hai Duong Water Supply Company

Ms. Nguyen Thi Ngoc Nu	Director
Mr. Nguyen Dinh Doanh	Vice Director
Mr. Tran Quoc Khanh	Vice Chief, Technical Department

6. Geological Survey of Vietnam Hydrogeological Division K No.2

Mr. Nguyen Van Dan	Deputy General Director
Mr. Chau Van Quynh	Hydrogeologist

7. Vietnam Consultant for Water Supply, Sanitation and Environment (VIWASE)

Mr. Nguyn Hoc Van	Deputy General Director
Mr. Dinh Viet Duong	Chief of Laboratory
Mr. Phung Ngoc Quang	Engineer

Appendix 4 Minutes of Discussions

**MINUTES OF DISCUSSIONS
ON THE BASIC DESIGN STUDY ON THE PROJECT FOR IMPROVEMENT
UPGRADING AND EXPANSION
OF HAI DUONG TOWN WATER SUPPLY SYSTEM
IN THE SOCIALIST REPUBLIC OF VIET NAM**

Based on the result of the Preliminary Study, the Japan International Cooperation Agency (JICA) decided to conduct a Basic Design Study on the Project for Improvement Upgrading and Expansion of Hai Duong Town Water Supply System (hereinafter referred to as "the Project")

JICA has sent to Viet Nam a study team, which is headed by Mr. Yoshiki Omura, Development Specialist, Institute for International Cooperation, JICA from July 30 to September 9, 1996. The team had a series of discussions with the officials concerned of Viet Nam and conducted a field survey in Hai Hung Province including Hai Duong Town.

As a result of discussions and field survey, both sides confirmed the components described in the attachment.

The team will proceed to further works and prepare the Draft Basic Design Report in November 1996.

Hanoi, 23 August 1996



Mr. Yoshiki Omura
Leader
Basic Design Study Team
JICA



Arch. Nguyen Tan Van
Vice Minister
Ministry of Construction



Mr. Pham Dinh Phu
Vice Chairman
Hai Hung People's Committee



Mr. Bui Dinh NGHIEN
Director
Hai Hung Construction Service



Mr. Bui Xuyen
Director
Hai Hung Planning and Investment
Service

ATTACHMENT

1. Objective

The objective of the proposed project is to cope with the water shortage suffered by the people of Hai Duong Town, the capital of Hai Hung Province.

2. Project areas

The project areas are located within Hai Hung Province, which will consist of the following areas:

- | | | |
|------------------------------|---|-------------------------------------|
| Groundwater development area | : | Cam Giang |
| Service areas | : | Hai Duong Town as shown in Annex I. |

3. Executing agency

Ministry of Construction will coordinate the procedural work for the implementation of the Project.

The executing agency is Hai Hung People's Committee which bears overall responsibility for the administration and execution of the Project.

Hai Hung Construction Service, Hai Hung Planning and Investment Service and Hai Hung Water Supply Company assist Hai Hung People's Committee during the Project implementation.

4. Items requested by the Government of Viet Nam

After discussions with the Study team, the following items were finally requested by the Government of Viet Nam:

- 1) Component of the facilities described in Annex II
- 2) Provision of equipment and materials related to the Project, which are described in Annex III

However, final components of the Project will be determined after further consideration in Japan.

5. Japan's Grant Aid System

- 1) The Government of Viet Nam understands the system of Japan's Grant Aid as described in Annex V.
- 2) The Government of Viet Nam will take necessary measures, as described in Annex IV for the smooth implementation of the Project on condition that the Japan's Grant Aid is extended to the Project.

6. Schedule of the Study

- 1) The Team will proceed to further study in Viet Nam until September 7, 1996.
- 2) JICA will prepare the draft report in English and dispatch a mission in order to explain its contents around October-November 1996.
- 3) In case that the content of the draft report is accepted in principle by the Government of Viet Nam, JICA will complete the final report and send it to Viet

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Nam around January, 1997.

7. Other relevant issues

1) Financial Statements

The Vietnamese side agreed to prepare financial statements of Hai Hung Water Supply Company such as profit/loss statements, balance sheets and cashflow statements for the next ten years on both cases of "with" and "without" the Project during the Team's field study. The Vietnamese side also agreed to prepare disbursement schedule of Hai Hung Construction Service (a capital investment schedule) relevant to the Project over five years from 1997 during the field study by the Team. The Team will assist the Vietnamese side in drawing the above-mentioned statements and schedules. JICA will evaluate the sustainability and financial viability of the Project on the basis of the statements and the schedule.

2) Undertaking by the Vietnamese side

The Team reminded of, and the Vietnamese side agreed to take actions with sufficient lead time, among other things, on the following issues, which are crucial for implementation of the Project:

- Planning power supply and construction of power line to ensure electric power supply to the proposed water treatment plant and pumping station,
- Completing land acquisition and embankment before construction work commenced,
- Securing permissions from the authorities concerned on railway crossing(s), river-crossings, and major road crossings.
- Completing all procedures for license of development of groundwater at the well field of the Project.

3) Timing of the Government Approval

The team explained the following:

The Project will be, if implemented, a long-term grant aid project over several fiscal years. Such long-term projects would be dealt with separately from the other general grant aid project which are scheduled to complete within a single fiscal year. A special fund for such long-term projects will be budgeted only once a year in December. Therefore timely approval on the Project by the Vietnamese Government will be crucial for project implementation in the coming fiscal year.

The Team explained, and the Vietnamese side recognized that the date of November 20, 1996 was the deadline of the Vietnamese government approval for allowing the Japanese side to commence approval procedures for the fiscal year 1997 in December.

in

4) Present Status of Basic Design Study

In order for mutual understanding of the study, the scope of works and methodologies of the Basic Design Study was summarized in the Inception Report, and the report was presented to the Ministry of Construction on 31 July 1996. The Inception Report was accepted by the Ministry and the study has been being undertaken accordingly.

The ground water investigation of the proposed well field is on going. Three test holes were completed by the middle of August and the step draw down test is now being undertaken to determine the safe yield of wells. After completion of step draw down tests by the end of August, continuous pumping tests are scheduled to confirm the allowable draw down at the proposed pumping rate.

The sites for the well field, the transmission pump station and the treatment plant were selected.

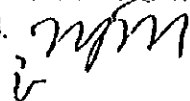
The service areas of the Project are basically the wards No. VI to X as of the Hai Duong Master Plan 2010 while the wards No. I to V are basically to be supplied by the existing system with some tradeoffs. Further details such as the unit water consumption rate and the design capacities/dimensions of facilities are subject to the further study to be continued until 7th September 1996.

5) Training of Operators

Both parties recognize importance of training the Vietnamese personnel at commissioning the proposed water supply system. The Japanese side therefore include preparation of operation manuals and training plant operators into the scope of works of the Japanese contractor to be engaged.

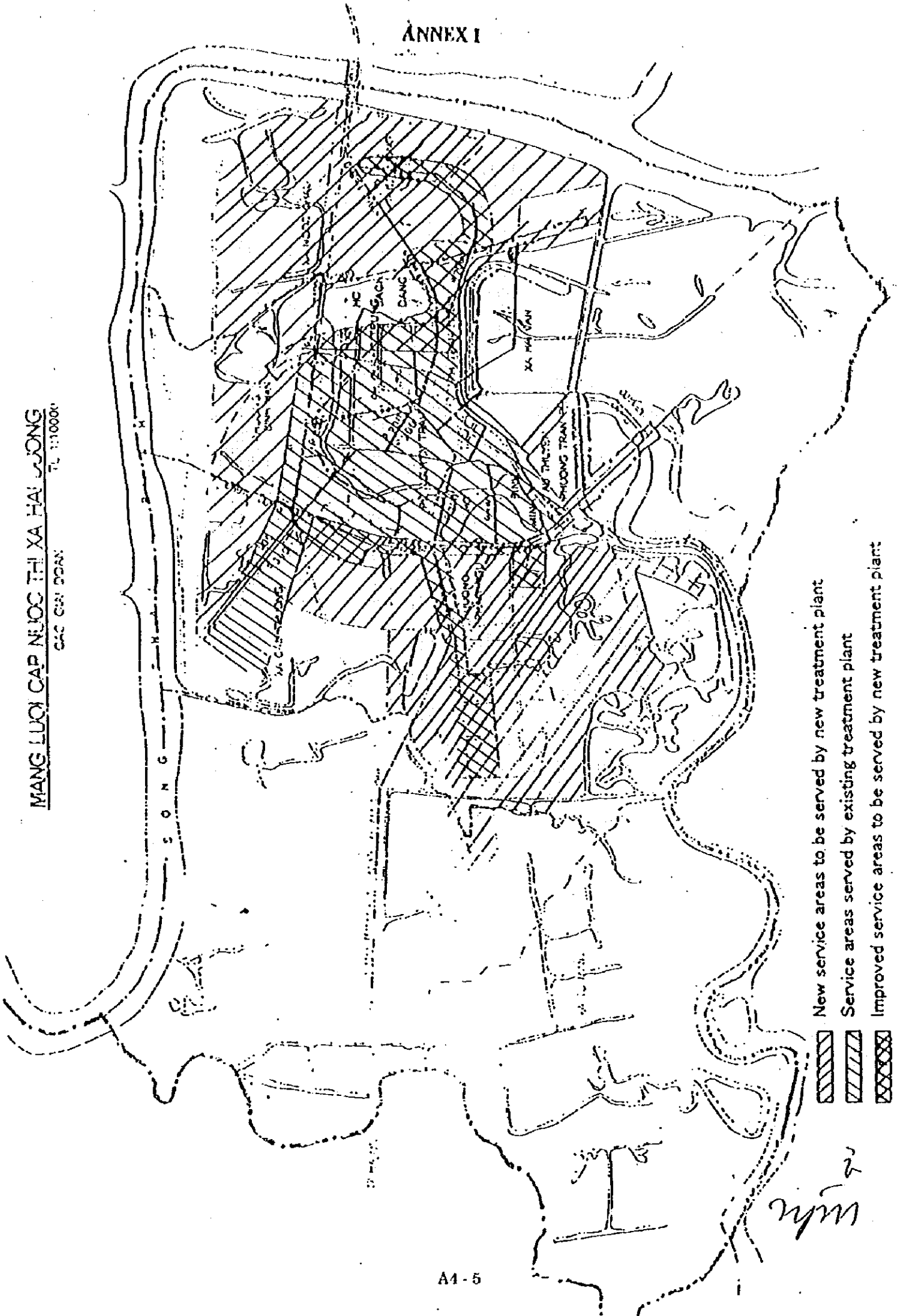
6) Internal Transportation




The Vietnamese side requested and the Japanese side agreed to include internal transportation costs of equipment and facilities listed in Annex II and III into the scope of works of the Japanese contractor to be engaged.



ANNEX I

MANG LUOI CAP NUOC THI XA HAI HONG
CAC GIAY BAN
TL 1:10000



-  New service areas to be served by new treatment plant
-  Service areas served by existing treatment plant
-  Improved service areas to be served by new treatment plant

**ANNEX II
FACILITIES REQUESTED**

Item	Description	Quantity
1.	Intake	
	1) Construction of bore holes: approx. 100 m	12 Nos
	2) Casing screen pipes	1 Lot
	3) Submersible motor pumps	12 Nos
	4) Raw water collector mains	1 Lot
	5) Receiving reservoir: 2,000 m ³	1 No.
	6) Transmission pumps	3 Sets
	7) Transmission pipeline	20 km
	8) Power substation	1 No
2.	Water treatment and distribution facilities	
	1) Filtration plant: 20,000 m ³ /day	1 No
	- Aeration facilities	
	- Sedimentation basins	
	- Filter basins	
	- Disinfection facilities	
	- Power substation	
	2) Distribution pumps	4 Sets
	3) Waste water treatment facilities	1 No.
	4) Distribution reservoir	1 No.
	5) Distribution pipeline and valves	1 Lot
	6) Water meters with accessories	10,000 Nos.

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ANNEX III

EQUIPMENT AND MATERIALS FOR OPERATION AND MAINTENANCE

- | | |
|---------------------------------|--------|
| 1) Pick-up car | 2 Sets |
| 2) Pick-up car: W-cabin | 2 Sets |
| 3) Water quality test equipment | 1 Set |
| 4) Workshop tools and equipment | 1 Set |
| 5) Office equipment | 1 Set |

2 *WPM*

ANNEX IV

Necessary measures to be taken by the Government of Viet Nam on condition that Japan's Grant Aid is extended;

1. To secure the sites for the Project,
2. To clear, level and reclaim the sites prior to the commencement of the construction,
3. To undertake incidental outdoor works such as gardening, fencing, gates and exterior lighting in and around the sites,
4. Completing all procedures for license of development of groundwater,
5. Securing permissions from the authorities concerned on railway crossing(s), river crossing(s), and major road crossing(s),
6. To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities in and around the sites,
7. To exempt taxes and to take the necessary measures for customs clearance of the materials and equipment brought for the Project at the port of disembarkation,
8. To exempt Japanese Nationals from customs duties, internal taxes and other fiscal levies which may be imposed in Viet Nam with respect to the supply of the products and services under the verified contracts,
9. To accord Japanese Nationals, whose services may be required in connection with the supply of products and the services under the verified contracts, such facilities as may be duration of their work,
10. To use and maintain properly and effectively all the facilities constructed and equipment purchased under the Grant, and
11. To bear all the expenses other than those to be borne by the Grant necessary for construction of the facilities.

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ANNEX V

ON JAPAN'S GRANT AID PROGRAM

1. Japan's Grant Aid Procedures

(1) The Japan's Grant Aid Program is executed by the following procedures:

- Application (request made by a recipient country)
- Study (Preliminary Study / Basic Design Study conducted by JICA)
- Appraisal & Approval (Appraisal by the Government of Japan and Approval by the Cabinet of Japan)
- Determination of Implementation (Exchange of Notes between the both Governments)
- Implementation (Implementation of the Project)

(2) Firstly, an application or a request for a project made by the recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to see whether or not it is suitable for Japan's Grant Aid. If the request is deemed suitable, the Government of Japan entrusts a study on the request to JICA (Japan International Cooperation Agency).

Secondly, JICA conducts the Study (Basic Design Study), using a Japanese consulting firm. If the background and objective of the requested project are not clear, a Preliminary Study is conducted prior to a Basic Design Study.

Thirdly, the Government of Japan appraises to see whether or not the Project is suitable for Japan's Grant Aid Program, based on the Basic Design Study report prepared by JICA and the results are then submitted for approval by the Cabinet.

Fourthly, the Project approved by the Cabinet becomes official when pledged by the Exchange of Notes signed by the both Governments.

Finally, for the implementation of the Project, JICA assists the recipient country in preparing contracts and so on.

2. Contents of the Study

1) Contents of the Study

The purpose of the Study (Preliminary Study/Basic Design Study) conducted on a project requested by JICA is to provide a basic document necessary for appraisal of the project by the Japanese Government. The contents of the Study are as follows:

- a) to confirm background, objectives, benefits of the project and also institutional capacity of agencies concerned of the recipient country necessary for project implementation,
- b) to evaluate appropriateness of the Project for the Grant Aid Scheme from a technical,

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social and economical point of view;

- c) to confirm items agreed on by the both parties concerning a basic concept of the project
- d) to prepare a basic design of the project,
- e) to estimate cost involved in the project.

Final project components are subject to approval by the Government of Japan and therefore may differ from an original request.

Implementing the project, the Government of Japan requests the recipient country to take necessary measures involved which are itemized on Exchange of Notes.

2) Selecting (a) Consulting Firm(s)

For smooth implementation of the study, JICA uses (a) consulting firm(s) registered. JICA selects (a) firm(s) through proposals submitted by firms which are interested. The firm(s) selected carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference made by JICA.

The consulting firm(s) used for the study is(are) recommended by JICA to a recipient country after Exchange of Notes, in order to maintain technical consistency and also to avoid possible undue delay in implementation caused if a new selection process is repeated.

(3) Status of a Preliminary Study in the Grant Aid Program

A Preliminary Study is conducted during the second step of a project formulation & preparation as mentioned above.

A result of the study will be utilized in Japan to decide if the Project is to be suitable for a Basic Design Study.

Based on the result of the Basic Design Study, the Government would proceed to the stage of decision making process (appraisal and approval).

It is important to notice that at the stage of Preliminary Study, no commitment is made by the Japanese side concerning the realization of the Project in the scheme of Grant Aid Program.

3. Japan's Grant Aid Scheme

1) What is Grant Aid?

The Grant Aid Program provides a recipient country with non reimbursable funds needed to procure facilities, equipment and services for economic and social development of the country under the following principles in accordance with relevant laws and regulations of Japan. The Grant Aid is not in a form of donation or such.

2) Exchange of Notes (EN)

The Japan's Grant Aid is extended in accordance with the Exchange of Notes by

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both Governments, in which the objectives of the Project, period of execution, conditions and amount of the Grant etc. are confirmed.

3) "The period of the Grant Aid" means one Japanese fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedure such as Exchange of Notes, concluding a contract with (a) consulting firm(s) and (a) contractor(s) and a final payment to them must be completed.

4) Under the Grant, in principle, products and services of origins of Japan or the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant may be used for the purchase of products or services of a third country origin.

However the prime contractors, namely, consulting, contractor and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means Japanese physical persons or Japanese juridical persons controlled by Japanese physical persons.)

5) Necessity of the "Verification"

The Government of the recipient country or its designated authority will conclude into contracts in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. The "Verification" is deemed necessary to secure accountability to Japanese tax payers.

6) Undertakings required to the Government of the recipient country

In the implementation of the Grant Aid, the recipient country is required to undertake necessary measures such as the following:

- i) to secure land necessary for the sites of the project and to clear and level the land prior to commencement of the construction work,
- ii) to provide facilities for distribution of electricity, water supply and drainage and other incidental facilities in and around the sites,
- iii) to secure buildings prior to the installation work in case the Project is providing equipment,
- iv) to ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid,
- v) to exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts,
- vi) to accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified Contracts, such facilities as may

be necessary for their entry into the recipient country and stay therein for the performance of their work.

7) Proper Use

The recipient country is required to maintain and use facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for their operation and maintenance as well as to bear all expenses other than those to be borne by the Grant Aid.

8) Re-export

The products purchased under the Grant Aid shall not be re-exported from the recipient country.

9) Banking Arrangement (B/A)

(a) The Government of the recipient country or its designated authority shall open an account in the name of the Government of the recipient country in an authorized foreign exchange bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by Government of the recipient country or its designated authority under the contracts verified.

(b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to Pay issued by the Government of the recipient country or its designated authority.

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MINUTES OF DISCUSSIONS
ON THE BASIC DESIGN STUDY ON THE PROJECT FOR
IMPROVEMENT, UPGRADING AND EXPANSION OF
HAI DUONG TOWN WATER SUPPLY SYSTEM
IN THE SOCIALIST REPUBLIC OF VIET NAM


In July 1996, the Japan International Cooperation Agency (JICA) dispatched a Basic Design Study Team on the Project for Improvement, Upgrading and Expansion of Hai Duong Town Water Supply System (hereinafter referred to as "the Project") to Viet Nam, and through discussions, field survey, and technical examination of the results in Japan, JICA has prepared a Draft Basic Design Report of the Study.

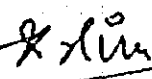
In order to explain and to consult Viet Nam on the components of the Draft Basic Design Report, JICA sent to Viet Nam a Draft Basic Design Report Explanation Team, headed by Mr. Yoshiki Omura, Development Specialist, JICA, from November 4 to 12, 1996.

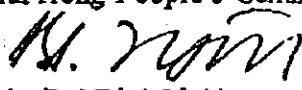
As a result of discussions, both parties confirmed the main items described on the attached sheet.

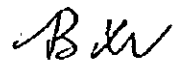
Hanoi, 26 November, 1996


Mr. Hiroshi TSUJINO
for
Mr. Masaru TODOROKI
JICA Viet Nam Office


Arch. Nguyen Tan Van
Vice Minister
Ministry of Construction


Mr. Nguyen Duc Kien
Vice Chairman
Hai Hung People's Committee


Mr. Bui Dinh Nghien
Director
Hai Hung Construction Service


Mr. Bui Xuyen
Director
Hai Hung Planning and Investment
Service

ATTACHMENT

1. Components of Draft Report

The Government of Viet Nam has accepted in principle the components of the Draft Basic Design Report as explained by the Team.

2. Japan's Grant Aid system

- 1) The Government of Viet Nam will take necessary measures, described in Annex I, for the smooth implementation of the Project on condition that Japan's Grant Aid is extended to the Project.
- 2) The Government of Viet Nam has understood the system of Japan's Grant Aid Scheme described in Annex II explained by the Team.

3. Major Points of Discussions

- 1) The Team and the Vietnamese side agreed that the Team would conduct sampling of test well water and water quality analysis in a Japanese laboratory for cross reference on presence of mercury and further evaluation of the proposed well field as a water source.
- 2) The Team recommended, and the Vietnamese side agreed to relocate the proposed field some kilometers west to the proposed location in Cam Giang for minimizing possibility of salinity problems. The Team agreed to assist the Vietnamese side in the additional groundwater investigation related to the relocation.
- 3) Upon the result of water quality analysis, Japanese side will take necessary further action in order to examine the possibility of the construction of treatment facilities on condition that Viet Nam side agree to present Hai Hung Water Supply Company's sustainability of the proposed facilities, which will require high level of maintenance skill and high water production cost.
- 4) The Vietnamese side requested the Japanese side to continue the study on the Project with the following items of works in 1997 fiscal year.
 - conducting the model test,
 - further investigation of water source,
 - sampling and analysis of water quality,
 - completion of the basic design study,all of which are regarded as necessary components for project implementation.

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5) The Team also requested the Vietnamese side to assign necessary budget in order to implement the study.

4. Schedule of Further Action

- 1) The Team will conduct the additional water quality analysis of the samples obtained from the well field, in Japan. According to the result of the analysis, the Japanese side will consider schedule of the additional study.
- 2) The Team will inform the Vietnamese side of the result of analysis and the schedule of additional study by the end of December 1996.
- 3) Because of the high concentration of iron, manganese and ammonium, which was more than expected, the Team considers that a model plant test is essential to determine the appropriate treatment methods and specifications of the treatment plant in the basic design study. The Team will recommend the Japanese government to continue the study to finalize the basic design on condition that the proposed well field is found to be suitable for the water supply facilities.
- 4) The Team will finalize the present draft basic design report in accordance with the confirmed items, and send it to the Government of Viet Nam around January 1997. Subject to continuation of the study, the Team will prepare a supplemental report at the end of the continued study, which will be essential to consider the implementation of the Project.

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ANNEX I

Necessary measures to be taken by the Government of Viet Nam on condition that Japan's Grant Aid is extended;

1. To secure the sites for the Project
2. To clear, level and reclaim the sites prior to the commencement of the construction
3. To undertake incidental outdoor works such as gardening, fencing, gates and exterior lighting in and around the sites
4. Completing all procedures for licence of development of ground water
5. Securing permissions from the authorities concerned on railway crossing(s), river crossing(s) and major road crossing(s)
6. To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities in and around the sites
7. To exempt taxes and to take the necessary measures for customs clearance of the materials and equipment brought for the Project at the port of disembarkation
8. To exempt Japanese Nationals from customs duties, internal taxes and other fiscal levies which may be imposed in Viet Nam with respect to the supply of the products and services under the verified contracts
9. To accord Japanese Nationals, whose services may be required in connection with the supply of products and the services under the verified contracts, such facilities as may be duration of their work
10. To use and maintain properly and effectively all the facilities constructed and equipment purchased under the Grant
11. To bear all the expenses other than those to be borne by the Grant, necessary for construction of the facilities

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ANNEX II

ON JAPAN'S GRANT AID PROGRAM

1. Japan's Grant Aid Procedures

(1) The Japan's Grant Aid Program is executed by the following procedures.

- Application (request made by a recipient country)
- Study (Preliminary Study / Basic Design Study conducted by JICA)
- Appraisal & Approval (Appraisal by the Government of Japan and Approval by the Cabinet of Japan)
- Determination of Implementation (Exchange of Notes between the both Governments)
- Implementation (Implementation of the Project)

(2) Firstly, an application or a request for a project made by the recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to see whether or not it is suitable for Japan's Grant Aid. If the request is deemed suitable, the Government of Japan entrusts a study on the request to JICA (Japan International Cooperation Agency).

Secondly, JICA conducts the Study (Basic Design Study), using a Japanese consulting firm. If the background and objective of the requested project are not clear, a Preliminary Study is conducted prior to a Basic Design Study.

Thirdly, the Government of Japan appraises to see whether or not the Project is suitable for Japan's Grant Aid Program, based on the Basic Design Study report prepared by JICA and the results are then submitted for approval by the Cabinet.

Fourthly, the Project approved by the Cabinet becomes official when pledged by the Exchange of Notes signed by the both Governments.

Finally, for the implementation of the Project, JICA assists the recipient country in preparing contracts and so on.

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2. Contents of the Study

1) Contents of the Study

The purpose of the Study (Preliminary Study/Basic Design Study) conducted on a project requested by JICA is to provide a basic document necessary for appraisal of the project by the

Japanese Government. The contents of the Study are as follows:

- a) to confirm background, objectives, benefits of the project and also institutional capacity of agencies concerned of the recipient country necessary for project implementation,
- b) to evaluate appropriateness of the Project for the Grant Aid Scheme from a technical, social and economical point of view,
- c) to confirm items agreed on by the both parties concerning a basic concept of the project
- d) to prepare a basic design of the project,
- e) to estimate cost involved in the project.

Final project components are subject to approval by the Government of Japan and therefore may differ from an original request.

Implementing the project, the Government of Japan requests the recipient country to take necessary measures involved which are itemized on Exchange of Notes.

2) Selecting (a) Consulting Firm(s)

For smooth implementation of the study, JICA uses (a) consulting firm(s) registered. JICA selects (a) firm(s) through proposals submitted by firms which are interested. The firm(s) selected carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference made by JICA.

The consulting firm(s) used for the study is(are) recommended by JICA to a recipient country after Exchange of Notes, in order to maintain technical consistency and also to avoid possible undue delay in implementation caused if a new selection process is repeated.

3) Status of a Preliminary Study in the Grant Aid Program

A Preliminary Study is conducted during the second step of a project formulation and preparation as mentioned above.

A result of the study will be utilized in Japan to decide if the Project is to be suitable for a Basic Design Study. H.T.

Based on the result of the Basic Design Study, the Government would proceed to the stage of decision making process (appraisal and approval). m

It is important to notice that at the stage of Preliminary Study, no commitment is made by the Japanese side concerning the realization of the Project in the scheme of Grant Aid Program.

3. Japan's Grant Aid Scheme

1) What is Grant Aid?

The Grant Aid Program provides a recipient country with non reimbursable funds needed to procure facilities, equipment and services for economic and social development of the country under the following principles in accordance with relevant laws and regulations of Japan. The Grant Aid is not in a form of donation or such.

2) Exchange of Notes (EN)

The Japan's Grant Aid is extended in accordance with the Exchange of Notes by both Governments, in which the objectives of the Project, period of execution, condition and amount of the Grant etc. are confirmed.

3) "The period of the Grant Aid" means one Japanese fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedure such as Exchange of Notes, concluding a contract with (a) consulting firm(s) and (a) contractor(s) and a final payment to them must be completed.

4) Under the Grant, in principle, products and services of origins of Japan or the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant may be used for the purchase of products or services of a third country origin.

However the prime contractors, namely, consulting, contractor and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means Japanese physical persons or Japanese juridical persons controlled by Japanese physical persons.)

5) Necessity of the "Verification"

The Government of the recipient country or its designated authority will conclude into contracts in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. The "Verification" is deemed necessary to secure accountability to Japanese tax payers.

6) Undertakings required to the Government of the recipient country

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In the implementation of the Grant Aid, the recipient country is required to undertake necessary measures such as the following:

- i) to secure land necessary for the sites of the project and to clear and level the land prior to commencement of the construction work,
- ii) to provide facilities for distribution of electricity, water supply and drainage and other incidental facilities in and around the sites,
- iii) to secure buildings prior to the installation work in case the Project is providing equipment,
- iv) to ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid,
- v) to exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts,
- vi) to accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified Contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

7) Proper Use

The recipient country is required to maintain and use facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for their operation and maintenance as well as to bear all expenses other than those to be borne by the Grant Aid.

8) Re-export

The products purchased under the Grant Aid shall not be re-exported from the recipient country.

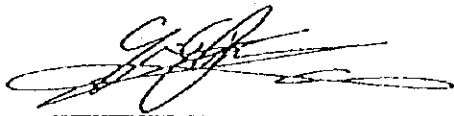
9) Banking Arrangement (B/A)

- (a) The Government of the recipient country or its designated authority shall open an account in the name of the Government of the recipient country in an authorized foreign exchange bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by Government of the recipient country or its designated authority under the contracts verified.
- (b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to Pay issued by the Government of the recipient country or its designated authority.

**MINUTES OF DISCUSSIONS ON THE BASIC DESIGN STUDY
ON THE PROJECT FOR IMPROVEMENT, UPGRADING AND EXPANSION OF
HAI DUONG TOWN WATER SUPPLY SYSTEM
IN THE SOCIALIST REPUBLIC OF VIET NAM**

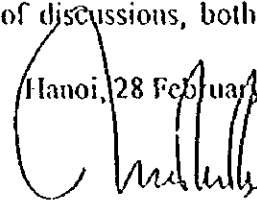
In November 1996, the Japan International Cooperation Agency (JICA) dispatched a Draft Basic Design Study Team on the Project for Improvement, Upgrading and Expansion of Hai Duong Town Water Supply System (hereinafter referred to as "the Project") to Viet Nam. Based on the result of the Study, Vietnamese side and JICA understand the necessity of the supplemental study for the finalization of the Basic Design.

JICA has sent to Viet Nam a study team, headed by Mr. Yoshiki Omura, Development Specialist, Institute for International Cooperation, JICA, for explanation and discussions of the details of the supplemental study from February 23 to March 1, 1997. The team had a series of discussions with the officials concerned of Viet Nam. As a result of discussions, both sides confirmed the components described in the attachment.



Mr. Yoshiki Omura
Team Leader,
Basic Design Study.

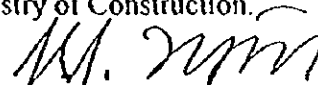
Hanoi, 28 February 1997



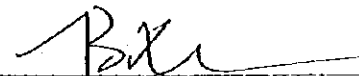
Mr. Nguyen Trong Nhung
Vice Chairman,
Hai Duong People's Committee.



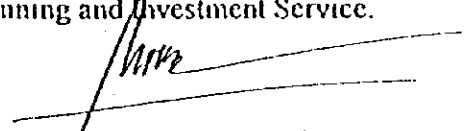
Mr. Le Doan Phach
Director,
International Cooperation Dept.
Ministry of Construction.



Mr. Bui Dinh Nghien
Director,
Hai Duong Construction Service



Mr. Bui Xuyen
Director, Hai Duong
Planning and Investment Service.



Mrs. Nguyen Thi Ngoc Nu
Director,
Hai Duong Water Supply Company



ATTACHMENT

1. Objectives of the supplemental study

The objective of the supplemental study is as following:

- i) To find a water source with lower salinity below the WHO drinking water standard; and
- ii) To find an appropriate treatment method of Cam Giang groundwater, which ensures both economically and technically sustainable operation of the drinking water supply system.

2. The area of the groundwater investigation.

The area of the groundwater investigation is indicated in Annex I.

3. Schedule of the Study

- 1) The Team will proceed to further study in Viet Nam until around October, 1997.
- 2) JICA will prepare the draft report in English and dispatch a mission in order to explain its contents around October, 1997.
- 3) In case that the content of the draft report is accepted in principle by the Government of Viet Nam, JICA will complete the final report and send it to Viet Nam around December, 1997. (Refer to Annex II for a tentative schedule of the study.)

4. Other relevant issues

- 1) In order to implement the study as scheduled in Annex II, the Vietnamese side will allocate necessary budget and personnel for the study such as securing permissions for groundwater investigation, land acquisition of testing sites, customs clearance and tax exemption of the imported equipment for the pilot plant.
- 2) The Vietnamese side explained that due to administrative reform effective 1 January 1997, Hai Hung Province was divided into Hai Duong Province and Hung Yen Province. It also explained that Hai Duong Town became the capital of Hai Duong Province and provincial offices were renamed accordingly.
- 3) The Vietnamese side explained that the candidate sites for pilot plant test were free from flooding so far and proposed 50 cm

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landfill of the pilot plant site at its own expense.

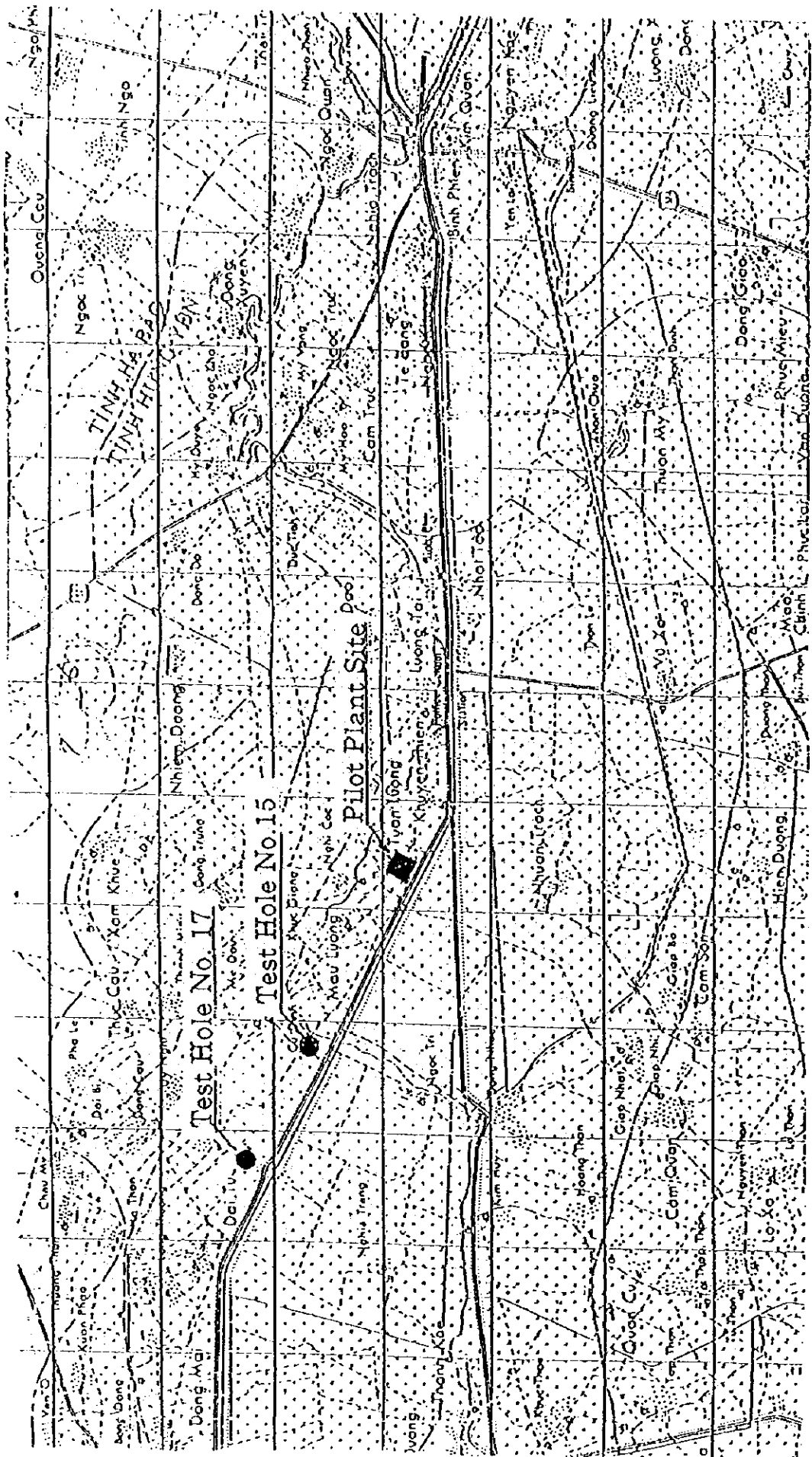
- 4) Both sides agreed to install the pilot plant on the test well No. 11 site, which had an area of 15 m by 15 m.
- 5) The Japanese side informed the Vietnamese side of the water quality analysis conducted in Japan that neither mercury nor pesticides were present in the samples taken from the proposed water source in November 1996. It also explained that the supplemental study was, therefore, aimed at finding an optimum treatment method of the groundwater.
- 6) The Japanese side is responsible for provision of the pilot plant equipment and both ocean and inland transportation of such equipment.

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ANNEX I
 LOCATION MAP OF ADDITIONAL TEST HOLES
 AND
 TEST SITE OF TREATMENT PROCESS

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ANNEX II

TENTATIVE WORK SCHEDULE OF SUPPLEMENTAL STUDY

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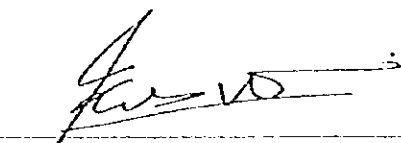
Item	1997											
	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Pilot Plant Test												
Preparatory work												
Start up meeting												
Arrival of shipped equipment/Customs clearance												
Assembling test plant												
Operation												
Analysis and evaluation												
Reporting												
Draft Final Report												
Final Report sent to VN												
Groundwater Investigation												
Land acquisition												
Signing contract												
Drilling and testing												
Reporting												

MINUTES OF DISCUSSIONS
ON THE BASIC DESIGN STUDY ON THE PROJECT FOR EXPANSION
OF WATER SUPPLY SYSTEM IN HAI DUONG CITY
IN THE SOCIALIST REPUBLIC OF VIET NAM

Based on the result of the Preliminary Study (February and March 1996), the Basic Design Study on the Project for Expansion of Water Supply System in Hai Duong City (hereinafter referred to as "the Project") has been conducted since July 1996. The Government of Japan decided to reevaluate the Project and entrusted to dispatch of a study team to Japan International Cooperation Agency (JICA).

JICA sent to Viet Nam the Basic Design Study Team (hereinafter referred to as "the Team"), headed by Mr. Takanobu Kuroda, Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs, from 23rd to 29th August 1998. The Team had a series of discussions with the Vietnamese officials and conducted field surveys. As a result of discussions and the field surveys, both sides confirmed the main items described in the attachment.

Hanoi, 28 August, 1998



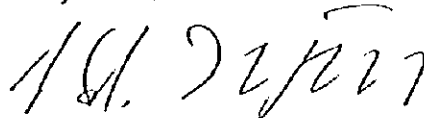
Mr. Takanobu Kuroda
Leader,
Basic Design Study Team,
JICA



Mr. Nguyen Van Chien
Chairman,
People's Committee of Hai Duong Province



Mr. Nguyen Sinh Hy
Deputy Director General,
International Cooperation Department,
Ministry of Construction



Mr. Bui Dinh Nghien
Director,
Hai Duong Construction Service

ATTACHMENT

1. Objective

The objective of the Project is to cope with the water shortage suffered by the people of Hai Duong City, the capital of Hai Duong Province.

2. Project areas

The project areas are located within Hai Duong Province as shown in Annex I.

3. Executing agency

Ministry of Construction will coordinate the procedural work for the implementation of the Project.

The executing agency is Hai Duong People's Committee which bears overall responsibility for the administration and execution of the Project.

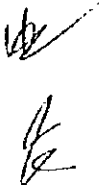
Hai Duong Construction Service, Hai Duong Planning and Investment Service and Hai Duong Water Supply Company assist Hai Duong People's Committee during the Project implementation.

4. Items requested by the Government of Viet Nam

After discussions with the Study team, the following items were finally requested by the Government of Viet Nam:

- 1) Component of the facilities described in Annex II
- 2) Provision of equipment and materials related to the Project, which are described in Annex II

However, final components of the Project will be determined after further consideration in Japan.



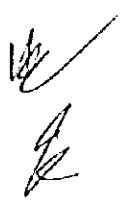
5. Schedule of the Study

- 1) The Team will proceed to further study in Viet Nam until 16th September 1998.
- 2) JICA will prepare the Draft Final Report in English and dispatch a mission in order to explain its contents in November 1998.
- 3) In case that the content of the draft report is accepted in principle by the Government of Viet Nam, JICA will complete the final report and send it to Viet Nam around March 1999.

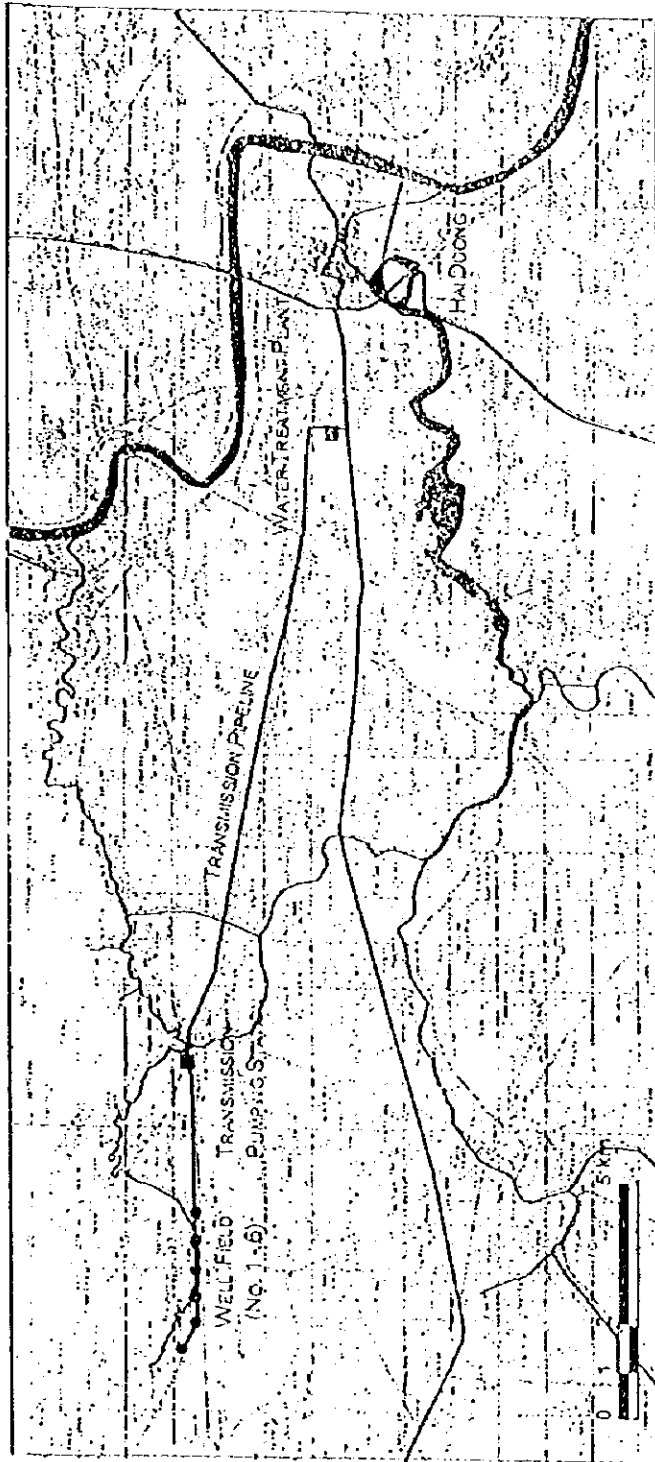
6. Other Relevant Issues

As a results of discussions, The Government of Viet Nam understood the design conditions of the Project as follows:

- Target Year : Year 2000
- Population Served : Approximately 16,000 persons
- Design Capacity of the Facilities : 10,200 m³/day (Daily Maximum)
- Daily Maximum Factor : 1.3
- Hourly Peak Factor : 1.35
- Design Served Area : Refer to Annex III.



PROJECT AREA



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ANNEX II

Component of Facilities and Provision of Equipment/Materials

1. INTAKE FACILITIES

NO.	ITEMS	QT.
1	Construction of bore holes: approx. 100m	6 Nos.
2	Casing screen pipes	1 Lot
3	Submersible motor pumps	6 Nos.
4	Raw water collector mains	1 Lot
5	Aeration facilities	1 No.
6	Transmission pumping Station	1 Lot
7	Transmission pipeline	1 Lot

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2. WATER TREATMENT AND DISTRIBUTION FACILITIES

NO.	ITEMS	QT.
1	Water Treatment Plant -Sedimentation basins -Filter basins -Disinfection facilities	1 No.
2	Distribution pumps	1 Lot
3	Waste water treatment facilities	1 No.
4	Distribution reservoir	1 No.
5	Distribution pipeline and valves	1 Lot

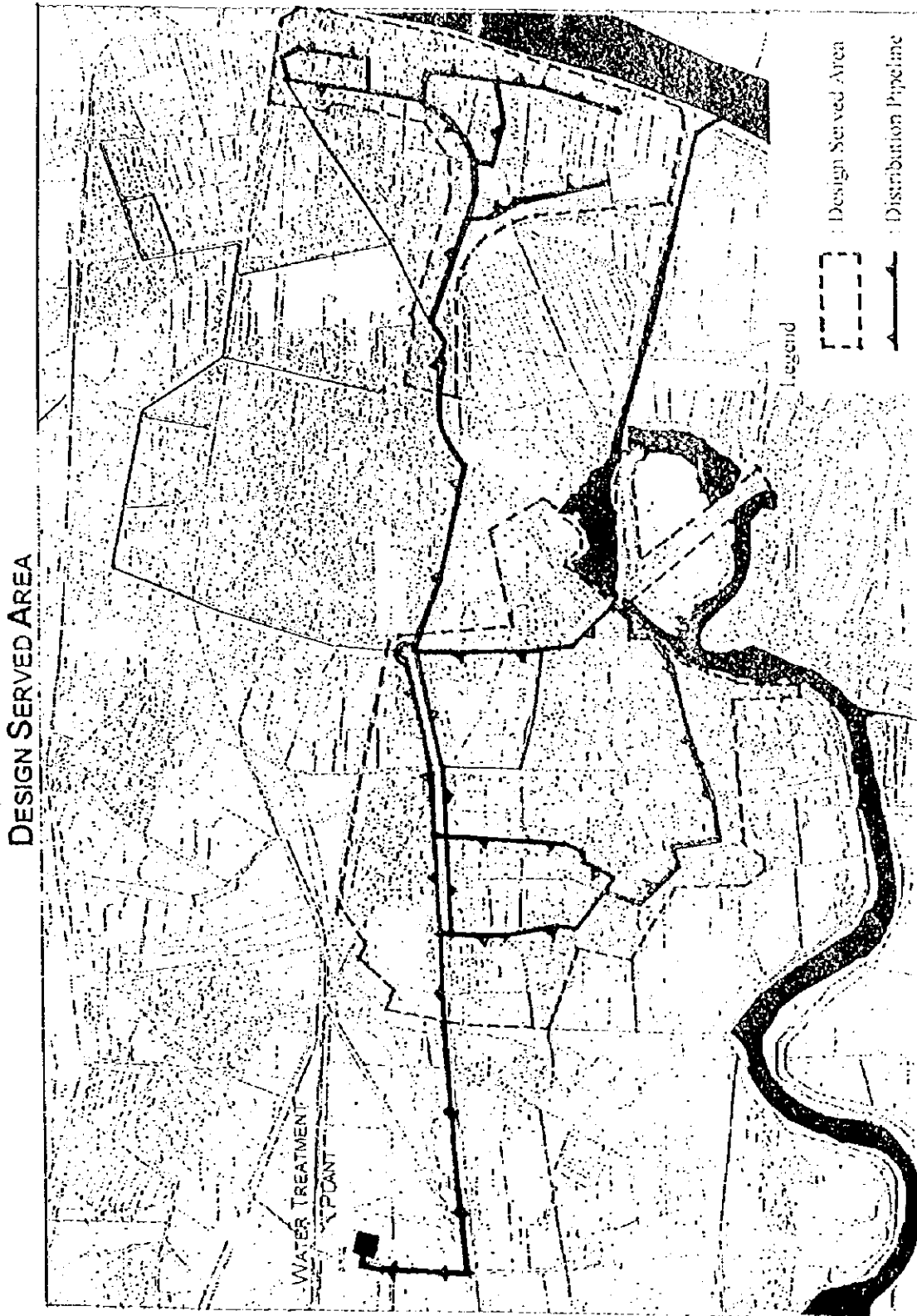
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3. EQUIPMENT AND MATERIALS FOR OPERATION AND MAINTENANCE

NO.	ITEMS	QT.
1	Pick-up car	1 car
2	Dump truck	1 car
3	Water quality test equipment (for daily check)	1 Set
4	Workshop tools and equipment	1 Set
5	Saddles for distribution pipeline	1 Lot
6	House connection materials and water meter with valves	1 Lot

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DESIGN SERVED AREA

WATER TREATMENT PLANT

Legend

- - - Design Served Area
- Distribution Pipeline

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ANNEX IV

Necessary measures to be taken by the Government of Viet Nam

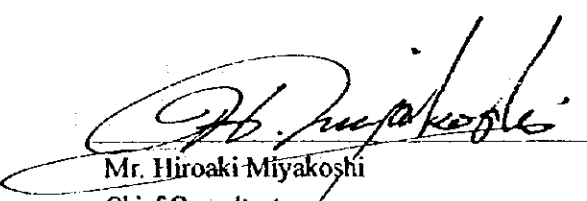
Following necessary measures should be taken by the Government of Viet Nam on condition that the Government of Japan be extended to the Project.

1. To secure the sites for the Project and to clear, level and reclaim the sites prior to the commencement of the construction.
2. To undertake incidental outdoor works such as gardening, fencing, gates and exterior lighting in and around the sites.
3. Completing all procedures for license of development of groundwater,
4. Securing permissions from the authorities concerned on railway crossing(s), river crossing(s), and major road crossing(s),
5. To provide primary electrical power supply systems such as high tension incoming panel, transformer and transformer panel for intake pumps, transmission pumps and water treatment plant,
6. To provide communication system such as the telephone line to the transmission pumping station and water treatment plant and other incidental facilities in and around the sites,
7. To construct the house-connection for distribution pipeline.
8. To exempt taxes and to take the necessary measures for customs clearance of the materials and equipment brought for the Project at port of disembarkation.
9. To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in Viet Nam with respect to the supply of the products and services under the verified contracts.
10. To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contracts such facilities as may be duration of their work,
11. To use and maintain properly and effectively all the facilities constructed and equipment provided under the Grant.
12. To bear all the expenses other than those to be borne by the Japan's Grant Aid.


TECHNICAL NOTE
ON
THE BASIC DESIGN STUDY ON THE PROJECT FOR EXPANSION
OF WATER SUPPLY SYSTEM IN HAI DUONG CITY
IN
THE SOCIALIST REPUBLIC OF VIET NAM

Based on the result of discussions and site surveys by the Consultant (Pacific Consultants International, Tokyo JAPAN) of the Basic Design Study Team and the Viet Nam side (Hai Duong Construction Service and Water Supply Company) in August and September 1998, both sides have confirmed that design conditions of this basic design study are described in the following attachment.

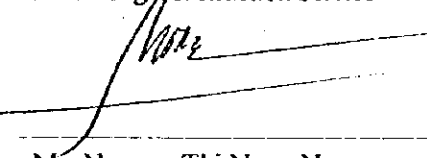
Hai Duong, 14 September 1998.



Mr. Hiroaki Miyakoshi
Chief Consultants,
Pacific Consultants International (PCI)
Tokyo, JAPAN.



Mr. Bui Dinh Nghien
Director,
Hai Duong Construction Service



Ms. Nguyen Thi Ngoc Nu
Director,
Hai Duong Water Supply Company

ATTACHMENT

1. Design Standard and Regulation

The following matters that is regulation of Viet Nam shall be applied in the Project, although Japanese standard and regulations are to be applied to the other standard of design, materials and construction works.

(1) Intake facilities

- Location of the intake wells
: More than 50 m away from center of the existing railway.
- Location of the intake line from intake wells to transmission pumping station
: More than 9 m away from center of the existing railway.

(2) Transmission facilities

- Location of the transmission line from transmission pumping station to water treatment plant
: More than 9 m away from center of the existing railway.
- Pipe materials for road crossing, railway crossing and river crossing
: Steel pipe.

(3) Distribution facilities

- Pipe materials for road crossing, railway crossing and river crossing
: Steel pipe.

2. Design Conditions

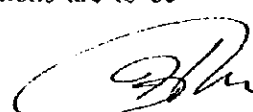

The following matters will be reflected to design works in Japan as the basic design conditions of the Project.

(1) Intake facilities

- Location of well field
: As a results of the water quality analysis, the well field is determined from between LK 6 test well and LK 11 test well.

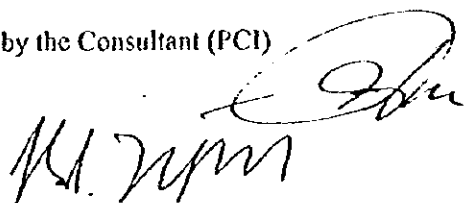
Accurate location of each well will be chosen from collected data in this survey and the other existing data of the test wells. Also the groundwater conditions are to be decided based on data mentioned above.

- Water qualities of the intake water to be applied to the design
: It is decided based on the following materials.

- 1. Final Report on Results of Detail Groundwater Exploitation Step in Cam Giang, Hai Duong, My Van, Hung Yen. Prepared in 1997
(Data Source : Northern Division for Hydrogeology and Engineering Geology [K2])
 - 2. Existing test wells drilling data
(Data Source : JICA Study Team)
- (2) Transmission facilities
- Pipe laying methods in the paddy field
: On the ground and/or underground (depends on the soil and site conditions)
- (3) Water Treatment Plant (WTP)
- Disposal of sludge
 - 1 Disposal site : Cam Giang district
 - 2 Distance : approximately 20 km from WTP
- (4) Fire hydrant
- : Based on the following material except the grounds for fire engines that is prepared by the recipient country.
"Additional Demand for Fire Fighting Water in the Hai Duong Water Supply Project, Sep 1997." Data Source : Hai Duong Water Supply Company.
- 3 Operation and Maintenance
- Unit cost of materials for operation and maintenance
: as per Annex I
- 4 Provision of equipment and materials for operation and maintenance
- The detailed provision of equipment and materials are shown below.
- pick up car (1 car) : double cabin of four (4) Wheel Drive,
 - dump truck (1 car) : approximately capacity 4~6 ton,
 - water quality test equipment (1 set) : tests kits for daily analysis parameters as shown below.

pH, Fe, Mn, NH₄, Residual Chlorine, Turbidity
 - workshop tools and equipment : to be recommended by the Consultant (PCI)
 - saddles for distribution pipeline : to be deleted


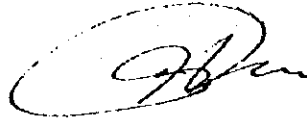


• water meters with valve

-I diameter and number of water meters

for domestic : 15 mm diameter : 10,000 No's

for offices, schools, hospitals : 20 mm diameter : 100 No's

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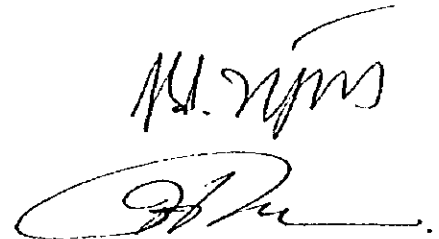
Annex 1

Unit Cost of Materials for Operation and Maintenance

No	Item	Unit	Price as of Sep 1998
1	Chemicals		
1)	Chlorine	Dong/kg	7,000
2)	PAC	Dong/kg	10,660
3)	Caustic Soda	Dong/kg	1,000
4)	Slaked Lime	Dong/kg	900
2	Electric Power	Dong/kw	760
3	Sludge Disposal	Dong/ton	55,000
4	Personnel Expense (Average)	Dong/M/P	600,000
5	Water Tariff		
	for domestic	Dong/m ³	1,600
	for industry	Dong/m ³	3,000
	for public	Dong/m ³	6,000
6	Repair costs (appro)	%	15% of OM costs

[Note]

1. The distance between WTP and sludge disposal place is about 20 km.
2. Disposal place to be planned is "Cam Giang district".
3. Data Source : Water Supply Company, Hai Duong.

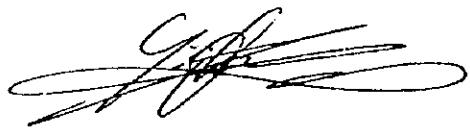


MINUTES OF DISCUSSIONS
ON
THE BASIC DESIGN STUDY (2)
ON
THE PROJECT FOR EXPANSION OF WATER SUPPLY SYSTEM IN HAI DUONG CITY
IN
THE SOCIALIST REPUBLIC OF VIET NAM
(CONSULTATION ON DRAFT REPORT)

In August 1998, the Japan International Cooperation Agency (JICA) dispatched a Basic Design Study (2) Team on the Project for Expansion of Water Supply System in Hai Duong City (hereinafter referred to as "the Project"), and through discussions, field survey, and technical examination in Japan, has prepared the draft report of the study.

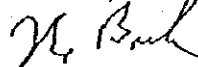
In order to explain and consult with Viet Nam side on the components of the draft report, JICA sent to Viet Nam the Draft Basic Design Report Explanation Team (hereinafter referred to as "the Team") , headed by Mr. Yoshiki Ohmura, Water Supply Development Specialist, Institute for International Cooperation, JICA, from November 11 to 19, 1998.

As a result of discussions, both parties confirmed the main items described in the attachment.



Mr. Yoshiki Omura
Leader,
Draft Basic Design Report Explanation
Team, JICA.

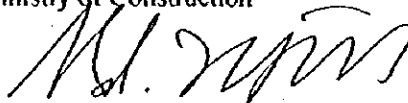
Hanoi, November 18, 1998



Mr. Hoang Binh
Vice Chairman.
People's Committee of Hai Duong
Province



Mr. Nguyen Sinh Hy
Deputy Director General
International Cooperation Department
Ministry of Construction



Mr. Bui Dinh Nghien
Director
Hai Duong Construction Service

ATTACHMENT

1. Components of Draft Report

The Government of Viet Nam has agreed on and accepted in principle the components of the draft report presented by the Team.

2. Japan's Grant Aid System

- 1) The Government of Viet Nam has understood the system of Japan's Grant Aid Scheme described in ANNEX-I explained by the Team.
- 2) The Government of Viet Nam will take necessary measures, such as allocation of the necessary budget for the items of work for which the Government of Viet Nam is responsible in accordance with the progress of the Project as described in ANNEX-II for the smooth implementation of the Project on condition that the Japan's Grant Aid is extended to the Project.

3. Executing Agency on Viet Nam Side

Ministry of Construction will coordinate the Vietnamese Authorities concerned for the implementation of the Project.

The executing agency is Hai Duong People's Committee, which bears overall responsibility for the administration and execution of the Project.

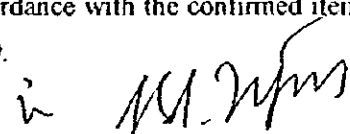
Hai Duong Construction Service, Hai Duong Planning and Investment Service and Hai Duong Water Supply Company assist Hai Duong People's Committee during the Project implementation.

4. Items requested for Japan's Grant Aid by the Government of Viet Nam

In the course of discussions with the Team, The Government of Viet Nam requested the components listed in ANNEX-III.

5. Schedule of the Study

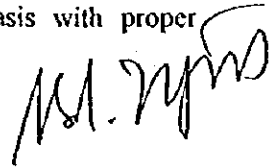
The Team will finalize the Basic Design Report in accordance with the confirmed items, and send it to the Government of Viet Nam in February 1999.



6. **Other Relevant Issues**

The Team emphasized the importance of proper operation and maintenance of the facilities and equipment by Viet Nam side, which might be constructed and provided under Japan's Grant Aid scheme, especially of sufficient budget allocation for maintenance. The Viet Nam side agreed to operate the facilities and equipment on sustainable basis with proper maintenance services.

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JAPAN'S GRANT AID PROGRAM

1. Japan's Grant Aid Procedures

(1) The Japan's Grant Aid Program is executed by the following procedures:

- Application (request made by a recipient county)
- Study (Preliminary Study / Basic Design Study conducted by JICA)
- Appraisal & Approval (Appraisal by the Government of Japan and Approval by the Cabinet of Japanese Government)
- Determination (Exchange of Notes between the both Governments)
- Implementation (Implementation of the Project)

(2) Firstly, an application or a request for a project made by the recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to see whether or not it suitable for Japan's Grant Aid. If the request is deemed suitable, the Government of Japan entrusts a study on the request to JICA (Japan International Cooperation Agency)

Secondly, JICA conducts the Study (Basic Design Study), using a Japanese consulting firm. If the background and objective of the requested project are not clear, a Preliminary Study is conducted prior to a Basic Design Study.

Thirdly, the Government of Japan Appraises to see whether or not the Project is suitable for Japan's Grant Aid program, based on the Basic Design Study report prepared by JICA and the results are then submitted to the Cabinet for approval.

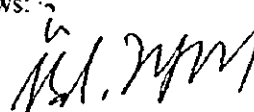
Fourthly, the Project approved by the Cabinet becomes official when pledged by the Exchange of Notes signed by the both Governments.

Finally, for the implementation of the Project, JICA assists the recipient country in preparing contracts and so on.

2. Contents of the Study

(1) Contents of the Study

The purpose of the Study (Preliminary Study / Basic Design Study) conducted on the Project requested by JICA is to provide a basic document necessary for appraisal of the Project by the Japanese Government. The contents of the Study are as follows:



- a) to confirm background, objectives, benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project implementation,
- b) to evaluate appropriateness of the Project for the Grant Aid Scheme from a technical, social and economical point of view,
- c) to confirm items agreed on by the both parties concerning a basic concept of the Project
- d) to prepare a basic design of the Project,
- e) to estimate cost involved in the Project.

Final Project components are subject to approval by the Government of Japan and therefore may differ from an original Request.

Implementing the Project, the Government of Japan requests the recipient country to take necessary measures involved which are itemized on Exchange of Notes.

(2) Selecting (a) Consulting Firm(s)

For smooth implementation of the study, JICA uses (a) consulting firm(s) registered. JICA selects (a) firm(s) through proposals submitted by firms which are interested. The firm(s) selected carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference made by JICA.

The consulting firm(s) used for the study is(are) recommended by the JICA to a recipient country after Exchange of Notes, in order to maintain technical consistency.


(3) Status of a Preliminary Study in the Grant Aid Program

A Preliminary Study is conducted during the second step of a project formulation & preparation as mentioned above.

A result of the study will be utilized in Japan to decide if the Project is to be suitable for a Basic Design Study.

Based on the result of the Basic Design Study, the Government would proceed to the stage of decision making process (appraisal and approval).

It should be noted that at the stage of Preliminary Study, neither the Government of Japan, nor JICA, nor the Study Team make any commitment concerning the realization of the Project in the scheme of Grant Aid Program.

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3. Japan's Grant Aid Scheme

(1) What is Grant Aid?

The Grant Aid Program provides a recipient country with non reimbursable funds needed to procure facilities, equipment and services for economic and social development of the country under the following principles in accordance with relevant laws and regulations of Japan.

(2) Exchange of Notes (E/N)

The Japan's Grant Aid is extended in accordance with the Exchange of Notes by both Governments, in which the objectives of the Project, period of execution, conditions and amount of the Grant etc. are confirmed.

(3) "The period of the Grant Aid" means one Japanese fiscal year which the Cabinet approves the Project for. All procedure such as Exchange of Notes, concluding a contract with (a) consulting firm(s) and (a) contractor(s) and making final payment to them must be completed within a single fiscal year or, when unavoidable, the next year at the latest.

(4) Under the Grant, in Principle, products and services to be purchased should be of origins of Japan or the recipient country.

When the two Government deem it necessary, the Grant may be used for the purchase of products, services, or both from (a) third country(ies).

However the prime contractors, namely, consulting, contractor and procurement firms, are limited to "Japanese nationals".(The term "Japanese nationals" means Japanese physical persons or Japanese juridical controlled by Japanese physical persons.)

(5) Necessity of the "Verification"

The Government of the recipient country or its designated authority will conclude into contracts in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. The "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

(6) Undertakings required to the government of the recipient country

In the implementation of the Grant Aid, the recipient country is required to undertake necessary measures such as the following:

i) to secure land necessary for the sites of the Project and to clear and level the land prior to commencement of the construction work,

in 

- ii) to provide facilities for distribution of electricity, water supply and drainage and other incidental facilities in and around the sites,
- iii) to secure buildings prior to the installation work in case the Project is providing equipment,
- iv) to ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and inland transportation of the products purchased under the Grant Aid,
- v) to exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts,
- vi) to accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified Contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

(7) Proper Use

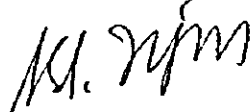
The recipient country is required to maintain and use facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for their operation and maintenance as well as to bear all expenses other than those to be borne by the Grant Aid.

(8) Re-export

The products purchased under the Grant Aid shall not be re-exported from the recipient country.

(9) Banking Arrangement (B/A)

- a) The Government of the recipient country or its designated authority shall open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by Government of the recipient country or its designated authority under the contracts verified.
- b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to Pay issued by the Government of the recipient country or its designated authority.

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NECESSARY MEASURES TO BE TAKEN BY THE GOVERNMENT OF VIET NAM

Following necessary measures should be taken by the Government of Viet Nam on condition that a grant aid be extended by the Government of Japan to the Project.

1. To secure the sites for the Project and to clear, level and reclaim the sites including the access roads prior to the commencement of the construction works,
2. To procure and install the tertiary distribution mains of diameter 50mm or smaller and the individual house connections in line with work progress of the Project,
3. To undertake incidental outdoor works such as gardening, fencing, gates and exterior lighting in and around the sites,
4. To secure licenses/approvals of the authorities concerned necessary for groundwater development before construction works,
5. To accord all the necessary right of way and licenses to the Contractor(s) on land use for construction works throughout the construction period,
6. Securing permissions from the authorities concerned on railway crossing(s), river crossing(s), and major road crossing(s),
7. To provide primary electrical power supply systems such as high tension incoming panel, transformer and transformer panel for intake pumps and water treatment plant,
8. To provide communication system such as the telephone line to the intake well houses, the water treatment plant and other incidental facilities in and around the sites,
9. Before construction works, to detect, remove and dispose of unexploded bombs, if any,
10. To exempt taxes and to take the necessary measures for customs clearance of the materials and equipment brought in for the Project at port of off-loading,
11. To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in Viet Nam with respect to the supply of the products and services under the verified contracts,
12. To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contracts such facilities as may be duration of their work,
13. To use and maintain properly and effectively all the facilities constructed and equipment provided under the Grant, and
14. To bear all the expenses other than those to be borne by the Japan's Grant Aid.

in M. N. N. N.

ANNEX III

ITEMS REQUESTED FOR JAPAN'S GRANT AID
BY THE GOVERNMENT OF VIET NAM

1. Supply and Construction of Intake Facilities

NO.	ITEMS	QT.
1	Construction of bore holes : approx depth. 100m	6 Nos.
2	Casing and screen	1 Lot
3	Submersible motor pumps	6 Nos.
4	Intake and transmission pipelines	1 Lot

2. Supply and Construction of Water Treatment and Distribution Facilities

NO.	ITEMS	QT.
1	Water treatment plant -Aeration facility -Sedimentation -Filter basins -Disinfection facility	1 No.
2	Wastewater treatment facilities	1 No.
3	Distribution reservoir and pumps	1 Lot
4	Distribution pipeline and valves	1 Lot
5	Roads and building works in the water treatment plant	1 Lot

3. Supply of Equipment and Materials for Operation and Maintenance

NO.	ITEMS	QT.
1	Pick-up car	1 No.
2	Dump truck	1 No.
3	Water quality test equipment (for daily check)	1 Set
4	Workshop tools and equipment	1 Set
5	Saddles for distribution pipeline	1 Lot
6	Water meter with valves	1 Lot

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