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REPORT ON BASIC DESIGN

MAHASARAKHAM NURSING COLLEGE
IN
THE KINGDOM OF THAILAND

MARCH 1981

JAPAN INTERNATIONAL COOPERATION AGENCY

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REPORT ON BASIC DESIGN

MAHASARAKHAM NURSING COLLEGE

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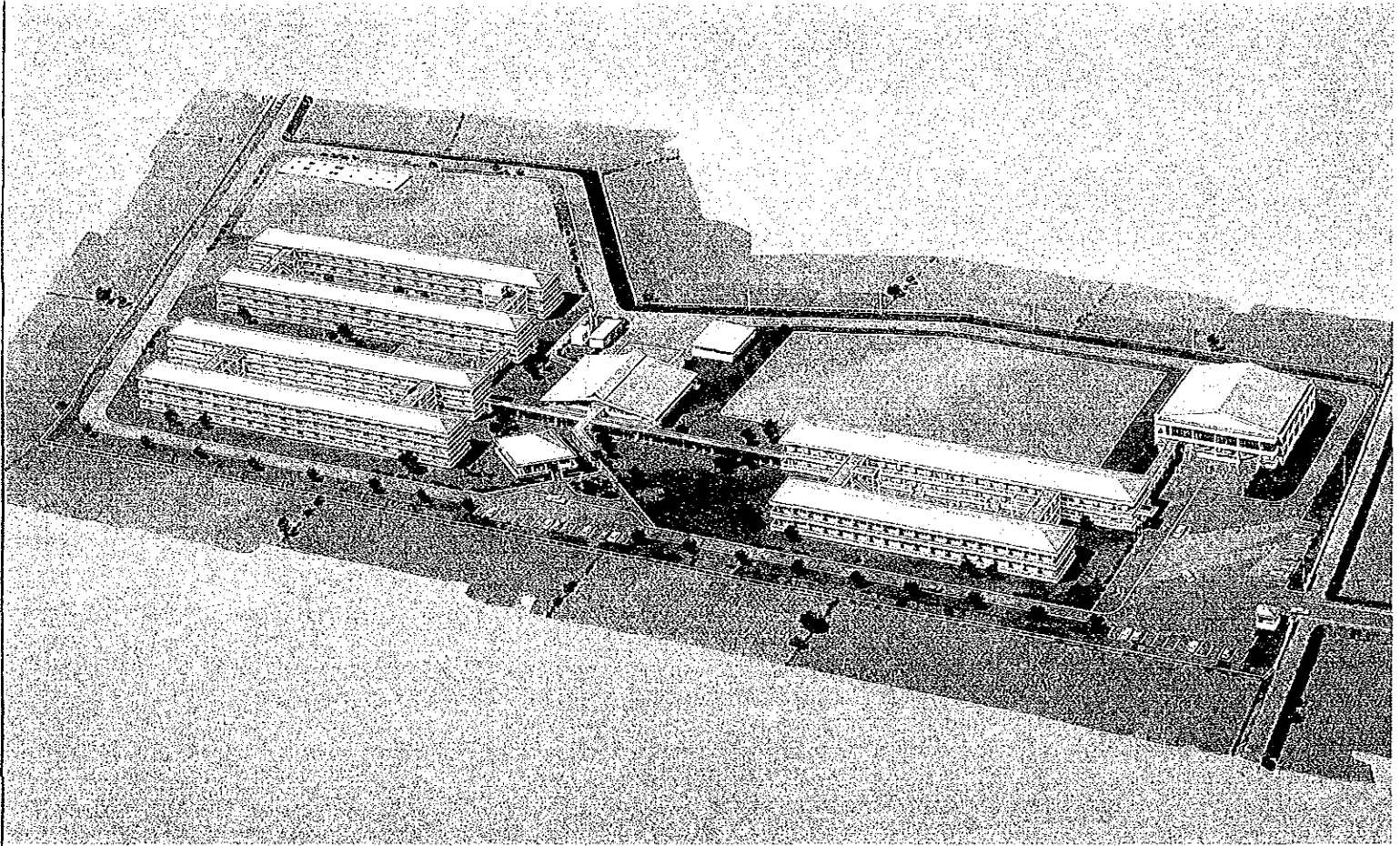
THE KINGDOM OF THAILAND

MARCH 1981

JAPAN INTERNATIONAL COOPERATION AGENCY

国際協力事業団

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MAHASARAKHAM NURSING COLLEGE

P R E F A C E

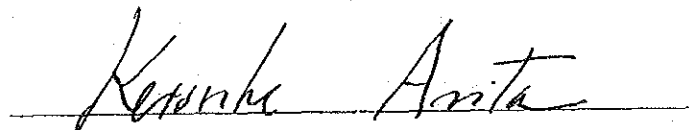
In response to a request of the Government of the Kingdom of Thailand, the Japanese Government decided to conduct a survey on the basic design for the construction project of Mahasarakham College of Nursing in the Kingdom of Thailand and entrusted the survey to the Japan International Cooperation Agency. The J.I.C.A. sent to Thailand a survey team headed by Prof. Y. Takahashi from October 27th to November 16th, 1980.

The team had discussions with the officials concerned of the Government of Thailand and conducted a field survey. After the team returned to Japan, further studies were made and the present report has been prepared.

I hope that this report will serve for the development of the Project and contribute to the promotion of friendly relations between our two countries.

I wish to express my deep appreciation to the officials concerned of the Government of Thailand for their close cooperation extended to the team.

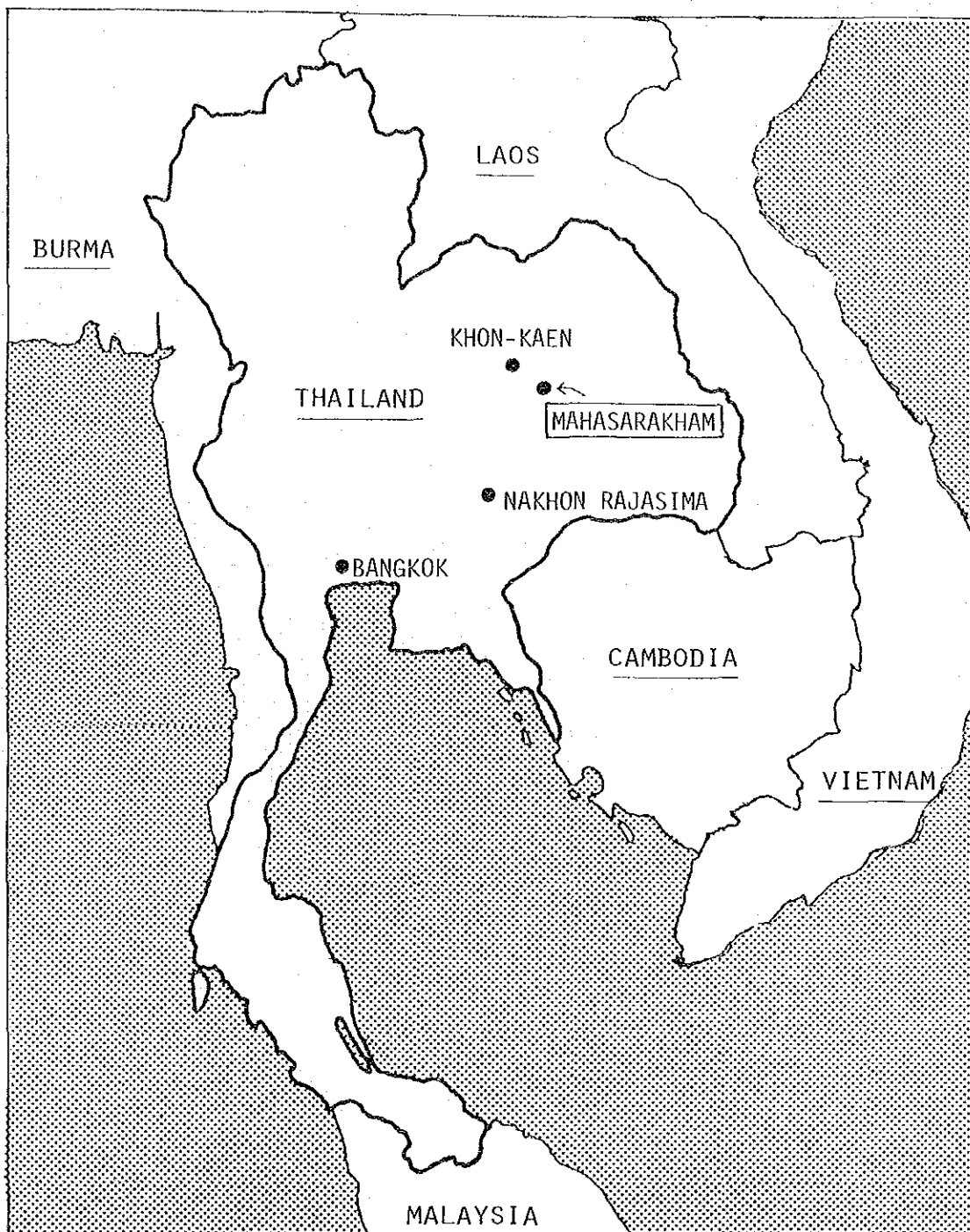
March, 1981



Keisuke Arita

President

Japan International Cooperation Agency

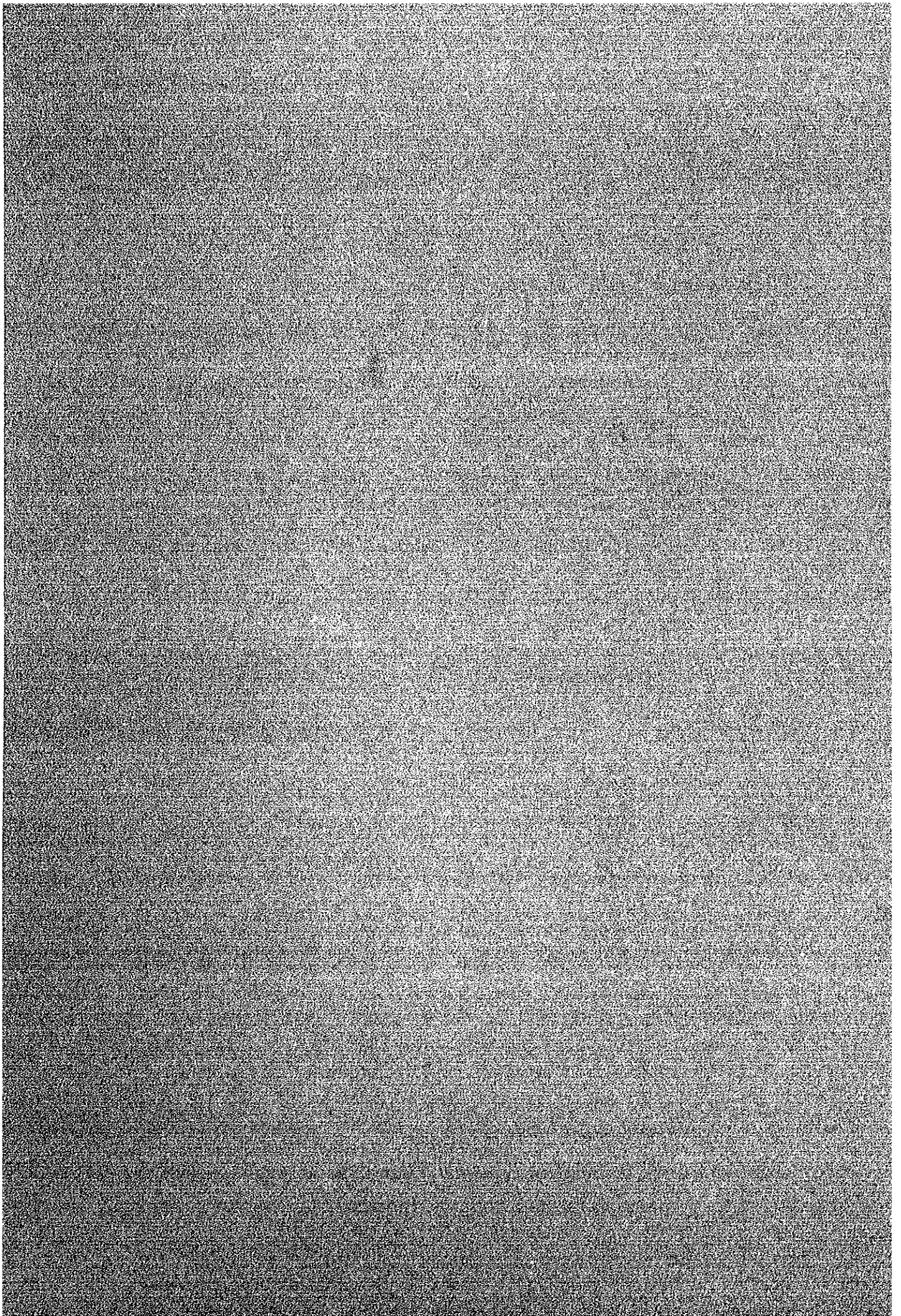


MAP OF THAILAND

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CHAPTER 1 SUMMARY



CHAPTER 1 SUMMARY

1-1 BACKGROUND AND REQUEST

The Thai Government has implemented the Fourth National Health Plan which covers the years 1977 to 1981 and is now carrying out policies in accordance with that plan. Included in the Fourth National Health Plan is the promotion and improvement of nursing education to benefit the Thai people by preventing diseases, improving diagnosis and providing for the rehabilitation of patients. Therefore the Thai Government has earnestly requested the Japanese Government to provide Grant Aid for the establishment of a college of nursing in Mahasarakham for the education of nurses. Mahasarakham has a large population being the provincial city of north-east Thailand.

1-2 FIELD SURVEY

To assess the Requests of the Thai Government a field survey was carried out in order to determine the optimum design to be constructed as the Mahasarakham College of Nursing.

The city of Mahasarakham was selected by the Thai Government.

Survey Stages

- | | |
|------------------------|--------------------|
| a. Basic Design Survey | Oct. and Dec. 1980 |
| b. Confirmation Survey | Jan. and Feb. 1981 |

During the Basic Design survey the Japanese survey team and the authority concerned in Thailand (the Ministry of Public Health) agreed upon the construction project for the Mahasarakham College of Nursing at a series of meetings and these points were confirmed in the contents of the attached minutes.

As part of their investigations to collect information on the National Health Plan and medical education in Thailand the team visited the site of the proposed College of Nursing to inspect and survey the actual conditions and situation of the site and

to familiarise themselves with the existing facilities for nurse education and medical health care in the central and north east areas of Thailand.

1-3 JUSTIFICATION AND EFFECTIVENESS OF THE PROJECT

Since 1980 the Government of the Kingdom of Thailand has been taking positive steps under the Fourth National Health Plan, to improve the nurse education system, particularly with a view to increasing the number of nurses able to receive the required education.

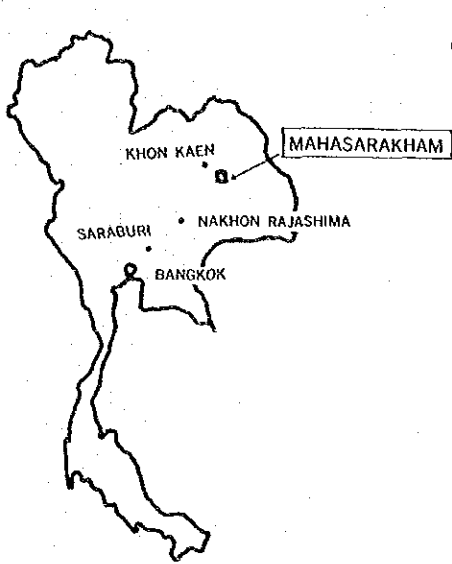
The new college, by alleviating the present shortage of trained nurses will further the aims of the Fourth National Health Plan and make a considerable contribution to improvements in health care and the prevention of diseases amongst the people of Thailand.

1-4 OUTLINE OF THE PROJECT

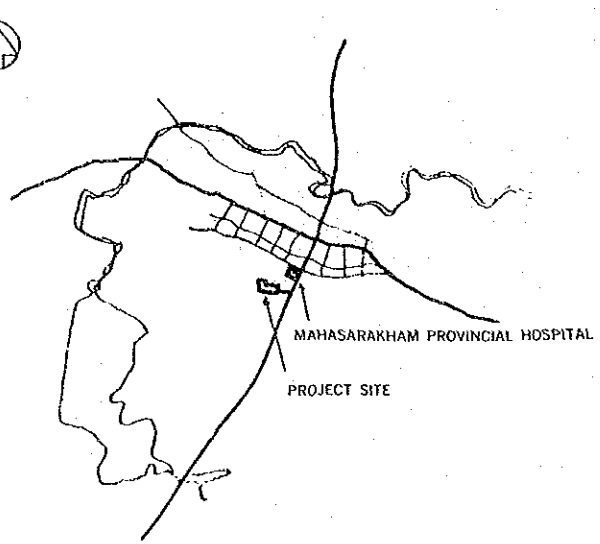
In accordance with the results of discussions held between representatives of Japan and Thailand and the site survey carried out by the survey team the following basic design has been agreed.

A main college building; auditorium; dormitories, cafeteria and other related facilities with a combined floor area of approximately 15,000 m² situated on a site of 48,000 m².

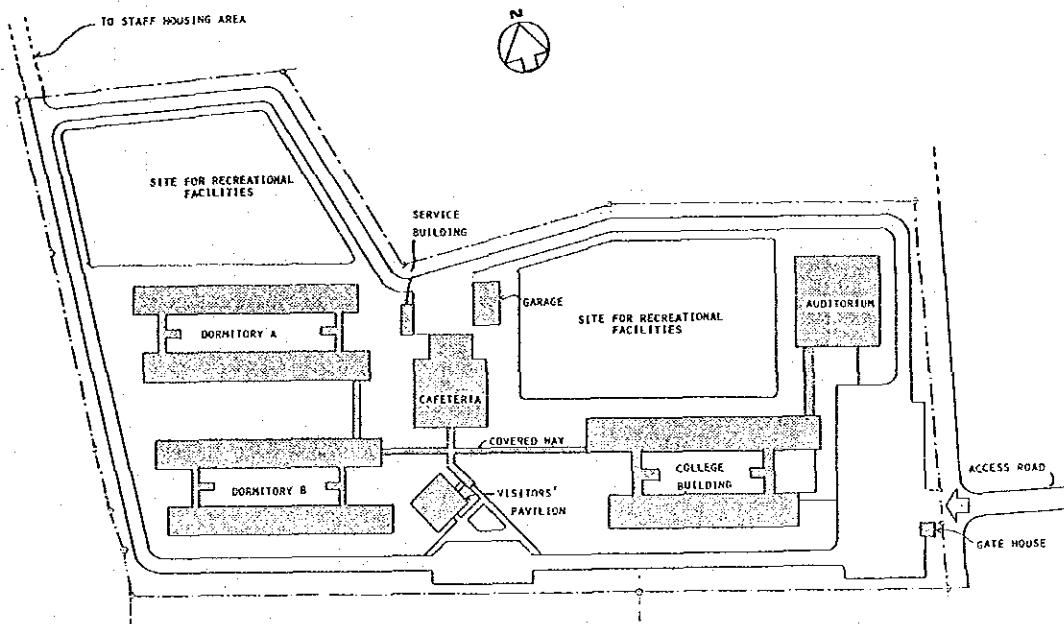
Although, the Thai side originally requested facilities to accommodate 800 students divided into 200 students per year, a total of 600 students was actually considered suitable from the point of view of optimum educational and physical facilities.



MAP OF THAILAND



MAP OF MAHASARAKHAM

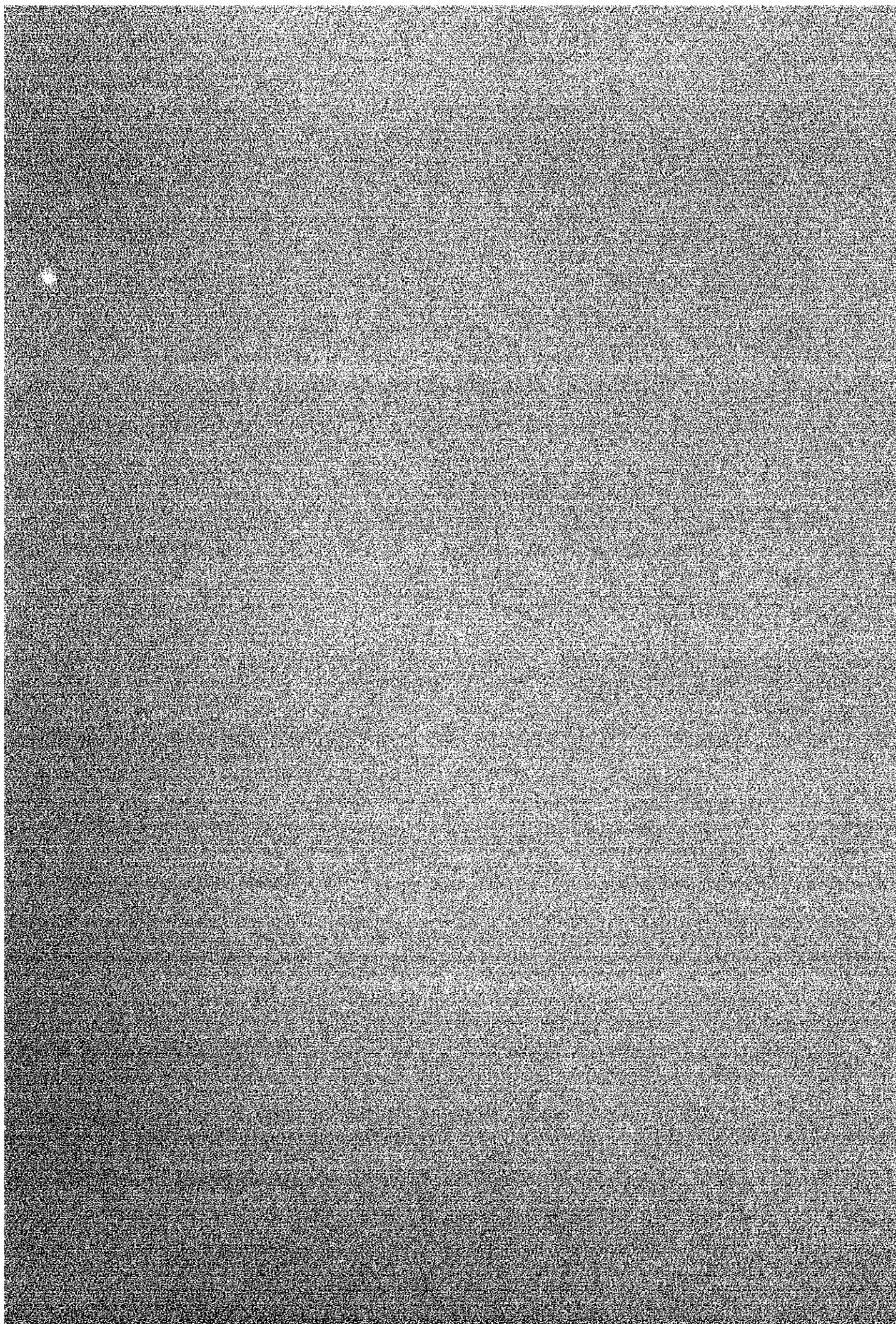


CONSTRUCTION PROJECT OF THE MAHASARAKHAM NURSING COLLEGE

Description of the Project

- a. Name of Project : The Construction Project of the Mahasarakham College of Nursing
- b. Site : Mahasarakham, Thailand
- c. Authority Concerned : Ministry of Public Health, Thailand
- d. Educational System : 4 years course Total 600 students
150 students for each year
2 block system 75 students for each block
For high-school graduates
Enrollment June and December
- e. Facilities Provided : ° College building
(Rooms for lectures, demonstrations, laboratory work, Audio-Visual, library, administration, staff etc.)
° Auditorium
° Cafeteria
° Dormitories
° Service buildings
Total Floor area : approx. 15,000 m²
- f. Proposed Site : ° Site area : approx. 48,000 m²
° The Thai Government will be responsible for raising the ground level of the site and pavement of the approach road before commencement of the construction work and also the connection of power cables, telephone cables and water supply pipe to the new building.
- g. Scope of the Work : Building construction, educational equipment design and supervision.
- h. Basic Design Plan : See the attached drawings

CHAPTER 2 FILED SURVEY



CHAPTER 2 FIELD SURVEY

2-1 OBJECTIVES AND BACKGROUND

1. Objectives

At the request of the Government of the Kingdom of Thailand, the Japan International Cooperation Agency (JICA) dispatched a survey team to Thailand for twenty one days from October 27th to November 16th 1980 to carry out the basic design of the Mahasarakham College of Nursing in the Kingdom of Thailand. The objectives of the mission were to hold discussions with the Thai Government Officials concerned regarding the implementation of this project and to collect the data and information necessary for the basic design of the college to be constructed in Mahasarakham, Mahasarakham Province, Thailand.

2. Background

Japan's Cooperation in medical and health care programs in Thailand will contribute to the improvement of the people's health and welfare, resulting in strengthening the foundation for social and economic development in Thailand. 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 Governments. In particular the Government of Japan considered that it was most effective to cooperate in the education of nurse students to ensure the systematic development of medical and health care.

The Government of Thailand is now in the process of implementing its Fourth National Health plan. Under this plan steps are being taken to reorganize and improve the education of nurses not only in quality but also to increase the numbers of student nurses graduating each year. As a positive contribution to this latter point it was decided to build a new College for nurse education at Mahasarakham. The Government of Thailand firmly believes that the establishment of a new Nursing College in this important regional centre in North East Thailand will contribute significantly to the improvement of nursing skills throughout the region, overcome the existing shortage of nurses and encourage the surrounding health facilities to improve their facilities and methods of health care nursing.

2-2 BASIC DESIGN SURVEY

1. Meeting with the Thai Government Officials

The team visited H.E. Dr. Prakorb Tuchinda, Under-Secretary, Ministry of Public Health, Dr. Winit Asavasena, Deputy Under-Secretary, Ministry of Public Health, Miss Paga Sriyuktasuth, Director of Nursing College Division, and other Thai Government officials concerned, in Bangkok and gave them a detailed explanation of the objectives of the survey, and Japanese regulations concerning Grant Aid. These were fully understood by all officials concerned. A proposed plan of the project was also presented.

In Mahasarakham, the team visited Mr. Kitti Pratumkaen, Governor of Mahasarakham province and other officials concerned to give them the same explanation.

2. Discussion with the Thai Government Officials

The team held a series of discussions with the relevant officials in the Ministry of Public Health. These were concerned with

- The system of nurse education being requested
- The capacities of the educational facility
- The project site and access road
- Soil tests and land surveys
- Utilities and services
- Architectural and engineering aspects
- Scope of works and expected procedure for the Grant Aid and proposed preliminary plan of the project

The team also requested certain information which they needed to collect to enable the basic design work to be completed.

3. Site Investigation

Accompanied by the Thai counterparts from the Ministry of Public Health, the survey team conducted the site investigations at Mahasarakham. The following points were considered during the site investigations and land analysis:

1) Location

- i. Co-ordination with city planning
- ii. Relationship of site location to urban area and existing practical hospitals
- iii. Access from highways
- iv. Existence of any obstructions

2) Site Formation and Environment

- i. Size of site in terms of the capacity of the college
- ii. Plan formation of site
- iii. Difference in grades and gradient on site
- iv. Scenery, sunshine and prevailing winds
- v. Noise and air pollution

3) Status of Water Supply and Soil Treatment Facilities

- i. Waterworks (service lines and well water)
- ii. Sewage and drainage (how and whether affecting other areas downstream)
- 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

4) Soil Conditions

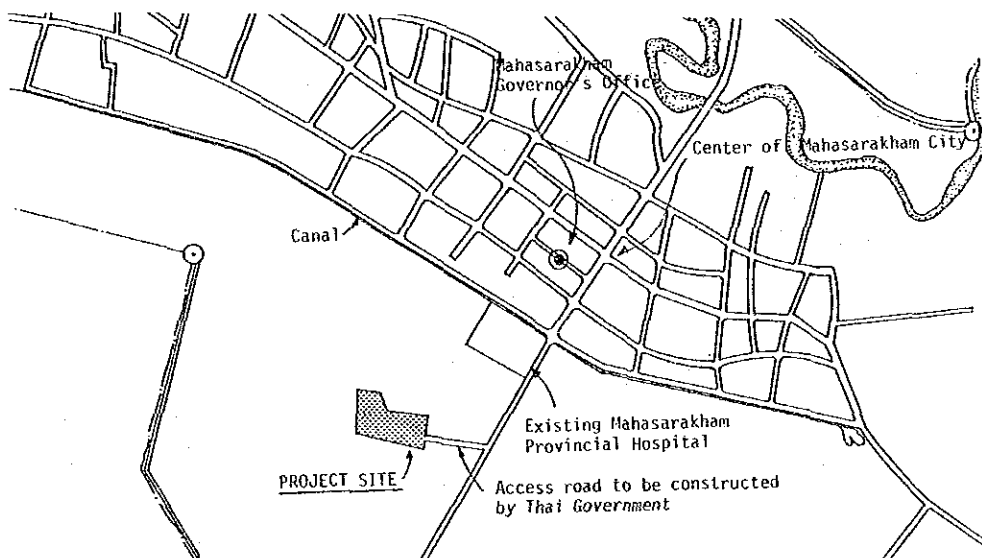
- i. Soil and geological conditions
- ii. Flood condition and water table level
- iii. Permeability
- iv. Erosion control and the possibility of land-slides
- v. Necessity for, and problems, with site preparation
 - ° Earth volume balance
 - ° Borrow pit
 - ° Suitability for construction

5) Rights and Restraints

- i. Properties to be purchased
- ii. Properties requiring compensation
- iii. How many, and what, restraints against development or building construction

6) Estimation of Required Infrastructural Scale

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



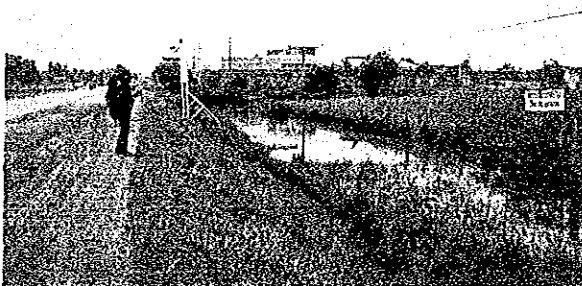
MAP OF MAHASARAKHAM CITY



A VIEW FROM THE WEST



A VIEW FROM THE ROAD



EXISTING MAIN ROAD



A VIEW FROM THE EAST

PROJECT SITE

4. Finding of the Site Investigations

The Survey Team investigated the proposed project site in Mahasarakham. The following describes the outline of the site proposed by the Thai Government and the condition of the site as observed by the Survey Team:

- The site is located about 1,000 m south west of the city center of Mahasarakham
- The site is 20 Rai (32,000 m²) in area under the ownership of the Thai Government and located 300 m away from the existing main road
- Mahasarakham provincial hospital is situated close to the site
- The site is at present under rice cultivation and the highest level of the field is approx. 1.5 m lower than the existing main road
- The site will require a general land fill of approx. 1.5 m to raise the general ground level to that of the main road
- The construction of an access road from the main road to the site will be required
- The present power line and telephone wires running along the main road will be available for use by the proposed Nursing College and will only require an extension of wires to link them to the site
- A city water mains supply is provided at the location shown on utility map Mahasarakham city, p- and will serve the site when piping has been laid to link it to the site

5. Project Site and Conditions Prevailing in Surrounding Region

1) Location of Site

Maharakham lies at latitude 16°10'N and longitude 103°20'E in the North Eastern Region of Thailand. The city has a population of approximately 50,000 and is about 100 Kms from Khon Kaen the largest city in the Region.

The project site is roughly rectangular in shape approximately 300 m long and 140 m wide with its long axis lying in an East West direction.

The land within which the site is situated is all under cultivation as rice paddy fields at present and apart from 3 or 4 patches of higher ground is extremely susceptible to flooding therefore steps will have to be taken to prevent flooding in the future. The land generally lies 15 m lower than the level of the main road.

There is an additional plot of land 12,000 m² in area to the north which will be connected to the main project site by a 8 m wide roadway.

2) Climatology

By studying the climatological data for Kohn-Kaen and Roi Et 100 Kms and 50 Kms from the site respectively the probable climatic conditions prevailing at Maharakham may be deduced as follows:

The intensity and duration of sunlight in this region is such that special care will have to be given to building design and choice of exterior construction materials. Although the site lies outside the Circum Pacific seismic belt, local records indicate no actual damage due to earthquakes in the past. Rainfall occurs in squalls frequently associated with thunderstorms and occurs about 100 times per annum.

Location Mahasarakham

Latitude 16°10'N

Record: 1961 - 1975

Longitude 103°20'E

Item		Month	Remarks
Temperature (°C) (Monthly mean maximum)	Max. 36.1 Min. 29.8	Apr. Dec.	Monthly mean temperature (°C) 23.2 - 30.2
Temperature (°C) (Monthly mean minimum)	Max. 24.7 Min. 16.0	May, Jun. Jan.	
Humidity (%) (Monthly mean max.)	Max. 93.3 Min. 82.0	Sept. Mar.	Monthly mean humidity (%) 60 - 82
Humidity (%) (Monthly mean min.)	Max. 67.6 Min. 42.0	Sept. Mar.	
Dew point (Mean) (°C)	Max. 23.9 Min. 15.6	Jun. Jan.	
Wind (km/hr) (Mean speed)	Max. 4.8 Min. 3.2	Jul. Sept.	Prevailing wind Jan. - Mar., Oct. - Dec. -- East Apr. May. -- South Jun. - Sept. -- South West
Rainfall (mm) (Mean)	Max. 300 Min. 2	Sept. Dec.	Summer Feb. - May Rainy Jun. - Sep. Winter Oct. - Jan.
Rainfall (mm) (Greatest in 24 hrs)	Max. 200 Min. 23	Sept. Dec.	
Thunderstorm (Number of days)	Max. 16 Min. 0	May Dec.	

3) Geological Characteristics

The site lies at the centre of a plateau in the North East Region of Thailand. The geological map issued by the Ministry of National Development shows that the geological features of the site belong to the Khorat Group of the Cretaceous Type consisting of sand stone and shale under a thick formation of salt-rock.

The site and surrounding area are probably composed of this sub-stratum overlaid with Alluvium.

Although the final evaluation of the sub-soil conditions cannot be made before the results of test bores have been studied, it was possible to ascertain by digging a test-pit that the sub-surface soil is clayey down to beyond 3 m below the existing ground level. Considering that the whole site is to be given a land fill layer of approx. 1.5 m it would appear that the use of piled foundations will be suitable for this project.

4) Wind Loadings

Thailand is subject to strong gusts of wind during the monsoon season and has a 'Code of Practice' setting out suitable wind load factors for structural designers. This will however have little or no effect on the design of this project since the wind loads are only approximately one third of those experienced in Japan.