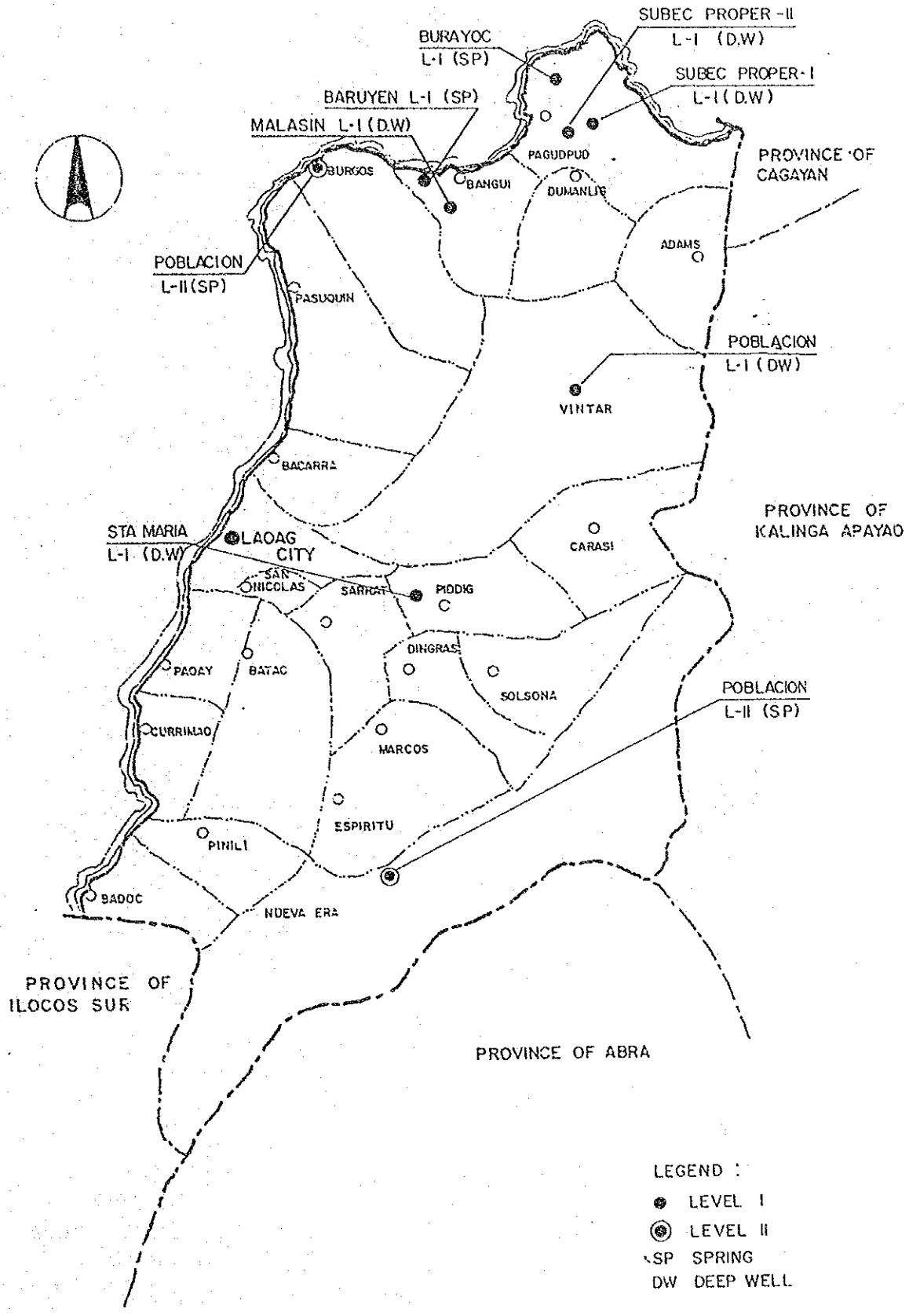
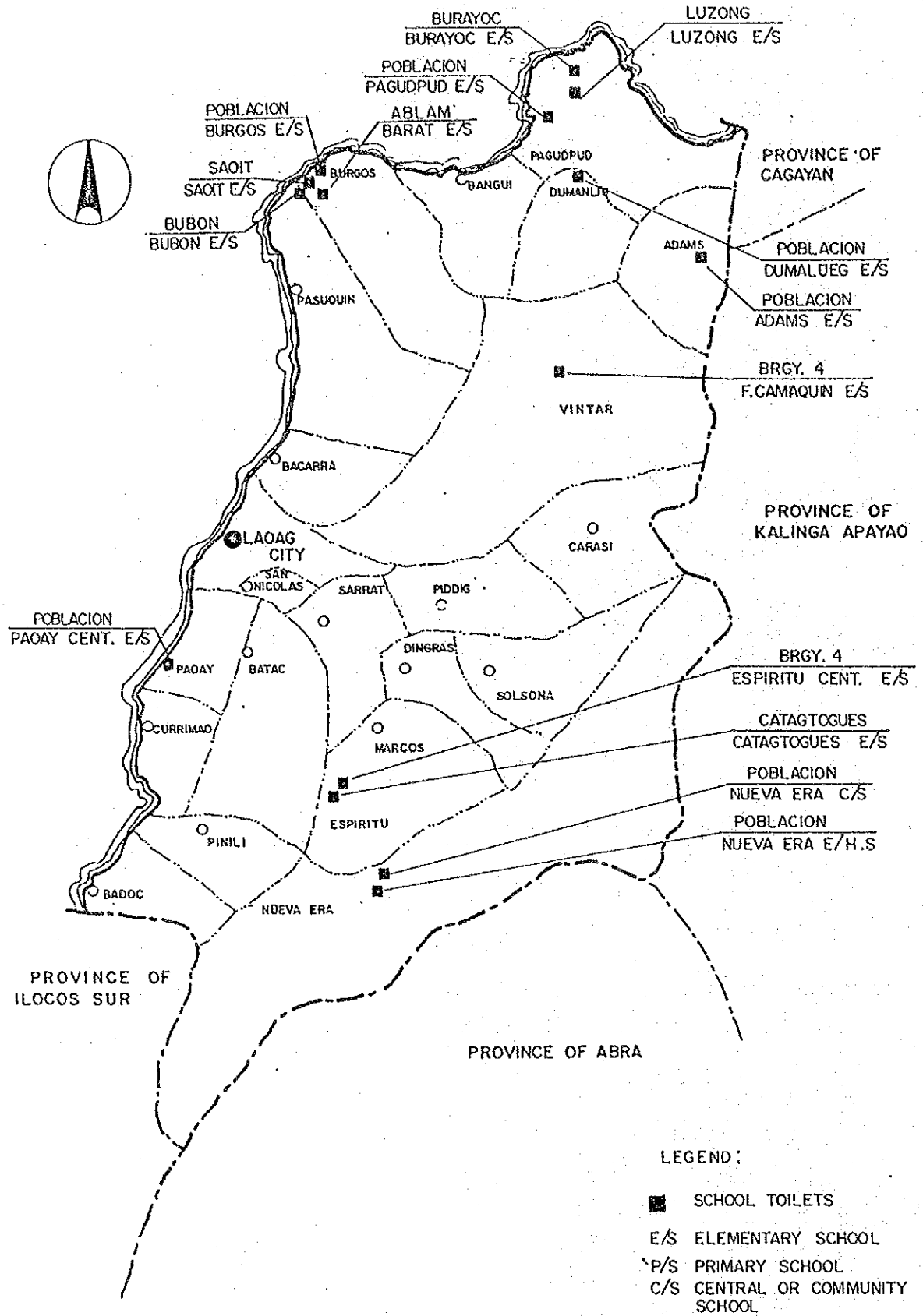


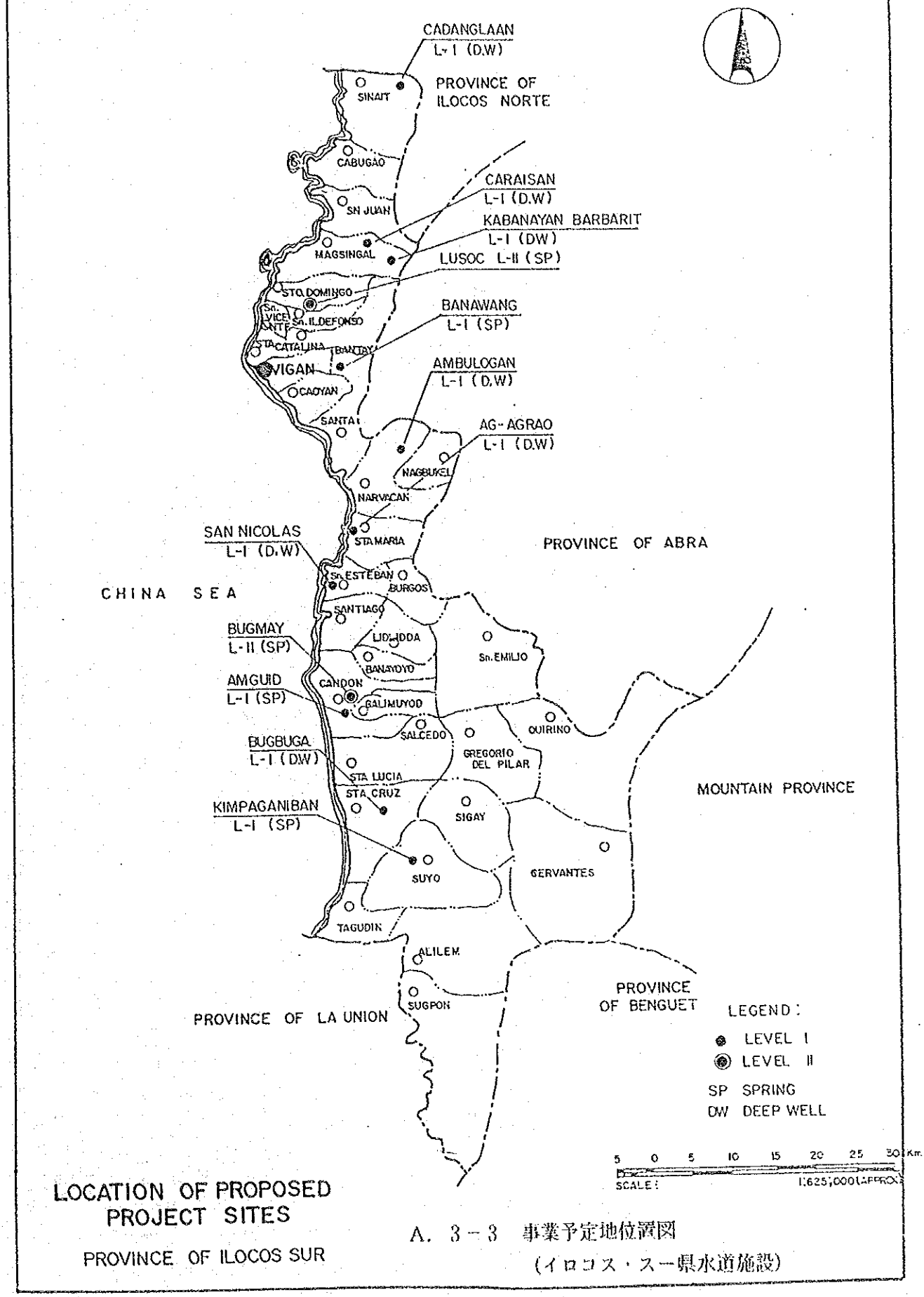
LOCATION OF PROPOSED PROJECT SITES
PROVINCE OF ILOCOS NORTE

A. 3－1 事業予定地位置図
(イロコス・ノルテ県水道施設)

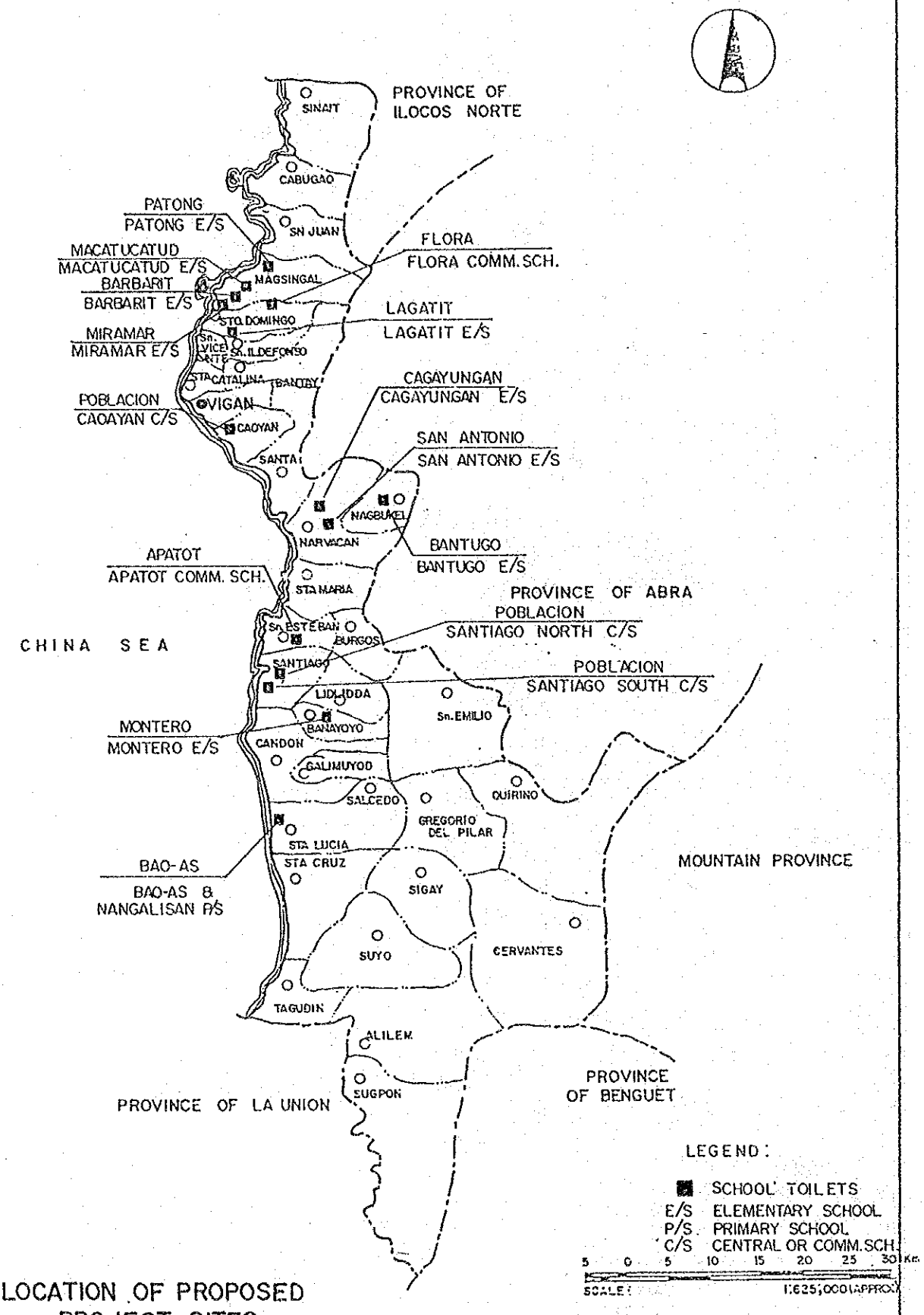


LOCATION OF PROPOSED PROJECT SITES
PROVINCE OF ILOCOS NORTE

A. 3－2 事業予定地位置図
(イロコス・ノルテ県学校トイレ施設)



A. 3－3 事業予定地位置図
(イロコス・スー県水道施設)

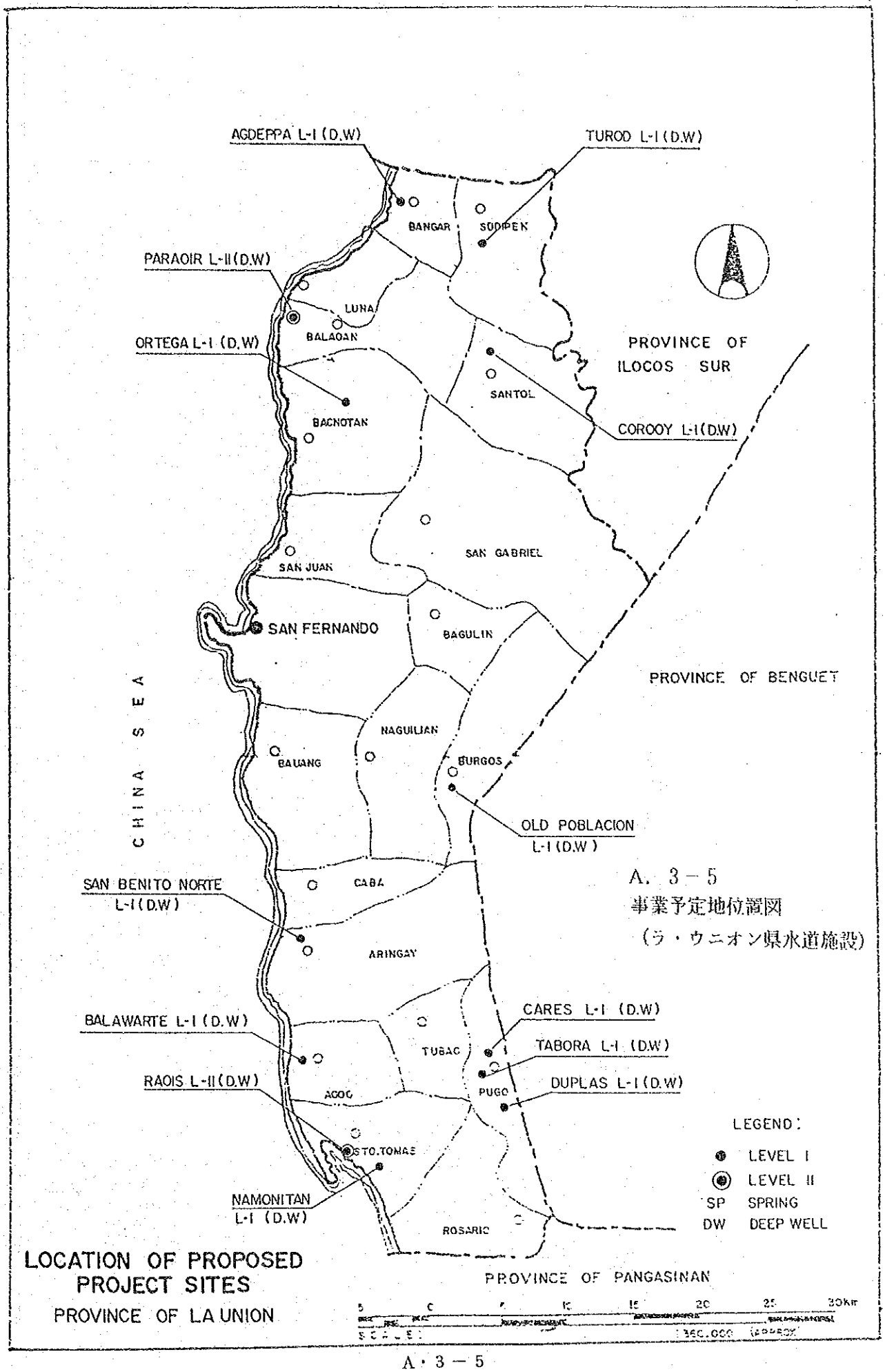


LOCATION OF PROPOSED PROJECT SITES

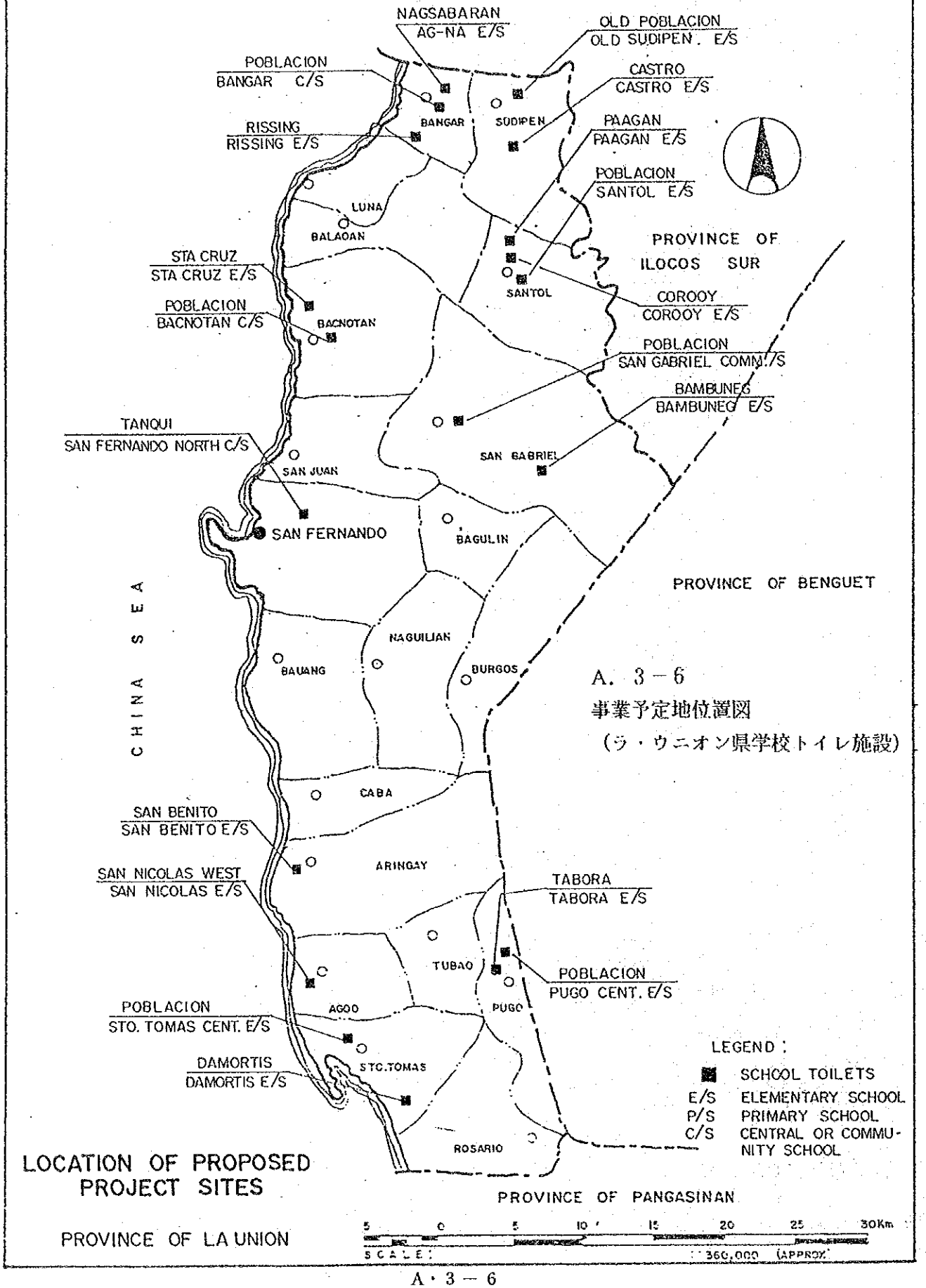
PROVINCE OF ILOCOS SUR

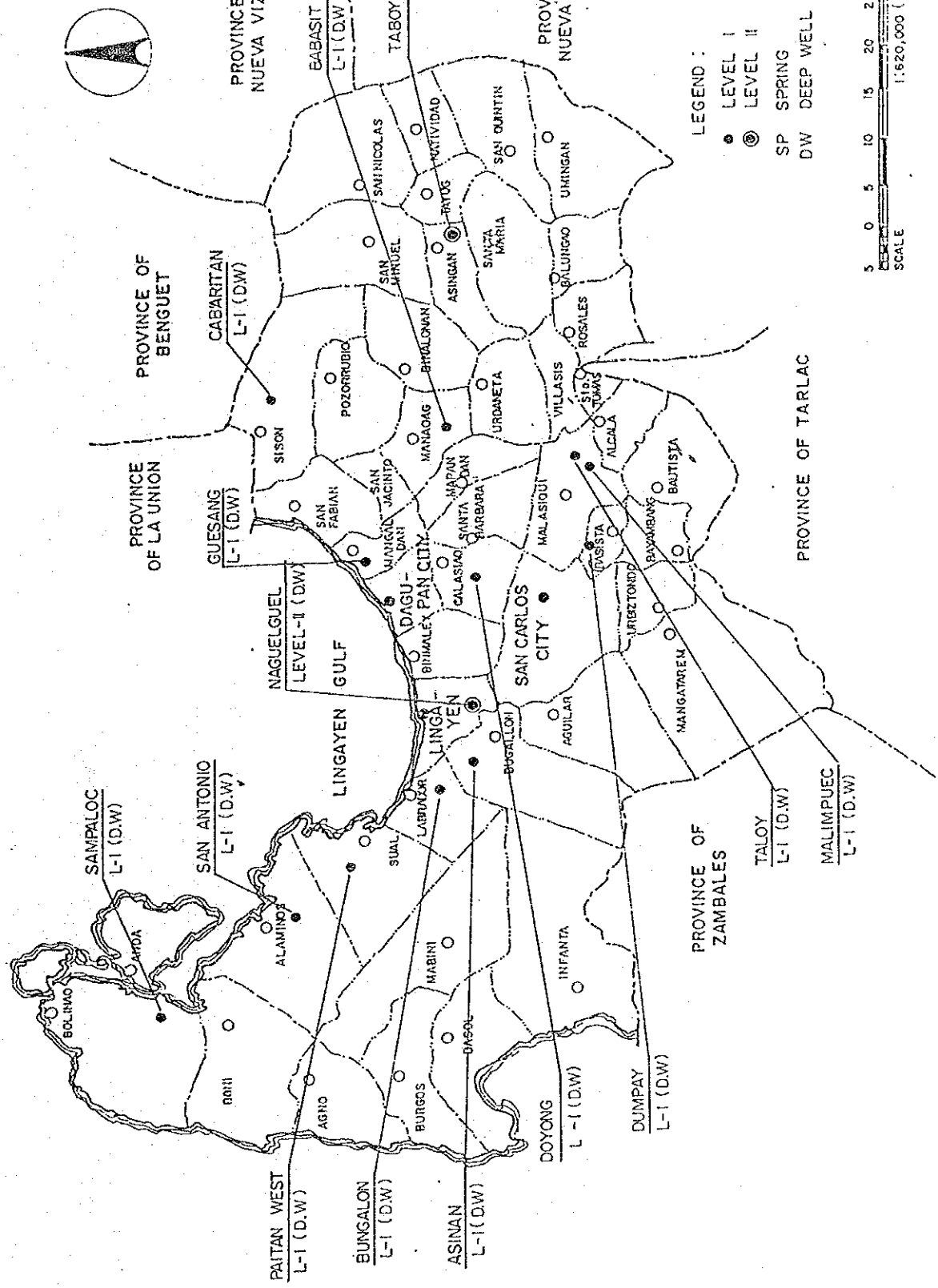
A. 3－4 事業予定地位置図

(イロコス・スー県学校トイレ施設)



A. 3－5
事業予定地位置図
（ラ・ウニオン県水道施設）


NAGSABARAN
AG-NA E/S
OLD POBLACION
OLD SUDIPEN. E/S
POBLACION
BANGAR C/S
CASTRO
CASTRO E/S
BANGAR
SUDIPEN
RISSING
RISSING E/S
PAAGAN
PAAGAN E/S
POBLACION
SANTOL E/S
LUNA
BALAOAN
PROVINCE OF
ILOCOS SUR
STA CRUZ
STA CRUZ E/S
SANTOL
POBLACION
BACNOTAN C/S
BACNOTAN
COROOY
COROOY E/S
POBLACION
SAN GABRIEL COMM. C/S
BAMBUNEG
BAMBUNEG E/S
TANQUI
SAN FERNANDO NORTH C/S
SAN GABRIEL
SAN JUAN
SAN FERNANDO
BAGULIN
PROVINCE OF BENGUET
CHINA SEA
NAGUILIAN
BAUANG
BURGOS
A. 3－6
事業予定地位置図
（ラ・ウニオン県学校トイレ施設）
CABA
SAN BENITO
SAN BENITO E/S
ARINGAY
SAN NICOLAS WEST
SAN NICOLAS E/S
TABORA
TABORA E/S
TUBAO
POBLACION
PUGO CENT. E/S
POBLACION
STO. TOMAS CENT. E/S
AGOO
PUGO
DAMORTIS
DAMORTIS E/S
STO.TOMAS
LEGEND :
SCHOOL TOILETS
E/S ELEMENTARY SCHOOL
P/S PRIMARY SCHOOL
C/S CENTRAL OR COMMU-
NITY SCHOOL
ROSARIO
LOCATION OF PROPOSED
PROJECT SITES
PROVINCE OF PANGASINAN
PROVINCE OF LA UNION
5 0 5 10 15 20 25 30Km
SCALE : 360,000 (APPROX.)

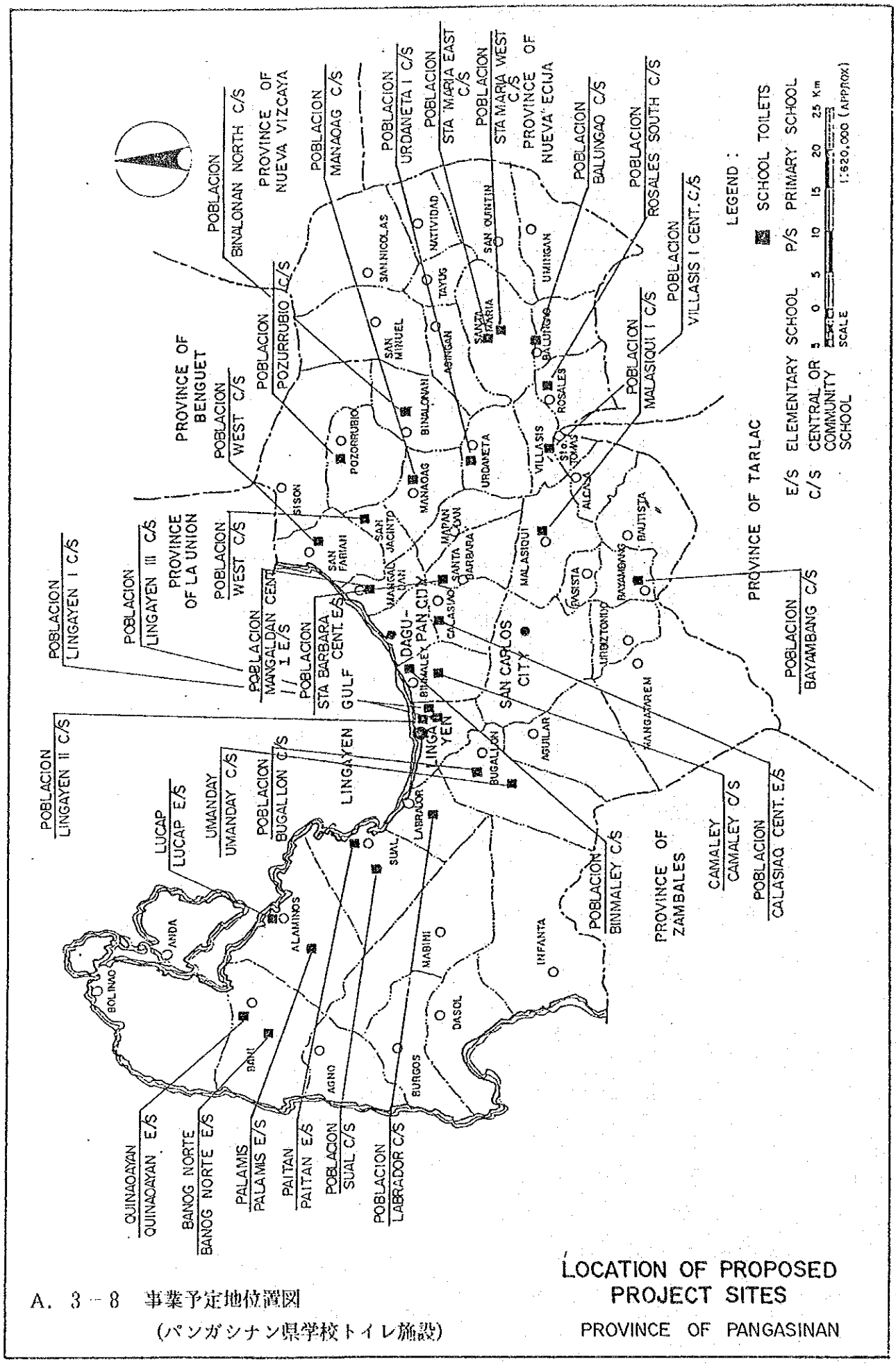


LOCATION OF PROPOSED PROJECT SITES

PROVINCE OF PANGASINAN

A. 3－7 事業予定地位置図

(パンガシナン県水道施設)

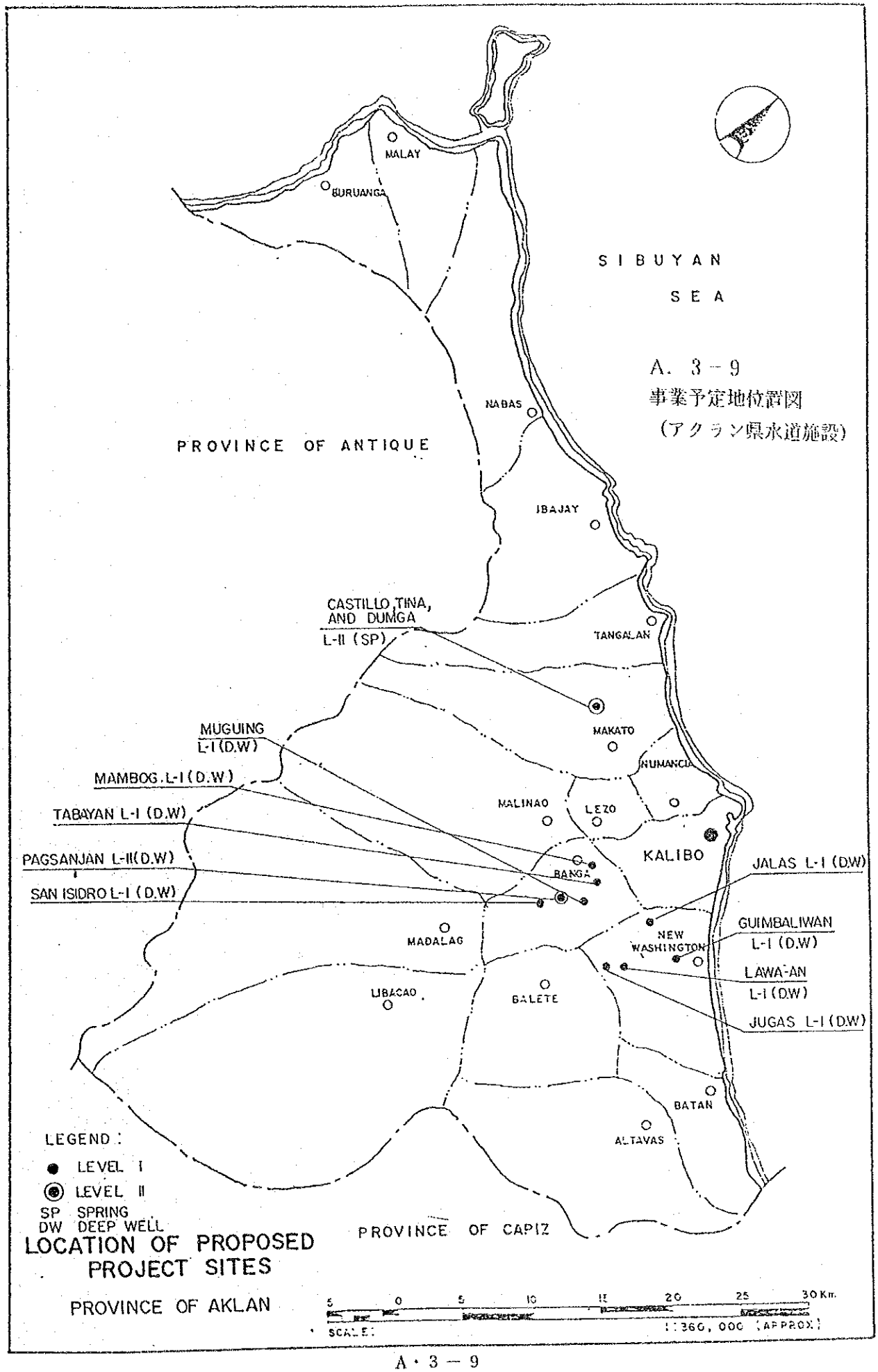


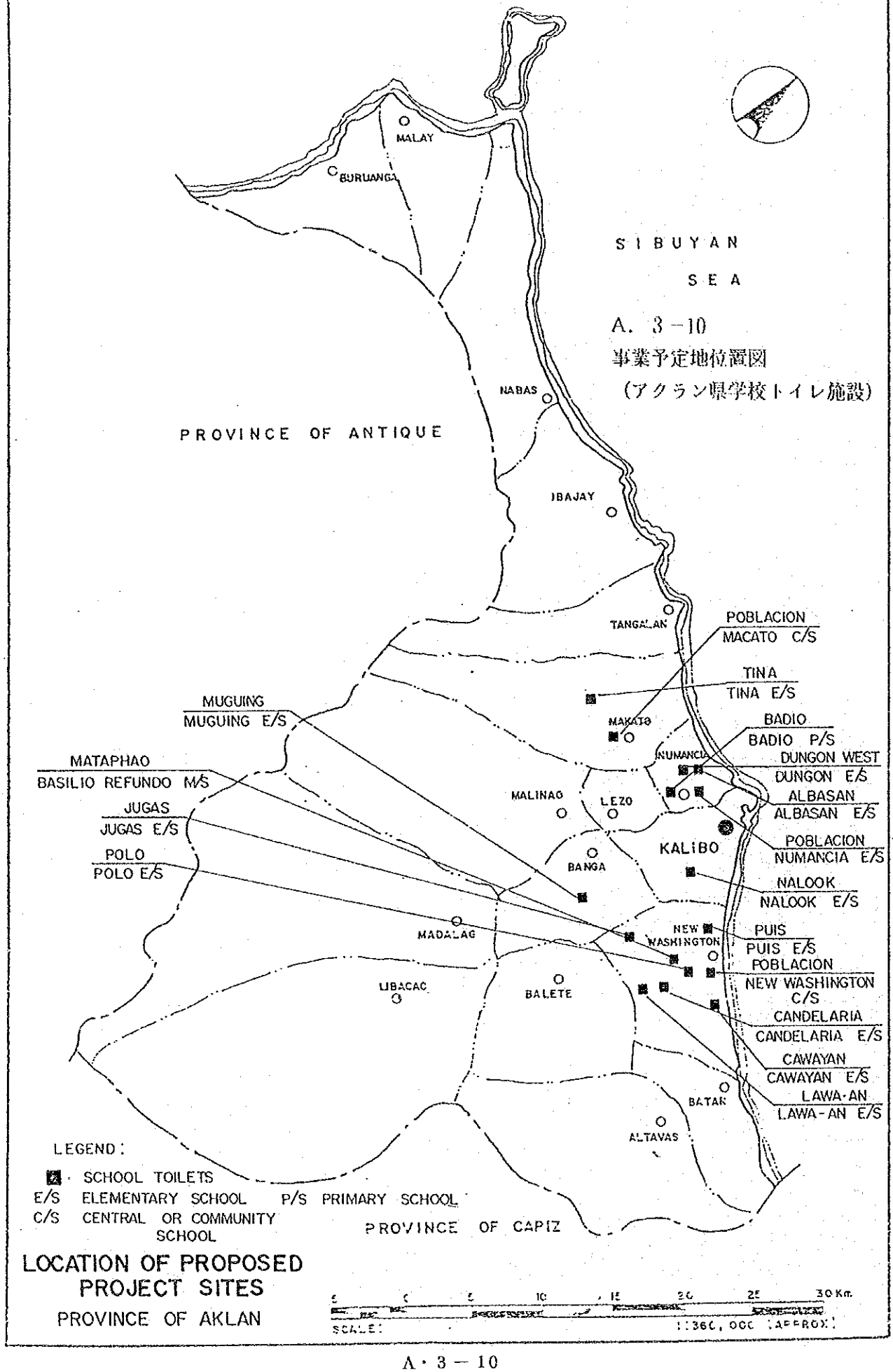
LOCATION OF PROPOSED PROJECT SITES

PROVINCE OF PANGASINAN

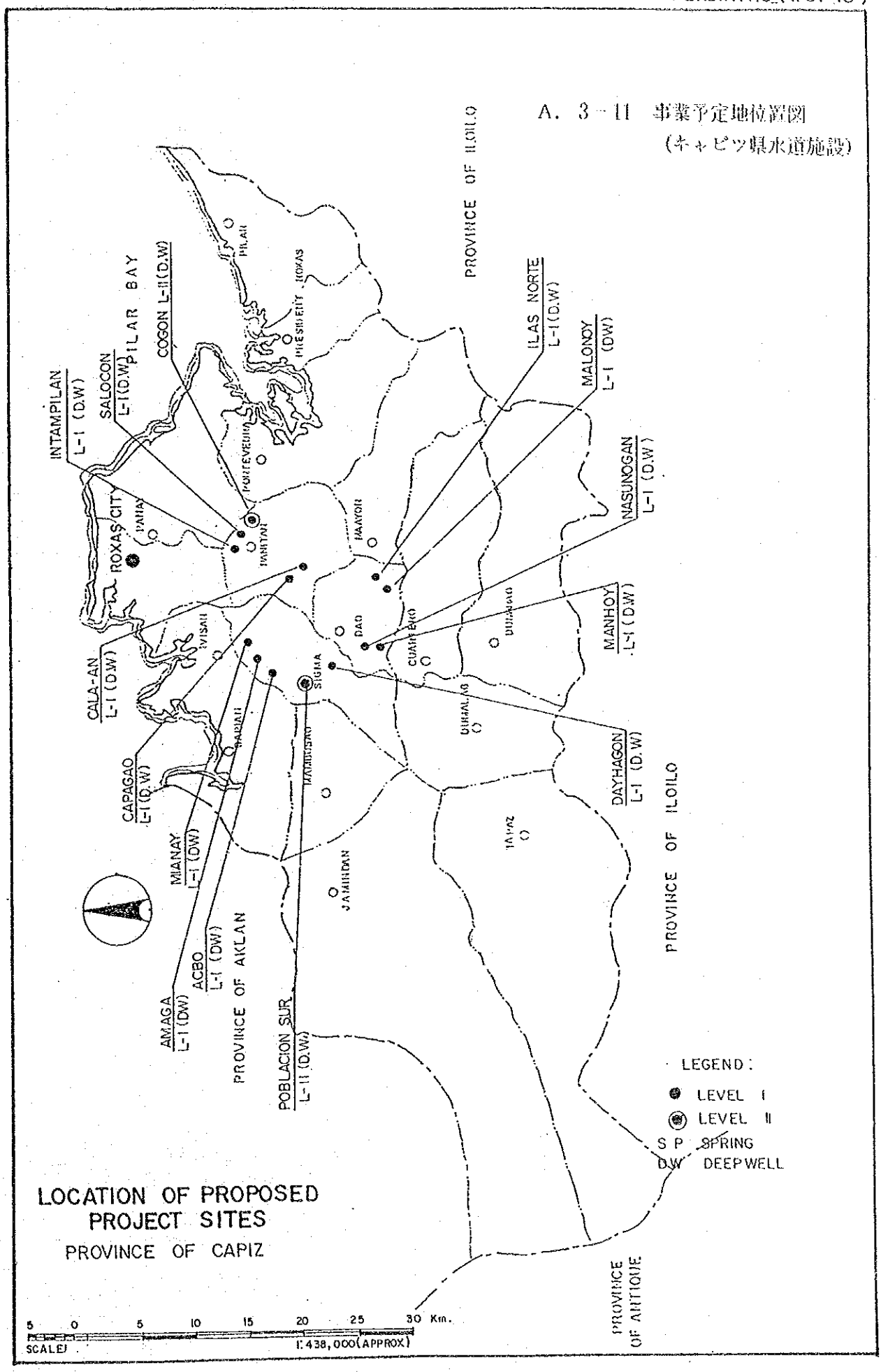
A. 3－8　事業予定地位置図

(パンガシナン県学校トイレ施設)

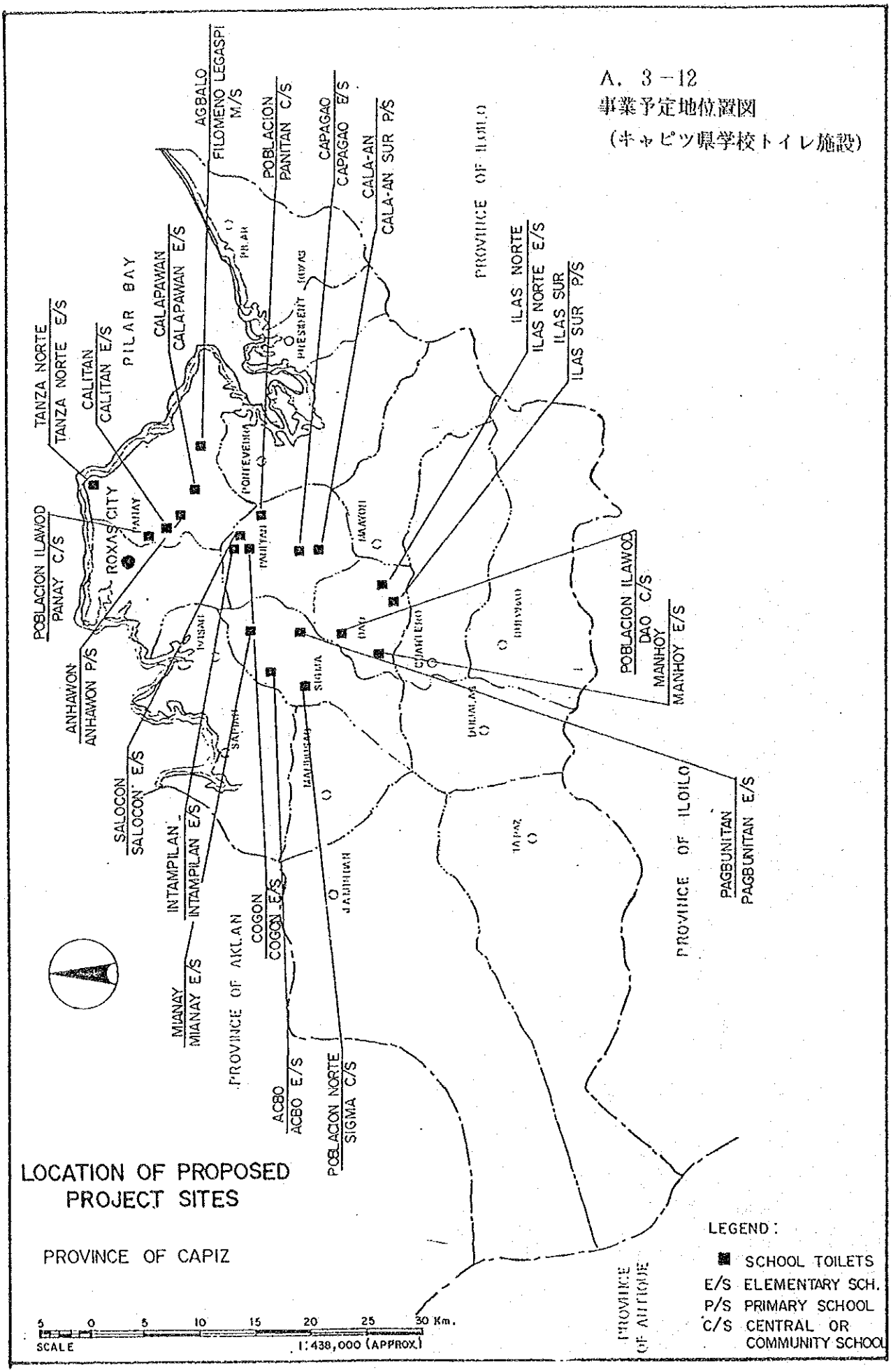

MALAY
BURUANGA
SIBUYAN
SEA
A. 3－9
事業予定地位置図
(アクラン県水道施設)
NABAS
PROVINCE OF ANTIQUE
IBAJAY
CASTILLO TINA,
AND DUMGA
L-II (SP)
TANGALAN
MAKATO
MUGUING
L-I (D.W)
NUMANCIA
MAMBOG L-I (D.W)
MALINAO
LEZO
TABAYAN L-I (D.W)
KALIBO
PAGSANJAN L-II (D.W)
BANGA
JALAS L-I (D.W)
SAN ISIDRO L-I (D.W)
GUIMBALIWAN
L-I (D.W)
NEW
WASHINGTON
MADALAG
LAWA-AN
L-I (D.W)
LIBACAO
BALETE
JUGAS L-I (D.W)
BATAN
ALTAVAS
LEGEND :
LEVEL I
LEVEL II
SP SPRING
DW DEEP WELL
PROVINCE OF CAPIZ
LOCATION OF PROPOSED
PROJECT SITES
PROVINCE OF AKLAN
5 0 5 10 15 20 25 30 Km.
SCALE : 1:360,000 (APPROX)

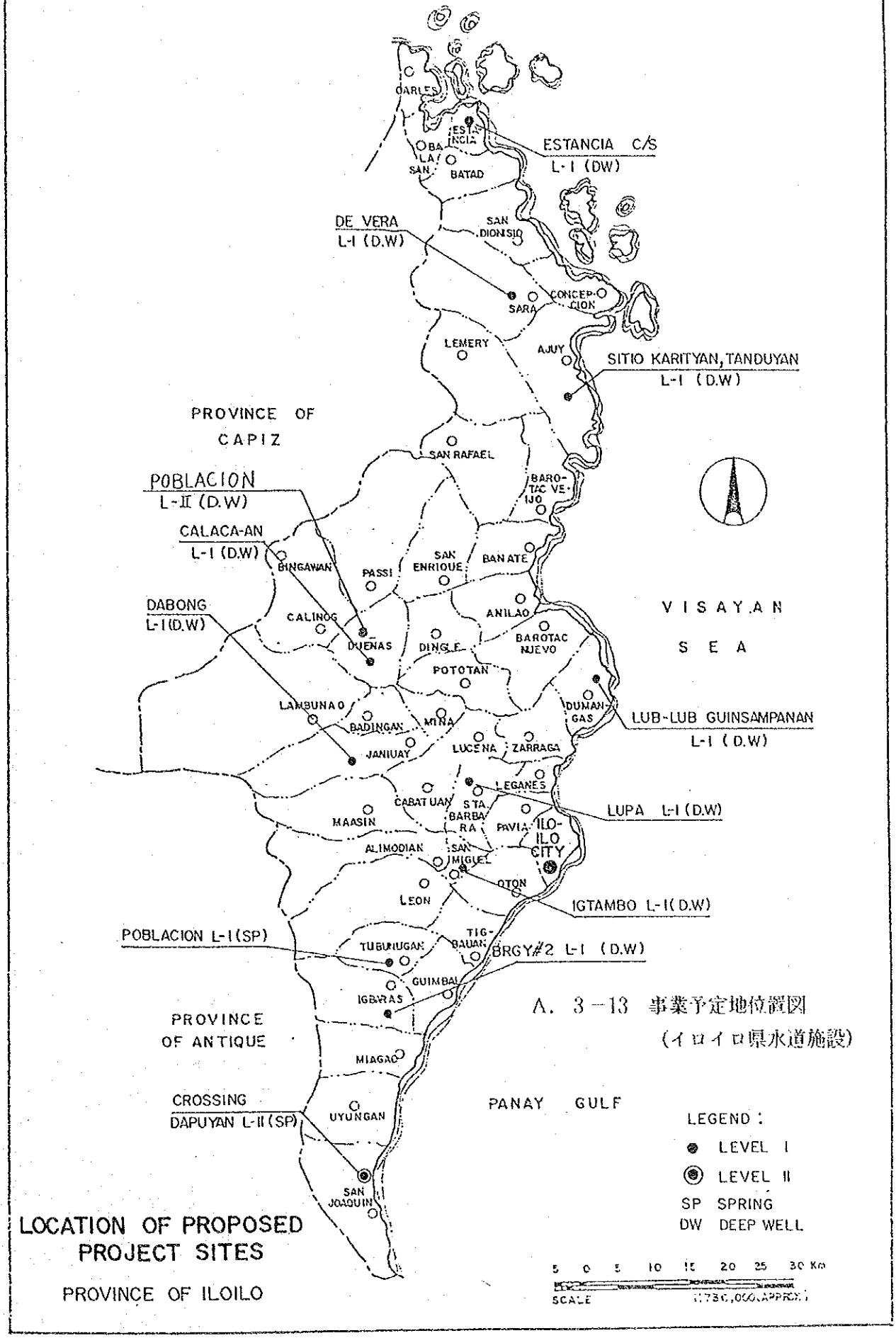

MALAY
BURUANGA
SIBUYAN SEA
A. 3－10
事業予定地位置図
(アクラン県学校トイレ施設)
NABAS
PROVINCE OF ANTIQUE
IBAJAY
TANGALAN
POBLACION
MACATO C/S
TINA
TINA E/S
MUGUING
MUGUING E/S
MAKATO
BADIO
BADIO P/S
NUMANCIA
DUNGON WEST
DUNGON E/S
MATAPHAO
BASILIO REFUNDO M/S
MALINAO
LEZO
ALBASAN
ALBASAN E/S
JUGAS
JUGAS E/S
KALIBO
POBLACION
NUMANCIA E/S
POLO
POLO E/S
BANGA
NALOOK
NALOOK E/S
MADALAG
NEW WASHINGTON
PUIS
PUIS E/S
POBLACION
NEW WASHINGTON C/S
LIBACAC
BALETE
CANDELARIA
CANDELARIA E/S
CAWAYAN
CAWAYAN E/S
LAWA-AN
LAWA-AN E/S
BATAN
ALTAVAS
LEGEND:
SCHOOL TOILETS
E/S ELEMENTARY SCHOOL P/S PRIMARY SCHOOL
C/S CENTRAL OR COMMUNITY SCHOOL
PROVINCE OF CAPIZ
LOCATION OF PROPOSED PROJECT SITES
PROVINCE OF AKLAN
0 5 5 10 15 20 25 30 Km.
SCALE: 1:360,000 (APPROX.)

A. 3－11 事業予定地位置図
(キャピッ県水道施設)



A. 3 −12
事業予定地位置図
(キャピツ県学校トイレ施設)

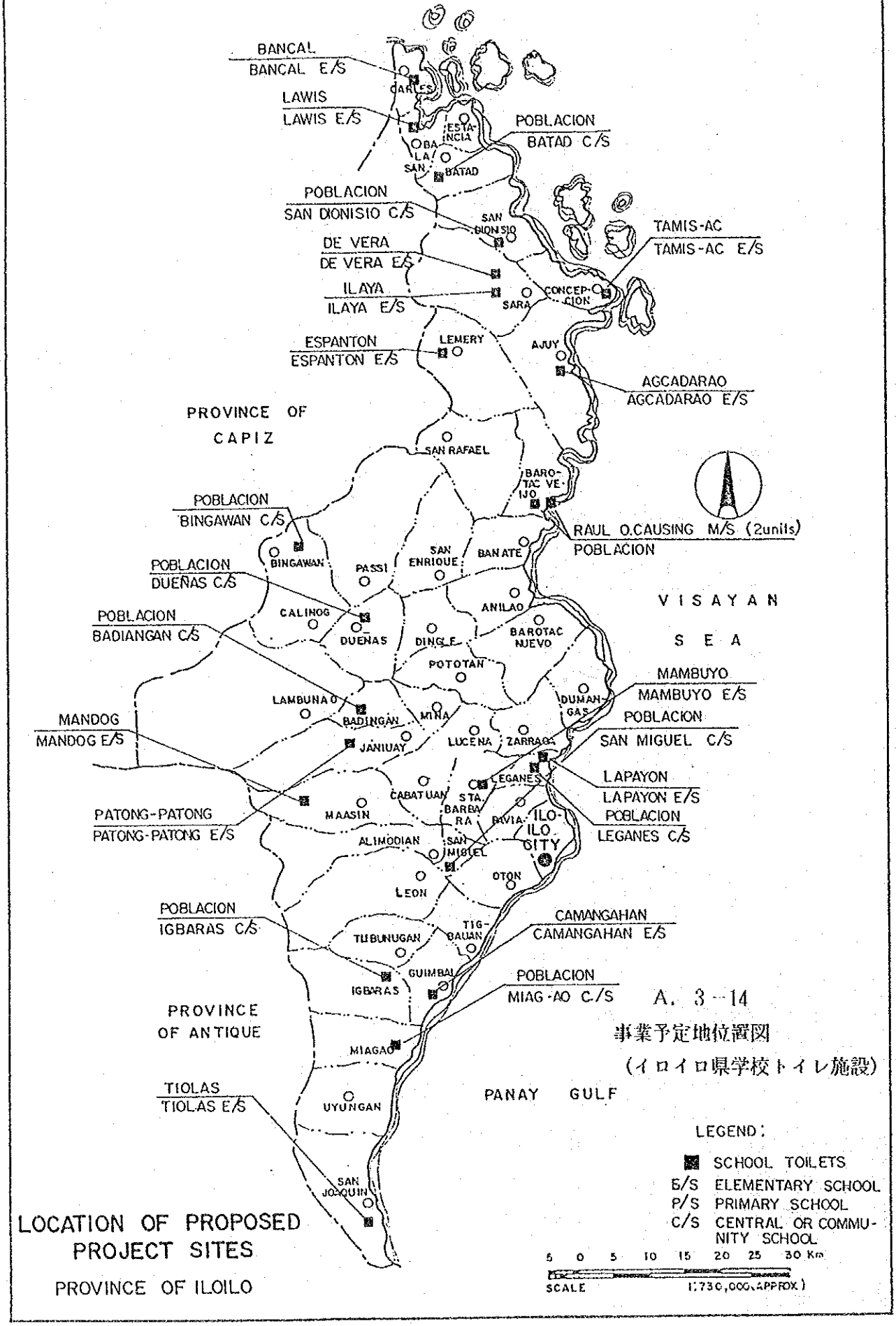




LOCATION OF PROPOSED PROJECT SITES

PROVINCE OF ILOILO

A. 3－13 事業予定地位置図
(イロイロ県水道施設)



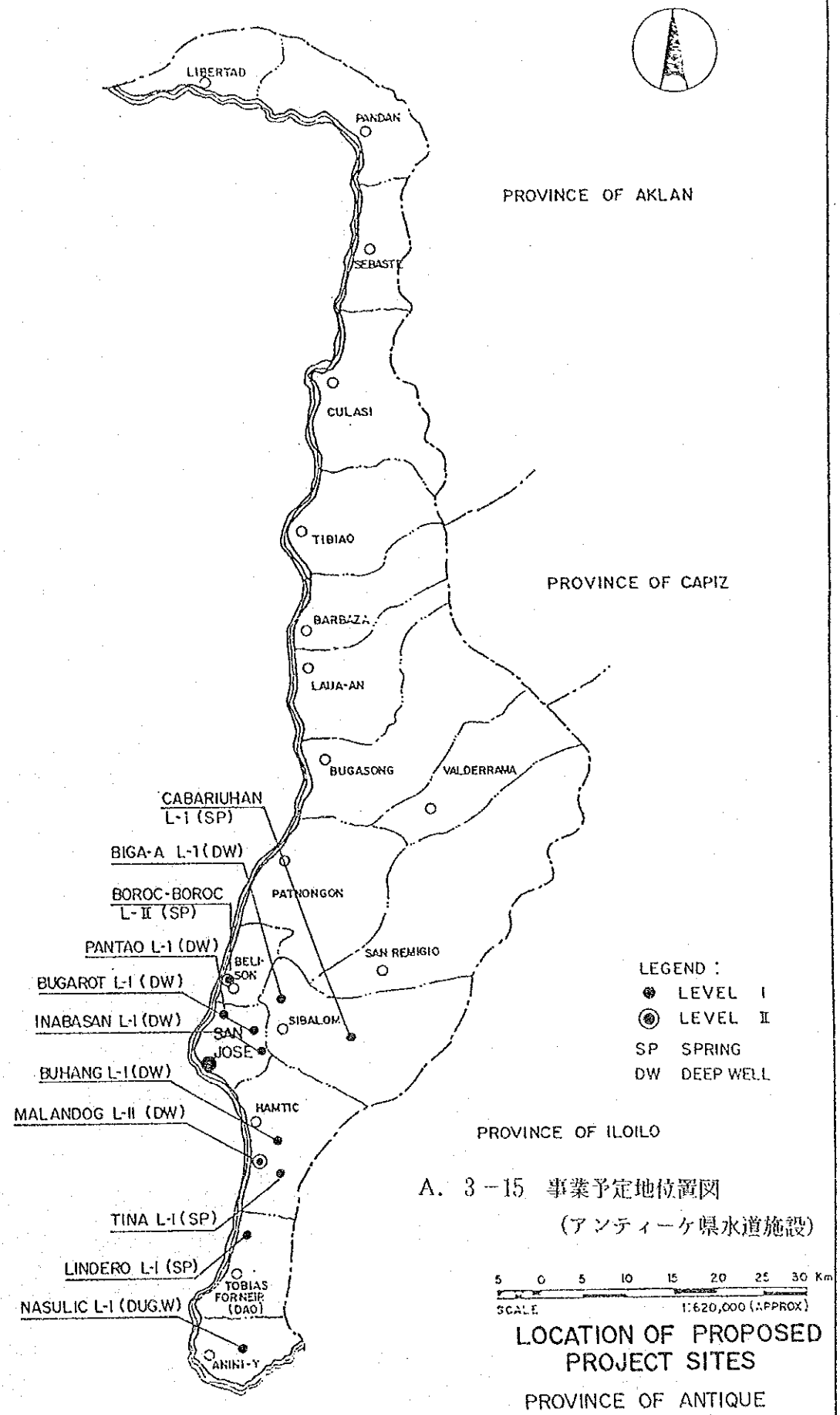
A. 3 — 14

事業予定地位置図

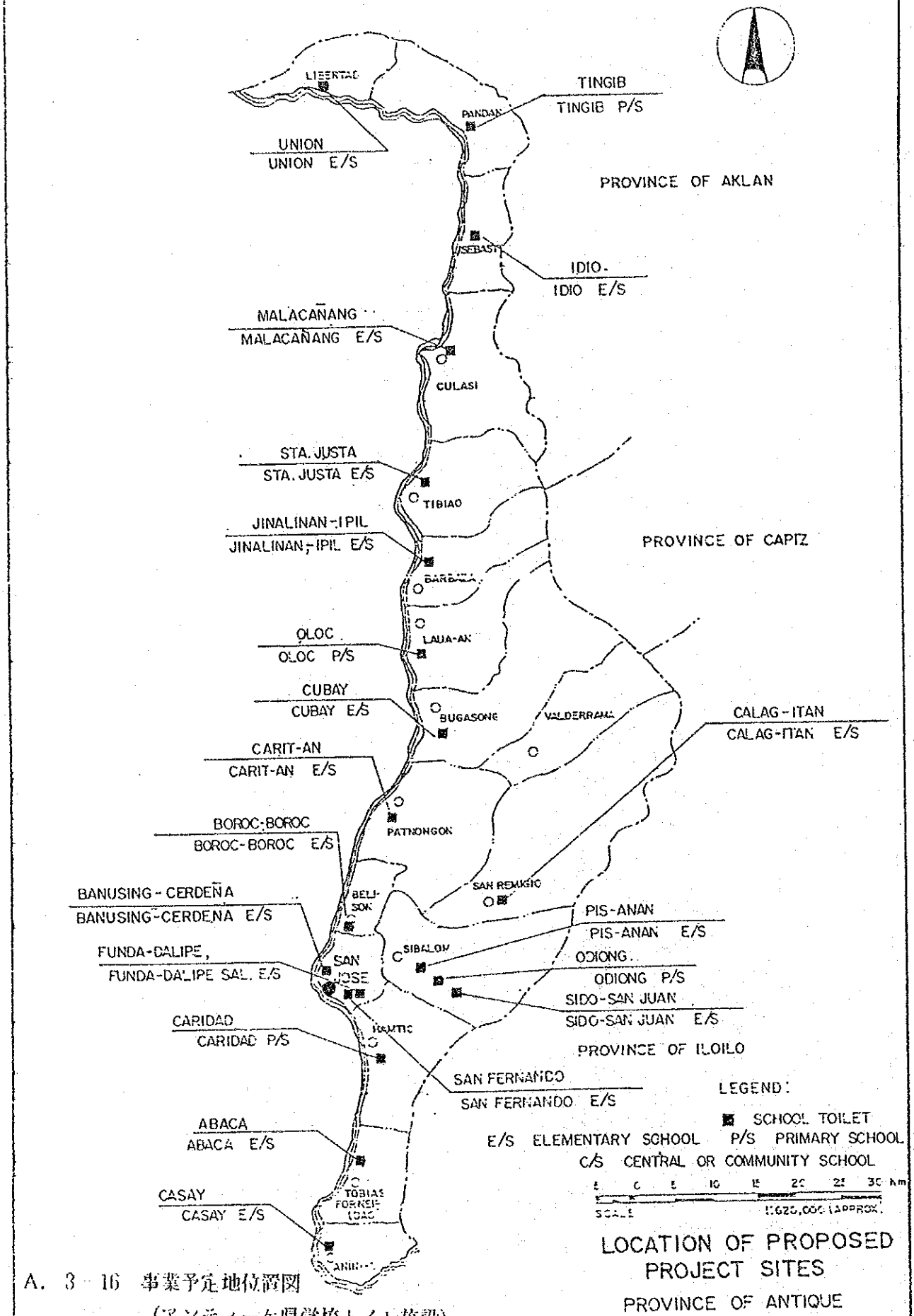
(イロイロ県学校トイレ施設)

LOCATION OF PROPOSED PROJECT SITES

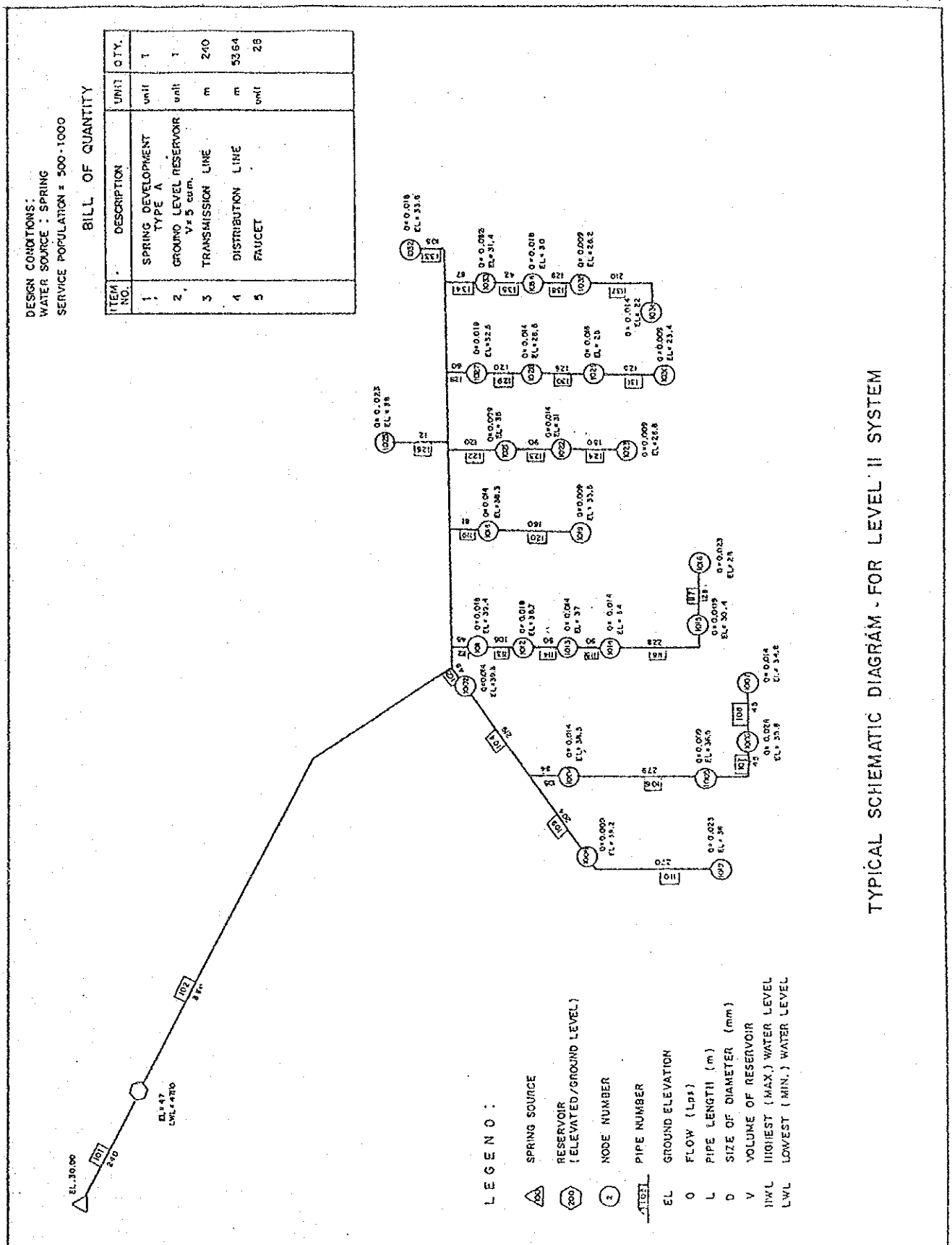
PROVINCE OF ILOILO



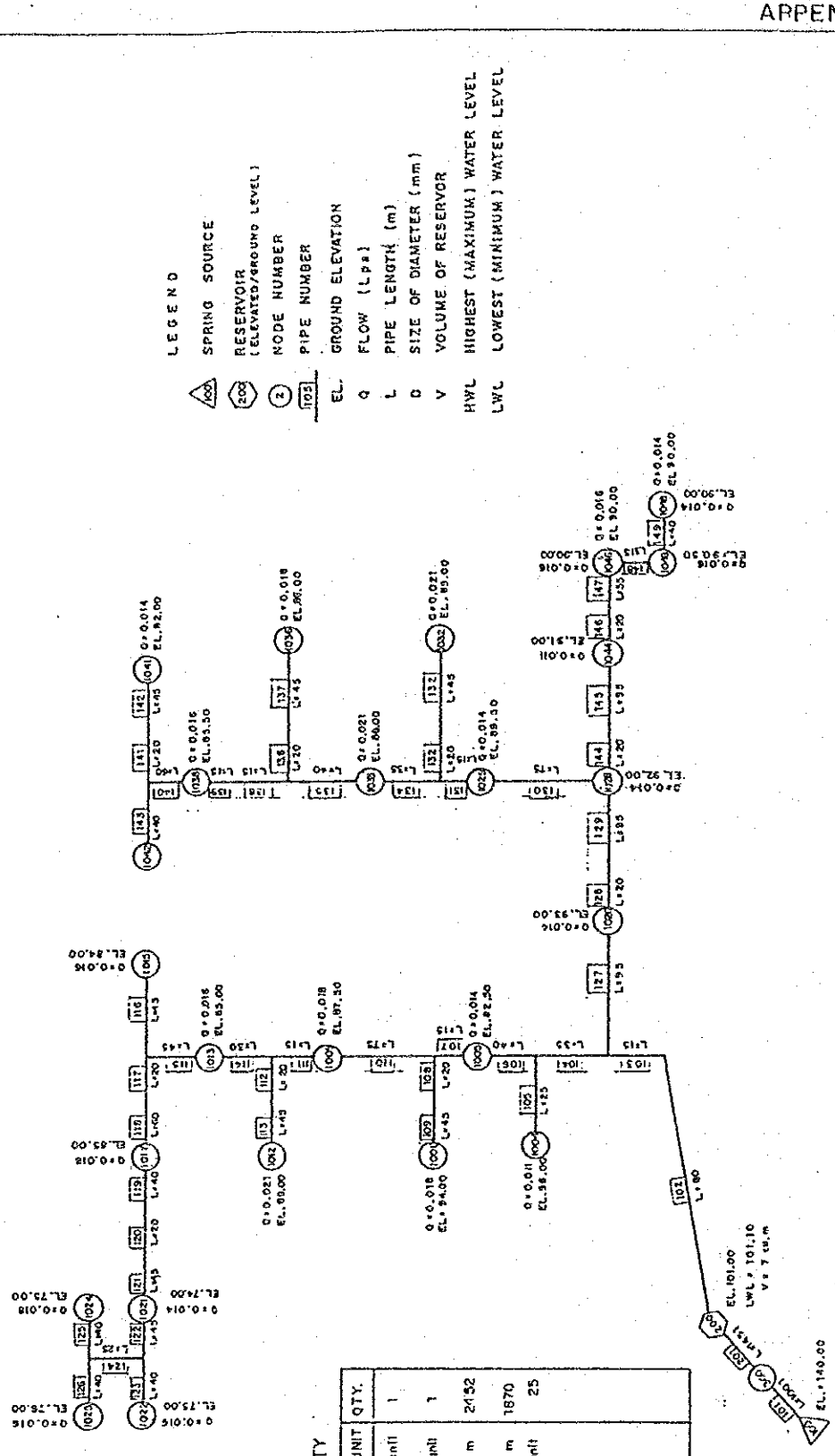
A. 3－15 事業予定地位置図
（アンティーケ県水道施設）



A. 3 - 16 事業予定地位置図
(アンティーケ県学校トイレ施設)



A. 4－1　レベルⅡシステム標準図
(湧水水源　その1)



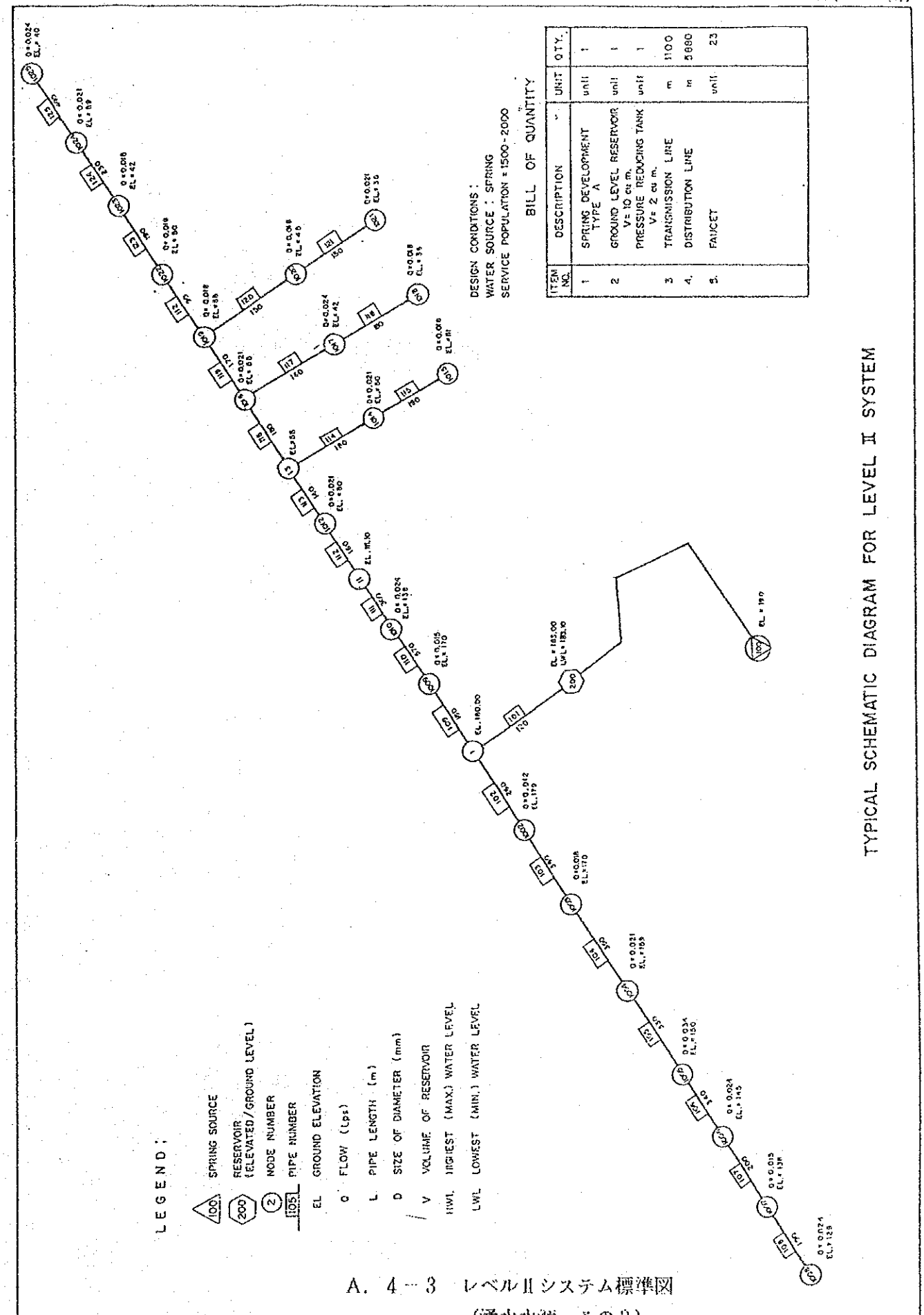
TYPICAL SCHEMATIC DIAGRAM FOR LEVEL II SYSTEM

DESIGN CONDITIONS :
WATER SOURCE : SPRING
SERVICE POPULATION = 1000 - 1500

BILL OF QUANTITY

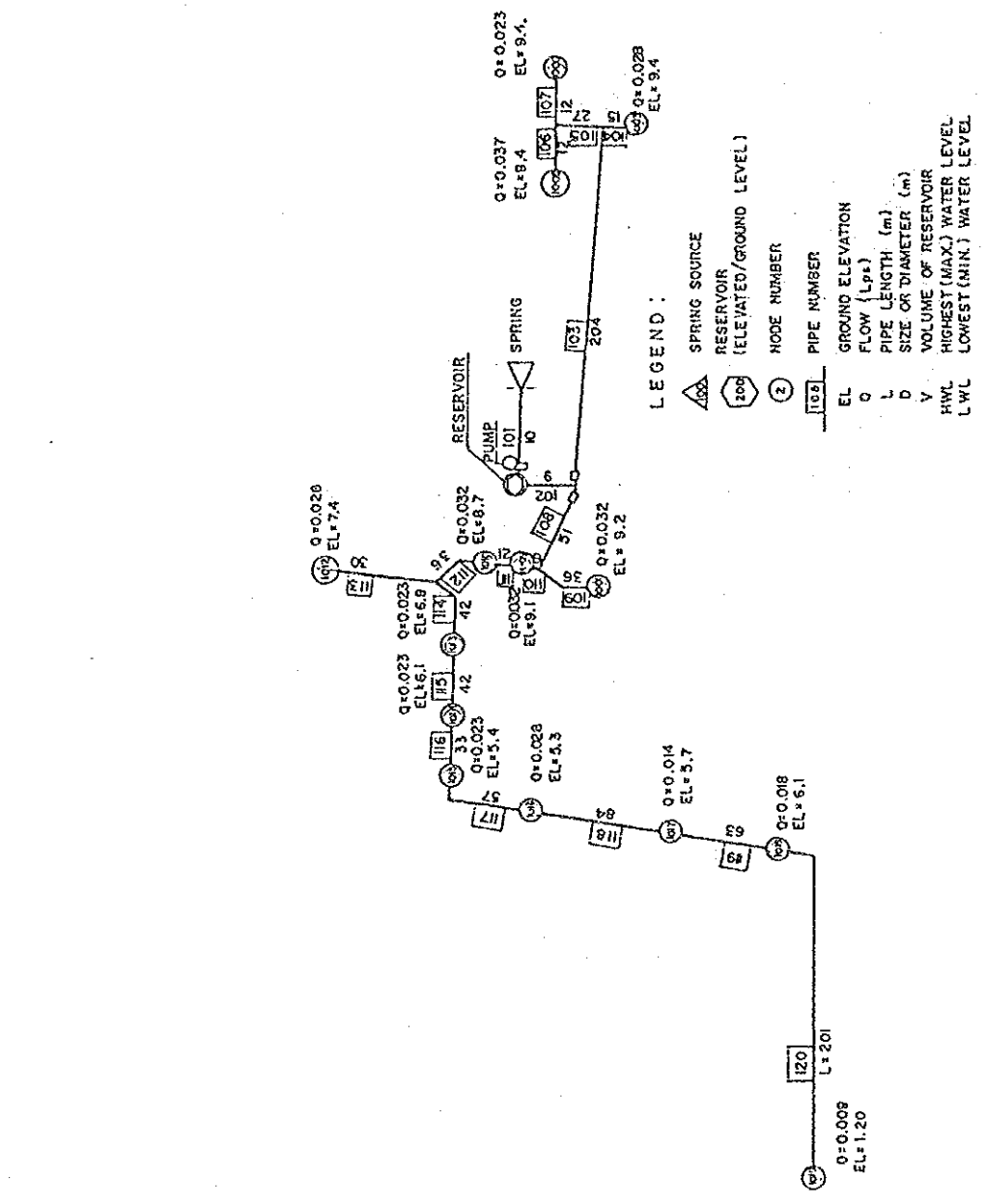
ITEM NO.	DESCRIPTION	UNIT	QTY.
1	SPRING DEVELOPMENT TYPE A	unit	1
2	GROUND LEVEL RESERVOIR V = 7 cum.	unit	1
3	TRANSMISSION LINE	m	2452
4	DISTRIBUTION LINE	m	1870
5	FAUCET	unit	25

A. 4 -- 2
レベルⅡシステム標準図
(湧水水源　その2)



A. 4－3　レベルIIシステム標準図

（湧水水源　その3）



DESIGN CONDITIONS :
WATER SOURCE : HYDEEP WELL
SERVICE POPULATION = 500 - 1000

BILL OF QUANTITY

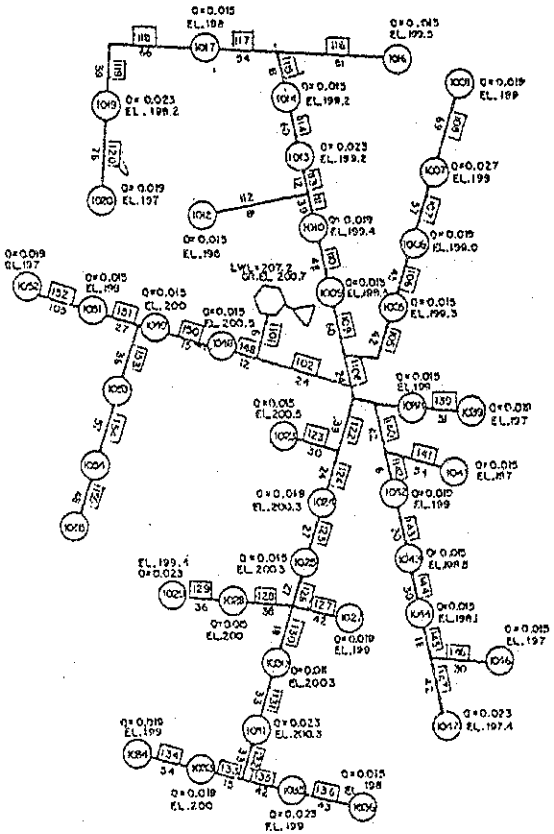
ITEM NO.	DESCRIPTION	UNIT	QTY.
1	DEEP WELL CONST. CASING Ø150mm, DEPTH=92m	unit	1
2	PUMPING FACILITIES SUBMERSIBLE 1Hp	unit	1
3	ELEVATED WATER TANK V= 5 cu m.	unit	1
4	TRANSMISSION LINE	m	10
5	DISTRIBUTION LINE	m	901
6	FAUCET	unit	14

A. 4－4　レベルIIシステム標準図
（深井戸水源　その1）

DESIGN CONDITIONS :
WATER SOURCE : DEEP WELL
SERVICE POPULATION = 1000- 1500

BILL OF QUANTITY

ITEM NO	DESCRIPTION	UNIT	QTY.
1	DEEP WELL CONST. CASING Ø150mm , DEPTH=50m	unit	1
2	PUMPING FACILITIES SUBMERSIBLE 2Hp	unit	1
3	ELEVATED WATER TANK V= 15 cu m.	unit	1
4	TRANSMISSION LINE	m	10
5	DISTRIBUTION LINE	m	2148
6	FAUCET	unit	40



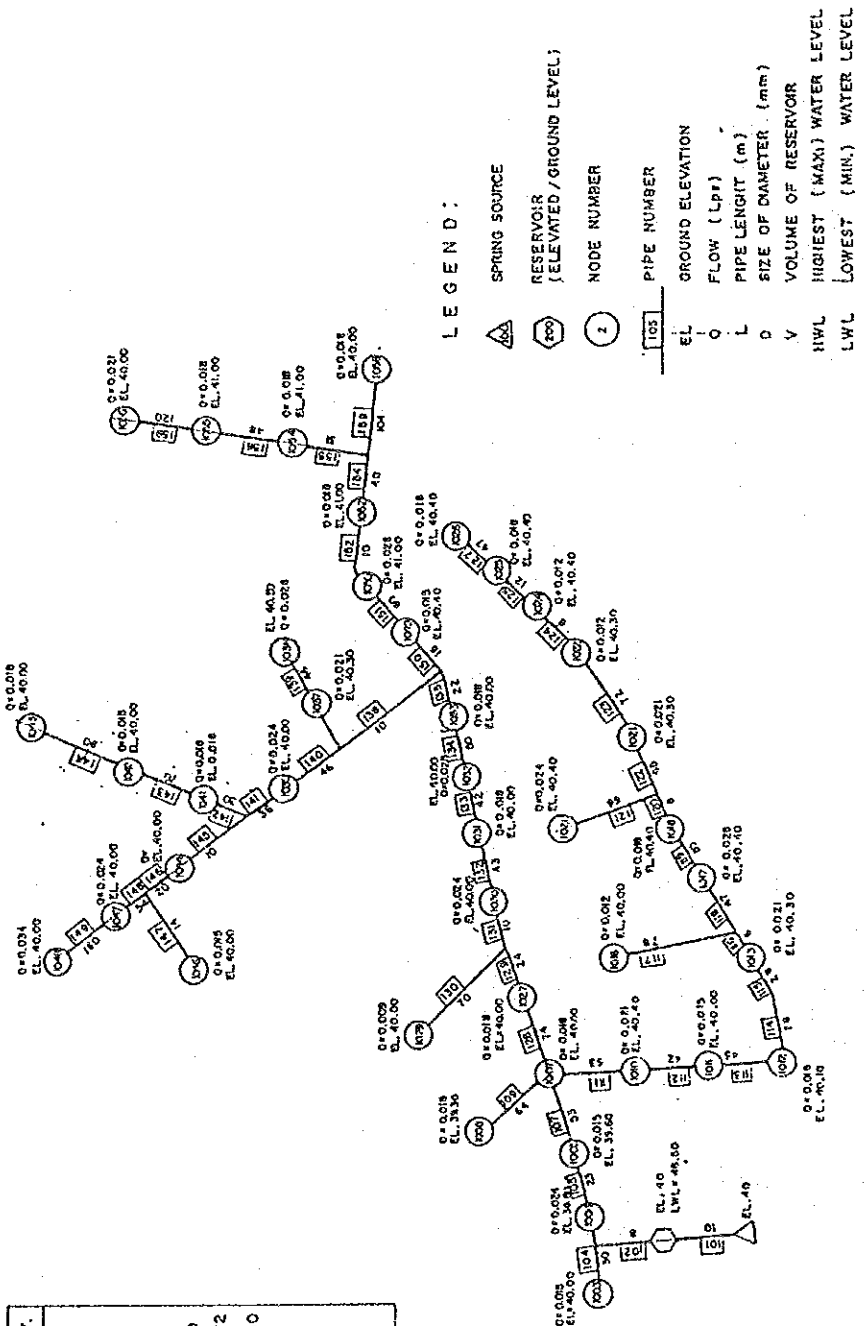
LEGEND :

- SPRING SOURCE
- RESERVOIR (ELEVATED/GROUND LEVEL)
- NODE NUMBER
- PIPE NUMBER
- EL GROUND ELEVATION
- Q FLOW (Lps)
- L PIPE LENGTH (m)
- D SIZE OF DIAMETER (mm)
- V VOLUME OF RESERVOIR
- HWL HIGHEST (MAX.) WATER LEVEL
- LWL LOWEST (MIN.) WATER LEVEL

TYPICAL SCHEMATIC DIAGRAM FOR LEVEL II SYSTEM

A・4－5

A. 4－5 レベルIIシステム標準図
(深井戸水源 その2)

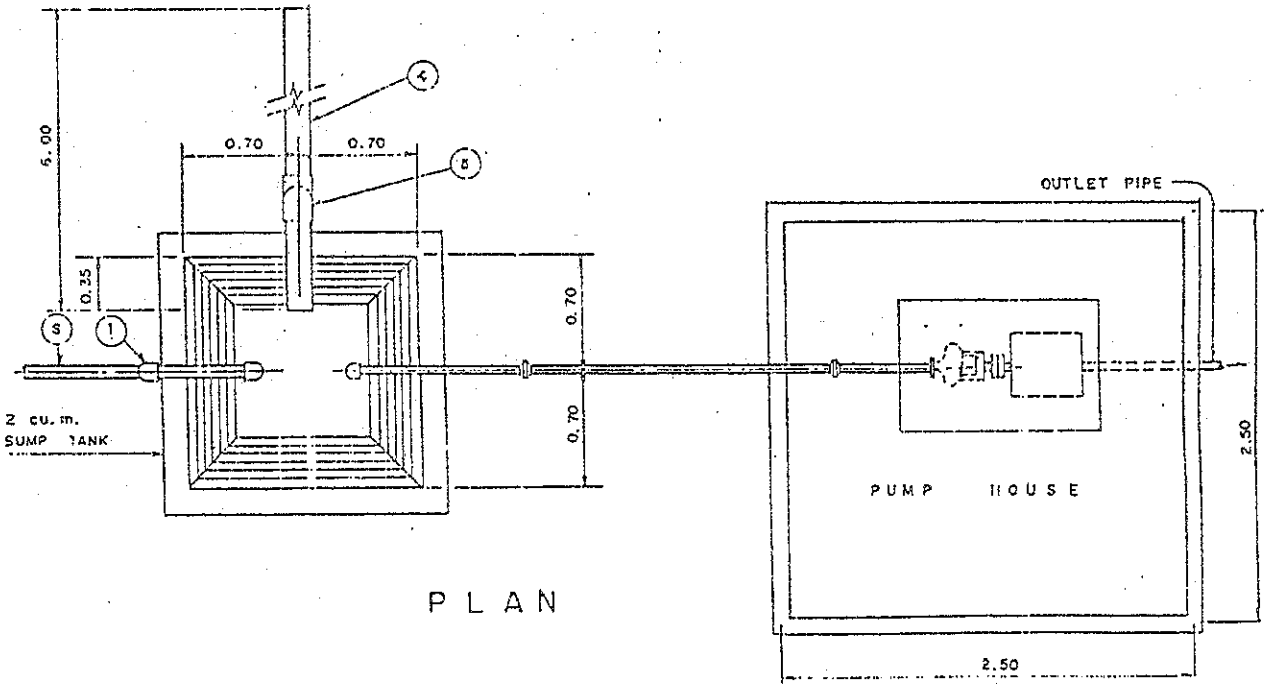


DESIGN CONDITIONS :
WATER SOURCE : DEEP WELL
SERVICE POPULATION = 1500 - 2000

BILL OF QUANTITY

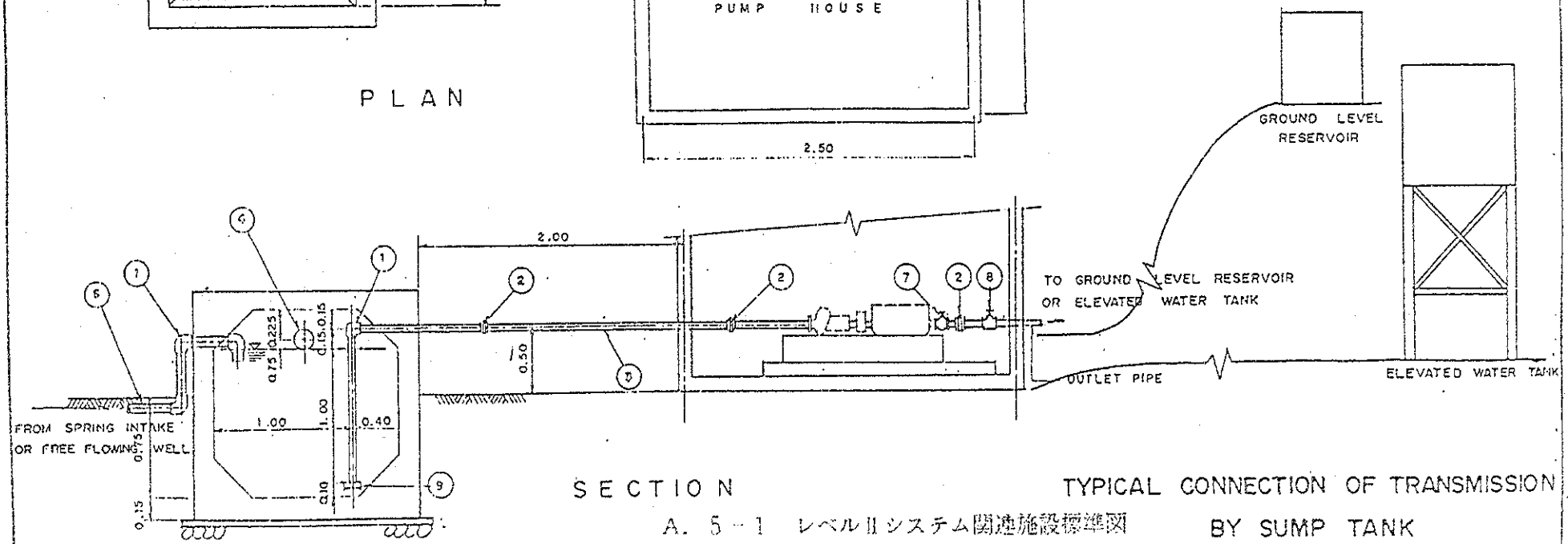
ITEM NO.	DESCRIPTION	UNIT	QTY.
1	DEEP WELL CONST. CASING Ø 150mm, DEPTH=50m	unit	1
2	PUMPING FACILITIES SUBMERSIBLE 2 HP	unit	1
3	ELEVATED WATER TANK V= 25 cu m.	unit	1
4	TRANSMISSION LINE	m	10
5	DISTRIBUTION LINE	m	2472
6	FAUCET	unit	40

A. 4－6　レベルII システム標準図
（深井戸水源　その3）



PLAN

NAME OF PARTS		DESCRIPTION
①	ELBOW , 90°	G. I.
②	UNION PATENTE	G. I.
③	SUCTION PIPE	G. I.
④	OVERFLOW PIPE	ø 150 G. I.
⑤	ELBOW , 90° (2 pcs.)	ø 150 G. I.
⑥	INFLOW PIPE	G. I.
⑦	CHECK VALVE	G.I.
⑧	GATE VALVE	G.I.
⑨	FOOT VALVE	G.I.

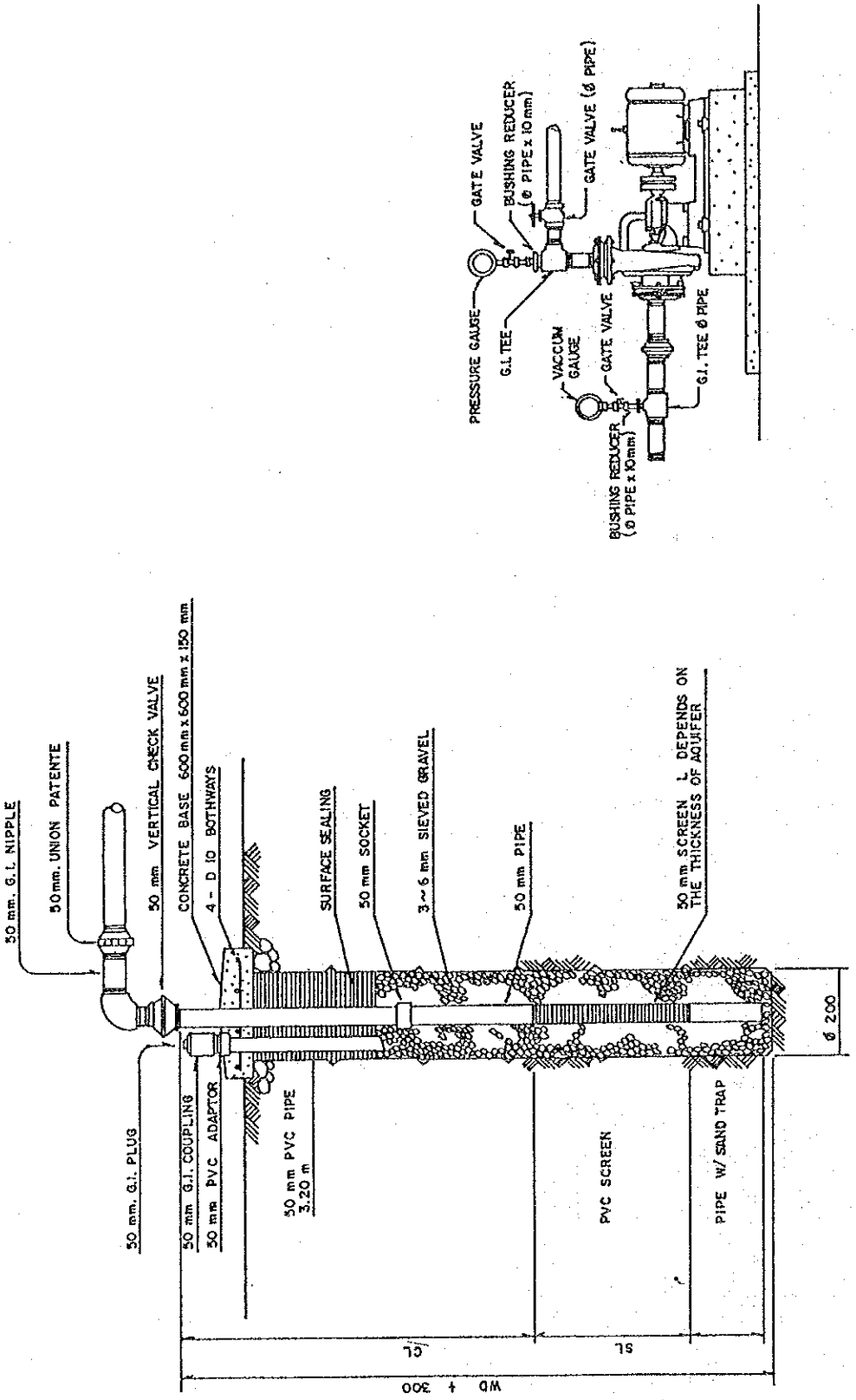


SECTION

TYPICAL CONNECTION OF TRANSMISSION BY SUMP TANK

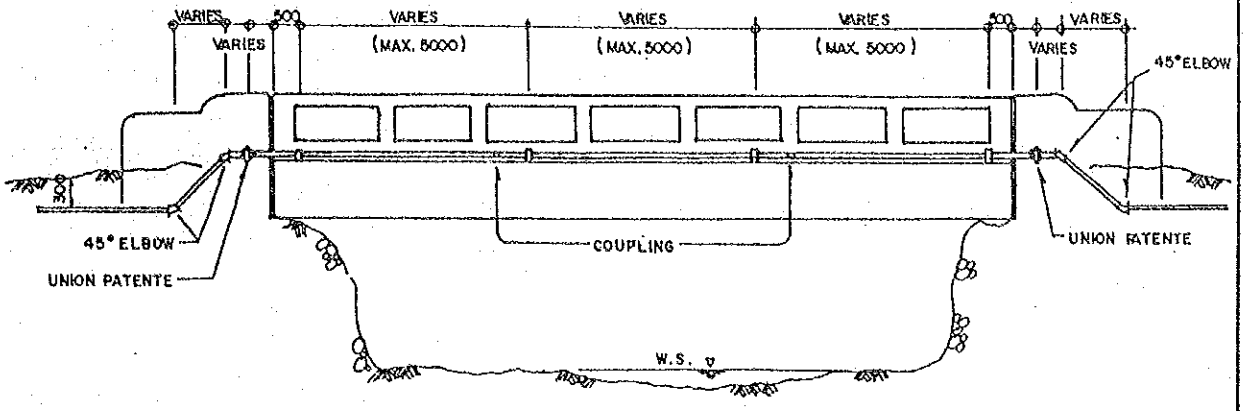
A. 5－1 レベルⅡシステム関連施設標準図

(サンプタンクと増圧ポンプ)

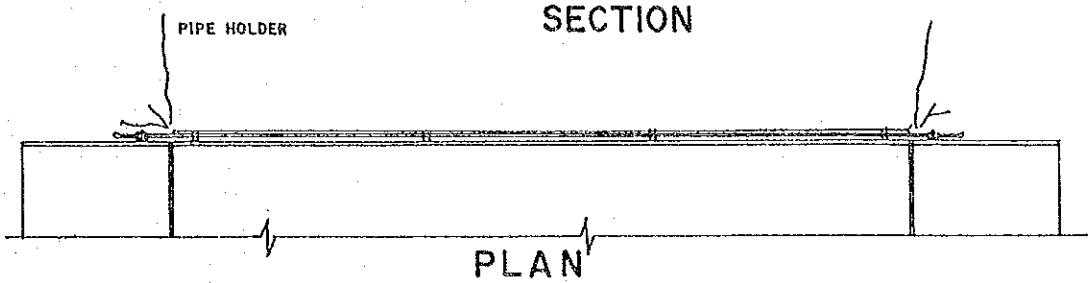


A. 5－2　レベルⅡシステム関連施設標準図

(井戸水源とセントリフューガルポンプ)



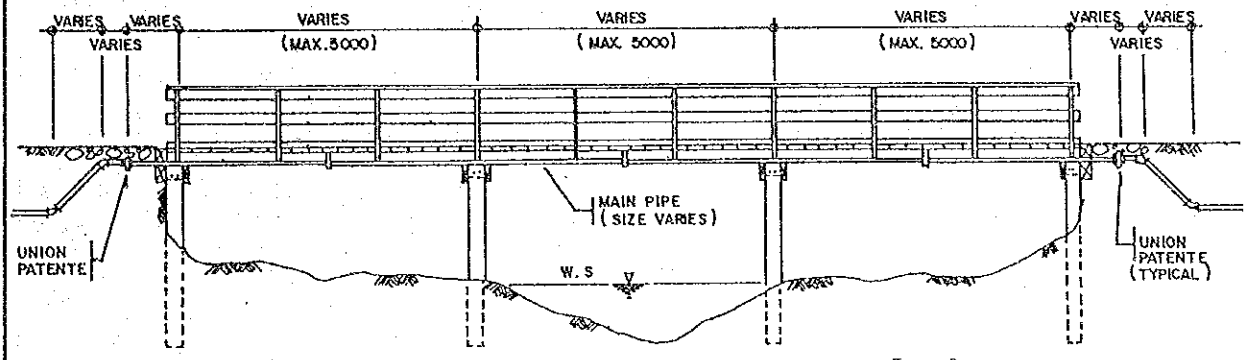
SECTION



PLAN

TYPICAL CONCRETE BRIDGE

NOT TO SCALE

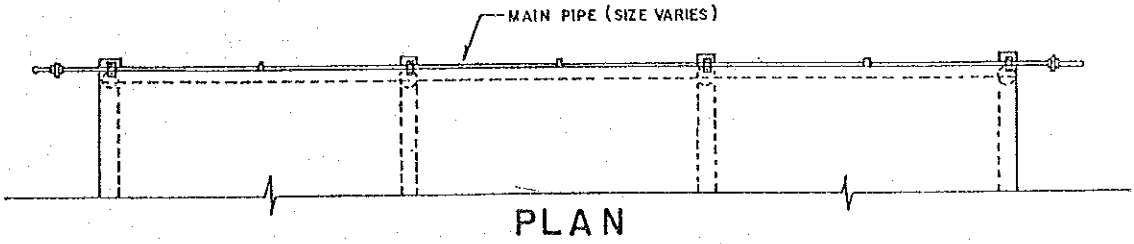


SECTION

A. 5－3

レベルⅡシステム関連施設標準図

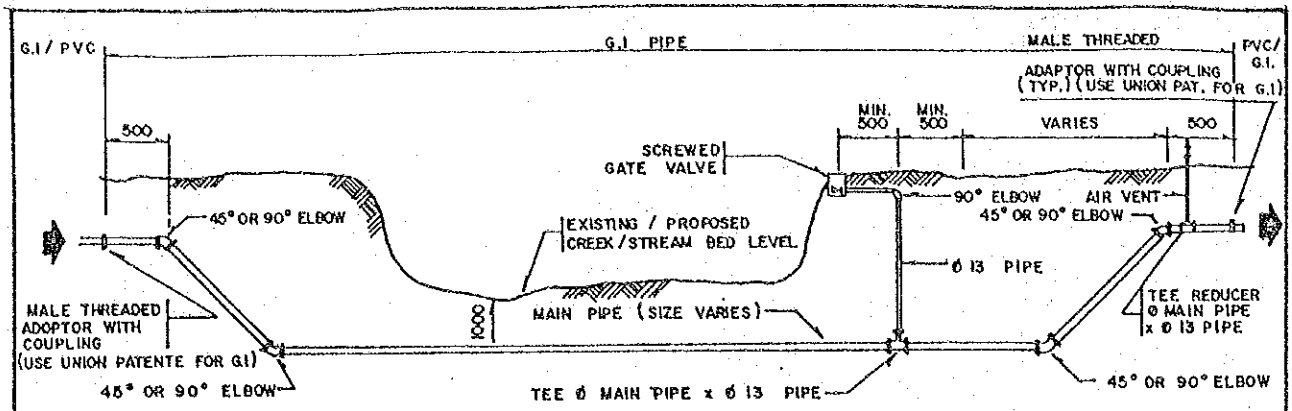
(河川横断　その1)



PLAN

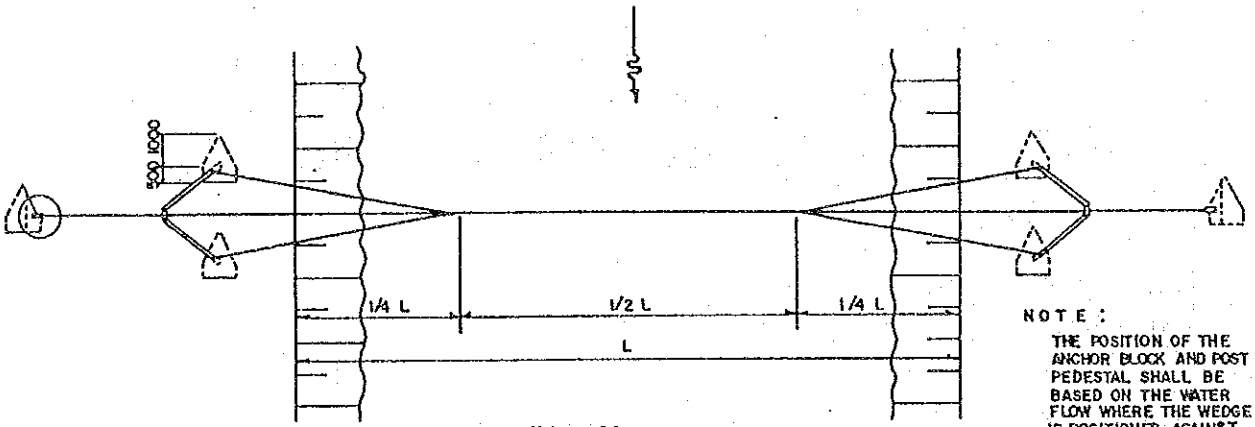
TYPICAL TIMBER / BAILEY BRIDGE

NOT TO SCALE

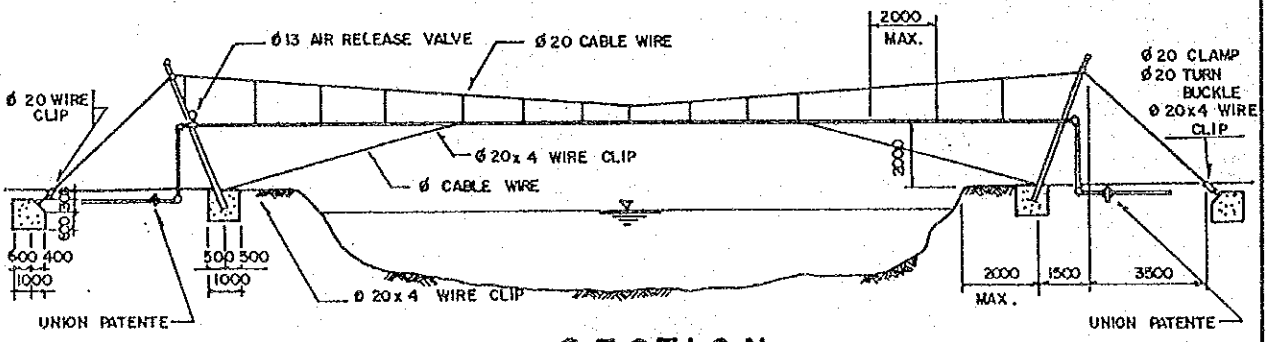


ORDINARY SOIL BEDDING

NOT TO SCALE



PLAN



SECTION

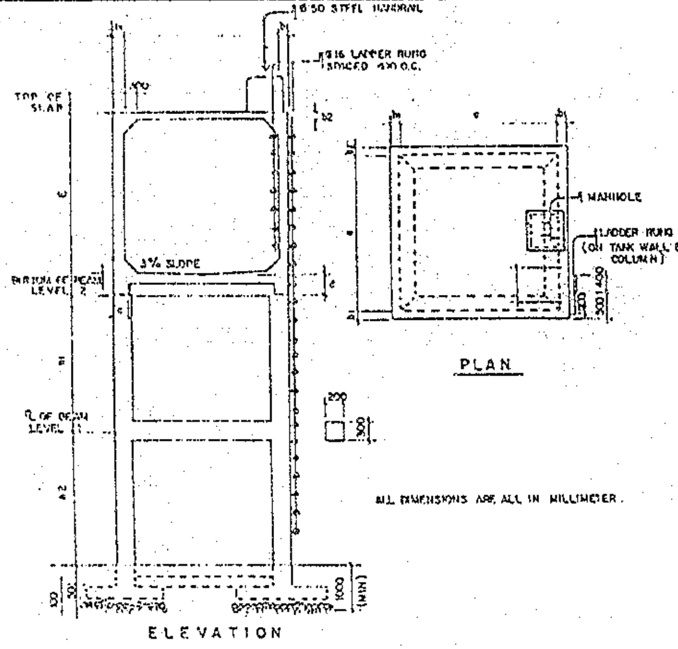
SUSPENSION BRIDGE

NOT TO SCALE

A. 5－4　レベルⅡシステム関連施設標準図
(河川横断　その2)

TABLE OF ELEVATED TANK CAPACITY AND DIMENSION
(DIMENSION ARE ALL IN MM)

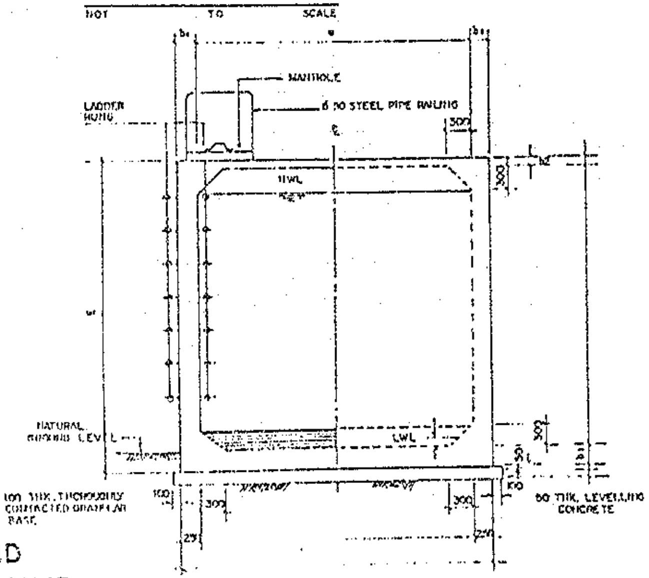
V (cu m)	TANK DIMENSION a	b1	b2	C	d	E	COLUMN h1	h2	SECTION	FOOTING SBP 120 KPa SECTION	t	SBP 144 KPa SECTION	t	SBP 168 KPa SECTION	t	SBP 192 KPa SECTION	t
2	1400	150	150	200	300	1850	2500	2500	250x250	830x830	200	760x760	200	700x700	200	660x660	200
5	1850	150	150	200	300	2300	3000	4000	250x250	1110x1110	200	1010x1010	250	940x940	250	880x880	250
7	2050	150	150	200	300	2550	3000	4000	300x300	1190x1190	250	1090x1090	250	1010x1010	250	940x940	250
10	2300	150	150	200	400	2850	3000	4000	300x300	1300x1300	250	1180x1180	250	1100x1100	250	1030x1030	250
15	2600	150	150	200	400	3150	3000	4000	300x300	1400x1400	250	1280x1280	250	1190x1190	300	1110x1110	300
20	2850	200	150	200	600	3600	3000	4000	300x300	1520x1520	300	1390x1390	300	1280x1280	300	1200x1200	300
25	3050	200	150	250	600	3800	3000	4000	300x300	1600x1600	300	1460x1460	300	1350x1350	300	1270x1270	300
30	3250	200	150	250	600	4000	3000	4000	300x300	1700x1700	300	1560x1560	300	1440x1440	350	1350x1350	350
35	3400	250	150	300	600	4150	3000	4000	400x400	1870x1870	300	1700x1700	300	1580x1580	350	1470x1470	350
40	3550	250	150	300	600	4300	3000	4000	400x400	1950x1950	300	1780x1780	350	1650x1650	350	1540x1540	350
45	3700	250	150	300	600	4450	3000	4000	400x400	2030x2030	350	1850x1850	350	1720x1720	350	1610x1610	400
50	3800	250	150	400	600	4550	3000	4000	400x400	2100x2100	350	1920x1920	350	1780x1780	350	1650x1650	400
55	3950	300	150	400	600	4700	3000	4000	400x400	2240x2240	350	2010x2010	350	1890x1890	400	1770x1770	400
60	4050	300	150	400	600	4900	3000	4000	400x400	2290x2290	400	2080x2080	400	1930x1930	400	1810x1810	400
65	4150	300	150	400	600	4900	3000	4000	400x400	2340x2340	400	2130x2130	400	1970x1970	400	1850x1850	400
70	4250	350	150	400	600	5000	3000	4000	450x450	2510x2510	400	2290x2290	400	2120x2120	450	1930x1930	450
75	4350	350	150	400	600	5100	3000	4000	500x500	2570x2570	400	2350x2350	400	2170x2170	450	2030x2030	450



ELEVATED WATER TANK
NOT TO SCALE

TABLE OF GROUND LEVEL RESERVOIR
(DIMENSION ARE ALL IN MM)

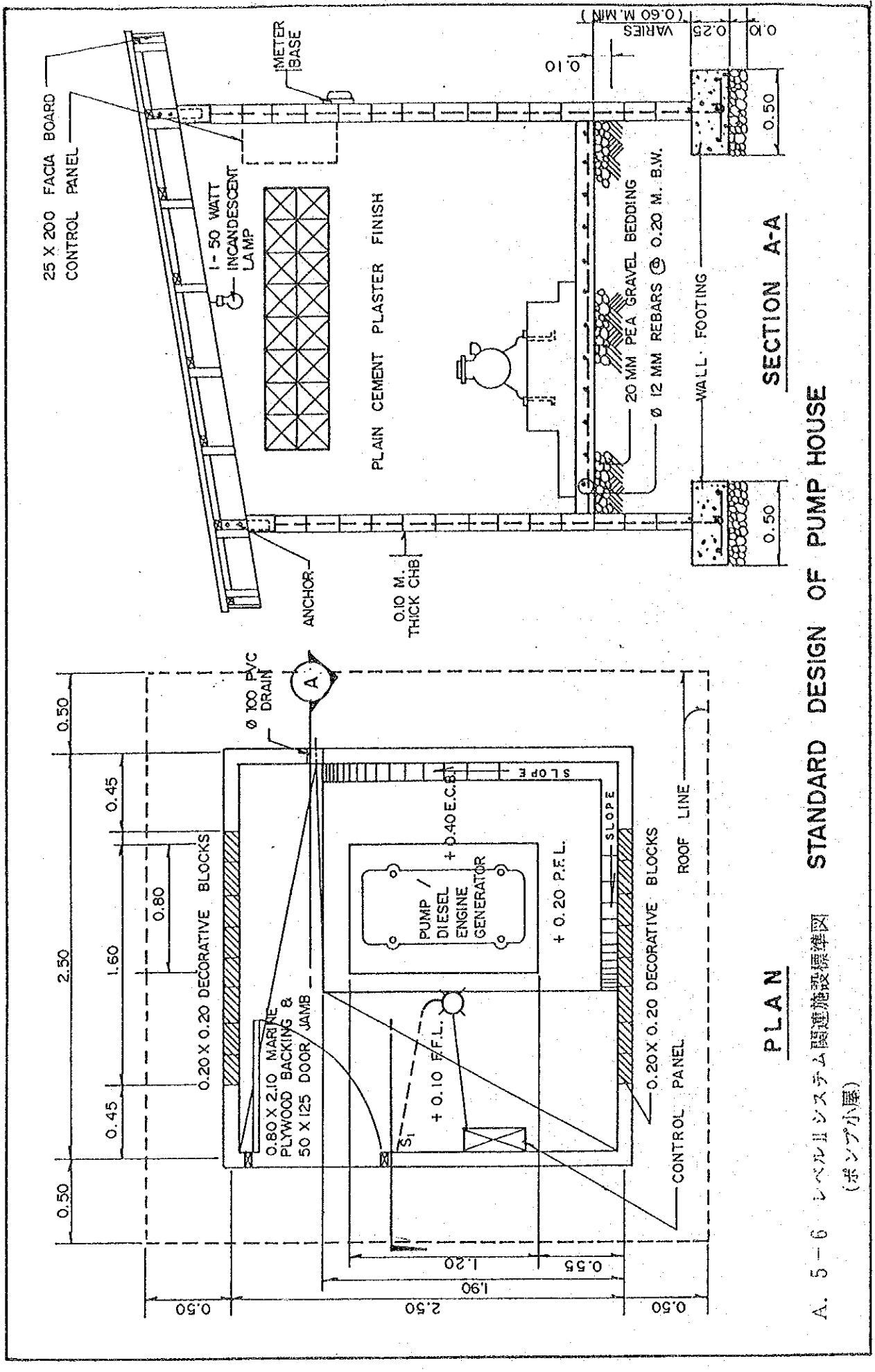
CAPACITY V (cu m)	TANK DIMENSION a	b1	b2	E
2	1400	150	150	1700
5	1850	150	150	2150
7	2050	150	150	2350
10	2300	150	150	2600
15	2600	200	150	2950
20	2850	200	150	3200
25	3050	200	150	3400
30	3250	200	150	3600
35	3400	250	150	3800
40	3550	250	150	3950
45	3700	250	150	4100
50	3800	250	150	4200
55	3950	250	150	4350
60	4050	250	150	4450
65	4150	250	150	4550
70	4250	350	150	4750
75	4350	350	150	4850



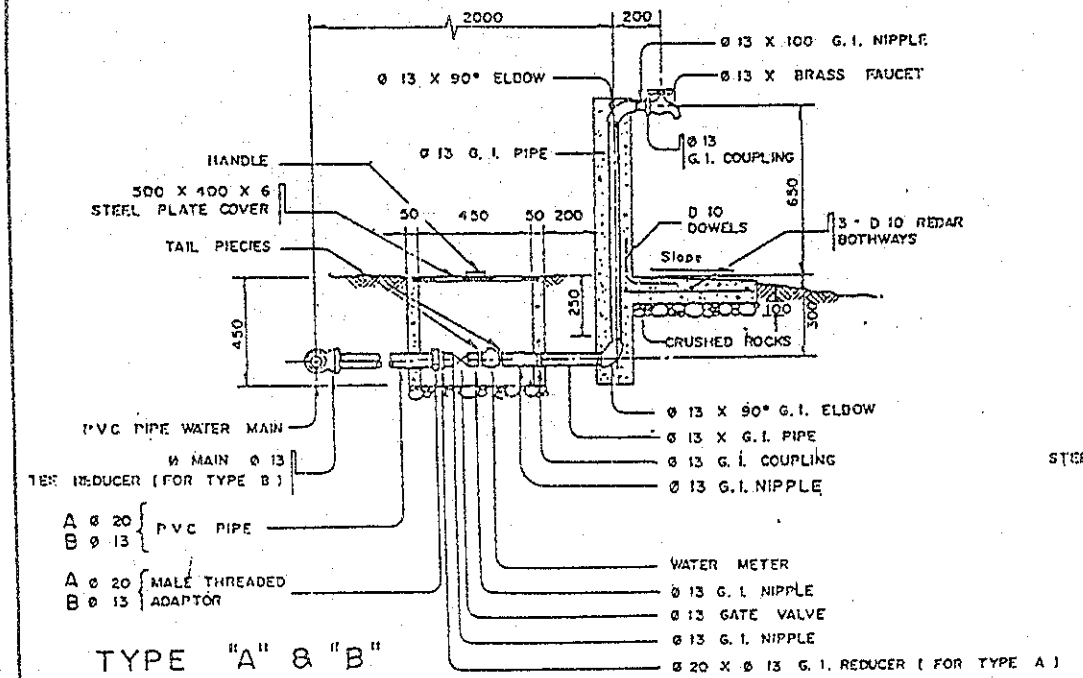
PROPOSED GROUND RESERVOIR

STANDARD DESIGN OF
ELEVATED TANK AND
GROUND LEVEL RESERVOIR

A. 5—5 レベルIIシステム関連施設標準図
(高架式/地上式水槽)



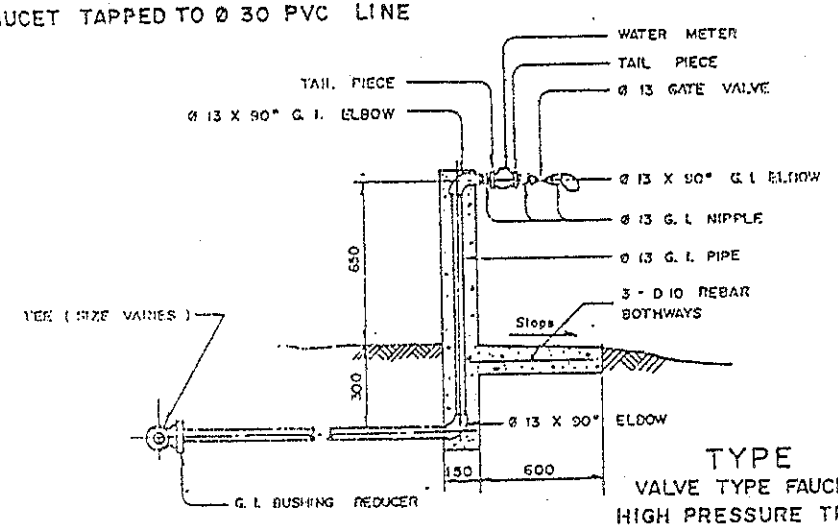
A. 5－6 レベルIIシステム関連施設標準図 STANDARD DESIGN OF PUMP HOUSE
(ポンプ小屋)



TYPE "A" & "B"

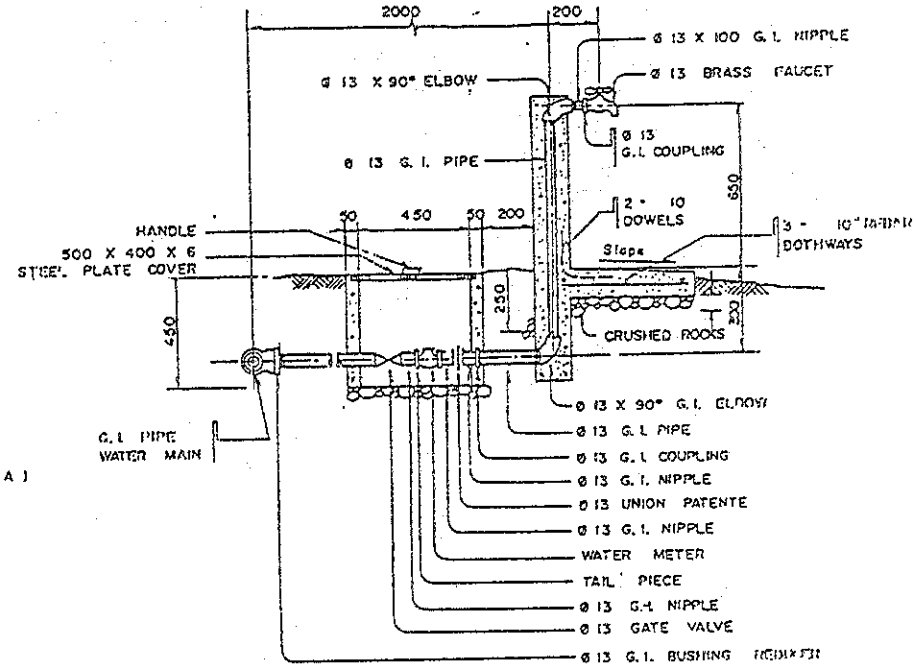
TYPE A - FAUCET TAPPED TO Ø 20 PVC LINE

TYPE B - FAUCET TAPPED TO Ø 30 PVC LINE



TYPE "D"

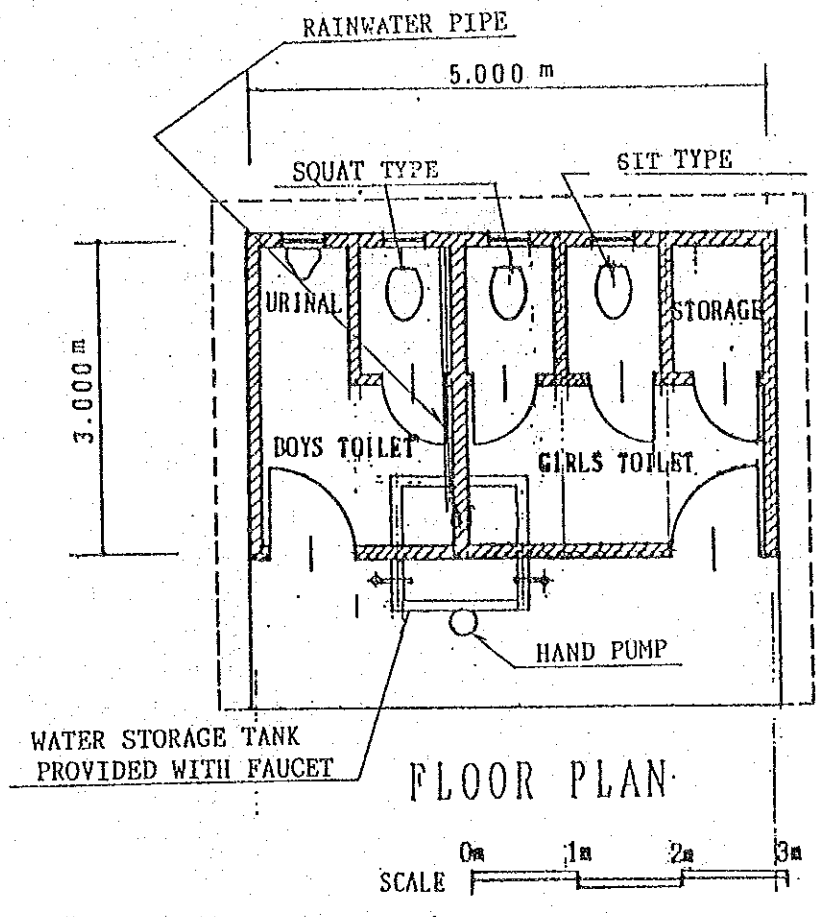
VALVE TYPE FAUCET TAPPED TO HIGH PRESSURE TRANSMISSION LINE



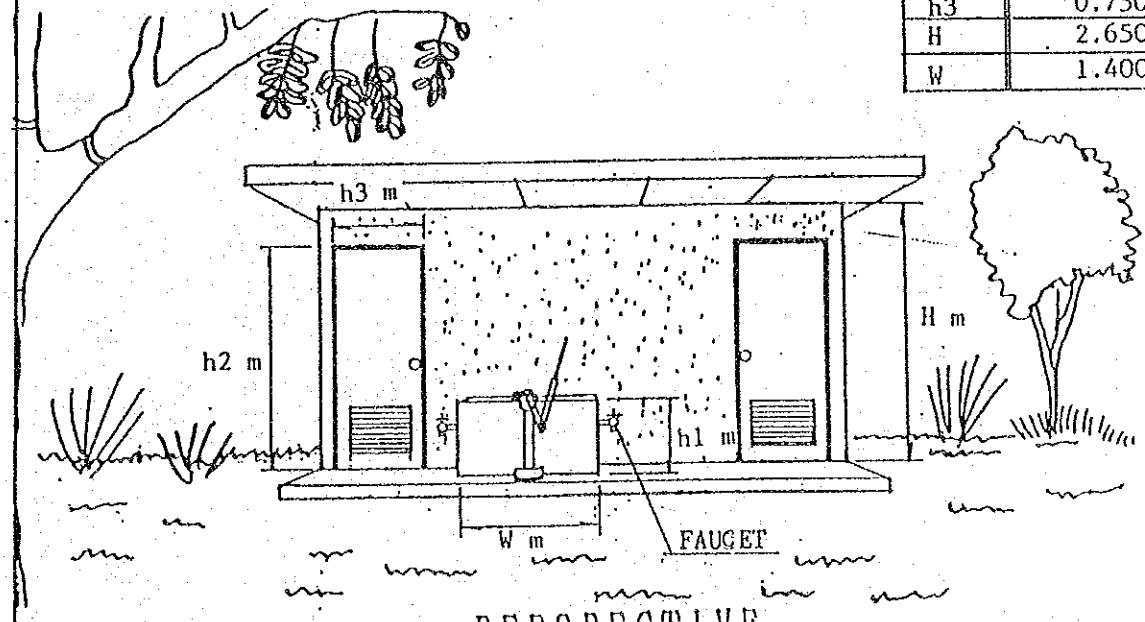
TYPE "C"

FAUCET TAPPED TO G.I. DISTRIBUTION LINE OR G.I. TRANSMISSION LINE

TYPES OF FAUCET

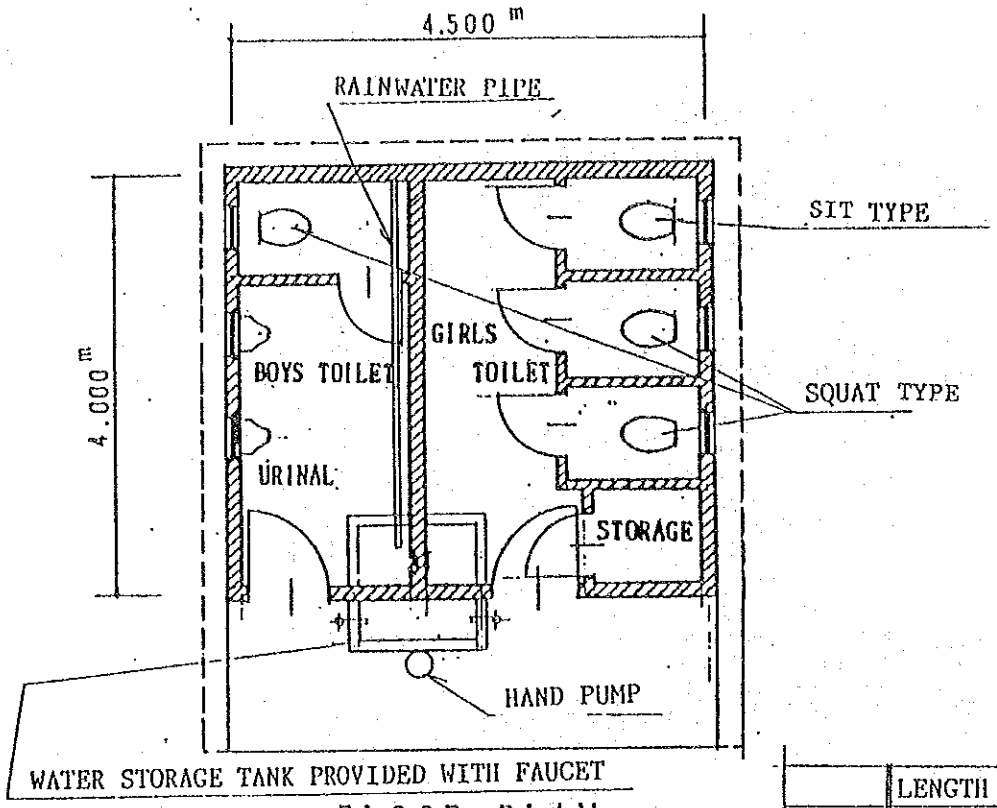


	LENGTH (m)
h1	1.000
h2	1.950
h3	0.750
H	2.650
W	1.400



A. 6－1 トイレ及び水源施設標準図
(タイプA)

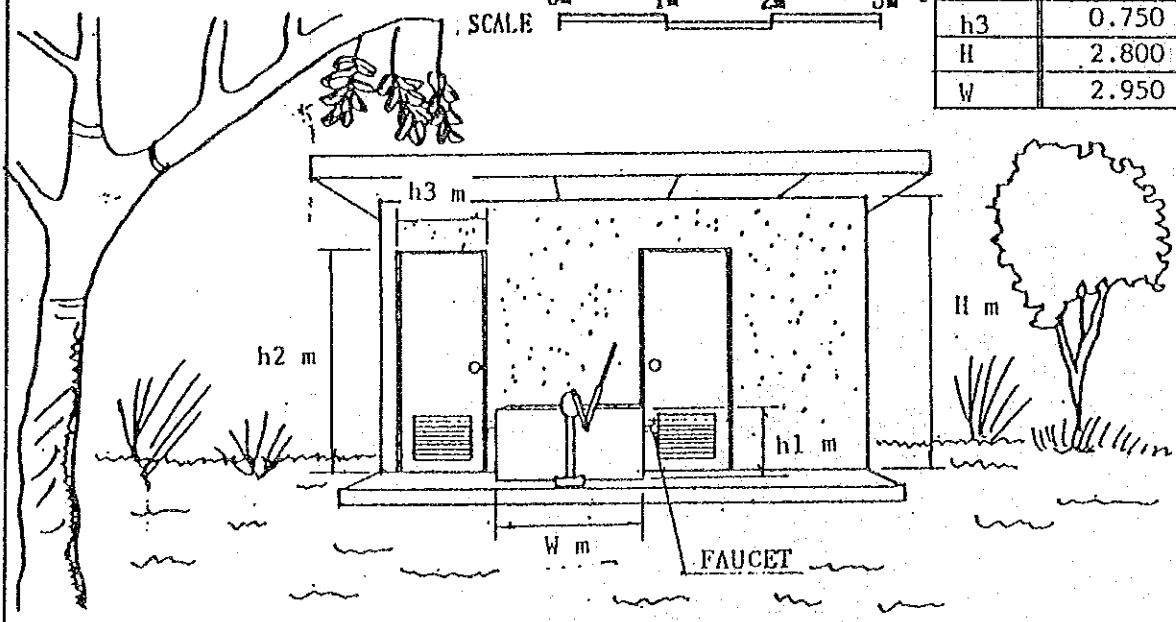
STANDARD DESIGN OF SCHOOL TOILETS
(Type A)



FLOOR PLAN

SCALE 0m 1m 2m 3m

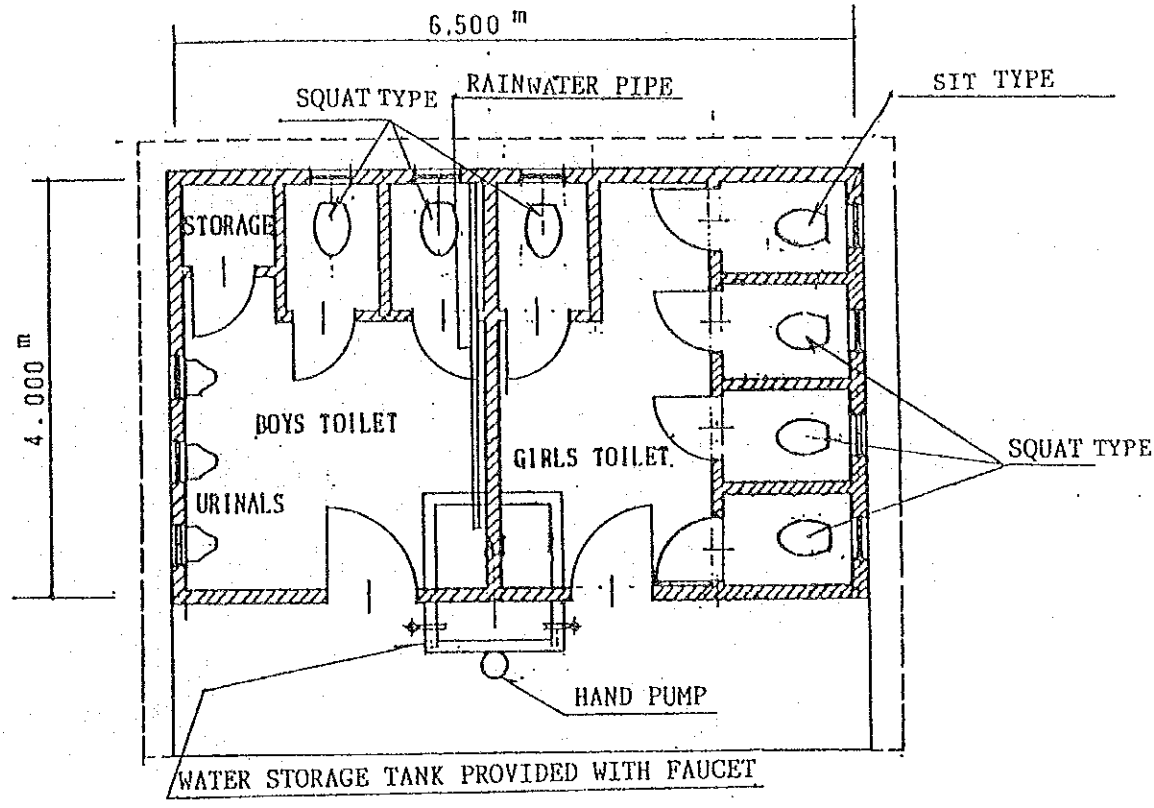
	LENGTH (m)
h1	1.000
h2	1.950
h3	0.750
H	2.800
W	2.950



PERSPECTIVE

A. 6－2 トイレ及び水源施設標準図
(タイプB)

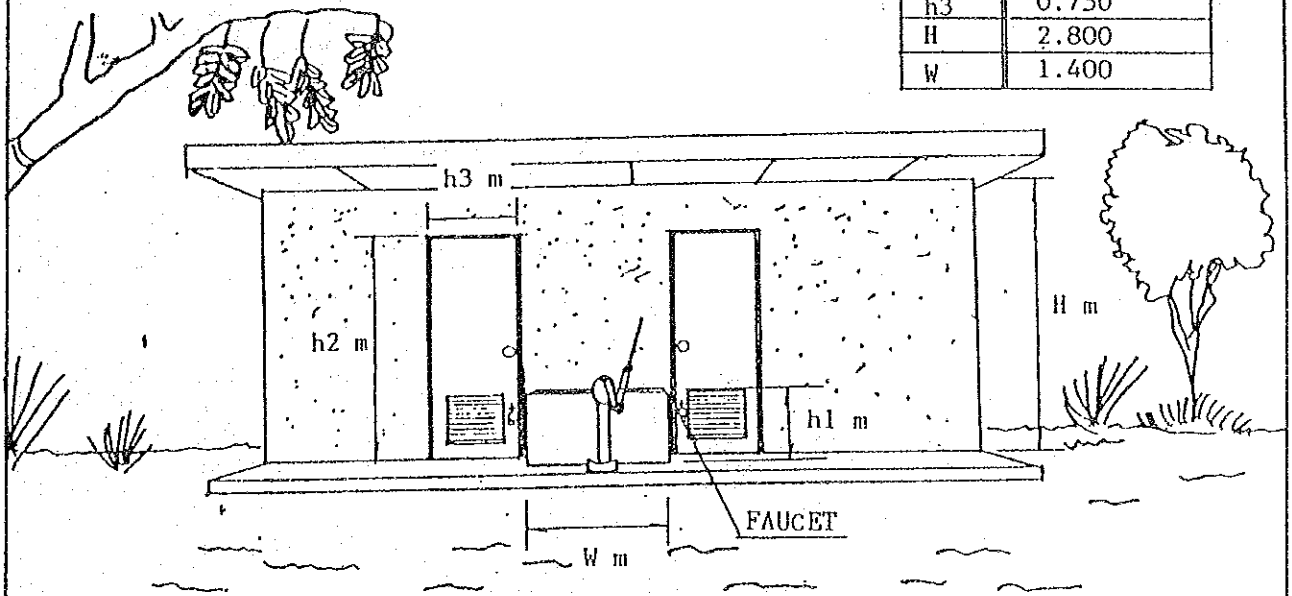
STANDARD DESIGN OF SCHOOL TOILETS
(Type B)



FLOOR PLAN

SCALE. 0m 1m 2m 3m

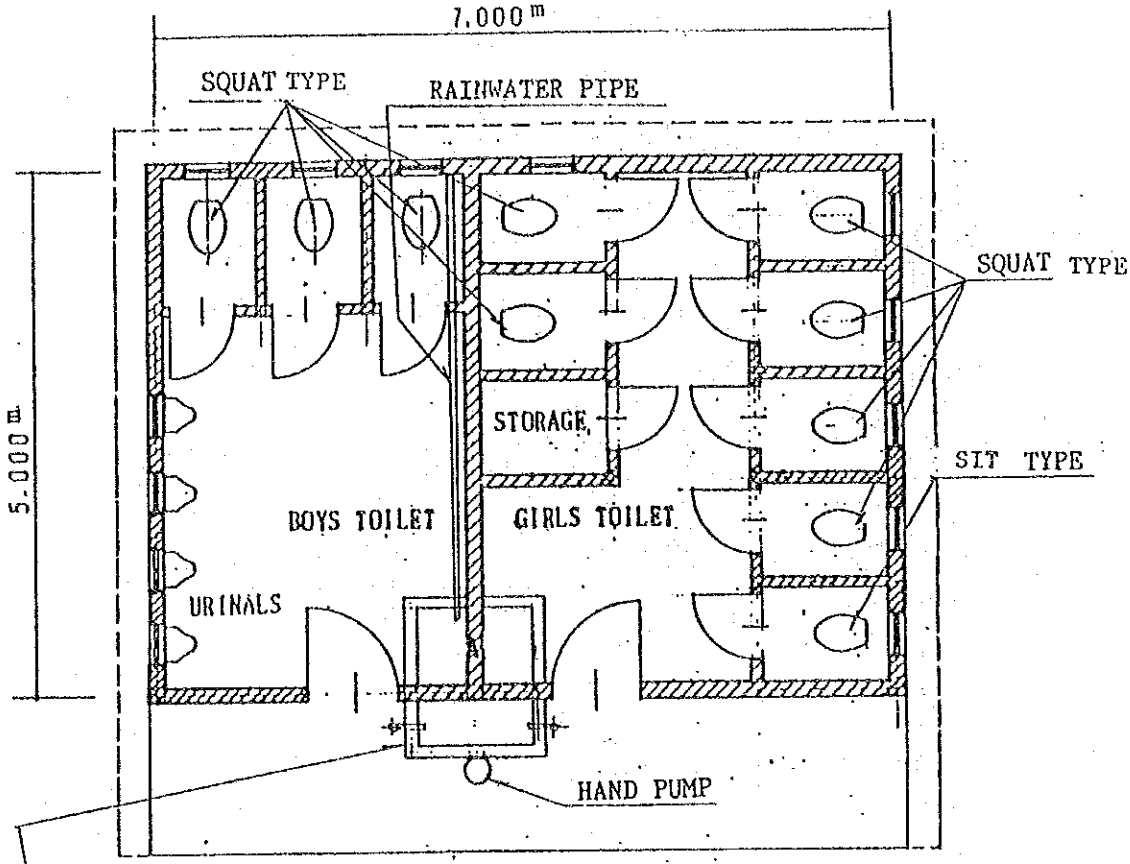
	LENGTH (m)
h1	1.000
h2	1.950
h3	0.750
H	2.800
W	1.400



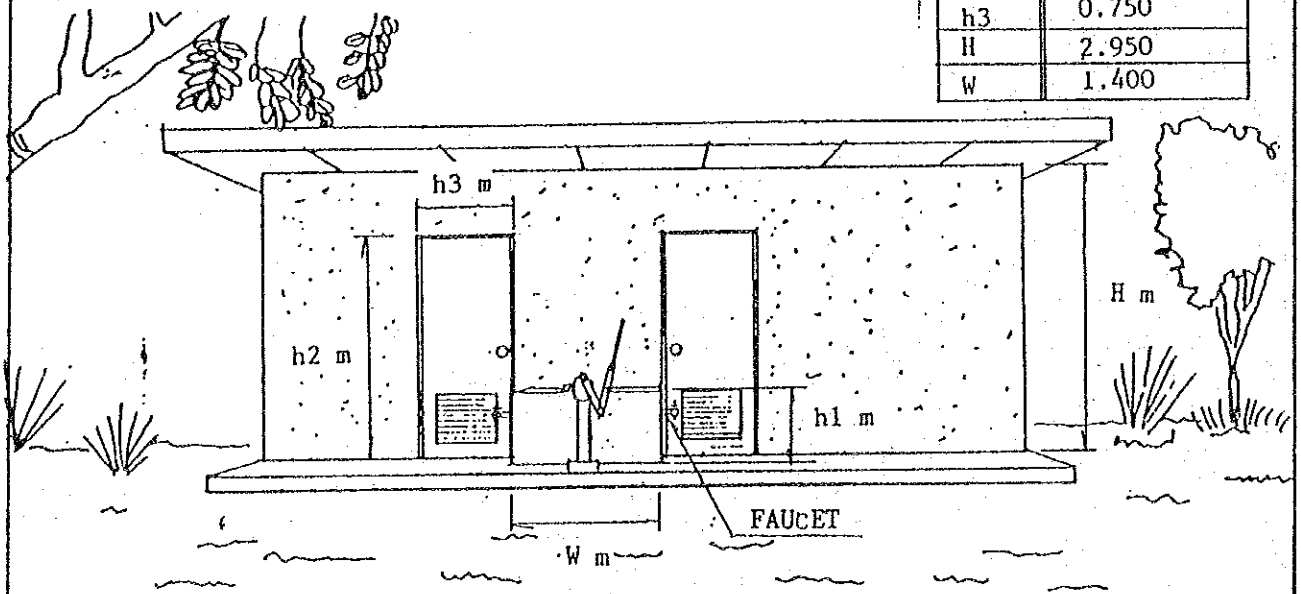
PERSPECTIVE

A. 6 - 3 トイレ及び水源施設標準図 (タイプC)

STANDARD DESIGN OF SCHOOL TOILETS (Type C)



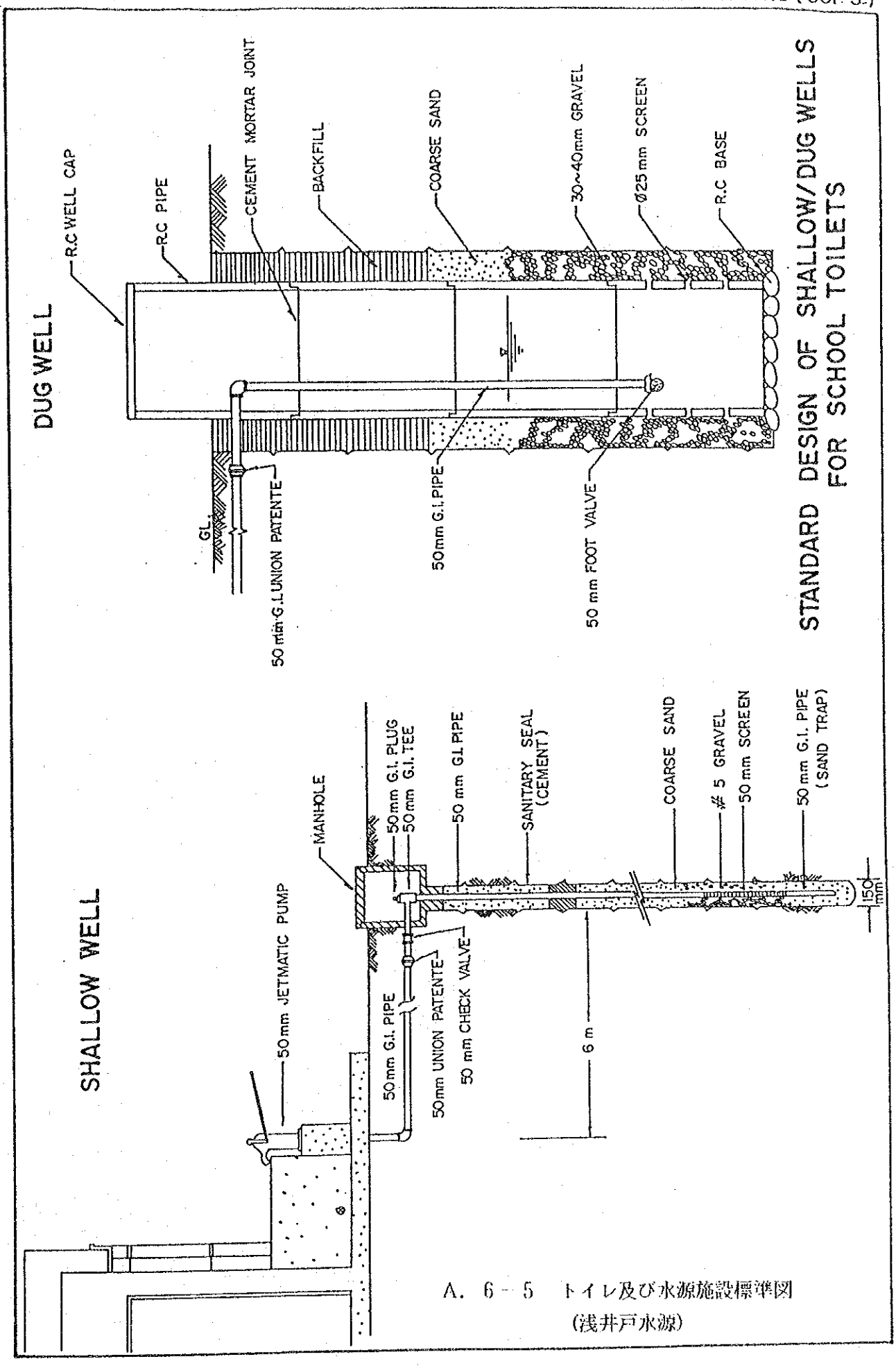
	LENGTH (m)
h1	1.000
h2	1.950
h3	0.750
H	2.950
W	1.400



PERSPECTIVE

A. 6 - 4 トイレ及び水源施設標準図
(タイプD)

STANDARD DESIGN OF SCHOOL TOILETS
(Type D)



A. 6 - 5 トイレ及び水源施設標準図
(浅井戸水源)

DETAILS OF COST ESTIMATES

1. Water works

A. Level I Facilities

Description:

No. of Barangay ---------- 78
No. of Household ---------- 4,144
Population ---------- 24,866

Operation and Maintenance Costs (hand pump facilities)

Item	Calculation	Amount
Depreciation	P 420.00/yr x 78 units	P 32,760.00
Transportation	2 days x P 1,200.00 x .5/yr x 78	93,600.00
Total		P 126,360.00

Cost per household = $\frac{126,360}{4144}$ = 30.49/yr.
= P 2.54/mo.

B. Level II Facilities

Description:

No. Barangay ---------- 15
No. of Household ---------- 2,690

Population ---------- 16,141

Operation and Maintenance (Submersible Pump)/Borehole Type Turbine Pump)

Item	Calculation	Amount
Depreciation	P 65,700 x .05/yr x 15 units	P 49,275
Labor cost	8 person x 2 days x .05/yr x 89 x 15	1,068
Truck	2 days x 1200 x .05/yr x 15	1,800
Machine loss	2 days x 80 x .05/yr x 15	120
Electricity	9 hrs x 2.22/kw x 2.1 x 365 x 15	231,790
Water line repair	1050/km -yr x 3.15 km x 15 units	49,612
Total		P 333,665

Cost per household = $\frac{333,665}{2690}$ = 124.04/yr
= P 10.34/mo.

A. 7 - 1 維持管理費の積算（その１）

2. Toilet Facilities

Description:

No. of school	159
No. of toilet units	217

Operation and Maintenance Cost

Item	Calculation	Amount
Sludge removal (Manual)	2 persons x 2/yr x 89 x 217	P 77,252

3. Monitoring and Training Activities

Description:

No. of Sites	96
No. of Municipality	62

Operation and Maintenance

DOH

Item	Calculation	Amount
Fuel cost	12 x (15 days/mo. x 12 mos. x 10 liters/day x 7.06)	P 152,496
Misc. supply	P 500/mo. x 12 mos.	6,000
	For DOH	P 158,496/yr.

DPWH

Item	Calculation	Amount
Fuel cost	12 x (15 days/mo. x 12 mos. x 10 liters/day x 7.06)	P 152,496
Misc. supply	P 500/mo. x 12 mos.	6,000
	For DPWH	P 158,496/yr.

Note: Excludes salary and fixed allowance
vehicles are provided by the project.

A. 7－2 維持管理費の積算（その2）

B. 1　　調査団員氏名

1．団長		
	五十嵐　寛	札幌市水道局工務部工事課設計一係長
2．コーディネーター		
	今津　武	国際協力事業団無償資金協力計画調査部 基本設計調査第一課　課長
3．水道計画（総括）		
	百瀬　正敏	日本上下水道設計株式会社 海外事業部海外技術部　部長
4．環境衛生施設・水道施設		
	広山　和臣	日本上下水道設計株式会社 海外事業部海外技術部　主任
5．井戸掘削技術		
	堤　光雄	日本上下水道設計株式会社 西部支社福岡事務所　調査役
6．水文・地質		
	望月　誠美	ワコス・ジャパン株式会社 専務取締役　水文部　部長
7．積算		
	渡辺　鉄雄	日本上下水道設計株式会社 水道事業部水道設計部　課長

B. 2－1 議事録（現地調査時点）

M I N U T E S O F D I S C U S S I O N

BASIC DESIGN STUDY ON THE RURAL ENVIRONMENTAL SANITATION PROJECT, PHASE II IN THE REPUBLIC OF THE PHILIPPINES

In response to the request made by the Government of the Republic of the Philippines for the Rural Environmental Sanitation Project, Phase II (hereinafter referred to as "the Project"), the Government of Japan has sent, through the Japan International Cooperation Agency (hereinafter referred to as "JICA"), a team headed by Mr. Hiroshi Igarashi, Chief of First Design Section, Construction and Engineering Department, Sapporo City Waterworks Bureau, to conduct a basic design study from September 20 to November 3, 1989. The team has carried out a field survey, held a series of discussions and exchanged views with the authorities concerned from the Government of the Republic of the Philippines.

As a result of the study and discussions, both parties have agreed to recommend to their respective Governments that the major points of understanding reached between them as indicated in the Attachment, should be examined towards the realization of the Project.

Manila, Philippines, October 2, 1989

For JICA:

HIROSHI IGARASHI
Team Leader
Basic Design Study Team

For the Government of the Philippines:

TEODORO T. ENCARNACION
Undersecretary
DPWH

MANUEL G. ROXAS, M.D., MPH
Undersecretary
DOH

RICARDO T. QUEBRAL
Administrator
LWUA

ATTACHMENT

1. This Project was conceived in line with one of the development thrusts of the Government of the Philippines, which is the uplifting of living standards of the rural people. It is a common knowledge that with sufficient and safe water supply coupled with the much needed sanitary facilities and health education, an improved health standard of the population can be achieved.

2. The proposed sites of the Project are located in the provinces of Ilocos Norte, Ilocos Sur, La Union and Pangasinan of Luzon Island, and Aklan, Capiz, Antique and Iloilo of Panay Island (hereinafter referred to as "the Project Sites").

3. Items requested by the Government of the Philippines for the Project covering eight (8) provinces are listed hereunder. The Japanese Study Team will prepare a Draft Final Report through the Technical Study in Japan based on the findings and discussions with people concerned stemming from the field work in the Philippines.

a. Facilities

Level I Water supply systems - 80
Level II Water supply systems - 16
Toilet facilities for elementary schools - 161

b. Equipment and Service Vehicles

For DPWH

2 units of truck mounted rotary drilling rig
11 units of pick-up truck
11 units of pumping test equipment
11 units of water quality analysis equipment
11 units of water level indicator

For DOH

2 units of vacuum truck
8 units of pick-up truck

The Draft Final Report within the scope of Japanese economic cooperation program in grant form will be presented to the Government of the Philippines.

4. The Government of the Philippines has understood Japan's Grant Aid system as explained by the Team which includes a principle on the use of a Japanese Consultancy Firm and a Japanese General Contractor for the implementation of the Project.

5. The Government of the Philippines will take the following necessary measures on condition that the grant assistance by the Government of Japan is extended to the Project:

a. To secure the right-of-way for pipeline construction, land area for the facilities and prospective water sources.

b. To provide necessary data and information for basic design study.

c. To ensure prompt unloading, tax exemption, customs clearance at ports of disembarkation in the Philippines, and prompt internal transportation therein of the products purchased under the grant.

d. To maintain and use properly and effectively the facilities constructed and equipment purchased under the grant.

e. To undertake incidental civil works including electric supply facilities, if nedeed.

f. To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the Philippines with respect to the supply of the products and services under the verified contracts.

g. To accord any Japanese national whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into the Philippines and stay therein for the performance of their work.

B. 2－2 議事録（ドラフト・ファイナル・レポート現地説明時点）

MINUTES OF DISCUSSIONS

ON

THE DRAFT FINAL REPORT OF THE BASIC DESIGN STUDY

ON

THE RURAL ENVIRONMENTAL SANITATION PROJECT, PHASE II

IN

THE REPUBLIC OF THE PHILIPPINES

In response to the request made by the Government of the Philippines (GOP), the Government of Japan decided to conduct a basic design study on the Rural Environmental Sanitation Project, Phase II (hereinafter referred to as the "Project") and entrusted the study to the Japan International Cooperation Agency (JICA). JICA sent to the Republic of the Philippines a Study Team from September 20 to November 3, 1989.

As a result of the study, JICA prepared a draft report and dispatched a Mission headed by Mr. Hiroshi Igarashi, Chief of First Design Section, Construction and Engineering Department, Sapporo City Waterworks Bureau, to explain and discuss the contents of the report from January 25 to 31, 1990.

The Team had a series of discussions on the Project with the officials concerned of the GOP. After having clarified its contents, both parties agreed to recommend to their respective Governments that the major points of understanding reached between them, as indicated in the attached sheet, should be examined towards the realization of the Project.

Manila, Philippines, January 30, 1990.

For JICA:

HIROSHI IGARASHI
Team Leader
Basic Design Study Team

For GOP:

FLORENCIO F. FADERNAL
Project Director, Project Management
Office for Rural Water Supply
Department of Public Works and Highways

LINA E. MANAPSAL
Director III, Environmental Health Services
Department of Health

VITALIANO J. DE LA VEGA
Deputy Administrator, Engineering Services
Local Water Utilities Administration

ATTACHMENT

1. The Philippine side agreed in principle to the basic design proposed in the Draft Final Report with minor but appropriate alteration to be incorporated in the Final Report. The GOP and the Study Team re-emphasized the importance of considering under the RSSP, Phase II, appropriate lessons learned from the Pilot Rural Environmental Sanitation Project.

2. The Philippine side understood the system of Japanese Grant Aid Program and confirmed the arrangements to be provided by the Philippine side for the realization of the Project as agreed upon in the "Minutes of Discussions" dated October 2, 1989.

3. The Final Report on the Project will be submitted to the GOP.

B. 3 調査スケジュール

Field Work Schedule in the Philippines (45 Days)

Date	Schedule/Activities			
	A.M.		P.M.	
Sep. 20 (Wed)			1:30 4:00	Arrive in MNL (PR 431) Courtesy call to JICA & Embassy of Japan
21 (Thu)	9:00 11:00	Courtesy call to NEDA Courtesy call to LWUA	2:00 3:00	Courtesy call to DOH Joint meeting w/DPWH, LWUA & DOH
22 (Fri)	8:00 to 18:00	Observation trip to Phase I sites in Cavite		
23 (Sat)	6:00	MNL to Ilocos Sur (Field survey in Region I)	2:00 2:30	Courtesy call to Provincial Office (Governor of Ilocos Sur) Site inspection (proposed sites in Ilocos Sur)
24 (Sun)	8:00	Site inspection Meeting w/local officials (Ilocos Sur 1st & 2nd DEOs)	1:00 to 7:00	Ilocos Sur to MNL
25 (Mon)	8:30	Courtesy call to DPWH central office	1:00	Inner-meeting Preparation of field work
26 (Tue)	10:30 11:30	MNL to Roxas City (Capiz) Meeting w/DEO of Capiz	1:30 2:00	Courtesy call to Provincial Office (Governor of CApiz) Site inspection (proposed sites in Capiz)
27 (Wed)	8:00 to 18:00	Inspection (several municipalities in Capiz)		
28 (Thu)		Inner-meeting & data collection	12:05 2:00	Roxas City to MNL Preparation of questionnaire for field work
29 (Fri)	8:00 to 18:00	Preparation of Draft Minutes Preparatory work for field survey Data collection in MNL		
30 (Sat)	8:00 to 17:00	Data collection & preliminary analysis of collected data		
Oct. 1 (Sun)		Inner-meeting Preparatory work for field survey		

Field Work Schedule in the Philippines (45 Days)

Date	Schedule/Activities		
	A.M.		P.M.
Oct. 2 (Mon)	Data collection & preparatory work for field survey	2:00	Exchange of Minutes at DPWH central office
3 (Tue)	Data analysis	1:20	Party A: MNL to Kalibo Party B: MNL to Iloilo
		3:00	Meeting w/respective DEOs (Kalibo & Iloilo)
4 (Wed)	Field work Level I & II systems and School Toilets)		
5 (Thu)	Party A: Aklan Province Party B: Iloilo Province (1st & 2nd DEO areas)		
6 (Fri)	-do-		
7 (Sat)	-do-		
8 (Sun)	Party A: Kalibo to Roxas City		Summarization of collected data
9 (Mon)	Party A: Field work in Capiz Province, meeting w/DEO, DOH and PDO Party B: Iloilo to San Jose (Antique), meeting w/DEO, DOH and PDO		
10 (Tue)	Field work (Level I & II systems and School Toilets)		
11 (Wed)	Party A: Capiz Province Party B: Antique Province		
12 (Thu)	-do-		
13 (Fri)	Supplementary data collection in Capiz and Iloilo, respectively	12:05	Party A: Roxas City to MNL
		3:10	Party B: Iloilo City to MNL
14 (Sat)	Inner-meeting Summarization of collected data		Preparatory work for field survey
15 (Sun)	Preparatory work for field survey		
16 (Mon) 6:00	Party A: MNL to Pangasinan Province Party B: MNL to Ilocos Norte Province		Meeting w/DEO, DOH & PDO in Laoag & Dagupan

Field Work Schedule in the Philippines (45 Days)

Date	Schedule/Activities		
		A.M.	P.M.
Oct. 17 (Tue)		Field work (Level I & II systems and School Toilets) Party A: Pangasinan Province (1st and 2nd DEO areas) Party B: Ilocos Norte Province	
18 (Wed)		-do-	
19 (Thu)		-do-	
20 (Fri)		Party A: Dagupan to San Fernando Party B: Laoag to Vigan	Meeting w/DEO, DOH & PDO in San Fernando & Vigan
21 (Sat)		Field work (Level I & II systems and School Toilets)	
22 (Sun)		Party A: La Union Party B: Ilocos Sur (1st & 2nd DEO areas)	
23 (Mon)		-do-	
24 (Tue)		Supplementary data collection in La Union & Ilocos Sur	Party A: San Fernando to MNL Party B: Vigan to MNL
25 (Wed)		Inner-meeting Summarization of data (questionnaire)	
26 (Thu)		Supplementary data collection in MNL Summarization of data and analysis	
27 (Fri)		-do-	
28 (Sat)		-do-	
29 (Sun)		-do-	
30 (Mon)		-do-	
31 (Tue)		-do-	
Nov. 1 (Wed)		-do-	
2 (Thu)	8:30	Courtesy call to JICA MNL and Embassy of Japan	Final meeting w/PMO-DPWH Finalization of field activities
3 (Fri)	7:05	MNL to TYO (NW 004)	

LOCAL AGENCIES AND OFFICIALS MET WITH

Central/Local Office	Agency	Name	Position
Central Office	DPWH	Teodoro T. Encarnacion	Undersecretary
		Edmundo V. Mir	Undersecretary
		Dr. Florencio Padernal	Proj. Manager V
		Danilo J. Castillon	Proj. Manager III
		Alexander C. Arnovit	Adm. & Finance
		Emil Sadain	Sr. C. E.
		Janet Agustia	Sr. C. E.
	NEDA	Mr. Jesus Sunga	Director of Infrastructure
	DOH	Manuel Roxas M.D.	Undersecretary
		Dr. Lina E. Manapsal	Chief, Env. Health Service
		Mr. Delfin A. Gonzales	Head,Sanitary Engr./Env.Health Service
	LWUA	Ricardo T. Quebral	Administrator
		Alfredo B. Espino	Manager, PHO
Panay (Region VI) Aklan	DPWH/DEO	Engr. Modesto D. Intoy	District Engineer
		Engr. Ernelo M. Macahilig	Supv'g. CE II
		Engr. Criselda R. Roldan	
	DOH/PHO	Dr. Pedro T. Gaton	Asst. PHO,/PHO
		Engr. Lucio A. Santa Maria	Sanitary Engineer
	LOCAL GOV.	Ms. Corazon L. Cabagnot	Governor of Aklan
		Engr. Lorna M. Tabuena	Proj. Development Officer
		Mr. Percival J. Sevilla	Asst. Statistician
		Mr. Geraldo Cordova	Vice Mayor
		Mr. Fabio M. Mayor	Byg. Gov't Official
		MS. Joselyn Panatian	Acctg. Adm. Officer
		Mr. Ramon Legaspi, Jr.	Mayor, Makato, Aklan
		Atty. Sergio Rigodon	Mayor, Banga, Aklan
		Dr. Edilberto L. Venus, M.D.	Mayor, New Washington, Aklan
Capiz	DPWH/ DEO	Engr. Leovigildo Goco	District Engineer
		Engr. T. Vista	Supervising CE I
		Engr. Linda Cullo	C.E. (Representative)
	DOH/PHO	Dr. Milagros Balgos	PHO
		Engr. Victor Acepcion	Field San. Engr. (Rep.)
	LOCAL GOV.	Gov. Jose E. Borda	Provincial Governor
		Porfirio P. Perez	Pilar Municipal Mayor
		Gaudencio Reges	Sigma Municipal Mayor
Iloilo, District 1	DPWH/ DEO	Alberto G. Castaneda	Regional Director
		Henry S. Lasaleta	Sr. Mech. Engineer
		Emilio H. Lozada	Dist. Well Drilling Supvs. Iloilo 1st
		Romeo M. Espinoza	Gen. Const. Foreman, Iloilo 1st
		Filomena Y. Tupaz	District Engineer, Iloilo 1st
		Vicente M. Tingson	Supervising C.E. III
		Salvador Alegario	Dist. Supervisor, Dist. of Maasin
		Rene M. Mondejar	Mayor, Maasin, Iloilo

Iloilo, District 2	DPWH/ DEO	Roberto D. Doromal Alfredo S. Abutal	District Engineer Dist. Well Drilling Supvs. Iloilo 2nd
	DOH/PHO	Carlos Ilado	Engineer
	LOCAL GOV.	Emmanuel M. Mondejar Barbara D. Deorango Venturo L. Caplana, Jr. Primitivo A. Hervas	Mayor, Maasin, Iloilo Barangay Captain, Lublub Municipal Mayor, Duenas, Iloilo Mun. Planning & Dev't Coordinator
Antique	DPWH	Rufino V. Osunero Feliciano M. Pines Melchor I. Lariza Gregorio M. Valdellon, Jr.	District Engineer Sr. Civil Engineer Civil Engineering Aide Dist. Well Drilling Supervisor
	DOH/PHO	Dr. Justo M. Rios, Jr. Mr. Tomay S. Petinglay Miss Teresita D. Mangilayo	Asst. PHO - Officer-In-Charge RSI-IPHO SSI-IPHO
	LOCAL GOV.	Virgilio T. Rendon	Mayor, Anini-Y Municipality
Luzon (Region I) Ilocos Norte	DPWH	Rafael Fernandez	District Engineer
	DOH/PHO	Dr. Venancio Pastor	Asst. PHO
	LOCAL GOV.	Joseph B. Arzadon Rodolfo L. Garaos	Mayor, Nueva Era Mayor, Burgos
Ilocos Sur (Dist. 1)	DPWH	Eulogio Javier Lolito M. Cabansag	District Engineer Supv. C.E. II
	DOH/PHO		
	LOCAL GOV.	Romulo T. Sanidad	Acting Mayor., Sto. Domingo

Ilocos Sur (Dist. 2)	DPWH	Rogelio Fernando	District Engineer
		Maurito A. Bautista	Supv.C.E. I
	DOH/PHO		
	LOCAL GOV.	Atty. Eduardo Ma. Guivnalda	Mayor, Candon
		Edgardo C. Zaragoza	Mayor, Narvacan
		Alexander G. Bistoyelt	Mayor, Suyo
La Union	DPWH	Honesto Ubiano	District Engineer
		Engr. Pablo Salanga	Supvg. C.E. II
		Engr. Alfredo Doctolero	Supvg. C.E. II (DEO Representative)
	DOH/PHO	Engr. Rolando M. Lecitona	San. Engr., IPHO, La Union
		Engr. Conrado Ordono	Sr. San. Engr., RHO, La Union
	LOCAL GOV.	Hon. Joaquin Ortega	Governor, La Union
		Hon. Adolfo Estonactoc	Mayor, Sto. Tomas, La Union
		Hon. Atty. Napoleon Boado	Mayor, San Juan
		Hon. Corpuz	Mayor, Aringan
		Hon. George Pinzon	Mayor, Bangar
		Hon. Jose Nadusi	Mayor, Sudipen
		Mr. Rodrigo A. Tavora	PPDS - La Union
		Hon. Rufino Fontanilla	Mayor, Bacnotan
Pangasinan (Dist. 1)	DPWH	Gil Velencerina	District Engineer
		Manuel S. Rosario, Jr.	Ass. District Engineer
		Mienrado V. Inacay	Civil Engineer
	DOH/PHO		
	LOCAL GOV.		
Pangasinan (Dist. 2)	DPWH	Orlando M. Banaag	District Engineer
		Jaime E. De Guzman	Supervising C.E. II
		Fernand Gonzales	Asst. Chief Planning Supv. C.E. I
		Renato Idos	C.E., Const. Section
		Bienvenido M. Martin	Civil Engineer
	DOH/PHO	Dr. Ciriaco An. Carros	Provincial Health Officer, IPHO
		Engr. Danilo S. dela Cruz	Sanitary Engr., IPHO
	LOCAL GOV.	Atty. Alicia A. Mejia	Provincial Plan. Dev't Coordinator
		Mr. Fidel Bautista	Training Officer of Barangay Waterwork Program
		Mayor Benigno M. Gubatan	Municipal Mayor, Mangaldan, Pangasinan
		Mr. Teodoro M. Cabanayan	Supvg. Well & Srping Dev't, PEO
		Mr. Conrado S. Malicdem	Asst. Well & Srping Dev't, PEO
		Mr. Arnii O. Nieto	SPDA, PDS
		Mr. Ruben Aquino	DPA, PDS

B. 5 収集資料一覧表

DATA LIST

1. Geology and Mineral Resources of the Philippines, Vol. 1, Vol. 2, Bureau of Mines and Geo-Sciences (BMGS)
2. Rapid Assessment of Water Supply Sources (All Subject Provinces), National Water Resources Council (NWRC)
3. Groundwater Evaluation, NWRC
4. Geological Map, 1:50,000, BMGS
5. Groundwater Availability Map, 1:250,000 NWRC
6. Well Location Map, 1:250,000 NWRC
7. Potential Area for Groundwater Development, 1:250,000, NWRC
8. Geologic Map, 1:250,000, NWRC
9. Water Level Contour Map, 1:250,000 NWRC
10. Iso-Resistivity Map, 20m Depth, NWRC
11. Iso-Resistivity Map, 60m Depth, NWRC
12. Iso-Resistivity Map, 100m Depth, NWRC
13. Geo-Electric Cross-Section, NWRC
14. Topographic Map, Bureau of Coast and Geodetic Survey (BCGS)
15. Socio-Economic Profile, Ilocos Norte, 1988
16. Socio-Economic Profile, Ilocos Sur, 1988
17. Socio-Economic Profile, La Union, 1988
18. Socio-Economic Profile, Pangasinan, 1988
19. Socio-Economic Profile, Aklan, 1988
20. Socio-Economic Profile, Capiz, 1988
21. Socio-Economic Profile, Iloilo, 1988
22. Socio-Economic Profile, Antique, 1987
23. Briefing-Workshop on the Rural Water Supply Institutional Development Program, Technical Report, September 1989

24. R.A. 6716 Implementing Guidelines (Accelerated Water Supply Program), April 1989

25. Inception Report of Basic Design Study on Rural Environmental Sanitation Project, JICA, 1989

26. Basic Design Study on Pilot Rural Environmental Sanitation Project, October 1984.

27. Proposed 1989 DPWH Infrastructure Program, April 1989

28. Water Supply, Sewerage and Sanitation Master Plan of the Philippines, 1988-2000

29. Rural Environmental Sanitation Project Phase II, DPWH/DOH, July 1989

30. Publication of the Associated Construction Equipment Lessors, Inc., 1987

31. Consumer Price Index Data, NEDA-NSO

32. Well Logs, NWRB and NIA

33. JICA Study Team Field Survey Report, November 1989

34. Levels I & II Operation and Maintenance Manual, PMO-RWS/ DPWH, May 1989

Department of Health
OFFICE OF THE SECRETARY

Department of Public Works and Highways
OFFICE OF THE SECRETARY

APPENDIX B .6 (1OF1)

JOINT DEPARTMENT ORDER CREATING
THE PROJECT COORDINATING COMMITTEE

18 September 1989

JOINT DEPARTMENT ORDER)
NO. ________________)
Series of 1989)

SUBJECT: CREATION OF RURAL ENVIRONMENTAL SANITATION PROJECT COORDINATING COMMITTEE FOR THE IMPLEMENTATION OF THE RURAL ENVIRONMENTAL SANITATION PROJECT, PHASE II

x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x

To ensure effective and efficient implementation of the Rural Environmental Sanitation Project, Phase II (RESP II) financed under the grant-aid program of Japan International Cooperation Agency (JICA), a Rural Environmental Sanitation Project Coordinating Committee is hereby created:

The Committee shall be responsible for the following:

a) Have over-all coordination with the JICA's representatives and consultants towards the implementation of the projects.

b) Formulate and exercise over-all direction in the planning and execution of the projects and the transfer of responsibilities to the beneficiaries upon completion of the same.

c) Perform other related activities as may be needed.

The Committee shall have the following composition:

DPWH Undersecretary	-	Chairman
DOH Undersecretary	-	Co-chairman
LWUA Deputy Administrator	-	Member
PMO-RWS, Project Director	-	Member
DOH Representative	-	Member
DLG Representative (By invitation)	-	Member

ALFREDO R.A. BENGZON
Secretary

FIORELLO R. ESTUAR
Secretary