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REPORT ON BASIC DESIGN

THE INSTITUTE FOR TROPICAL MEDICINE
IN
THE REPUBLIC OF THE PHILIPPINES

APRIL, 1979

JAPAN INTERNATIONAL COOPERATION AGENCY

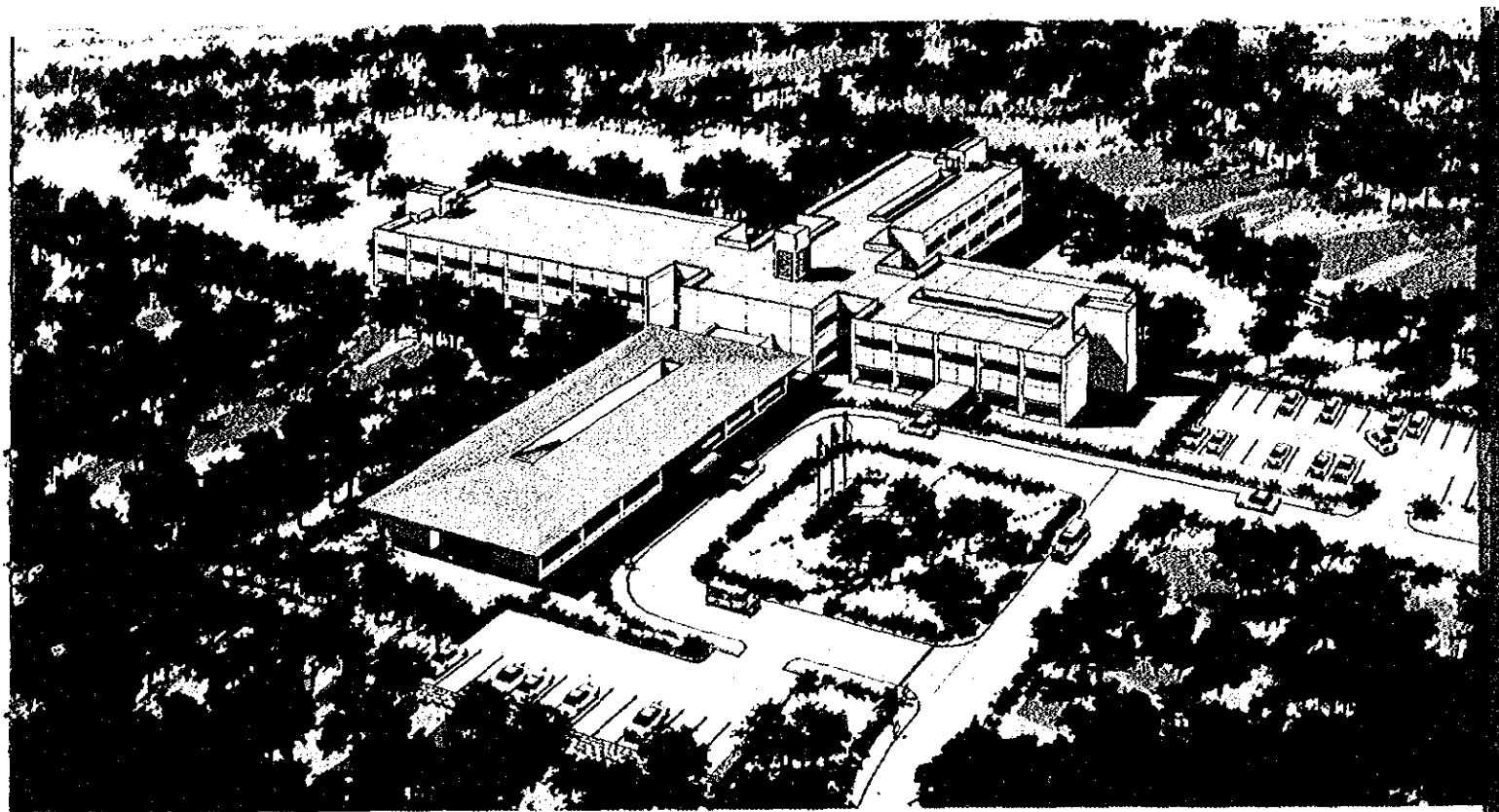
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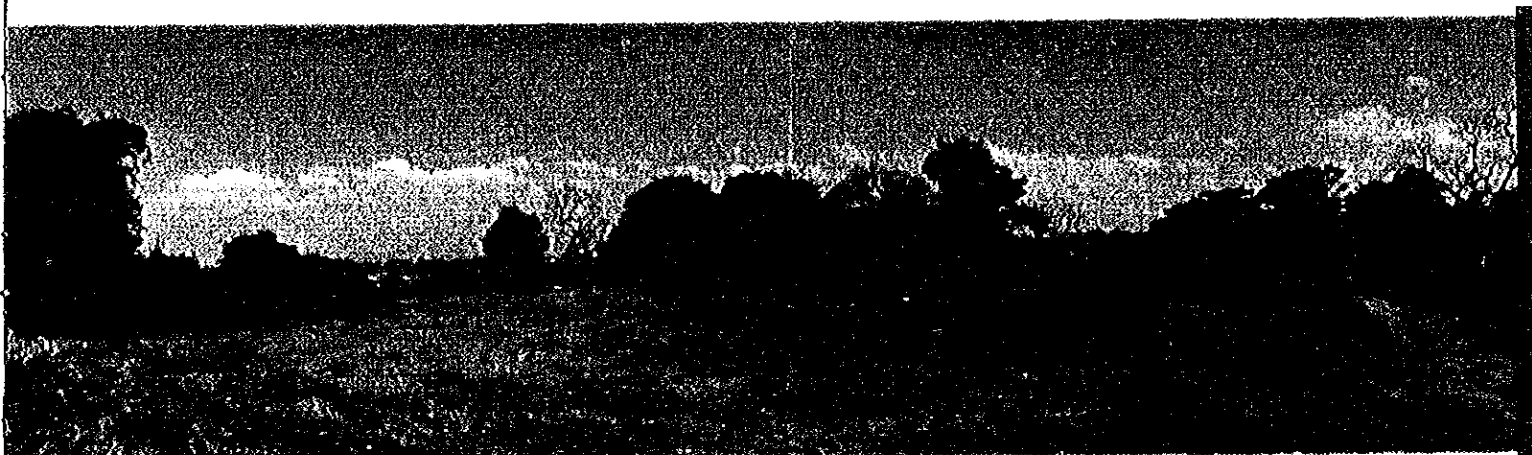
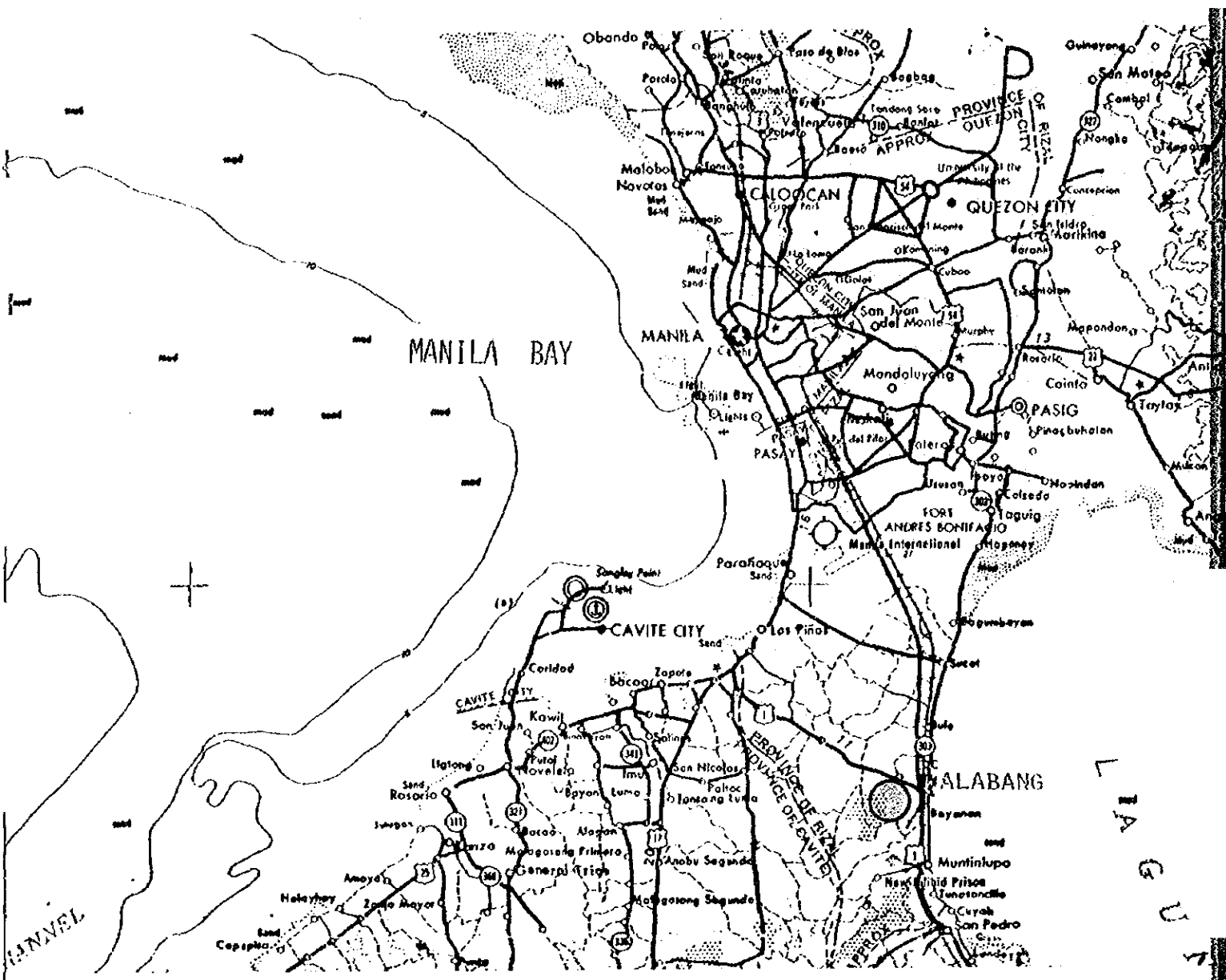
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THE INSTITUTE FOR TROPICAL MEDICINE

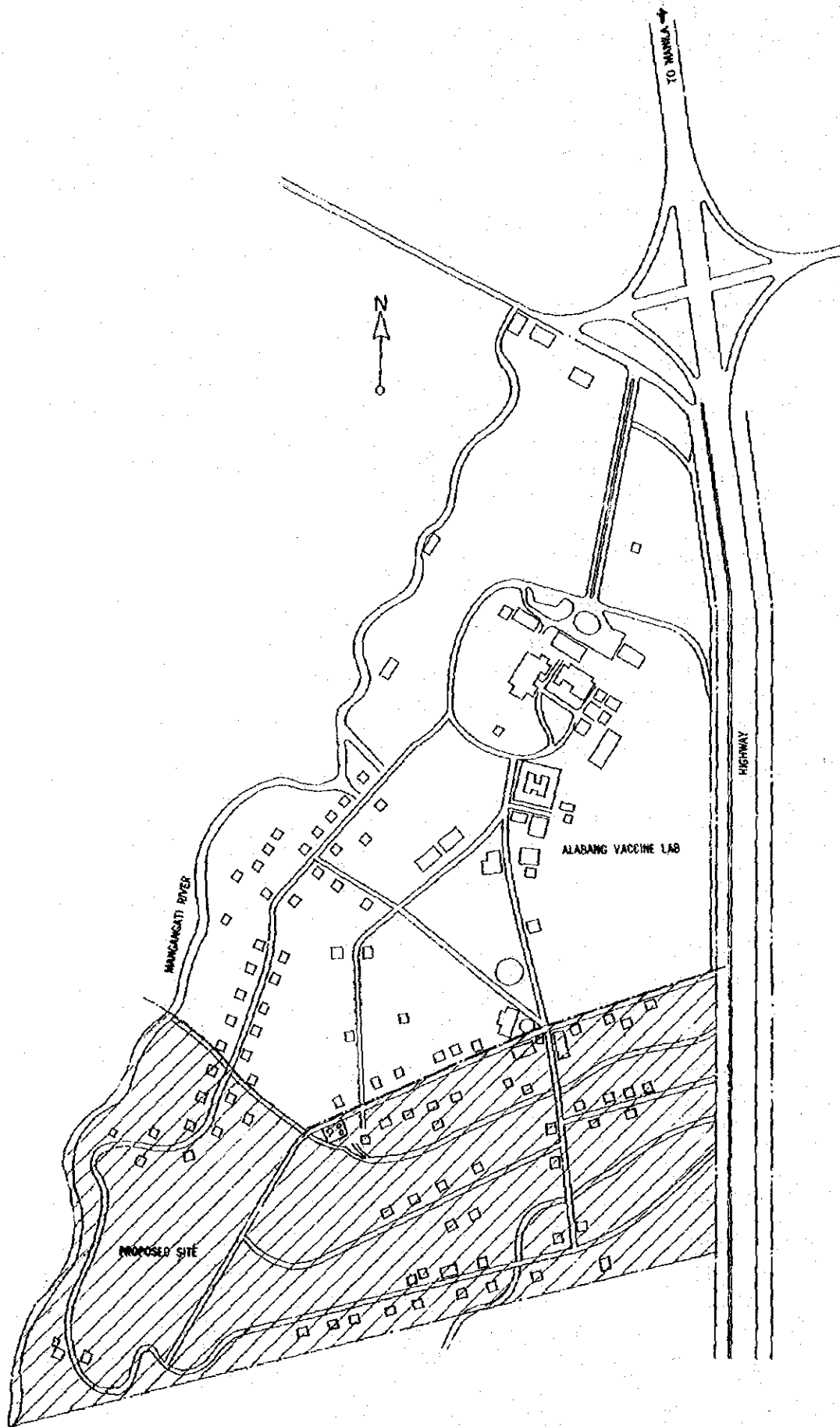
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THE INSTITUTE FOR TROPICAL MEDICINE



PROPOSED SITE



PREFACE

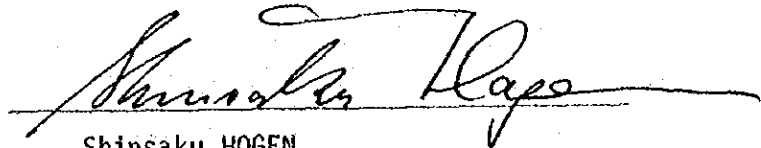
In response to the request of the Government of the Republic of the Philippines, the Government of Japan decided to cooperate in establishing the Institute for Tropical Medicine, and the Japan International Cooperation Agency (JICA) conducted a study of basic design of the Institute.

JICA, recognizing that the Institute contributes to the Improvement of the people's health and welfare and strenghtens the foundations for social and economic development in the Philippines, dispatched a survey team of seven members to the Republic of the Philippines for eighteen days from January 24th to February 10th, 1979 under the leadership of Dr. Y. Kaneko, Professor of Public Health at Toho University to hold discussions with the Philippine Government Officials concerned and to collect the data and informations necessary for the basic design. The mission now completed its final survey report based on the result of this survey for submission to the Government of the Philippines.

I sincerely hope that this report would prove to be useful for the progress of this project and contribute to the friendship and goodwill between the Republic of the Philippines and Japan.

I would like to express my heartfelt appreciation to the Philippine Authorities concerned for their cooperation and hospitality extended to our survey team.

April, 1979

A handwritten signature in dark ink, appearing to read 'Shinsaku Hogen', is written over a horizontal line.

Shinsaku HOGEN

President

Japan International Cooperation Agency

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CHAPTER 1: FIELD SURVEY

1-1 OBJECTIVES

At the request of the Government of the Republic of the Philippines, the Japan International Cooperation Agency (JICA) dispatched a mission to the Republic of the Philippines for eighteen days from January 24th to February 10th, 1979 to carry out the basic design of the Institute for Tropical Medicine in the Republic of the Philippines. The objectives of the mission were to hold discussions with the Philippine Government Officials concerned, regarding the implementation of this project, and to collect the data and information necessary for the basic design of the facilities, (including the equipment for training), to be constructed in Alabang, the Municipality of Muntinlupa, Province of Rizal.

Nikken Sekkei was commissioned as a consultant by JICA and joined the mission to conduct this basic design of the facilities.

1-2 BACKGROUND

Japan's cooperation in the national health program in the Philippines will contribute to the improvement of the people's health and welfare, resulting in the strengthening of the foundations for social and economic development in the Philippines. The efforts, matching Japan's policy to promote programs overseas to improve people's "BASIC HUMAN NEEDS", will help to further the friendly relations between the two nations. In particular the Government of Japan considers that it is important to contribute to the systematic development of research work for Tropical Medicine. Accordingly a Preliminary Survey Team led by Professor Kaneko M.D., M.P.H. was dispatched to the Philippines in November, 1978 to establish the position of such research work in the technical and economic cooperation program.

The preliminary survey team requested by the Government of the Philippines was dispatched for 10 days from November 28th, 1978. The team began preliminary discussions with their Philippine counterparts on the name of the Institute, the objectives of the future activities and the form of organization of the Institute. As a result of the discussions, it was confirmed as follows: the Institute will be under the control and supervision of the Ministry of Health and directly under the office of the Minister. Maintenance and operation will be the responsibility of the Government of the Philippines. The survey team was asked for Grant-in-Aid and technical cooperation for the establishment of the Institute for Tropical Medicine.

Following the report made by the preliminary survey team for the construction program of the Institute for Tropical Medicine, the Government of Japan dispatched a basic design survey team led by Professor Kaneko to investigate in more detail the possibilities for setting up a cooperation program.

1-3 BASIC DESIGN SURVEY

1. Meeting with Government Officials

After arrival at Manila the mission first paid a courtesy call at the Japanese Embassy in the Republic of the Philippines. Later they visited Cesar V. Uylangco M.D., M.P.H., M.H.A., vice-chairman of the working committee for this project (Chief of San Lazaro Hospital) and Dr. Jose Plantilla M.D., one of the members of the committee (Deputy Director of Bureau of Research & Laboratories) and gave them a detailed explanation of the objectives of the survey, Japanese regulations concerning Grant-in-Aid, future plans and the system of the Japanese fiscal year and obtained the full understanding of all the officials concerned.

2. Investigations of Site

Accompanied by the Philippine counterparts of the working committee, the survey team inspected the proposed site to carry out a site survey and paid visits to the various local Authority offices concerned during which the following points were investigated.

a. Location

- i. Coordination with city planning
- ii. Relationship of site location to urban area
- iii. Access from highways
- iv. Existence of any obstructions

b. Site Formation and Environment

- i. Size of site in terms of the capacity of the facilities
- ii. Possible locations of facilities within the site

- iii. Difference in grades and gradients on site
 - iv. Scenery, sunshine and prevailing winds
 - v. Noise and air pollution
- c. Status of Water Supply and Soil Treatment Facilities
- i. Waterworks (service lines and well water)
 - ii. Sewage and drainage
 - iii. Rainwater drainage (effect on rainwater disposal by the construction of facilities)
 - iv. Supply of electricity (service lines and special internal power generation)
 - v. Telephone lines
 - vi. Supply of city gas
- d. Soil Conditions
- i. Soil and geological conditions
 - ii. Permeability
 - iii. Erosion control and the possibility of land-slides
 - iv. Necessity for, and problems with, site preparation
 - * Earth volume balance
 - * Borrow pit
 - * Suitability for construction
- e. Rights and Restraints
- i. Properties to be purchased
 - ii. Properties requiring compensation
 - iii. How many, and what, restraints against development or building construction

f. Estimation of Required Infrastructural Scale

- i. Site preparation, including drains on site
- ii. Utility services (electricity, water, sewage and telephones)
- iii. Construction of access roads

3. Result of the Site Investigations

After the site investigations, both parties confirmed the suitability of location for the construction of the Institute for Tropical Medicine. The site is located about 30km southeast of the old center of Manila City and is in the Municipality of Muntinlupa of Rizal, and the proposed location of the facilities will be about 500 m away from the highway. Of the 70 ha Alabang Compound, belonging to the Government of the Philippines, about 20 ha is proposed for the construction of the Institute.

In addition to these investigations, the team carried out research into construction materials, the prices, availability, standards, laws and codes on the design and construction of buildings in the Republic of the Philippines.

1-4 EXCHANGE OF THE MINUTES

At the completion of the site investigations, the findings and the discussions held were summarized in the Minutes. In the Minutes signed by Dr. Cesar V. Uylangco on behalf of Dr. Antonio N. Acosta (M.D., Chairman of the working committee, Assistant Minister of Health) and by Prof. Yoshinori Kaneko (Leader of the Japanese Survey Team), the following were agreed: the name of the Institute, the Buildings and facilities to be provided by the Government of the Philippines. The full text of the Minutes is shown on the following pages.



MINUTES OF THE MEETING
ON
THE CONSTRUCTION PROJECT OF THE INSTITUTE FOR TROPICAL
MEDICINE IN ALABANG, THE REPUBLIC OF THE PHILIPPINES

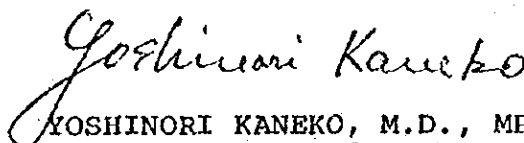
At the request of the Government of the Republic of the Philippines for assistance in establishing the INSTITUTE FOR TROPICAL MEDICINE at Alabang (hereinafter referred to as the INSTITUTE), the Government of Japan, through Japan International Cooperation Agency (JICA), has sent a survey team headed by Prof. Kaneko, M.D., Professor of Public Health at Toho University School of Medicine, to conduct the Basic Design survey on the program from January 24 to February 10, 1979.


The team held a series of discussions and exchanged views with the Philippine Authorities concerned on the establishment of the INSTITUTE.

As a result of the survey and discussions, both parties have agreed to recommend to their respective Governments to take the necessary measures toward establishing THE INSTITUTE, as stated in the Minutes of the discussions attached herewith.

February 7, 1979

Manila, Republic of the
Philippines


YOSHINORI KANEKO, M.D., MPH
Team Leader
The Japan Survey Team


CESAR V. UYLANGCO, M.D., MPH, MHA
Vice-Chairman
Committee on Research Institute
of Tropical Diseases Project

MINUTES

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1. The name of the institute is THE INSTITUTE FOR TROPICAL MEDICINE.
2. THE INSTITUTE will be established on a site in the Alabang Compound, in the Municipality of Muntinlupa of Rizal, Republic of the Philippines.
3. The objective of the construction project is to provide the necessary buildings and facilities for THE INSTITUTE, which will have the following functions:
 - a) To study tropical diseases endemic in the Philippines and Southeast Asia, and to develop methods of control.
 - b) Training and teaching of technical and research personnel.
 - c) To provide medical services to meet the above research objectives.
4. THE INSTITUTE will be composed of three departments and be staffed as shown in Annex I.
5. The Government of Japan will take necessary measures to provide the buildings and equipment for THE INSTITUTE, as listed in Annex II.
6. The Government of the Republic of the Philippines will take necessary measures as follows:
 - a) To secure land suitable for THE INSTITUTE.
 - b) To clear and level the site before the start of the construction of THE INSTITUTE.
 - c) To construct and/or improve access roads to the site before the start of the construction of THE INSTITUTE.
 - d) To provide data and information necessary for the construction of THE INSTITUTE, including soil survey, soil test and other geological survey reports.
 - e) To provide such items necessary for THE INSTITUTE, as listed in Annex III.

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ANNEX I: Departments and Staffing of THE INSTITUTE

Department	S t a f f i n g		Remarks
1. Research and Training Department		(Number of Personnel)	
	Researchers and Staff	30 (Approx.)	Number of Trainees at Research and Training Department is estimated as 25 personnel.
o Microbiology Section			
o Epidemiology Section			
o Pathology Section			
o Biochemistry Section			
o Parasitology Section			
2. Clinical Department	Doctors, Nurses and Para-medical Staff	50 (Approx.)	Number of beds is estimated as 50.
3. Administrative Dept.	Administrative Offices and Staff		

ANNEX II: Buildings and Equipments for THE INSTITUTE
to be Provided by the Government of Japan

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A. Buildings

1. Research and Training Department

- a. Research Laboratories
- b. Pathology-Anatomy Room
- c. Lecture Room and Demonstration Laboratory
(Training)
- d. Animal Experiment Laboratories

2. Clinical Department

- a. Out-patient
- b. Ward (approximately 50 beds)
- c. Doctor's Room and Nurse Station
- d. Operating Room

3. Administrative Department

- a. Director's Office
- b. Vice-Director's Office
- c. Administrative Office
- d. Board Conference Room
- e. Dining and Kitchen
- f. Others

B. Equipments

Equipments for Research, Training and Medical Services.

ANNEX III: Items whose Cost should be Borne
by the Government of the
Republic of the Philippines

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1. Site reclamation.
2. Water supply from main pipe to receiving tank.
3. Electrical power supply to transformer sub-station.
4. Telephone trunk line to main distributing panel.
5. Drainage, sewage and septic tank.
6. Landscaping, gateway, fence, exterior lighting and pavements.
7. Furniture, rugs and drapes.
8. Expenses necessary for the transportation of the equipment and other materials imported for THE INSTITUTE from the port of entry to the site.
9. Building license fees.
10. Building license permission and other legal requirements.
11. Exemptions of customs duties and taxes of:
 - o Japanese nationals involved in the project;
 - o Construction materials, machines, equipments, vehicles, etc.
12. Provide all necessary expenses for the operation of THE INSTITUTE.

1-5 EXPLANATION OF THE BASIC DESIGN

1. Objectives

On the basis of the survey results described in Section 1-3, a basic design was worked out in Japan and compiled in a report titled " Report on Basic Design (DRAFT) - The Institute for Tropical Medicine in the Republic of the Philippines".

The Japan International Cooperation Agency dispatched a survey mission to the Philippines for ten days from March 12, 1979 to submit and explain the Draft Report and to conduct further investigation necessary for finalizing the basic design.

2. Consultation

The mission made a presentation of the basic design and discussed it with the Philippine officials concerned (refer to Doc-1, attached). The officials in principle agreed all matters described in the report regarding the design of the buildings and facilities except some items. The Philippine officials and the mission further confirmed that the scope of the works to be provided by the Japanese Government was as per the statement in the Minutes as described in Section 1-4 of this report in spite of the budget prepared by the Philippine Government.

The mission accepted a confirmation letter to this effect signed by Dr.C.S.Gatmaitan, M.D., M.P.H., Minister of Health (refer to Doc-2, attached). The items which shall be revised in the final report are confirmed by both parties (refer to Doc-3, attached).

Manila, March 16, 1979

Minister of Health
The Republic of the Philippines

Attention: The Working Committee for the
Research Institute for Tropical Medicine

Dear Sir:

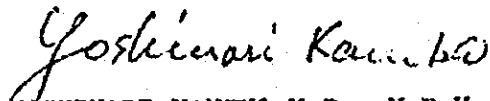
The Institute for Tropical Medicine

It is our great pleasure to submit herewith a draft report for the above-mentioned project prepared, on the basis of the Minutes, by Nikken Sekkei, a consultant for the Japan International Cooperation Agency (JICA).

We are very glad if you would review and approve the draft at your earliest convenience so that we can finalize it as soon as possible and subsequently develop the detailed design by such consultant immediately after the conclusion of the 'Exchange of Notes.'

Your kind and prompt reply to this letter would be highly appreciated.

Very truly yours,


YOSHINORI KANEKO M.D., N.P.H.
Leader
Japanese Survey Team

c.c. The Embassy of Japan
JICA Manila Office

Republic of the Philippines
MINISTRY OF HEALTH
Office of the Minister
Metro Manila

March 16, 1979

Dr. Yoshinori Kaneko
Leader
JICA Mission for Research Institute
of Tropical Medicine Project


Dear Dr. Kaneko:

It is our pleasure to inform that the Ministry of Health working committee for the research institute for tropical medicine JICA/Philippine Project, has reviewed the draft report on the basic design of the Institute of Tropical Medicine as prepared by Nikken Sekkei and finds it acceptable after the proposed amendments as taken up in the series of discussions.

The Nikken Sekkei can therefore proceed to prepare the detailed design based on this amended draft report of the basic design.

The National Economic Development Authority of the Philippine Government has advised that the established precedents on this type of project authorizes the recipient agency of the government to sign the contract for the architectural services and the building construction, which in this case is the Ministry of Health.

Very truly yours,


CLEMENTE S. GATMAITAN, M.D., M.P.H.
Minister of Health

Manila, March 16, 1979

DOC-3

Dr. Antonio N. Acosta
Chairman of the Working Committee
Assistant Minister of Health
Republic of the Philippines

Dear Dr. Acosta

The Institute for Tropical Medicine

This is to confirm that the following amendments will be made in the final report of basic design on the above-captioned project as a result of a series of discussions between your officials and us:

1. Addition of items in electrical services planning

(a) Stand-by Generator

A stand-by generator for emergency use will be provided for the Institute, with a capacity of 150kVA appx.

(b) Elevator

An oil pressure operated elevator to load a wheel stretcher will be provided.

2. Modification in the Works not covered by the Japanese budget

(a) Item (3)

Office equipment shall read as Office supplies

(b) Item (12) and (13)

Microscopes and mattress' shall be deleted.

3. Modification in the Plan

The distance between the Research and Training Department and the Clinical Department shall be changed from 5.8m to 12m as shown in the attached sheet.

Very truly yours,


HIDEO NATARABE

Architect
Japanese Survey Team

Attach.

cc. The Embassy of Japan

JICA Manila Office

-14-2

CHAPTER 2: BRIEF DESCRIPTION OF THE INSTITUTE

2-1 OUTLINE OF THE INSTITUTE

It is clearly demonstrated in the health statistics of the Philippines that preventable diseases such as diphtheria, pertussis, tetanus, measles and poliomyelitis are still prevalent and present a serious health hazard for the children in the country.

The Government of the Philippines has been conducting preventive measures against malaria, shistosomiasis, tuberculosis and other diseases for many years using project teams or governmental institutes with valuable results. However, these diseases are actually difficult to control without an improvement in the general living conditions and the standards and methods of irrigation of agricultural land.

In 1976 the Ministry of Health started the "Expanded Program on Immunization" against preventable diseases, in which immunization plays a primary role in control, and carried out a country-wide campaign. Included in this program's budget was an allocation for the enlargement of the Alabang Serum Laboratories and in addition some assistance was given by UNICEF for the increased production of vaccines.

In 1977 President Marcos made a request to Prime Minister Fukuda for the establishment of the Institute for Tropical Medicine which is expected to contribute to the research and prevention of communicable diseases endemic in the Philippines. This proposal has been investigated by the 3 missions in 1978 and later by a preliminary survey team in November, 1978. Finally a basic design survey team from JICA in January, 1979, studied the project from a technical point of view.

The survey team of JICA held a series of discussions and exchanged views with the Philippine authorities concerned on the proposed Institute. Topics included its microbiological, epidemiological and clinical research and re-fresher training of the personnel in this field. The following points were agreed upon by the panels of both sides:

1. The Institute will consist of 3 departments including a research department, clinical department and administrative department. The research department will be composed of microbiology, epidemiology, pathology, biochemistry, and parasitology sections. The clinical department will be composed of an internal medicine and pediatrics section and a small surgery.
2. The head of one of these sections will be responsible for each re-fresher training course according to its speciality, and the number of trainees is estimated to be 25 at the maximum.

Based on the agreement the survey team drew up a plan for the building and a list of the equipment to be supplied.

2-2 EFFECT OF THE INSTITUTE OF DISEASE CONTROL

Although some of the communicable diseases in the Philippines have decreased and have now been confined to certain areas for the last 3 decades, communicable diseases as a whole are still the major cause of death and remain as a serious health hazard.

The "Expanded Program on Immunization" started in 1976 by the Ministry of Health against preventable diseases such as diphtheria, pertussis, tetanus, poliomyelitis and others, is still in effect. However, the results so far are not satisfactory because of the shortage of vaccines and the lack of epidemiological surveillance of the project. Although a survey

of the operation is essential for this kind of project, there has been no such activity in the Philippines until now. The proposed Institute will have a profound effect on improving the efficiency of the immunization projects being undertaken within the "Expanded Program on Immunization." It will facilitate the setting of clear targets and enable the easy assessment of progress. Microbiological and epidemiological studies of the preventable diseases under study will also be able to be carried out.

These activities will be very useful not only for the evaluation and improvement of the vaccines themselves but also for the rationalization of the control measures by immunization.

The activities in the above research and refresher training courses of personnel in the field of public health will be open to personnel from other Asian Countries as well.

CHAPTER 3: BASIC DESIGN

3-1 GENERAL DESCRIPTION

The two surveys directly concerned with this project were carried out in November 1978 and January 1979. The first was to investigate the general conditions of the project and the second was to make more concrete proposals for the implementation of the project and it is from these two surveys that this basic design has been developed.

A variety of medical and building requirements were furnished to the survey team by the members of the working committee for the "Institute for Research on Tropical Diseases Project." These requirements were incorporated into the design concept described in this report with advice on medical and architectural aspects given by the Philippine and Japanese experts concerned in this project.

In designing the layout, structure and room conditions of the facilities and electrical and mechanical systems to be installed, the following were taken into account: the climatic conditions, the nature of the proposed facility, topographical conditions, the state of the local building industry and other local conditions.

The Government of the Republic of the Philippines will have to carry out some works in relation to this construction project. Such works, however, are described briefly in this report where they are related to the function and construction of the proposed facilities.

Cost estimates and a time schedule for the construction of the facilities have also been prepared. These have been based on the investigated costs of materials and labour, and construction time for similar projects in the Philippines. Consideration was also given to the method of transportation of materials and medical equipment from Japan.

3-2 SUMMARY OF PROJECT

1. General

The Institute for Tropical Medicine now under consideration is composed of the following three departments.

a. Research and Training Department

All research work for tropical medicine and in-service training for the medical staff engaged in tropical medicine will be carried out in this department.

b. Clinical Department

The Institute examines patients suffering from tropical diseases for research purposes to develop better methods of diagnosis and treatment.

c. Administrative Department

This department will control the whole Institute and also serve as a pivot for all tropical medicine activities.

2. Structure and Floor Area

The buildings are reinforced concrete structures of both single and two storied blocks. Floor areas of the buildings are outlined below:

Research and Training Department	2,000 m ²
Clinical Department	3,090 m ²
Administrative Department	800 m ²
Total	5,890 m ²

- Notes: 1. Floor areas are calculated from the center of exterior walls.
2. Terraces or courts and canopies are not included in floor areas.

3-3 DESIGN PRINCIPLES

1. The intention and requirements of the Philippine people who will occupy and utilize the facility and the comfort of the patients should be fully taken into consideration.
2. The facility should be practical, easy to use and maintain.
3. The buildings should be able to respond to future changes or developments.
4. Local conditions such as natural environment and climatic conditions should be taken into consideration.
5. The design of the facility should take into consideration local customs, construction methods, building trade practices, etc.
6. Local materials should, wherever possible, be used for the construction of the facility to reduce the need for imported materials to the minimum.
7. The design should be carried out to conform to the applicable Philippine regulations and standards and satisfy all local statutory requirements.

3-4 SITE CONDITIONS

1. Site Description

Alabang is about 25 km south of Manila City and is in the Municipality of Muntinlupa of Rizal, approximate location at 14°30'N. Lat. and 121°00'E. Long.

The site proposed by the Ministry of Health, the Republic of the Philippines for this project, occupies some 20 ha, and is a part of the Alabang compound owned by the Ministry of Health.

The project site is on the top of a hill about 200m above sea level, sloping gently in three directions except south where the land undulates to the neighbouring estate. The site is covered with grass and has some bushes.

2. Site Surroundings

The highway between Manila and Cavite to the south, runs along the east of the site about 50 m below. This is intended to be the main approach to this facility, an unpaved road connects the highway and the site. The site is visible from the highway. Over the highway the Lagoon Bay presents a beautiful outlook.

To the south, the land undulates to the neighbouring estate which is open but also covered with grass and bushes.

To the west, the land at the boundary dips into a creek into which all the drainage of this facility is assumed to flow.

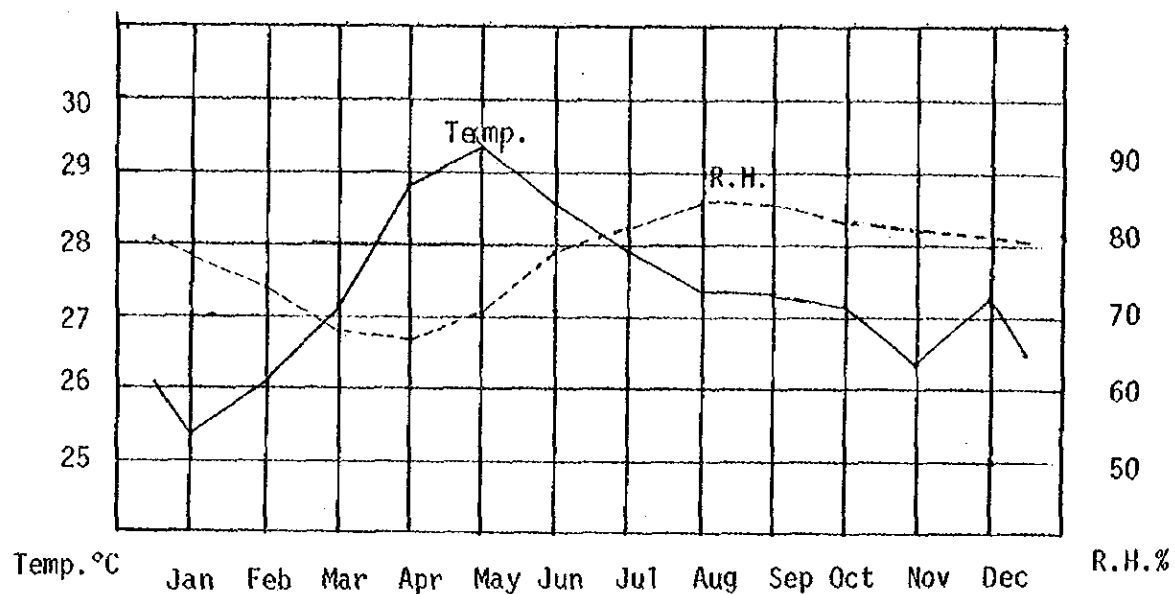
North of the site is the existing Alabang Vaccine Laboratories. There is a thick tropical wood between these facilities but an unpaved road connects them. This road needs some improvement but is available for internal circulation of the total compound. This road should not be used as the public approach to this Institute to preserve the serenity and safety of the existing facilities.

Dependent houses for staff and employees of the existing facility are scattered along the roads of the site. These houses should remain as they are for the purpose of security and land maintenance.

3. Climatic Conditions

- (1) The climatic records of Manila are shown in the Graph 1 below and may be assumed to reflect the conditions prevailing at the site.

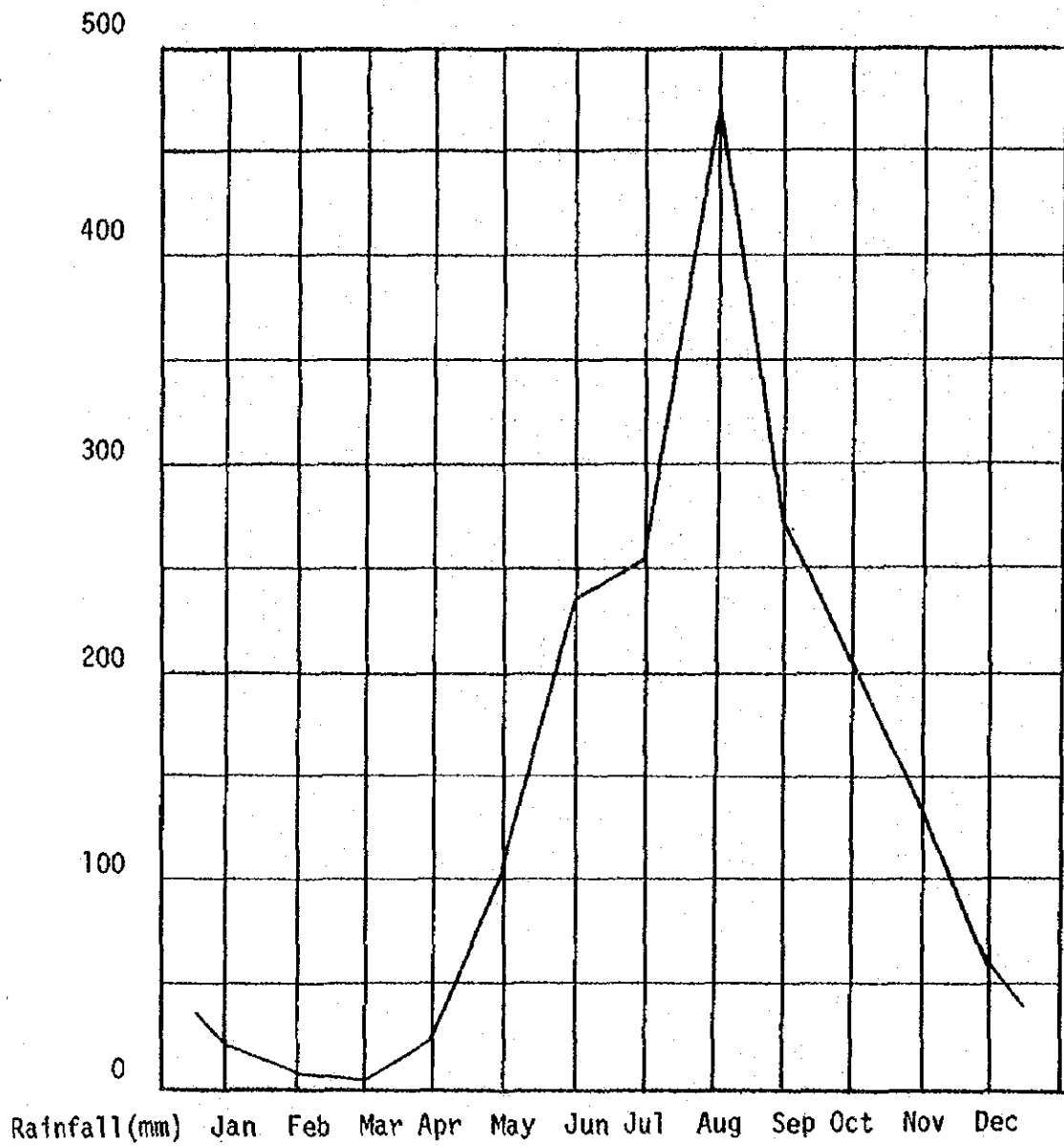
Graph 1 The climatic records of Manila



- Note: 1. These are monthly mean values
2. R.H. : Relative Humidity

- (2) The average monthly rainfall is shown in Graph 2.

Graph 2. Average Monthly Rainfall



(3) Typhoons

The Philippine Islands lie a few degrees north of the equator and are well within the typhoon belt. Thus, the islands are hit every year by a number of severe typhoons accompanied by heavy rain. The data as obtained from the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) of the Department of National Defence indicates that the Philippines is on average subject to 19 typhoons a year, of which four turn out to be severe enough to cause extensive damage.

Typhoons with a maximum gust velocity of 50 m/sec are annual occurrences, the highest maximum velocity recently recorded being 104.2 m/sec (375 kph) observed at Virac (the southeastern part of Luzon) during a typhoon in 1970.

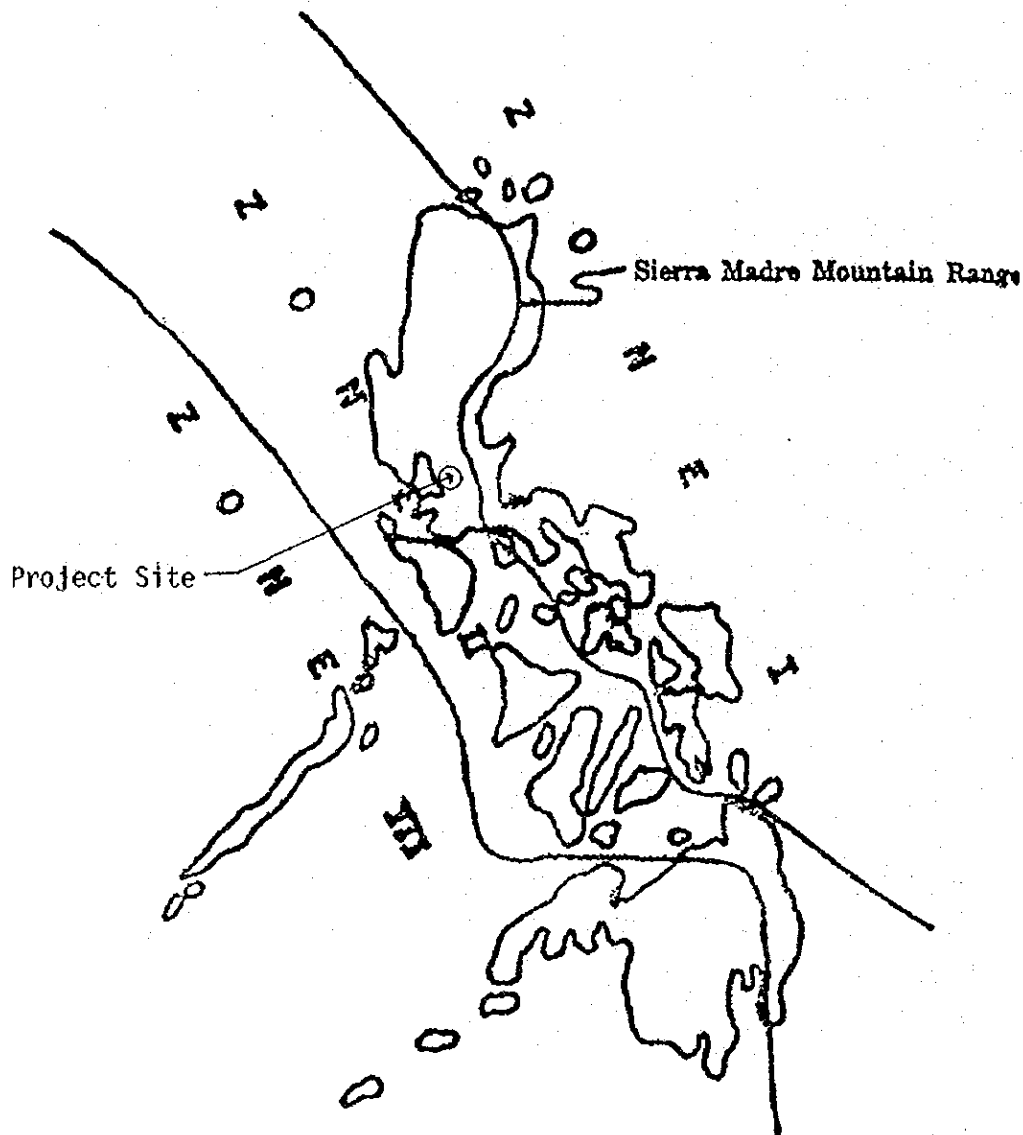
Typhoons causing rainfall of 350 mm/day are to be expected every year. During Typhoon Clara in 1967, precipitation of as high as 1,215.7 mm/day was observed at Baguio in the western central part of Luzon.

According to the National Structural Code for Buildings, the proposed project site is in the wind force zone II where a maximum wind velocity of 50 m/sec (175 kph) must be allowed for in building design. (See the map, Fig.1 on the next page.)

Damage caused by typhoon storm water can also be disastrous. These possibilities must be taken into consideration when considering the design of a new building in this region.

FIG. 1 WIND FORCE ZONES

(taken from the National Structural Code for Buildings)



ZONE I

V = 200 KPH = 125 MPH
 p = 300 ksm = 60 pef, h above 100'
 p = 250 ksm = 50 pef, h 30' to 100'
 p = 200 ksm = 40 pef, h 0' to 30'

ZONE II

V = 175 KPH = 108 MPH
 p = 250 ksm = 50 pef, h above 100'
 p = 200 ksm = 40 pef, h 30' to 100'
 p = 150 ksm = 30 pef, h 0' to 30'

ZONE III

V = 163 KPH = 96 MPH
 p = 200 ksm = 40 pef, above 100'
 p = 150 ksm = 30 pef, 30' to 100'
 p = 100 ksm = 20 pef, 0' to 30'

LEGEND:

KPH = Kilometers per Hour
 MPH = Miles per Hour
 ksm = Kilograms per Square Meter
 pef = Pounds per Square Foot

Recommended wind pressure per unit area of vertical projections.

4. Topography and Geological Conditions

(1) Topography

The area around the project site is a gently undulating plain, facing Lagoon Bay. The site itself is on a low hill about 200 m above sea level and about 50 m above the level of the express highway that runs in front of the site.

(2) Geological Conditions

The site on the hill is covered by a surface soil layer ranging approximately from 20 cm to 60 cm in depth. Underlying this surface layer is a stratum of soft rock called adobe, which is exposed at the ground surface in several places. This subsurface formation was ascertained by trial excavation. While the adobe layer may well be suitable as a supporting stratum for the structure, such a layer will, on the other hand, make site preparation and excavation fairly difficult.

Because the site is on a hill, the ground water level is understood to be 10 m or more below the ground level and should not present any design or construction problems because the project buildings have no Basement structure.

5. Earthquakes

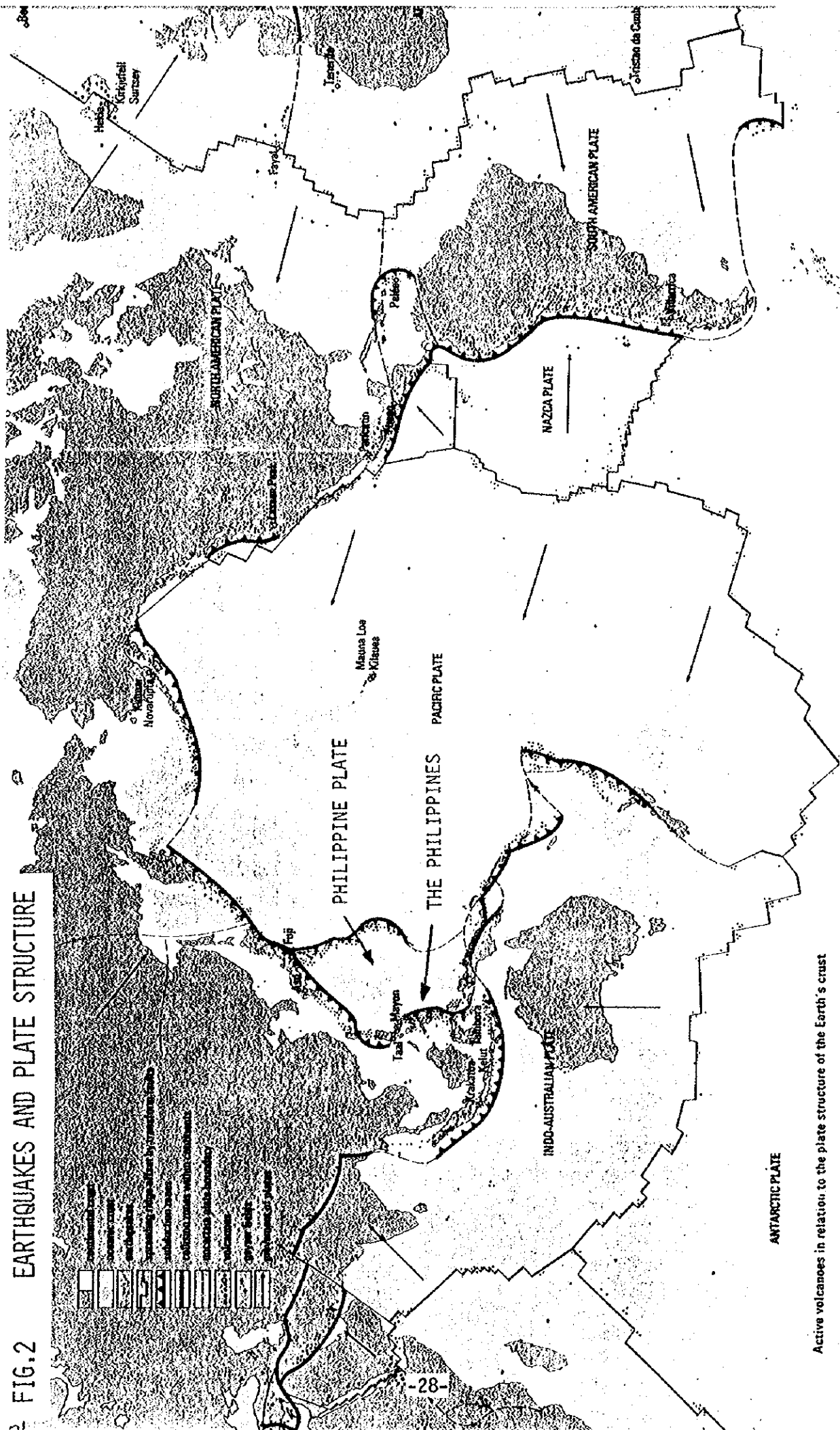
The Philippines is located within the Circum-Pacific seismic belt. Because of its location, the Philippines is a highly seismic country and has actually experienced earthquakes very many times.

The National Structural Code for Buildings in the Philippines established the seismic loads to be used for building design. They are found to be about half the design seismic loadings prescribed in the Japanese Building Code.

Shown in Fig. 2 is a map which indicates earthquake-prone areas and tectonic plate distribution around the Pacific Ocean.

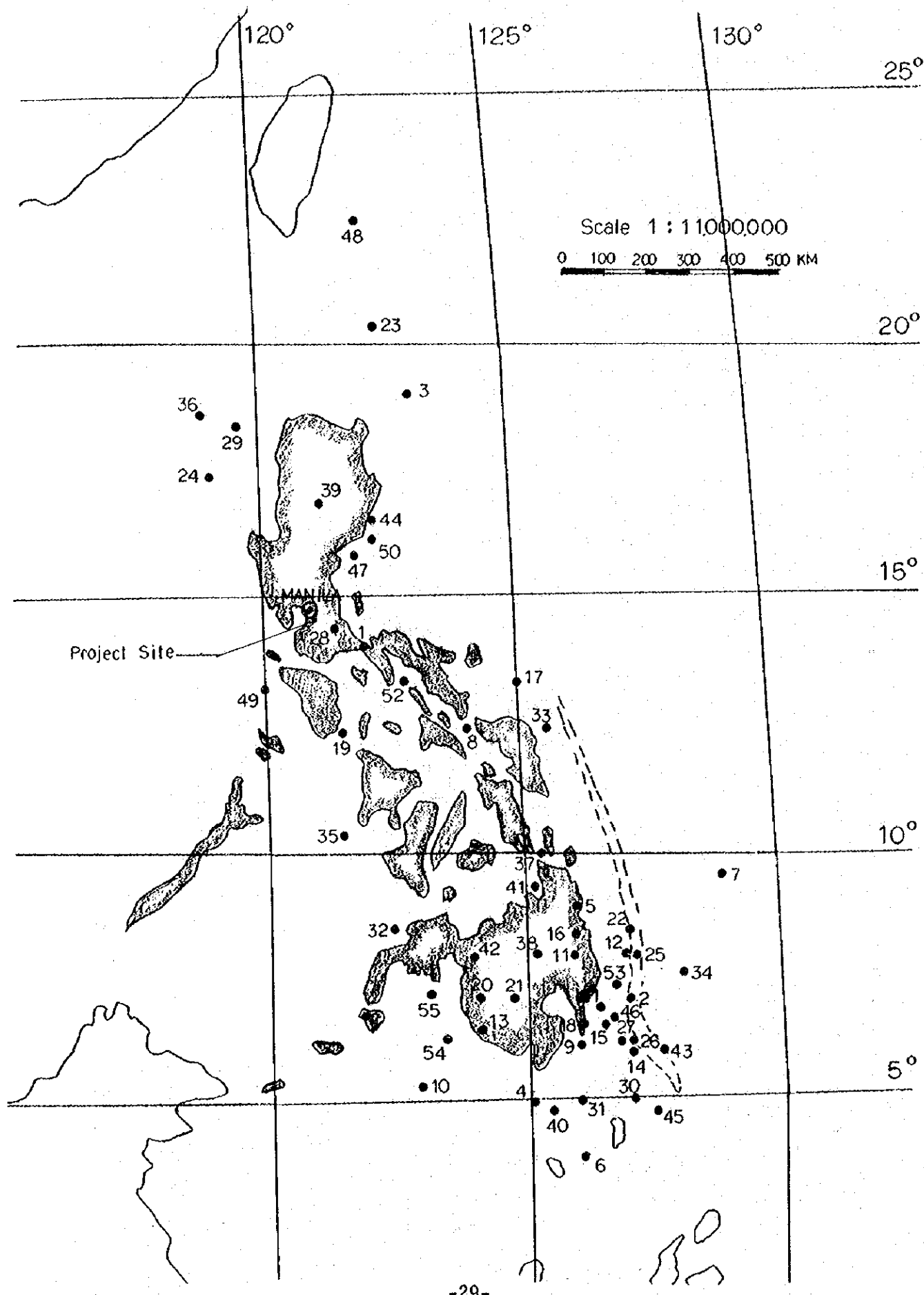
Fig.3 is a map showing the distribution of major earthquakes (magnitude 7.0 or larger) which have occurred in the Philippines since 1900. It can be seen from the map that Manila, Alabang and vicinity have not been subject to major earthquakes for a number of years, and this may mean that substantial seismic energy has been built up in this area.

FIG.2 EARTHQUAKES AND PLATE STRUCTURE



Active volcanoes in relation to the plate structure of the Earth's crust

FIG. 3 MAP OF MAJOR EARTHQUAKES IN THE PHILIPPINES (1900 - 1976)



LIST OF MAJOR EARTHQUAKES IN THE PHILIPPINES

NO.	DATE	MAXIMUM INTENSITY	MAGNITUDE	DEPTH(KM)	REMARKS
1	1901 Dec. 14	VII	7.8	Shallow	Violent
2	1903 Dec. 28	VII	7.8	Shallow	Destructive
3	1907 Apr. 18	VIII	7.2	Shallow	Destructive
4	1910 Dec. 16	VIII	7.2	Shallow	Very violent
5	1911 July 12	IX	7 3/4	Shallow	Destructive
6	1913 Mar. 14	IX	7.9	Shallow	Destructive
7	1913 Apr. 24	VIII	7.7	Shallow	Destructive
8	1915 Mar. 12	VII	7.0		
9	1918 Feb. 7		7.5	120	
10	1918 Aug. 15	X	8.5	Shallow	Tidal wave, 50 victims
11	1919 Jan. 1	VII	7.4	Shallow	
12	1921 Nov. 12	VIII	7.5	Shallow	
13	1923 Mar. 3	VII	7.2	Shallow	
14	1923 Mar. 17		7.0	Shallow	
15	1924 Apr. 15	IX	8.3	Shallow	
16	1924 Aug. 30	IX	7.3	Shallow	
17	1925 Nov. 13	VIII	7.3	Shallow	Tidal wave, 7 victims
18	1927 Nov. 17	VII	7.0	50	
19	1928 June 15	VIII	7.0	Shallow	
20	1928 Dec. 19	VII	7.3	Shallow	
21	1929 June 4		7.0	380	
22	1929 June 13	VIII	7.2	Shallow	
23	1930 Dec. 21	VI	6.9	160	
24	1934 Feb. 14		7.6	Shallow	
25	1934 Apr. 16		7.3	Shallow	
26	1936 Jan. 21		7.1	80	
27	1936 July 6		7.3	60	
28	1937 Aug. 20	VIII	7.5	Shallow	Destructive, 2 died, 41 injured
29	1938 May 23	VI	7.0	80	
30	1939 June 2		7.0	60	
31	1940 Oct. 7		7.0	100	
32	1942 Oct. 21		7.3	Shallow	

NO.	DATE	MAXIMUM INTENSITY	MAGNITUDE	DEPTH (KM)	REMARKS
33	1943 May 3		7.4		
34	1943 May 26		7.9	Shallow	
35	1948 Jan. 25		8.2	Shallow	
36	1948 Mar. 3		7.2	Shallow	
37	1948 Sep. 3		7.0		
38	1949 Apr. 30	VI	7.0	130	
39	1949 Dec. 29		7.4	Shallow	Many aftershocks, 15 died
40	1950 Aug. 31	IV	7.0		
41	1952 Mar. 19	VI	7.5	Shallow	
42	1955 Apr. 1	VIII	7 3/4	Shallow	291 died, 713 injured
43	1957 Sep. 24	IV	7.6	Shallow	
44	1968 Aug. 2		7.3	36	More than 300 died in Manila
45	1969 Feb. 4	IV	6.1	33	
46	1970 Jan. 10	VI	6.1	73	
47	1970 Apr. 7	VIII	6.4	37	
48	1972 Jan. 25	V	7.5		
49	1972 Apr. 26	IV	6.2	50	
50	1972 May 22	VI	6.9		
51	1972 Dec. 2	VI	7.4	33	
52	1973 Mar. 17	VII	7.0		
53	1975 Jul. 11	IV	7.2	86	
54	1976 Aug. 17	VII	7.8	33	Tidal wave, 800 died
55	1976 Aug. 17	VI	7.2	22	

- NOTE: 1. Up to 1934, the "Original Rossi Forel Scale" of ten intensities was used.
2. From 1935 to the present time, the "Adapted Rossi Forel Scale" of nine intensities is being used.

LIST OF ORIGINAL ROSSI FOREL SCALE (ten intensities)

- I. Microseismic shock: Recorded by a single seismograph or seismographs of the same model but not by several seismographs of different kinds; the shock felt by an experienced observer.
- II. Extremely feeble shock: Recorded by several seismographs of different kinds; felt by a small number of persons at rest.
- III. Very feeble shock: Felt by several persons at rest; strong enough for the direction or duration to be appreciable.
- IV. Feeble shock: Felt by persons in motion; disturbances of movable objects, doors, windows, creaking of ceilings.
- V. Shock of moderate intensity: Felt generally by everyone, disturbance of furniture, beds, etc., ringing of swinging bells.
- VI. Fairly strong shock: General awakening of those asleep; general ringing of house bells; oscillation of chandeliers; stopping of pendulum clocks; visible agitation of trees and shrubs; some startled persons leave their dwellings.
- VII. Strong shock: Overthrow of movable objects; fall of plaster; ringing of church bells; general panic, without damage to buildings.
- VIII. Very strong shock: Fall of chimneys, cracks in walls of buildings
- IX. Extremely strong shock: Partial or total destruction of some buildings.
- X. Shock of extreme intensity: Great disaster, buildings ruined disturbance of the strata, fissures in the ground, rock-falls from mountains.

ADAPTED ROSSI FOREL SCALE (nine intensities)

- I. Hardly perceptible shock: Felt only by an experienced observer under favorable conditions.
- II. Extremely feeble shock: Felt by a small number of persons at rest.
- III. Very feeble shock: Felt by several persons at rest. Duration and direction may be perceptible. Sometimes dizziness or nausea experienced.
- IV. Feeble shock: Felt generally indoors, outdoors by a few. Hanging objects swing slightly. Creaking of frames of houses.

- V. Shock of Moderate Intensity: Felt generally by everyone. Hanging objects swing freely. Overturn of all tall vases and unstable objects. Light sleepers awaken.
- VI. Fairly Strong Shock: General awakening of those asleep. Some people frightened persons leave their houses. Stopping of pendulum clocks. Oscillation of hanging lamps. Slight damage in very old or poorly built structures.
- VII. Strong Shock: Overturn of movable objects. General alarm, all run outdoors. Damage slight in well-built houses, considerable in old or poorly-built structures, old walls, etc. Some landslides from hills and steep banks. Cracks in road surfaces.
- VIII. Very Strong Shock: People panicky. Trees shaken strongly. Changes in the flow of springs and wells. Sand and mud ejected from fissures in soft ground. small landslides.
- IX. Extremely Strong Shock: Panic general. Partial or total destruction of some buildings. Fissures in ground. Landslides and rock falls.

6. Electrical Power Service

The project site is located within the Alabang Compound, in which the Alabang Serum and Vaccine Laboratories have already been constructed. Power of 4.4 KV is distributed to the existing buildings by the Manila Electrical Corporation (MERALCO), transformed to 3 ϕ 220V, 1 ϕ 220V (in star-star connection) by three single-phase 100 KVA transformers and two 1 ϕ 220V by two single-phase 75 KVA transformers. The existing high voltage distribution line is installed as shown in Fig.4. The line will have to be extended approximately 800m to the present site.

MERALCO's work is limited to transformers, cables up to buildings and meters in the buildings for the checking by power supply company and all other electrical wiring and equipment has to be installed at the expense of the power consumer.

7. Telephone Service

No telephone circuits are presently provided in the Alabang Compound. A telephone circuit connecting the Manila City and the Muntinglupa Prison is installed for the Government's exclusive use. It is presumed that whether this circuit can be used or not for the Institute for Tropical Medicine depends on the future negotiation with the Philippine Government.

The public radio and television broadcasting service transmissions can be received at the site.

8. Water Supply System

At present, no city water service is supplied around the project site. As for the existing facilities in the Alabang Compound, water from three deep wells, temporarily stored in water tanks, is distributed to individual buildings and dwelling houses by natural gravity. Of the three, two deep wells are now being used and one is under-repair.

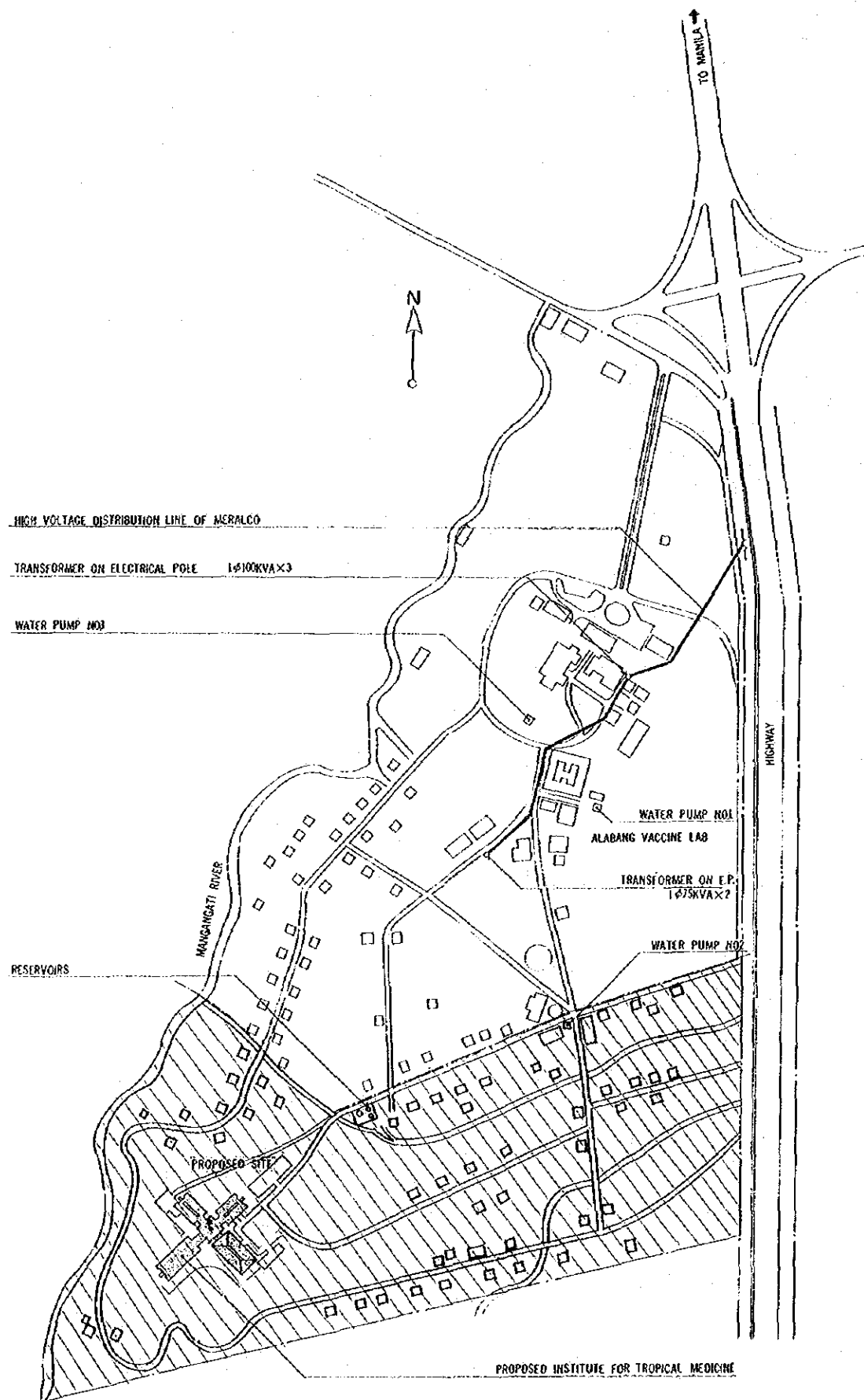


FIG.4 EXISTING FACILITIES OF A.S.V.L. COMPOUND

Specifications of pumps for the deep wells and the water tanks are as follows:

	<u>Pump No.1</u>	<u>Pump No.2</u>	<u>Pump No.3</u>
Capacity (gallon/min)	225	130	130
Horsepower (HP)	15.0	7.5	7.5
Power Source	3ø 220V 60Hz	3ø 220V 60Hz	3ø 220V 60Hz
Rotation (RPM)	1,800	1,800	1,800
Depth (meter)	210	92.5	92.5
Diam. of casing (inch)	10	6	6
Diam. of Pipe (inch)	4	4	4
Water Level (meter)	12.6	10.2	10.2

	<u>Water Tank No.1</u>	<u>Water Tank No. 2</u>	<u>Water Tank No.3</u>
Capacity (gallons)	9,000	4,800	4,800

These pumps and water tanks were installed about 20 years ago, and will not be able to meet the anticipated water demand of the Institute for Tropical Medicine. Therefore, some new wells and water tanks will have to be installed.

Quality of water obtained from the site is as follows:

a. Physical Characteristics

Odor : Normal

Turbidity: Normal

b. Chemical Characteristics

	<u>Measured Value</u>		<u>Measured Value</u>
Alkalinity(mg/l)	272.0	Nitrite	Not detectable
Acidity(mg/l)	1.94	Residual Chlorine(mg/l)	0.1
Chlorine(mg/l)	14.0	Calcium(mg/l)	71.8
Overall Hardness(mg/l)	186.0	Magnesium(mg/l)	27.9
Iron(mg/l)	0.2	Manganese(mg/l)	0.4
pH Value	7.7	Nitrate(mg/l)	6.5
Overall Residue(mg/l)	200.0	Silicon(mg/l)	29.0
Fluorine(mg/l)	0.3		

9. Sewage

At present, because of the absence of a public sewerage system, all soil water and waste water are allowed to flow into rivers after passing through sewage treatment tanks.

10. Fuel

No city gas is supplied to the existing buildings in the Alabang Compound. However, LPG gas is supplied for kitchens and laboratories by means of LPG gas cylinders. These existing buildings seem to be having no difficulty in getting a regular cylinder replacement service.

3-5 GENERAL LAYOUT PLAN

1. Location

The buildings of the Institute will be located at the top of the hill in the south part of the site proposed by the Government of the Philippines. This location occupying an area of 2.2 ha out of 20 ha of the whole site, was decided upon after giving due consideration to the area required and the best utilization of the topography.

2. Access to the Site

There are two access possibilities to this site. One is from the north via the existing Alabang Vaccine Facility and the other is service road of the highway running to the east of the site, which leads into the existing road in the Alabang Compound. All visitor traffic to this Institute will be made by the latter to prevent noise and congestion, and to keep the serenity and security of the existing facilities around the compound. For staff convenience and maintenance both roads will be used.

A gate house should be provided at the entrance of the access road to supervise and identify the traffic.

3. Public Transport Services

Public transport services to the proposed site will be made by bus, 'jeepney' and car along the highway described above.

As the Institute stands on the top of a hill and there is some distance between the gate and the site, a free 'jeepney' service on the site would be advisable.

4. Approach to the Facility

The approach to the buildings will be mainly from the entrance forecourt which clearly leads to a staff entrance and a patient's

and emergency entrance.

A service road leads to a service yard where service entrances for kitchen, laundry and maintenance are located.

An exit from the morgue is also provided in this yard.

5. Block Layout and Arrangement on Site

The buildings are laid out so as to have two axis of southeast-northwest and southwest-northeast on the top of the hill in the site.

This layout was decided to provide the following advantages:

- a. To make easy and clear access to each facility from the main approach road and to provide separate entrances.
- b. To allow for a wide, open space for each facility.
- c. To maintain a space for the future extension of each facility.
- d. Adaptation to the local climatic conditions.

3-6 BUILDING DESIGN

1. Architectural Design

The buildings are composed of single and two storied blocks which make a cruciform.

This shape of the buildings was decided upon after giving consideration to the following:

- a. To establish an independent identity for the three departments of the Institute whilst
- b. Ensuring an efficient circulation between them
- c. Preventing cross infection
- d. Enabling easy management and maintenance
- e. Providing a direct but clearly distinguished approach to each department
- f. Preserving an exterior space suited to the character of each department
- g. Conforming to the local climatic conditions

Each block consists of the following departments and facilities:

a. Research and Training Department

The Ground floor is provided with Training Facilities such as Lecture hall, Teaching laboratory with Auxiliary rooms, and Research Laboratories for Pathology and Biochemistry.

An Autopsy room for pathological research and a morgue for the Clinical Department is also provided.

The second floor has Research Laboratories for Epidemiology, Microbiology, Parasitology and animal experiments.

These laboratories will be partitioned to form sections such as the chief's office, laboratory and utility room. Partitions, electrical wiring and plumbing shall be designed for ease of rearrangement in the future.

A common cold-storage and washing and sterilizing center are also located in this part of the buildings.

b. Clinical Department

A patient is taken care of in this department as in any other hospital, so this department is divided into an outpatient section and inpatient section and has ancillary facilities.

The outpatient section is located on the ground floor consisting of a reception and registration waiting hall, consulting and examination room, treatment room and emergency facility.

The ancillary facilities such as X-ray, laboratory, pharmacy and kitchen are on the same floor but in the adjacent block.

The inpatient section is on the second floor and consists of 1-bed and 4-bed wards, nurse's station, etc. with an operating room and central sterilizing and supply room.

c. Administrative Department

The administrative department consists of the director's office, assistant directors' offices, staff office, conference room and telephone exchange with public address system.

3. Finishing Materials

(1) Exterior Finishes

Roof: Asphalt built-up, G.I.S. Sheet
Wall: Concrete epoxy-paint spray finish
Sashes: Steel vinyl-paint finish

(2) Interior Finishes

<u>Laboratory</u>	Floor: Wood block flooring Skirting: Wood, resin painted Walls: Plaster, resin painted Ceiling: Asbestos board resin painted
<u>Office</u>	Floor: Wood block flooring Skirting: Wood, stain finish Walls: Plywood, stain finish Ceiling: Acoustic board
<u>Consultation & Examination Rm.</u>	Floor: Terrazzo Skirting: Terrazzo Walls: Plaster, resin painted Ceiling: Gypsum board, resin painted
<u>Ward</u>	Floor: Wood block flooring Skirting: Wood, resin painted Walls: Plaster board, resin painted Ceiling: Plaster board, resin painted
<u>Kitchen, Lava- tory & Bath Rm.</u>	Floor: Terrazzo Walls: Ceramic tiles Ceiling: Asbestos board, resin painted
<u>Animal Experi- ment Rm.</u>	Floor: Terrazzo Skirting: Terrazzo Walls: Mortar, resin painted Ceiling: Asbestos board, resin painted

3. Structural Design

(1) Basic Policy

- a. Reinforced concrete will be used for the main structural elements of the proposed buildings. Structurally, the buildings will consist of rigid frames, with shear walls provided at appropriate locations.
- b. Since the proposed buildings are to be only two storied and the adobe layer in the site is expected to have a bearing capacity, reinforced concrete spread footings will be used without piling.
- c. As mentioned in 3-4, item 5 above, the Philippines is within the Circum-Pacific seismic belt and is subject to seismic activity. Although the probable seismic forces acting on the buildings are smaller than those in Japan, they can not be disregarded in structural design. In addition, the Philippines, being located on the typhoon belt, is frequently struck by severe typhoons. Thus, lateral forces due to high winds are an important consideration in the structural design of these buildings.
- d. The proposed buildings will be provided with expansion joints suitably located in the structure to allow for concrete shrinkage, thermal stress, structural movement of the buildings during an earthquake and uneven settlement of the buildings.
- e. For construction of the structure of the buildings, the use of local materials and local practice will be given priority as long as this does not create any problems.

(2) Structural Design Principle

Structural design for this project will basically conform to NSCB-1972 (Second printing in 1977) as to the requirements

for external forces acting on the building, design loads, permissible stresses in materials, computations of stresses and cross section, etc. with supplemental reference to the U.S. and Japanese codes.

For reinforced concrete structures, two design methods, i.e., the working stress design (as described in ACI 318-63) and the ultimate strength design (as described in ACI 318-71) are prescribed in NSCB.

The structural design for this project will be made using the working stress design.

(3) Determination of External Forces, Loads, Etc.

Based on the foregoing principle, the external forces acting on the buildings and the design loads, etc will be determined as follows:

a. Live Loads

Live loads for major rooms have been determined as indicated in the table below.

Table of Floor Live Loads (kg/m²)

<u>Occupancy</u>	<u>NSCB</u>	<u>M.B.O.</u>	<u>ASBC -ASA</u>	<u>JAPAN</u>	<u>Loads for This Project</u>
Research Laboratories	500	250		300	500
Ward	250		200	180	250
Business Office	250	300	400	300	300
General Room	200	200	200	180	200
Conference Room (w/movable seats)	500	500	500	360	500
Corridor	400	500	500	360	500
Flat Roofs					
up to 20 m ²	100	150	100	180	150
between 21-60 m ²	80				
more than 60 m ²	60				

Abbreviation:

NSCB: National Structural Code for Buildings,
the Philippines

MBO: Manila Building Ordinance

ASBC-ASA: American Standard Association, Inc., in
New York, U.S.A.

JAPAN: Live Loads for use in structural calculation
of floors as set out in the Cabinet Order
for Enforcement of the Building Standard Law
of Japan.

b. Seismic Forces

For the purpose of the present project, seismic coefficient
will be taken as 0.16 (rounded to two decimal places) based
on the formula which is specified by Uniform Building
Code thus,

$$V = 0.16W$$

Where,

V = The total lateral force (or shear)
at the base

and,

W = The total dead load (including attachments
fixed to the buildings, and partition walls
taken as 100 kg/m²)

c. Wind Loading

There are a number of different requirement on the basis
of which wind pressure may be determined but for the
purpose of the present project, wind pressure will be
determined in accordance with NSCB requirements. In the
calculations for structural design the hill-top location
of the proposed buildings will be taken into consideration.

Wind pressure is determined as follows.

$$\text{Wind pressure} = (p) \times (\text{wind force coefficient})$$

According to this code, the project is in zone II where wind velocity is taken as 50 m/sec. approx. The value of (p) as given by the code for zone II are as follows:

<u>Building Height</u>	
BELOW 9 m	P= 150 kg/m ²
9m to 30 m	p= 200 kg/m ²
over 30 m	p= 250 kg/m ²

d. Soil Bearing Capacity

The actual value will be found after appropriate tests have been completed. Meanwhile it has been assumed to be 20 tons/m².

e. Concrete Strength

For structural design calculations a figure of 210 kg/m² (3,000 p/s/i.) has been used.

3-7 SERVICES PLANNING

1. Design Principle

Electrical and mechanical work will be planned with due consideration for the local climatic and living conditions, and systems and items in the work will be simple and easy to use and maintain. All machines and equipment to be used will be wherever possible interchangeable standard products. All equipment and materials will be selected so that replacement can be easily made in case of wear or damage.

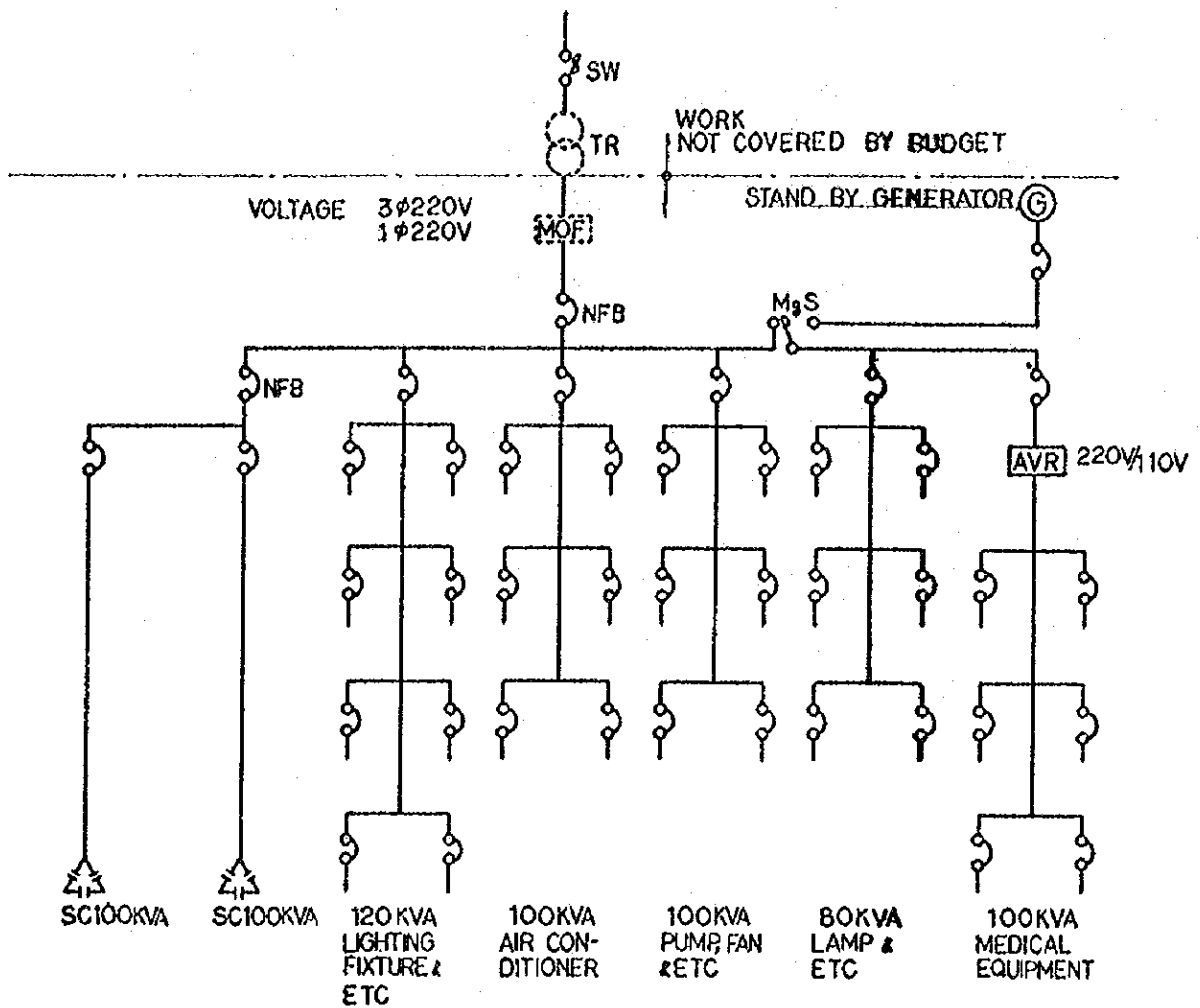
2. Electrical Services

(1) Power Source

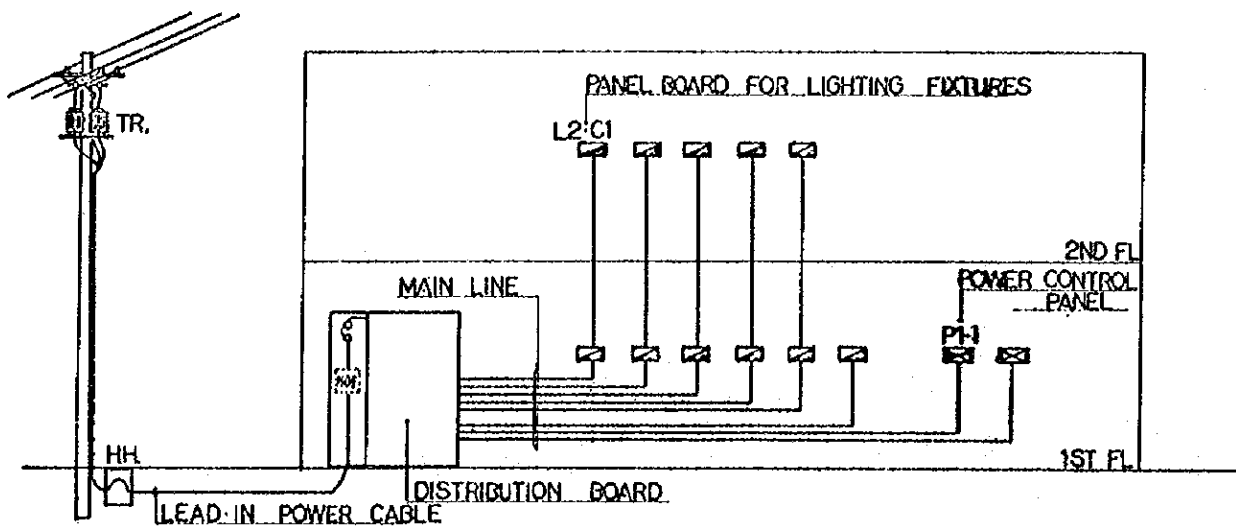
An underground cable will be laid from the MERALCO's 3 ϕ 220V distribution line lead-in utility pole to the Electrical intake Room. The power thus received will be supplied to a power control panel, a panel board for lighting fixtures and a board for medical instruments in 3 ϕ 220V, 1 ϕ 220V and 1 ϕ 110V (transformed) supplies respectively. Since there is expected to be some voltage variation, part of the loads will be regulated with the aid of automatic voltage regulators.

Respective loads will be estimated as follows and the total loads are anticipated to be approximately 500 KVA.

a. Lighting fixtures and receptacle outlets	120 KVA
b. Loads for cooling and ventilating systems	160 KVA
c. Loads for water supply and sewerage systems	50 KVA
d. Medical equipment	120 KVA
e. Others	50 KVA



ONE LINE DIAGRAM OF POWER SUPPLY



MAIN LINE DIAGRAM

Since power faults often occur in the area covering the site, an emergency power generator will be provided for the purpose of power supply to medical equipment. (e.g., refrigerators, incubators), emergency lighting fixtures, firefighting pumps and other equipment. The load of the emergency power generator is assumed to be about one third of the normal load.

(2) Stand-by Generator

A stand-by generator for emergency use will be provided for the Institute, with a capacity of 150 KVA appx.

(3) Main Line

Power to the power control panel and the panel board for lighting fixtures will be distributed through a distribution board installed in the Electrical Room. Wiring and conduiting for this distribution will be routed in the ceiling voids on the first floor.

(4) Lighting Fixtures and Receptacles

Lighting for rooms, Waiting Area, Corridors, etc. will be provided mainly by the use of fluorescent lamps; incandescent lamps will be used in some areas. The illumination in major rooms will have the following values.

Business Office	300 Lux
Lecture Hall	300 Lux
Laboratories	500 Lux
Waiting Hall	200 Lux
Cafeteria	200 Lux
Toilets, Corridors	100 Lux
Patients' Bed Room	150 Lux

Receptacle outlets of two types of 1ø 220V and 110V will be installed for power supply to general appliances, medical equipment, kitchen equipment, ventilation fans, etc.

(5) Power Circuit

Wiring and conduiting will be provided to supply power to air conditioning units, ventilation fans, firefighting pumps, submersible pumps, etc.

(6) Telephone System

It is assumed that at least four (4) subscriber lines will be required.

A private automatic exchange will be specified. It will be a simple crossbar type equipped with paging function. Its capacity will be as follows:

Subscription lines : 4

Extensions : 30

(7) Public Address System

A public address system will be provided for broadcasting announcements and an intercom between the control room and X-ray Room. The Waiting Hall and Cafeteria will have a separate system in order to provide background music.

(8) Television and Radio Reception Systems

A Television antenna and other necessary reception equipment will be provided enabling television to be watched in the Cafeteria, Waiting Hall and some of the Patients' Bed Rooms. A radio antenna will also be installed.

(9) Nurse Call System

A nurse call system will be installed between Patients' Bed Rooms and the Nurse Station for the purpose of summoning a nurse.

(10) Automatic Fire System

An automatic fire alarm system activated mainly by heat detectors will be provided. The alarm reception and indicator board will be installed in the Office.

(11) Elevator

An elevator to load a wheel stretcher will be provided.

3. Mechanical Service

(1) Air Conditioning System

Temperature and humidity, purity, and flow of air will be controlled so that the optimum ventilation is provided to suit the specific purpose of each room.

The air conditioning system will serve the Administration Department, Research and Training Department, and Clinical Department but will not serve Patients' Bed Rooms or Out-patients' Department. Indoor spaces will be zoned depending on their use, the degree of cleanliness required, pollution prevention requirements and hours of use during the day so that the air conditioning system can be arranged in combination with the ventilating system in such a way as to prevent cross infection within the facility. The system will be designed to be simple and easy in operation and maintenance. Means will be provided as necessary to enable the system to be operated during power failures, etc.

The following rooms will be mainly served by the cooling system,

a. Research and Training Department

Research Laboratories

Electron Microscope Room

Lecture Hall

Library

Instrument Storage

Morgue

b. Clinical Department

Pharmacy with Cubicle for Drug Storage
X-ray Room
Laboratory
I.C.U.
Chief Nurse's Room
Operating Room
Sterilizing Room

c. Administration Department

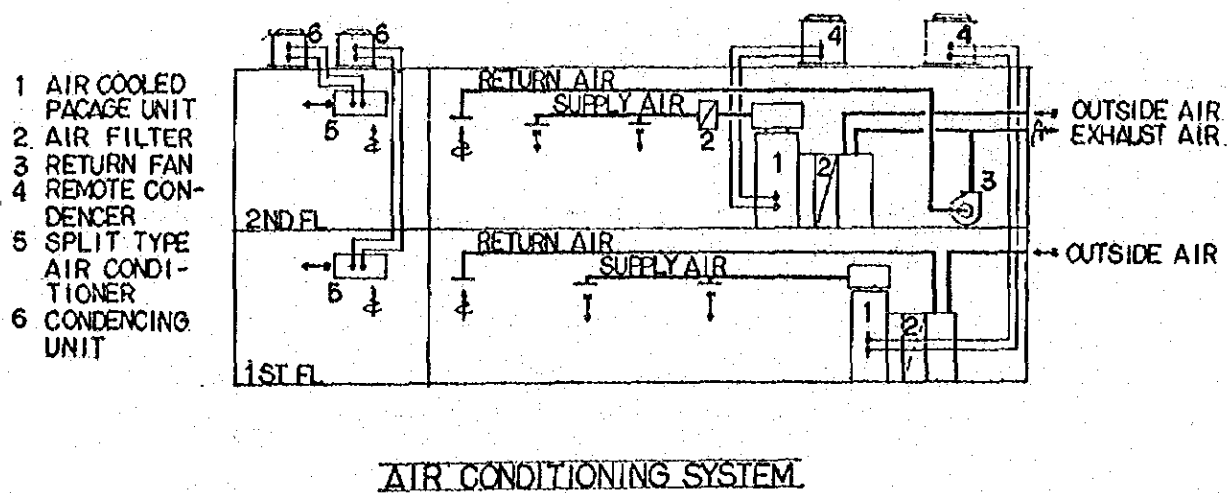
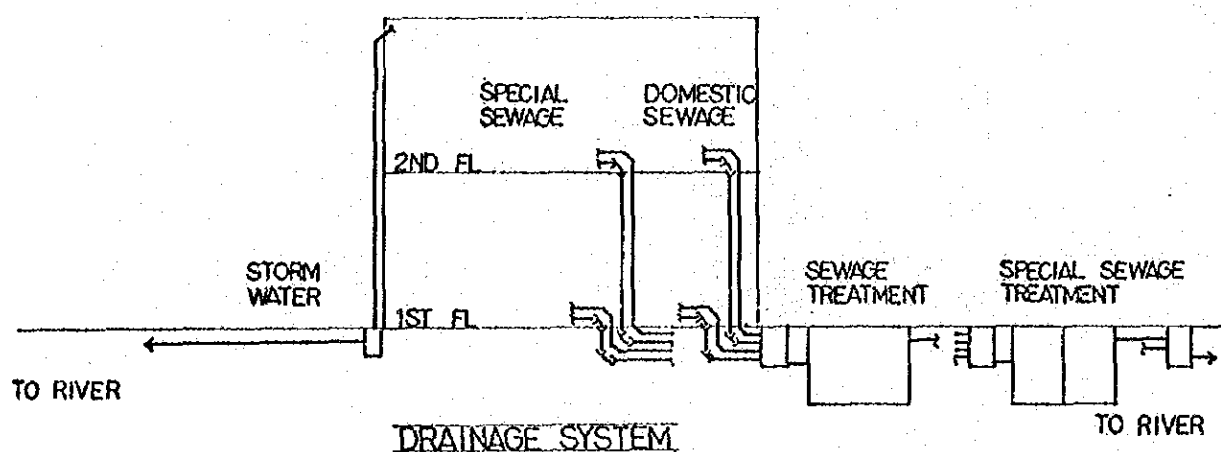
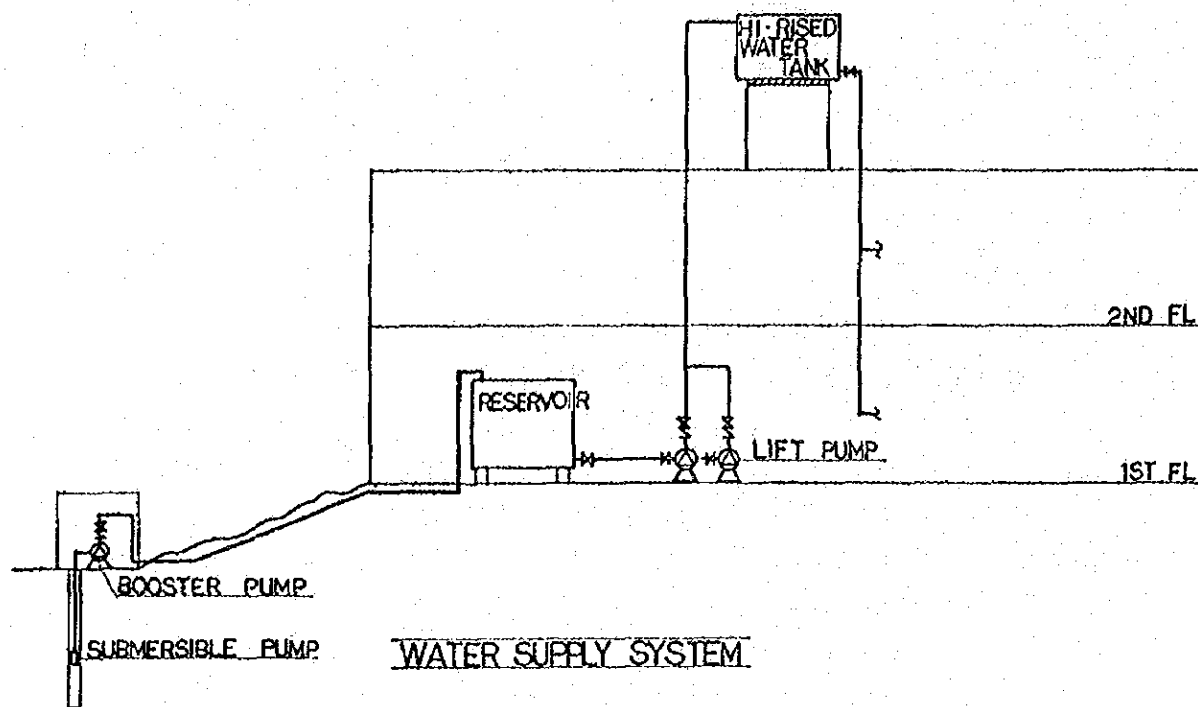
Conference Room
Director's Office
Assist. Director's Office
Administrative Office
Visiting Staff's Room
Cafeteria

(2) Ventilating System

Rooms in the Research and Training Department will be provided with means of fresh air intake, air exhaust and air pressure control as appropriate for the work to be done in each specific room. Further, these rooms will have, where necessary, fume hoods and other devices in order to insure that an environment suitable for research/experiment activities while being completely free of cross infection hazards is created. The kitchen, laundry room, mechanical equipment room, toilets, dark room and animal experimental room will be mechanically ventilated.

(3) Cross Infection Prevention

As has been described in connection with the air conditioning and ventilating systems, a means for controlling air



pressure, air flow, air cleanliness, temperature and humidity will be provided as required in order to avoid any possibility of intra-facility cross infection.

4. Plumbing Services

- (1) A deep well will be drilled in the site for water supply. Well water will be pumped by a submersible pump into a water reservoir where it will be disinfected. The water will then be pumped up into an elevated storage tank from which it will be supplied to various draw off points by gravity. The supply system will be designed for a daily demand of 100 m³ approx. The water reservoir will have a capacity of about 40 m³ and a submersible pump having a rated capacity of 100 m³ per day will be used.

- (2) Hot Water Supply System

Hot water will be supplied to the kitchen, pantry, laundry room, toilets, laboratories. The supply will be provided by a combination of a central boilers system and local heaters. The utilization of solar energy as a heat source will be given consideration.

- (3) Drainage System

The Drainage system will be divided into three separate subsystems, i.e., that for storm water, domestic sewage and special sewage (from experiments and animals).

- a. Storm water will be directly discharged into the adjacent river.
- b. Domestic sewage will be treated in a sewage treatment tank and then be discharged into the river.
- c. Special sewage (from experiments) will be treated in a storage tank, reaction tank, and reaction/sedimentation tank as required prior to discharge into the river.

(4) Gas Supply System

A Gas supply will be provided for experiments in laboratories where epidemiological, microbiological, pathological, parasitological or biochemical research is conducted.

The kitchen, laundry room and pantry will have a supply of gas from LPG cylinders installed at suitable adjacent locations.

(5) Plumbing Fixtures

Western style water closets with a lever-activated flushing mechanism and urinals will be used.

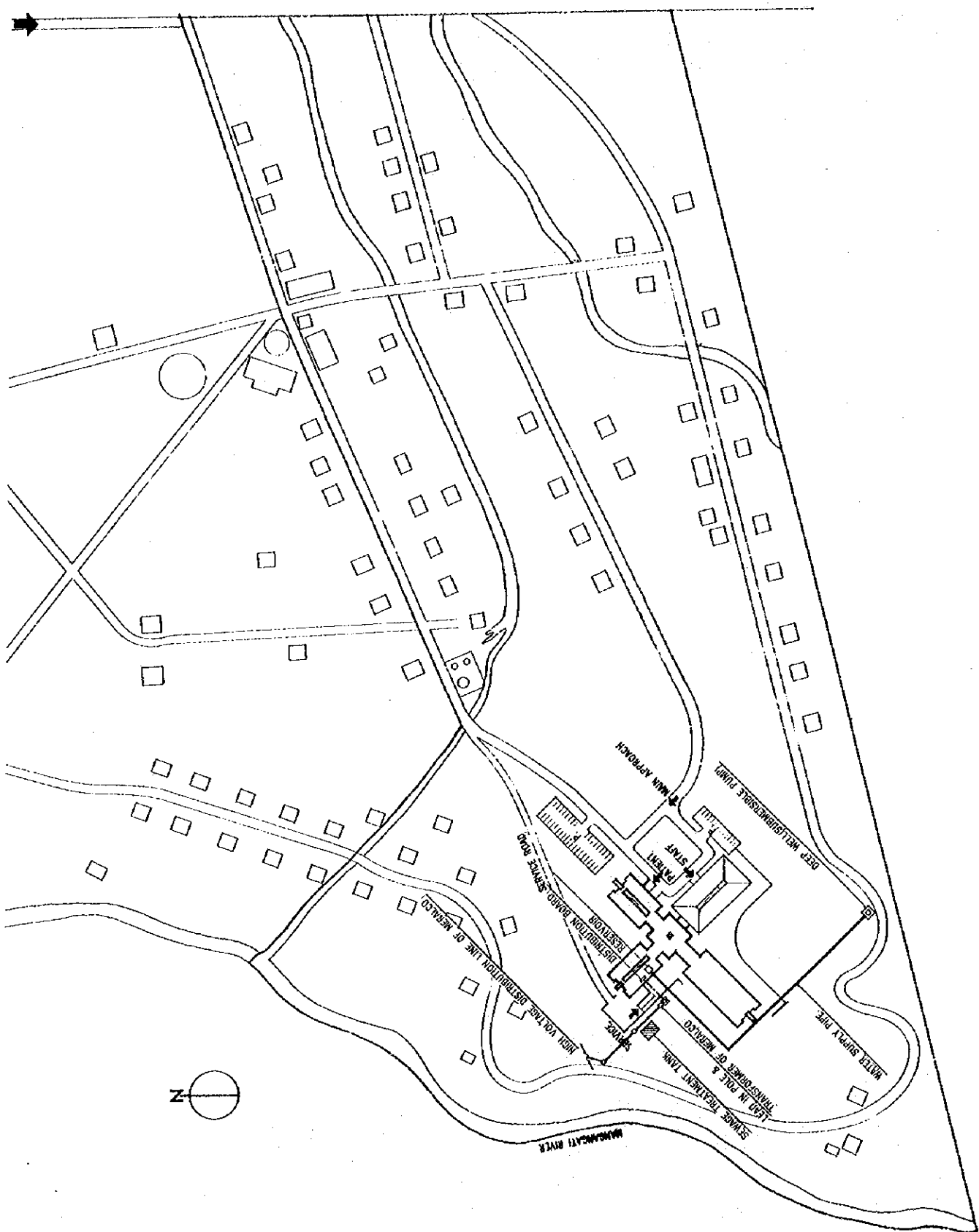
Lavatories, wash hand basins and showers will be of heavy duty design.

(6) Fire Extinguishing System

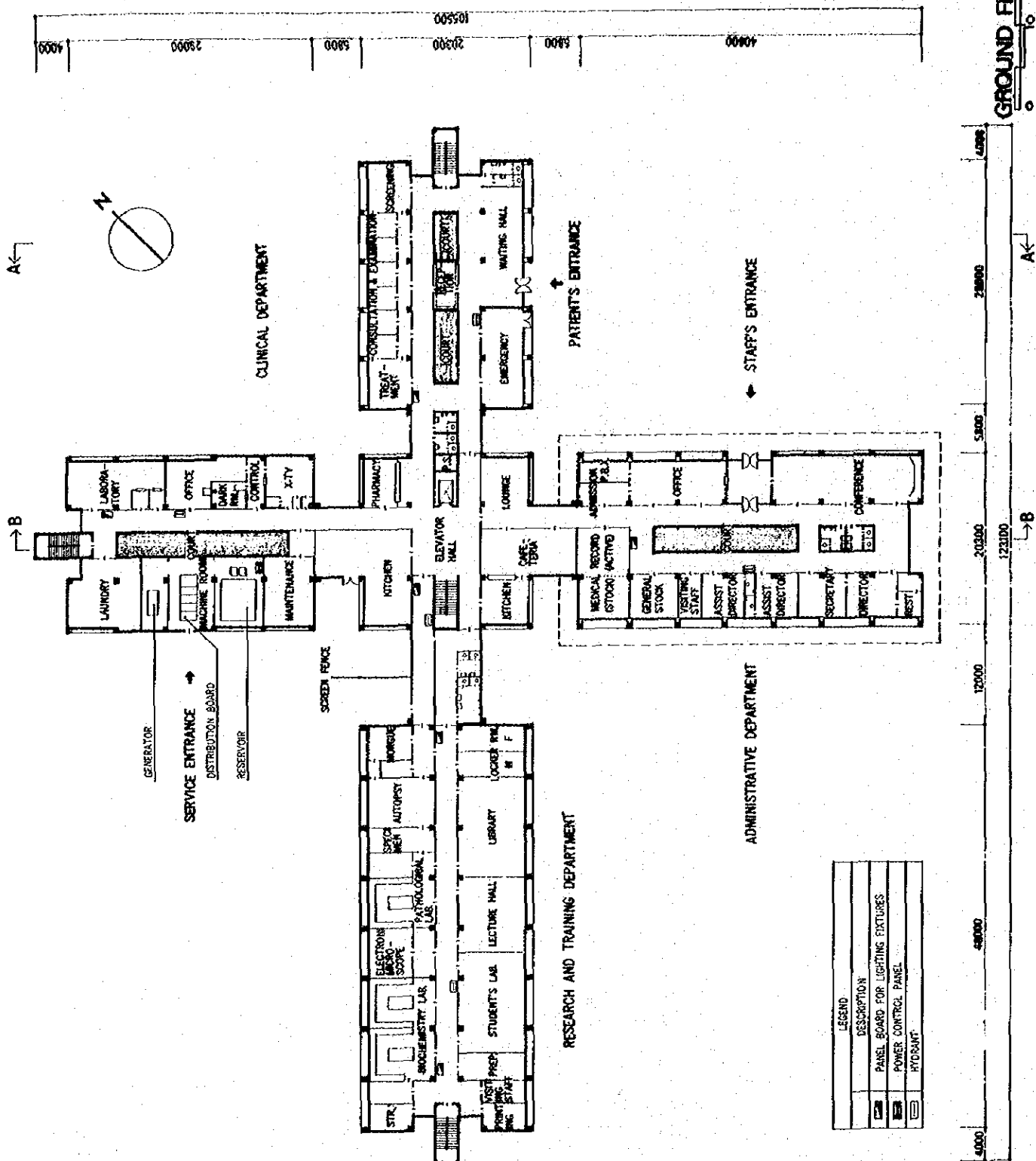
A system which will satisfy the applicable legal requirements will be provided.

TO MANMA →

HIGHWAY



SITE LAYOUT PLAN 1
SCALE 1:10000
50 100



3-8 SCOPE OF CONSTRUCTION WORK

1. Works included in the Budget

The following works are included in the budget presented by the Government of Japan:

(1) Building work

- a. Structural works including foundations
- b. Interior and exterior finishing works of the buildings

(2) Electrical work

- a. Lighting
- b. Main cables from the in-take junction box at the outer wall
- c. Transformer to supply 100V power
- d. Automatic Voltage Regulator for special services
- e. Distribution panel
- f. Power supply
- g. Socket outlets
- h. Telephone exchange
- i. Public address system

(3) Plumbing work

- a. Deep well construction with pump
- b. Water supply
- c. Hot water supply
- d. Drainage for rainwater, soil water and experimental sewage
- e. Fire pump and plug
- f. Septic tank
- g. Gas piping

- h. Sanitary-ware
 - i. Cooking utensils
- (4) Air Conditioning and Ventilating Work
 - a. Unit type Air Conditioner
 - b. Ventilation plant
- (5) Exterior work
 - a. Front court
 - b. Service yard
 - c. Courts (3)
- (6) Medical equipment
 - a. Experimental equipment
 - including, Spectrophotometers, Microtomes, Chromatographs, Densitometer, Cold storage, Freezers, Mini-computer, Electron microscope, Sterilizers, Animal experiment equipment, Examining tables, Demonstration table.
 - b. Clinical equipment
 - including, X-ray unit for fluoroscopy with accessories, equipment for surgical suite, Bed, Equipment for nurse's station.

2. Works not covered by Budget

The cost of the following work and equipment shall be borne by the Government of the Republic of the Philippines.

- (1) Site survey
- (2) Soil test
- (3) Office

- (4) Rugs
- (5) Curtains and Drapes
- (6) Construction or improvement of roads within the site
- (7) Gates and Fence
- (8) Landscaping and Gardening
- (9) Main power cable to the building
- (10) Site drainage system
- (11) Food service utensils
- (12) Bedding materials such as,
- (13) Drugs
- (14) Testing materials for experimental work
- (15) Bandages and/or linen to be used in the clinical department

3. List of Major Facilities

(1) Research and Training Department

a. Research facilities

- i. Multi-purpose Room
- ii. Research Laboratories
- iii. Sterilizing & Washing
- iv. Instrument Storage
- v. Cold Storage
- vi. Animal Experiment Laboratories, to house animals, with an Ante room to the Animal room and Exhausting system
 - ° Animal area and Support area
 - Maintenance
 - Cleaning
 - Food storage

- Attendant's room w/ toilet / bathroom
- Locker & bathroom for researchers
- ° Experiment area

vii. Pathological Laboratory Area

- ° Laboratory
- ° Pathology-Anatomy Room & support facilities
 - Freezer
 - Preparation area
 - Specimen storage
 - Washroom w/ toilet & bathroom
- ° Morque

b. Training Facilities

- i. Lecture Room and Teaching Laboratory (Training)
- ii. Library
- iii. Locker Rooms for Students (Male & Female)
- iv. Toilet Facilities (Male & Female)

(2) Clinical Department

a. Administration

- i. Business Office
- ii. Medical Records
- iii. Conference Room & Library
- iv. Clinical Administrator's Office
- v. Toilet Facilities for Staff
- vi. Lobby

b. Outpatient Department

- i. Reception Counter with Cubicle for OPD Records
- ii. Screening Cubicle (Patient)

- iii. General Waiting Area with separate male & female patients' Toilet Facilities
 - iv. Consultation & Examination Cubicles
 - v. Treatment Cubicle
 - c. Emergency Room
 - i. Reception Counter with OPD Record Cabinet
 - ii. Cubicle for Equipment Storage
 - d. Ancillary Services
 - i. X-ray and Supporting Facilities, such as Dark Room, Toilet, Dressing, Radiologist's Office (Viewing, Film Storage, Film File)
 - ii. Laboratory
 - iii. Pharmacy with Cubicle for Drug Storage
 - e. Operating Room (Surgical Suite)
 - i. Operating Room
 - ii. Central Sterilizing and Supply
 - ° Work area
 - ° Sterilizing room
 - ° Sterilized supply storage
 - iii. Preparation Room
 - iv. Doctor's Locker Room with Toilet/Shower Facilities
 - v. Nurse's Locker Room with Toilet/Shower Facilities
 - vi. Space for Nurse's Table & Cabinet for Records
 - vii. Cubicle for Storage of Sterilized Equipment and Anesthetic materials & equipment.
 - f. Nursing Unit (Ward)
 - i. Nurse Station with Toilet, Charting Counter and Utility Counter

- ii. Treatment Room
 - iii. Janitor's Closet & Storage
 - iv. Linen Room (Clean & Soiled)
 - v. Nursing Director's Office
 - vi. Doctor's Room (Male/Female) with Toilet/Shower Facilities & Closet
 - vii. Visitor's Lounge
 - viii. All-purpose Room (I.C.U. or Recovery)
 - ix. Ward (4 beds)
 - x. Private Room with Toilet/Bath Facilities
 - xi. Toilet Facilities
 - xii. Pantry
- g. Kitchen
- i. Storage
 - Cold
 - Day
 - ii. Receiving Area
 - iii. Kitchen Proper
 - Food Assembly area
 - Food preparation
 - Cooking
 - Service area
 - Dish washing & sterilizing
 - Garbage cubicle
 - Food truck washing
 - Diet Kitchen
 - iv. Dietitian's Office
 - v. Locker Room and Toilet Facilities

h. Laundry

i. Mini Lounge

- Washing
- Drying
- Pressing

ii. Sterilizing Room

iii. Issuing & Receiving Space

iv. Housekeeping

v. Central Linen Room

vi. Store Room for Laundry Materials

i. Power Room

i. Transformer Main Control Switch

Distributing Panel

Standby Generator

ii. Water Supply Pump, Fire Pump

Reservoir, Overhead Tank (2,500 - 5,000 Gallons)

- Water-treatment system or water softener

(3) Administrative Department

a. Entrance Lobby with Ante Room & Waiting Area

b. Director's Office with Toilet/Shower Facilities and Rest Room

c. Vice Director's Office

d. Board Conference Room Accomodating 100-150 Persons, with
Movable Partitions & Direct Access from Outside

e. Administrative Office

f. Toilet Facilities

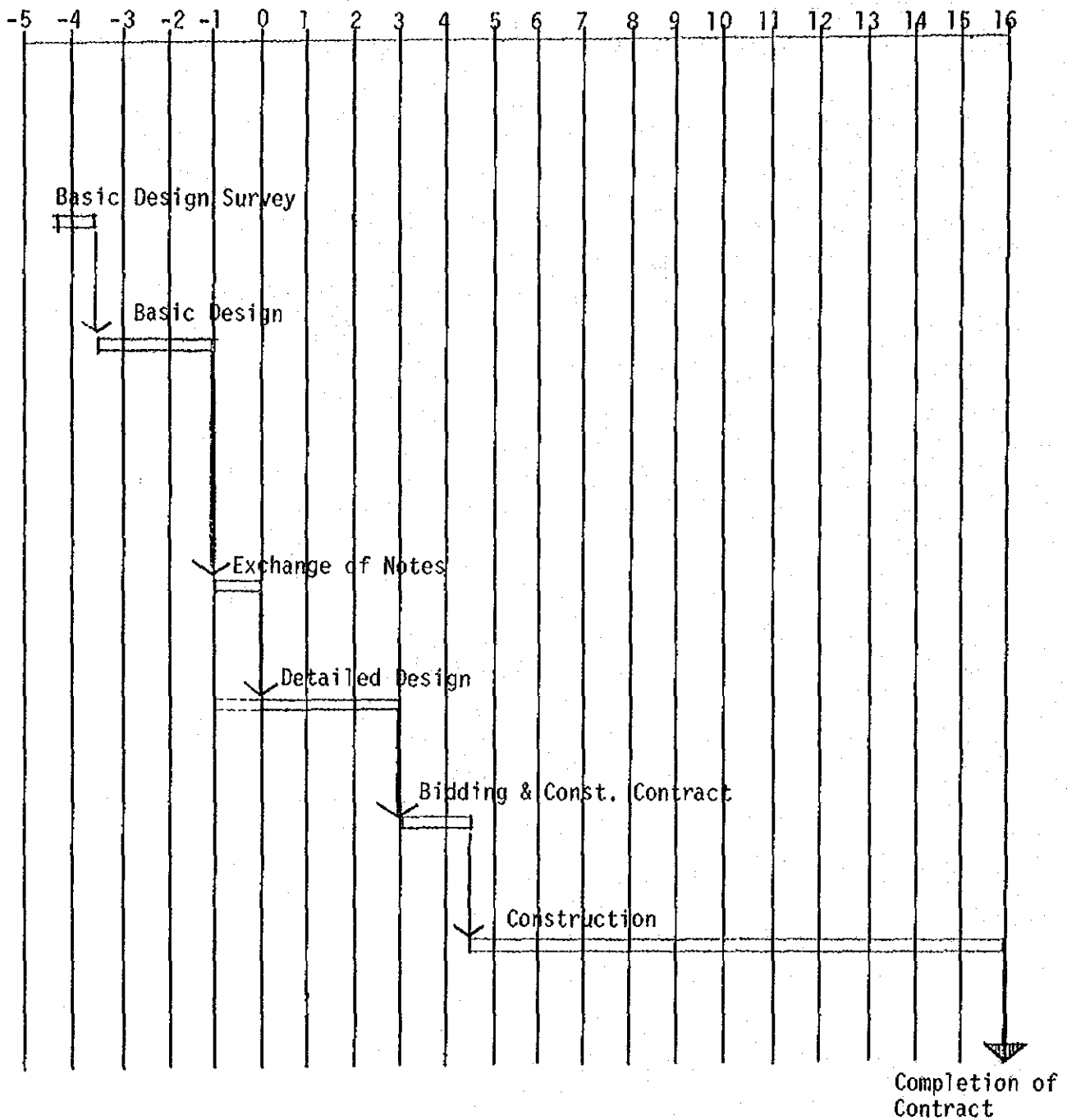
g. PBX

- Intercom.
- Paging System
- Public Address System

h. General Stock Room

i. Cafeteria and Kitchen

3-9 SCHEDULE OF IMPLEMENTATION



Note: The schedule for implementation of the project from the starting date of Basic Design Survey to the date of completion of the facilities is planned as shown above.

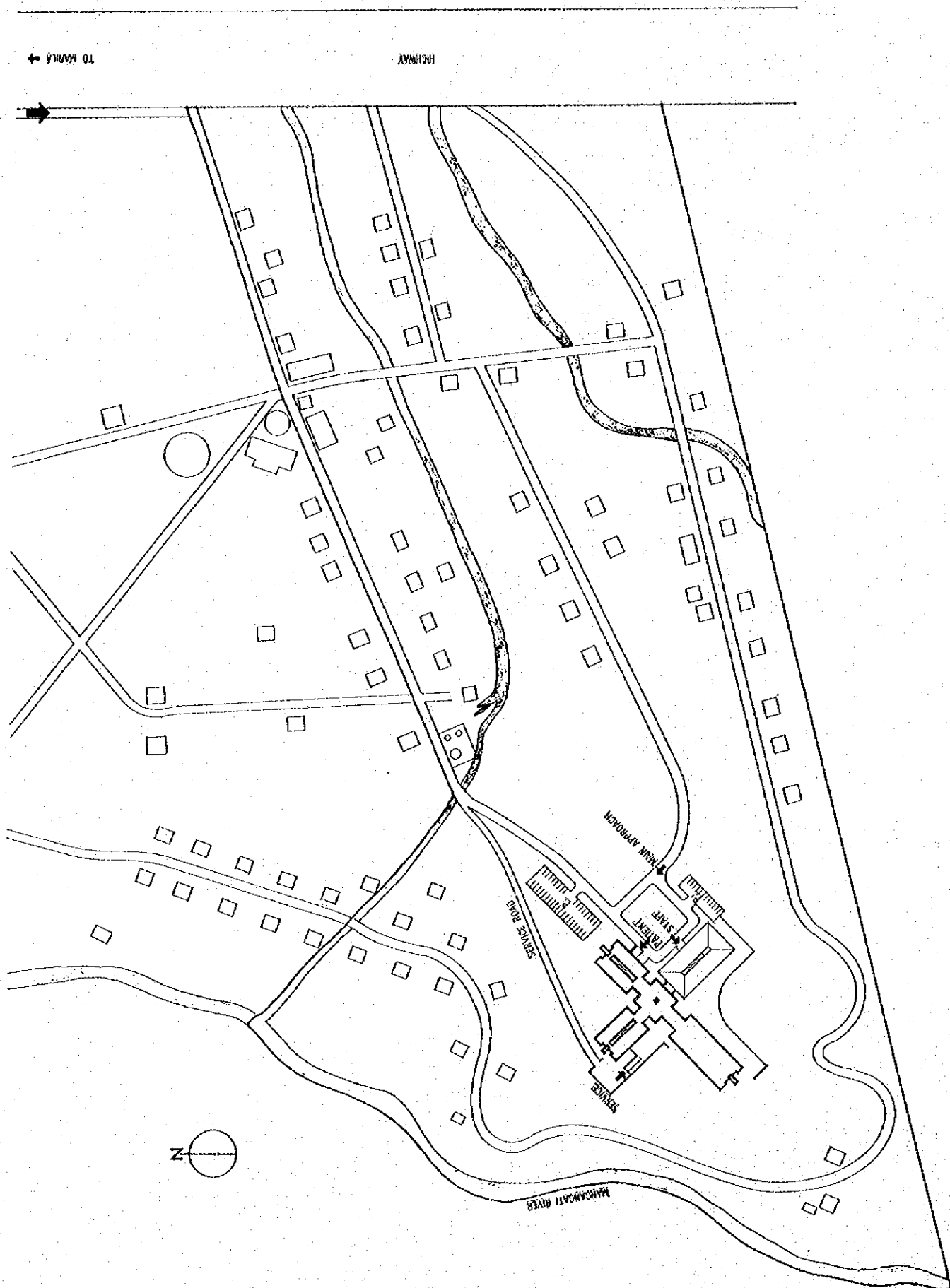
3-10 APPROXIMATE ESTIMATE OF PROJECT COST

The cost required for the project was estimated as follows:

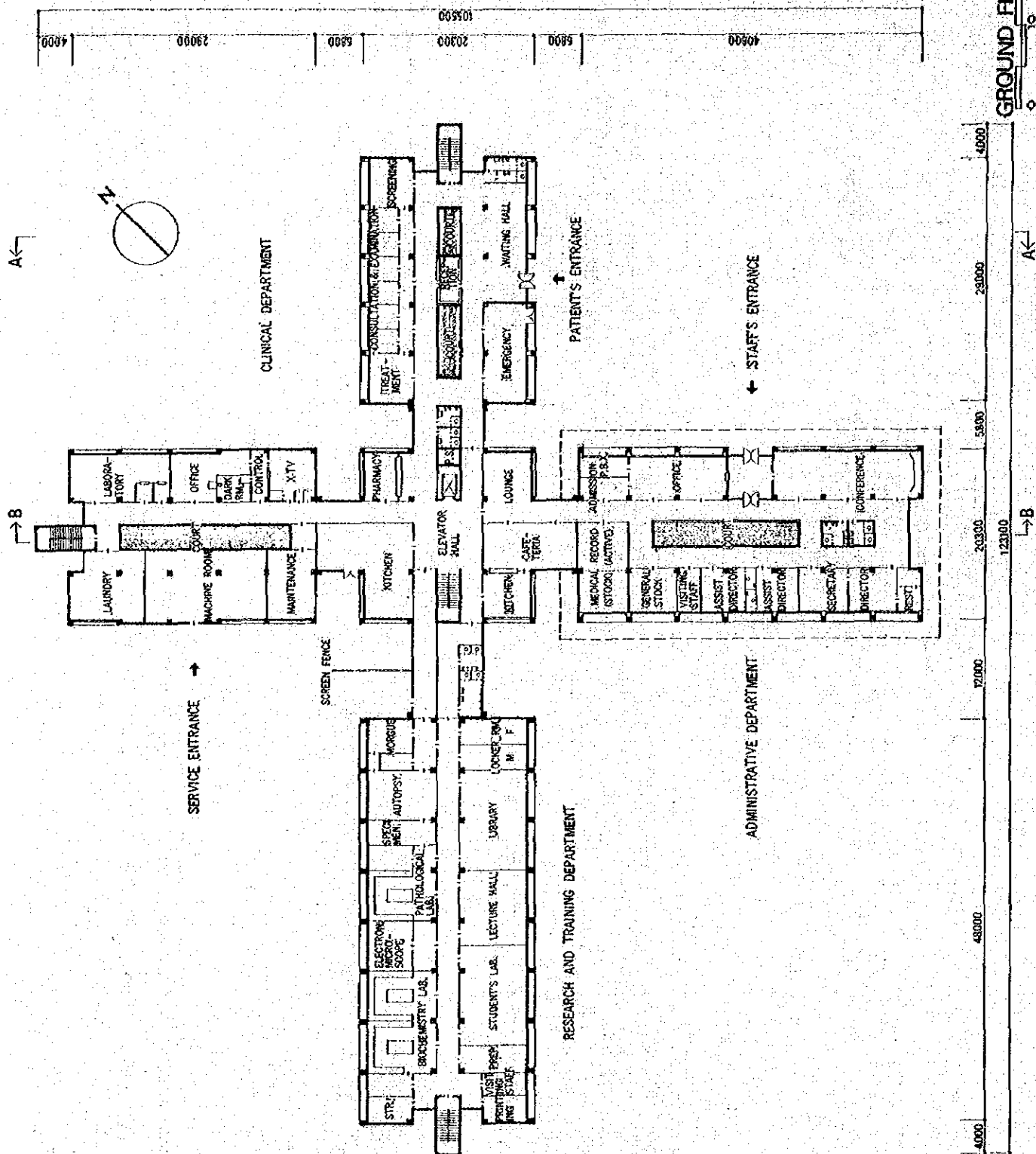
1. Construction works	¥1,281,000,000.-
2. Equipment	354,000,000.-
3. Architect's fee	165,000,000.-
Total	¥1,800,000,000.-

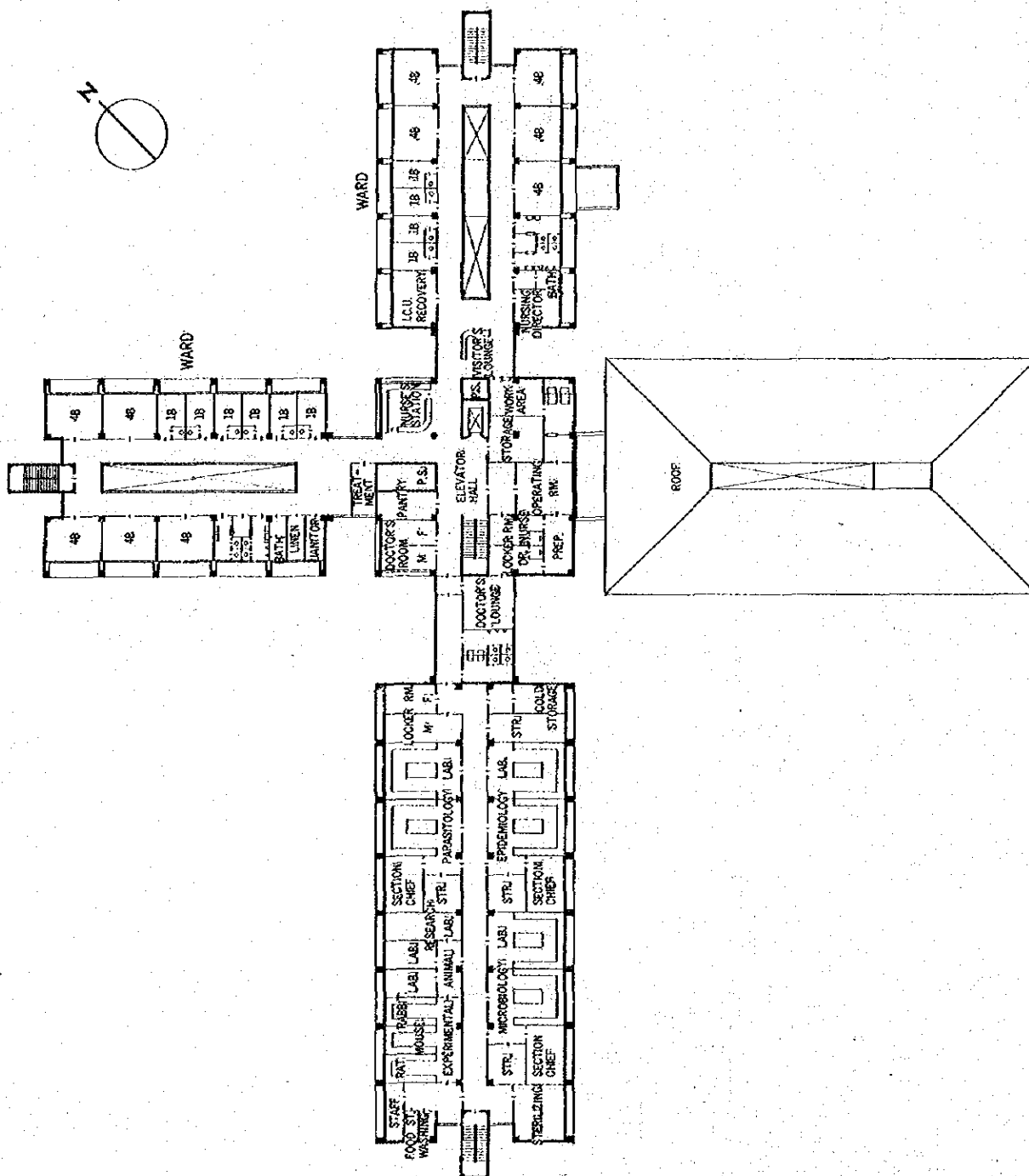
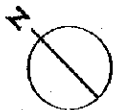
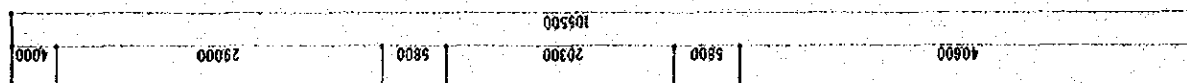
3-11 DESIGN DRAWINGS

1. SITE LAYOUT PLAN
2. GROUND FLOOR PLAN
3. SECOND FLOOR PLAN
4. ELEVATION & SECTION

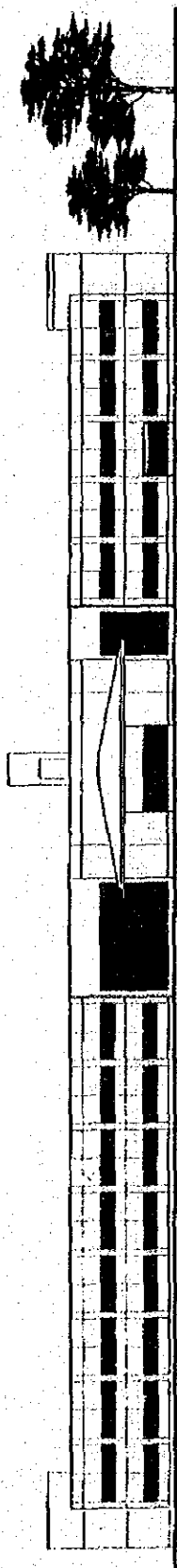


SITE LAYOUT PLAN
 1
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 M SCALE

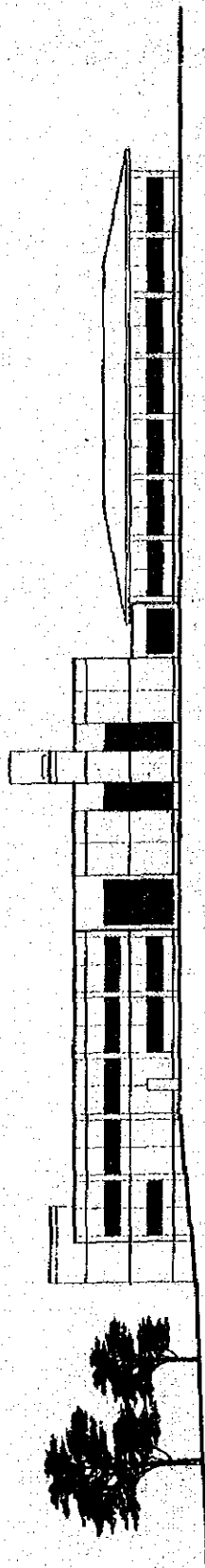




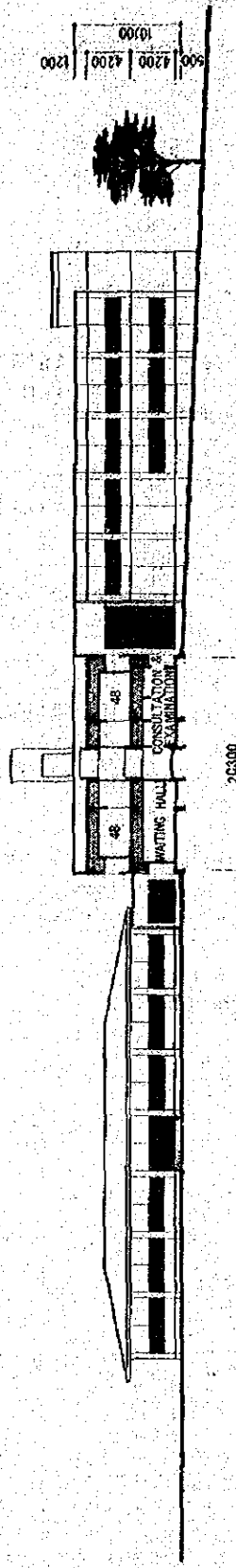
SECOND FLOOR PLAN 3
SCALE 1:1000



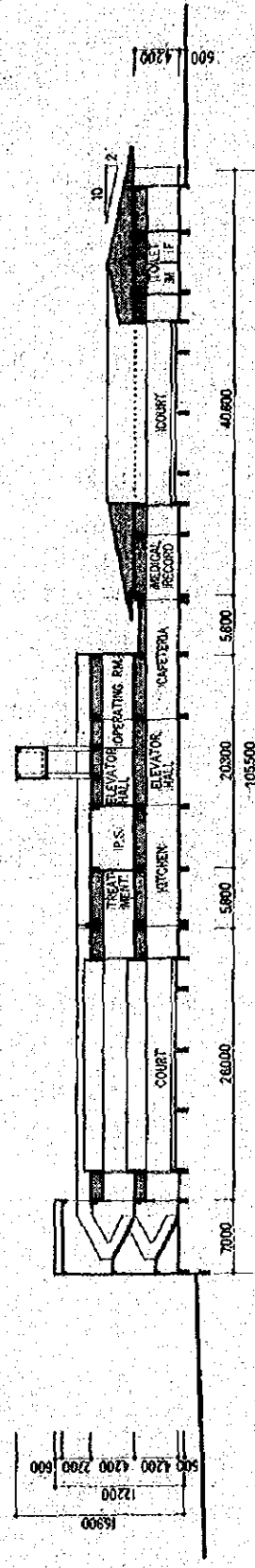
SOUTH-EAST



SOUTH-WEST



A - A



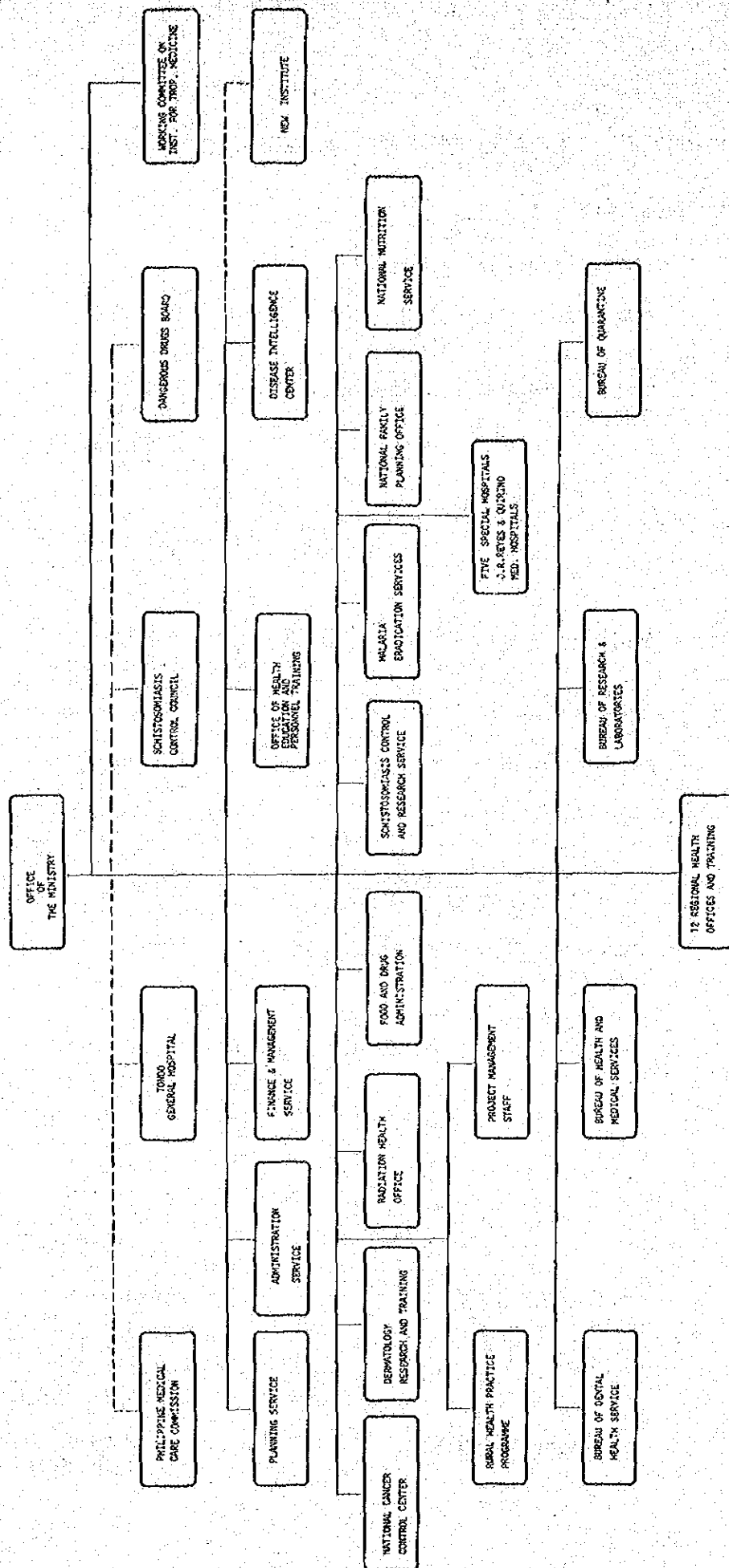
B - B

ELEVATION & SECTION 4

APPENDIX I LIST OF PERSONS CONCERNED (ORGANIZATION OF THE WORKING COMMITTEE FOR THIS PROJECT)

		<u>Position in the Working Committee</u>
Dr. Antonio N. Acosta	Assistant Minister of Health	Chairman
Dr. Cesar V. Uylangco	Chief, San Lazaro Hospital	Vice-Chairman
Dr. Jacinto Dizon	Director, Bureau of Health Service	Member
Dr. Jose Plantilla	Deputy Director Bureau of Research & Laboratories	Member
Architect Manuel Torres	Hospital Architect Bureau of Medical Service	Member
Dr. Joaquin S. Sumpaico		Advisory Member
Dr. Hiroshi Ogonuki		Advisory Member

APPENDIX II ORGANIZATION OF THE MINISTRY OF HEALTH



APPENDIX III MEMBERS AND DIARY OF JAPANESE TEAMS

III-1 Members

1. Preliminary Survey Team

(Dispatched period: from Nov. 29th to Dec. 12th, 1978 for 15 days)

Prof. Yoshinori KANEKO M.D., M.P.H. (Leader)	Professor Department of Public Health School of Medicine TOHO UNIVERSITY
Prof. Susumu HOTTA M.D.	Professor Department of Microbiology School of Medicine KOBE UNIVERSITY
Prof. Seiji MATSUI M.D.	Professor Department of Public Health School of Hygienic Science KITASATO UNIVERSITY
Mr. Osamu SAEKI	Medical Cooperation Department Japan International Cooperation Agency

2. Basic Design Team

(Dispatched period: from Jan. 24th to Feb. 10th, 1979 for 18 days)

Prof. Yoshinori KANEKO M.D., M.P.H. (Leader)	Professor Department of Public Health School of Medicine TOHO UNIVERSITY
Prof. Seiji MATSUI M.D.	Professor Department of Public Health School of Hygienic Science KITASATO UNIVERSITY
Mr. Yoichi SEKI	Counselor Social Development Cooperation Department Japan International Cooperation Agency
Mr. Hideo WATANABE	Project Architect NIKKEN SEKKEI

Mr. Takehisa MARUYA

Architect
NIKKEN SEKKEI

Mr. Koichi SUZUKI

Mechanical & Electrical
Engineer
NIKKEN SEKKEI

Mr. Tetsuo TOYODA

Structural Engineer
NIKKEN SEKKEI

3. Explaining Basic Design Team

(Dispatched period: from March 12th to 21th, 1979 for 10 days)

Prof. Yoshinori KANEKO M.D.,M.P.H.

Prifessor
Department of Public Health
School of Medicine
TOHO UNIVERSITY

Mr. Yoichi SEKI

Counselor
Social Development
Cooperation Department
Japan International
Cooperation Agency

Mr. Hideo WATANABE

Project Architect
NIKKEN SEKKEI

Mr. Takehisa MARUYA

Architect
NIKKEN SEKKEI

III-2 Diary

1. Basic Design Team

<u>Date</u>	<u>Day</u>	<u>Description</u>
Jan. 24	Wed.	Tokyo-Manila Outward flight
25	Thu.	Courtesy call at Embassy of Japan and JICA's Manila Office Courtesy call and discussion with the Philippine counterparts about schedule, field survey, etc at San Lazaro Hospital
26	Fri.	Visit to the Serum and Vaccine Laboratories and the proposed site for the Institute in Alabang
27	Sat.	Investigation of other medical facilities in the Manila area
28	Sun.	Preparation of the materials for discussion with the Philippine counterparts Interim report for JICA's Manila Office
29	Mon.	Study of existing medical facilities in other buildings in the Manila area
30	Tue.	Discussion with the Philippine counterparts at the Sheraton Hotel about the Minutes and other technical matters
31	Wed.	Meeting with the Philippine counterparts at San Lazaro Hospital regarding the Minutes Visit to Medical Research Institute in Manila
1	Thu.	Discussion with the Philippine counterparts at the Sheraton Hotel about technical matters Visit to Medical Facilities in Manila
2	Fri.	Discussion with the Philippine counterparts at the Sheraton hotel about technical matters Study of buildings in Manila Investigations at MERALCO about the power supply situation in Alabang
3	Sat.	Visit to the proposed site and carrying out of site level survey
4	Sun.	Investigation of building materials and their market prices
5	Mon.	Discussion with the Philippine counterparts at San Lazaro Hospital about technical matters

- Feb. 6 Tue. Discussion with the Philippine counterparts at San Lazaro Hospital about the Minutes
- Inquiries at PLDT (Philippine Long Distance Telephone Company) on the Telephone service situation in Manila
- 7 Wed. Exchange of the Minutes between Dr. Uylangco and Prof. Kaneko at San Lazaro Hospital
- Visit to the Bureau of Public Works to study laws and codes on design and construction of buildings in the Philippines
- 8 Thu. Briefing at the Embassy of Japan
- Investigation of climatic and seismic data at PAGASA (Philippine Atmospheric, Geophysical and Astronomical Services Administration)
- 9 Fri. Confirmation with the Philippine counterparts on technical matters
- Briefing at JICA's Manila Office
- 10 Sat. Manila-Tokyo Return flight

2. Explaining Basic Design

<u>Date</u>	<u>Day</u>	<u>Description</u>
Mar. 12	Mon.	Tokyo-Manila outward flight Discussion on schedule at Sheraton Hotel with JICA Representative in Manila
13	Tue.	Courtesy call and discussion with the Philippine counterparts on the draft report Courtesy call at the Embassy of Japan in the Philippine and JICA Manila office
14	Wed.	Courtesy call and explanation at the National Economic Development Authority (NEDA) with the Philippine counterparts
15	Tue.	Surveyance of the site Discussion with the Philippine counterparts on the technical aspect of the report, technical cooperation which will follow to the Grant and also the procedure of the Grant The draft report on Basic Design was agreed after some amendment The letter of submittance of the report was signed by Dr. KANEKO
16	Fri.	Obtained a letter of intent to allow NIKKEN SEKKEI to prepare the detailed design and the acknowledgement by NEDA on the future contract signer Report to the Japanese Embassy and JICA
17	Sat.	Survey on the data of basic design
18	Sun.	Ditto
19	Mon.	Courtesy call at the Minister of Health Dr. Gatmaitan Courtesy call and final report at the Japanese Embassy and JICA Manila Office
20	Tue.	Confirmation of technical counterpart of the Philippines at Dr. Acosta Technical discussions with technical counterpart Architect Torres
21	Wed.	Surveyance on data of basic design Manila-Tokyo return flight

JICA

