

REPORT ON BASIC DESIGN

THE UJUNG PANDANG RATING SCHOOL
IN
THE REPUBLIC OF INDONESIA

MARCH, 1978

JAPAN INTERNATIONAL COOPERATION AGENCY

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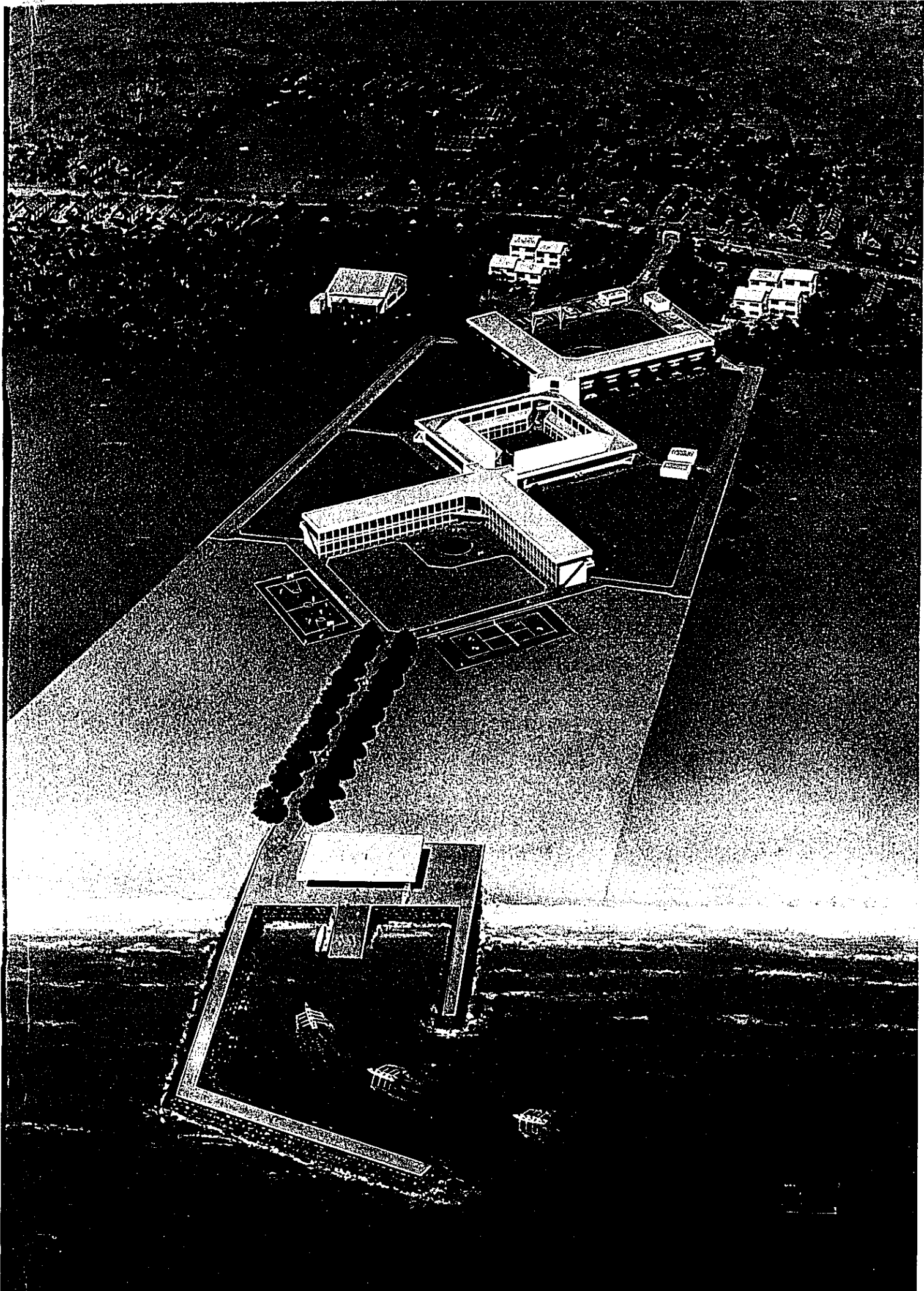
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PREFACE

In compliance with the request of the Government of the Republic of Indonesia, the Government of Japan decided to make a survey for designing the Rating School to be built in the Ujung Pandang area of the South Sulawesi, Indonesia; and the Japan International Cooperation Agency (JICA) conducted the survey.

JICA sent out its mission for the construction of the Indonesian Rating School in May 1975, which is designed to train the seamen who will be required as a result of the increasing shipping tonnage and traffic under the 5-year plan for strengthening the marine transport services of Indonesia.

JICA subsequently proposed the construction of rating schools on the Islands of Sumatra, Java, Sulawesi and Seram respectively. The Government of Indonesia made a thorough study of JICA's proposal, finally giving the first priority to the Ujung Pandang area for establishing the rating school, and made the official request to Japan for the survey. In response to it, JICA despatched in October, 1977 a 9-member survey mission for the basic designing of it under the leader of Professor Fumio-Shintani, Chairman of Navigation Department, Institute for Sea Training, Ministry of Transport.

In carrying out the field survey at the proposed site, the mission had the significant collaboration of the Government of Indonesia which facilitated its work. The mission re-examined the survey, consulted with the Indonesian officials concerned on it, and now completed its final survey report for submission to the Government of Indonesia.

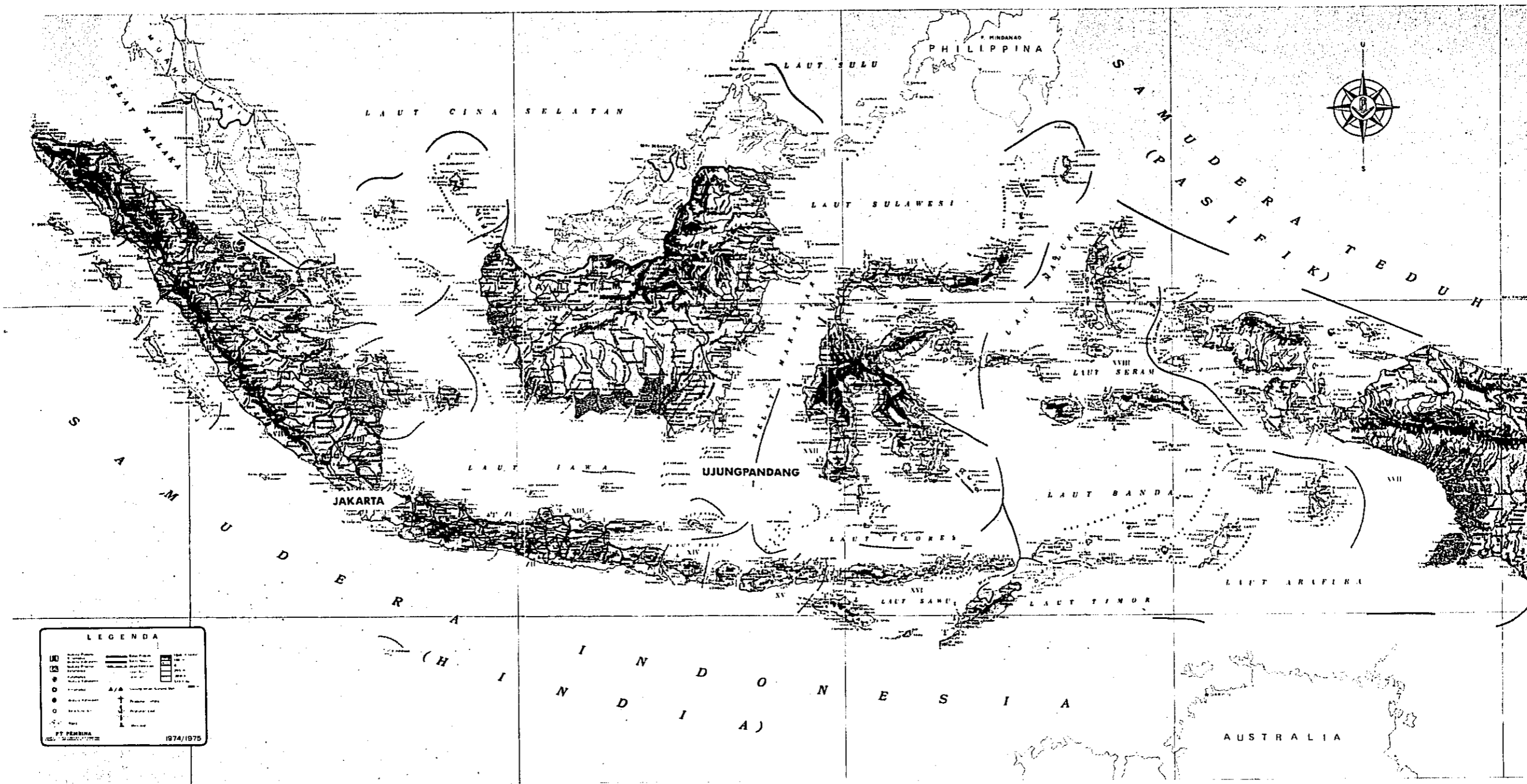
It is our sincere hope that the Report would prove to be useful for the development of the Rating School Project, and contribute to the friendship and goodwill between the Republic of Indonesia and Japan.

We owe deep gratitude to all the authorities and officials concerned for their courtesy and cooperation extended in the course of our survey.

March, 1978



Shinsaku Hogen
President
Japan International Cooperation Agency



INDONESIA

SCALE 1:6,000,000

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CHAPTER 1: FIELD SURVEY

1-1 OBJECTIVES

At the request of the Government of Indonesia, the Japan International Cooperation Agency (JICA) dispatched a mission to Indonesia for four weeks from October 19th to November 15th 1977 to implement the Ujung Pandang Rating School Project in South Sulawesi. The mission visited Indonesia to hold discussions with the Indonesian Government officials concerned and to collect the data and information necessary for the basic designing of the school buildings and facilities including training equipment for the project.

1-2 BACKGROUND

For the Republic of Indonesia, both coastal and ocean shipping liners play highly important roles: the former linking more than 13,000 islands which compose the Republic, and the latter serving the overseas trade. As a consequence of the importance of its marine transport, the Directorate General of Sea Communications of the Department of Transport, Communication and Tourism of Indonesia has drawn up a five-year plan for strengthening the marine transport services. Since 1975 it has been increasing the number of vessels and simultaneously refining a training program for the increased numbers of crew members required. Indonesia has good training establishments for officers, but none whatsoever for ratings. This unsatisfactory situation has now been recognized and the establishment of ratings' training centers is being treated as a matter of some urgency.

When he was the Prime Minister of Japan and visiting Indonesia in January 1974, Mr. Tanaka was asked by President Suharto for

Japan's cooperation in the setting up of rating schools in Indonesia. At the request of the Government of Indonesia, the Government of Japan dispatched a mission to Indonesia to study over a period of 25 days from the 25th of May, 1975 the establishment of the rating schools. The mission conducted investigations in Sumatera, Java, Sulawesi and Seram on possible construction sites for rating schools and also on the local conditions of these islands. The mission submitted a survey report to the Indonesian Government in August 1975, and recommended the following:

- a. One rating school should be built on each of the islands investigated. An annual total of 800 students (400 in each category) should be provided with engine and deck courses by these four schools.
- b. To implement the urgent re-education of experienced ratings, one rating re-education school should be built on each island, totaling approximately 1,200 ratings in the four schools, i.e. about 5,000 ratings in five years from 1975. It is desirable that by 1980 approximately 70 percent of the total deck and engine crew of Indonesian vessels be those who received school training.
- c. Although it would also be necessary to train ship's cooks in the rating schools, it is desirable that the commencement of this course be delayed until the urgently required deck and engine crew educations have been developed.
- d. It is desirable for both students and experienced crew to start training simultaneously, but if this is not possible, priority should be given to the training of students.
- e. If it does prove impossible to start constructing the four schools at the same time, the construction should preferably be completed in the order of Ujung Pandang on Sulawesi, Belawan on Sumatera, Ambon on Seram and Surabaya on Java, with consideration given to:

- i. Background of project site
 - ii. Level of difficulty in land acquisition
 - iii. Level of difficulty in site development
 - iv. Land and marine conditions
- f. Of the four candidate sites investigated at Ujung Pandang, Barombong is the most desirable site.

Based on the Survey Report submitted in 1975, part of the budget for a rating school to be constructed in Ujung Pandang has already been allocated in the fiscal years of 76/77 and 77/78.

In April 1977, the Government of Indonesia requested the Government of Japan for the cooperation in the establishment of the Ujung Pandang Rating School through a Japanese grant-in-aid in 1978. In response to the request, the Government of Japan dispatched to Indonesia a mission for four weeks from October 19, 1977 to formulate the basic design and training program of the rating school to implement the project on the Japanese Grant-in-Aid basis. This survey, unlike the 1975 survey, was concentrated on Ujung Pandang City only. Within this city three candidate sites were considered together with a fourth the Naval Base. It was therefore necessary to make comparative studies on these sites to select the best site out of these four.

1-3 SURVEY

1. Meeting with the Government Officials Concerned

After arrival at Jakarta the mission visited the Japanese Embassy in Indonesia, Admiral H. Nimpuno, the Director General of Sea Communications and Ir. S. Abdulrachman, Director of Bureau of Planning, Secretariate General of the Department of Transport, Communication and Tourism and gave them a detailed explanation of the objectives of the investigations, etc. It was made clear to the Indonesian Government that the survey was directly related to the Japanese Grant-In-Aid Program. They showed a strong interest in the ratio between the Japanese grant and the cost to be borne by the Indonesian authorities and made detail questions about the necessary running expenses of the school. They asked the mission for its cooperation in calculating these expenses and prime costs.

2. First Site Investigations

Accompanied by a total of five counterparts of the Department of Transport, Communication and Tourism and the Directorate General of Sea Communications, the first site investigations were conducted smoothly at Ujung Pandang, where cooperation was given to the survey mission by the officers concerned in the VIth Maritime District and the Ujung Pandang Mercantile Marine High School (SPM). The following points were considered during the site investigations and land analysis:

a. Location

- i. Coordination with city planning
- ii. Relationship of site location to urban area

- iii. Relationship of site location to mooring facilities
 - iv. Access from highways
 - v. Existence of any obstructions
- b. Site formation and environment
- i. Size of site in terms of the capacity of the school
 - ii. Plan formation of site
 - iii. Difference in grades and gradient on site
 - iv. Scenery, sunshine and prevailing winds
 - v. Noise, air pollution, etc.
- c. 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 school buildings)
 - 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. 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
- 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. Provision of mooring facilities
 - i. Necessity for facility provision, including its problems
 - ii. Features of site location
 - * Water levels, waves and wave height
 - * Soil condition
 - * Littoral drift
 - iii. Suitability for building construction
- g. Estimation of required infrastructural scale
 - i. Site preparation, including drains on site

- ii. Utility services (electricity, waterworks, sewerage and telephone)
- iii. Construction of access roads
- iv. Shore protection

3. Findings of the Site Investigations

The site investigations covered the four sites, including the one within the Naval Base which was not included in the 1975 survey. It appears that the Naval Base site was added recently because at first the Indonesian authorities thought that Japan's grant was limited to the following:

- (1) furnishing of education equipment
- (2) dispatch of experts, and
- (3) training in Japan of potential staff for Indonesian rating schools

and that the Indonesian Government would have to provide the school buildings. This concept apparently led to the proposal by the Indonesian authorities for the utilization of the existing Naval Base buildings not in use at present. The following describes the outline of the four candidate sites investigated:

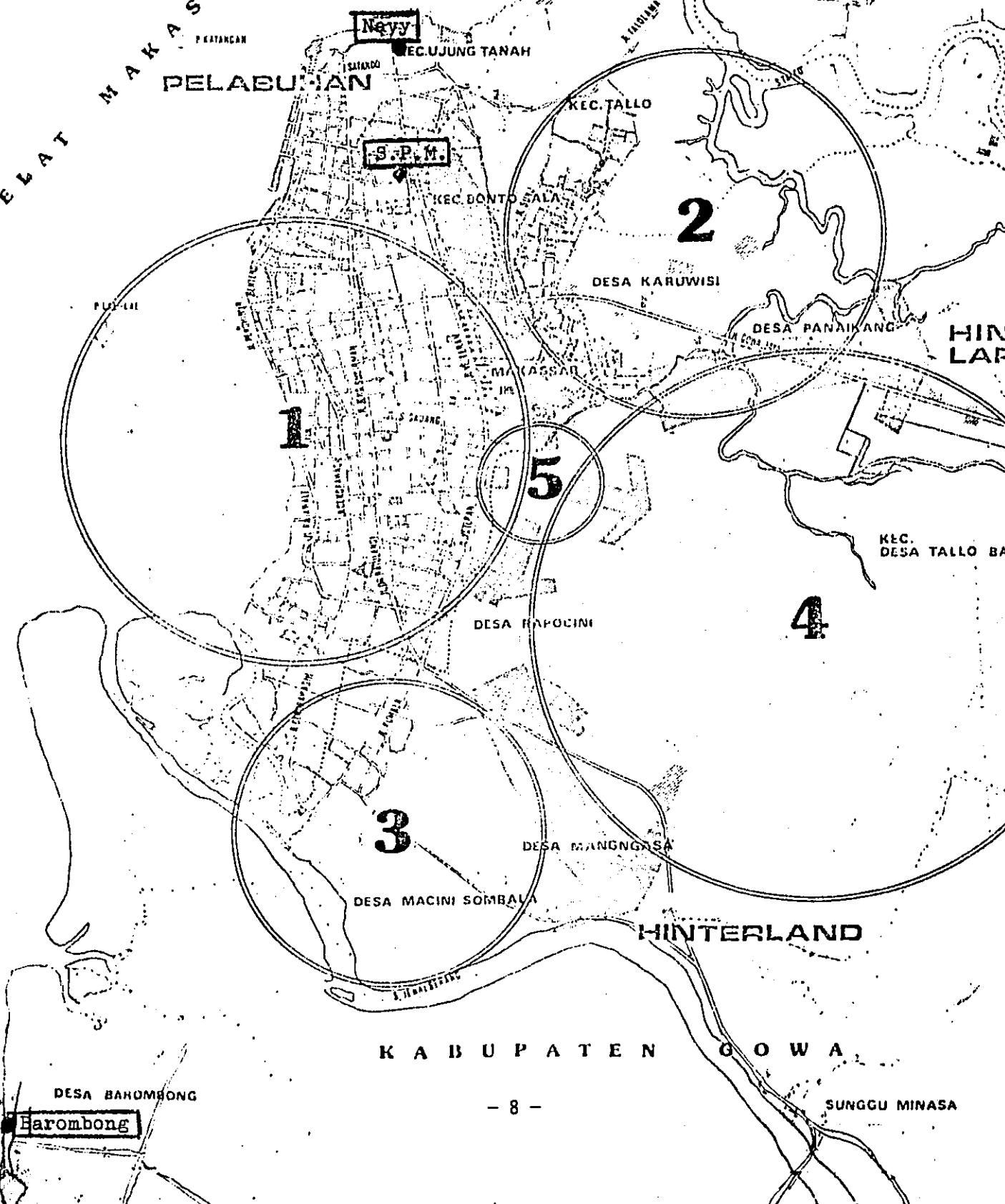
a. The Naval Base

This site is on a Naval Base located north of the city. It is a flat area of approximately 3 hectares, which is extensive enough for a school. The land, facing the sea, would be convenient for training, but the mission concluded that it was undesirable for the following reasons:

1. Central Business District
2. Industrial zone
3. Recreational zone
4. Residential zone
5. Civic center

SELAT MAKASSAR

Tallo River



KABUPATEN GOWA

- i. Joint use of some of the school facilities by both the school and the Navy may not be a desirable arrangement.
 - ii. Providing a rating school within the Naval Base is fundamentally problematic in view of the educational environment, and
 - iii. Providing the rating school buildings and facilities would require the removal of some existing buildings. This may not be granted by the Naval authority.
- b. The Ujung Pandang Mercantile Marine High School (S.P.M.) and its adjacent site

This site was previously proposed by the Indonesian authorities in the 1975 survey, but was not recommended by the mission owing to its being only 1.8 hectares and thus too narrow. In addition to this reason, an auditorium and a practical training building for the deck department is now under construction on this site, thus there will be too much congestion. Therefore, it will be totally impossible to provide a rating school here by adding more stories to the existing S.P.M. buildings. It was suggested that one hectare of the land adjoining the S.P.M. site be bought to provide a rating school there, the ground of the S.P.M. being jointly used. However, there seemed little hope of realizing both the relocation of the 18 unit officer quarters built on an area of 0.6 hectare of the 1 hectare and the purchase of the remaining 0.4 hectare. This area, part of the city's first class zone, would take too long and be expensive. (The S.P.M. plans to demolish some of these staff quarters and build a practical training building and a garage.)

Situated in the city area remote from the sea, the S.P.M. is

not by any means well located as a seamen education institute, although it has many advantages such as accessibility, easily obtainable electricity and water supply, and good drainage facilities. Also because instructors and staff are available, no large-sized staff accommodation will be required.

c. The Tellok River

This site is approximately 4 hectares, situated about 3 km northwest from the center of the city. Facing the downstream of the Tellok River, it is easy to go out to sea by boat. It is possible to provide a boat mooring basin of a suitable size within the area adjoining the river. However for the following reasons the development of this site was considered to pose too many difficulties.

- i. This site is designated as industrial zone under the city planning.
- ii. The Directorate General of Sea Communications claims ownership of this land, but this is in dispute at present.
- iii. This site is on low-lying land, and consisting as it does of clayey silt it will require filling with earth as otherwise it will be flooded in the rainy season. Filling this site (4 ha) would require 40,000 m³ of earth. Obtaining and transporting such a large volume of earth may be difficult.
- iv. This land requires the drilling of a well to provide a water supply system, and also a 1 km long power service line.

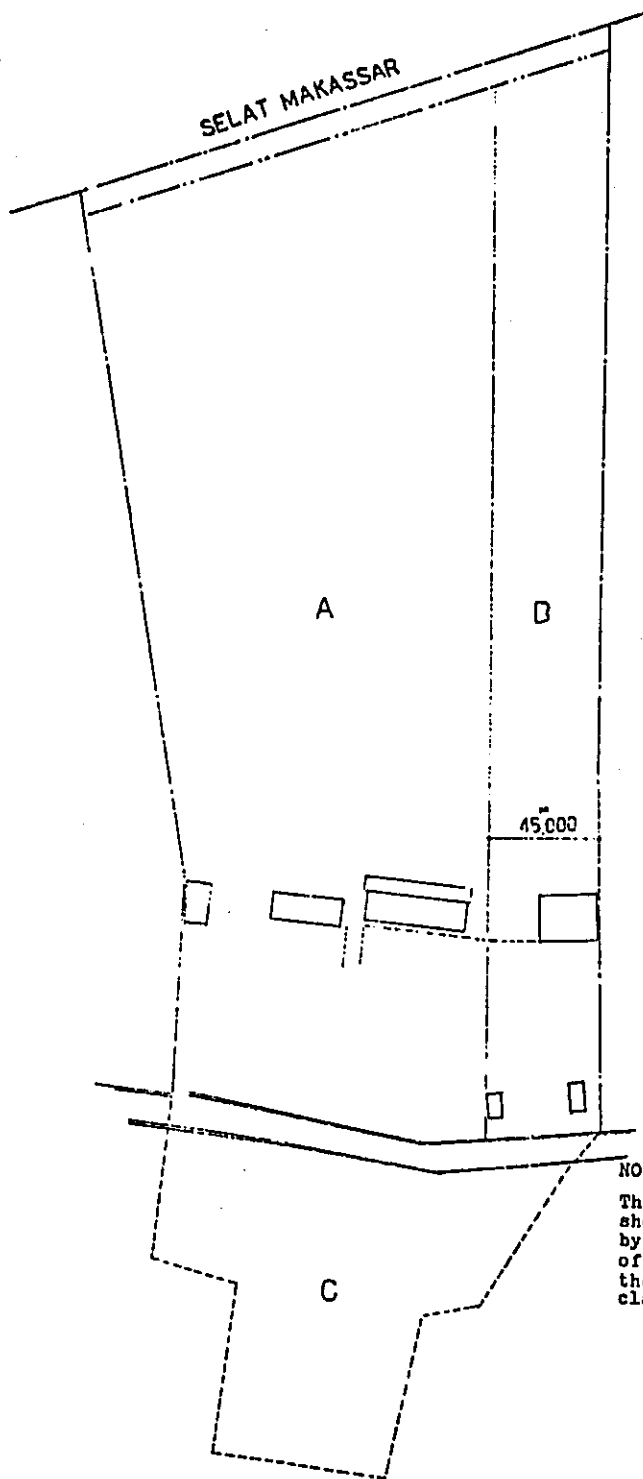
- v. This site is designated as second class land. It is relatively near the city area and convenient to traffic (a highway bridge spanning the Tellok River is under construction), so it would be costly should the land be purchased.

d. The Barombong Site

The 1975 mission heard that this site was on state-owned land, but the present investigations clarified that it is on privately owned land. The site, through which a road runs, is approximately 7.5 hectares in all, with the west 6.5-hectare land adjoining the Makassar Strait. The site is situated about 9 km south of the city center 'as the crow flies,' but is actually about 27 km distant by road. This difference will be much reduced on completion of a by-pass and the reinstatement of the bridge carried away by a flood. The following relates to the present situation of this site.

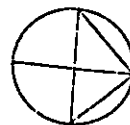
- i. The site is evaluated to be fourth class land, not expensive, owned by a single owner who is willing to sell.
- ii. Power service lines are not provided anywhere around the site nor are any planned, so power generators must be provided.
- iii. City water supply system being not provided, a deep well will have to be relied upon.
- iv. The 8 km road running to the highway from the site must be paved to a width of at least 6 m.

Except for the need to provide living quarters for school staff, the education environment of this site is much



NOTE:

The boundary lines should be verified by the Government of Indonesia since they are not yet clarified.



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superior to the other three which were studied. Besides this, improvement of the road will contribute to the regional development and therefore will be supported by the municipality.

e. Conclusion

Summarizing the comments of the architectural, civil and electrical engineers who have participated in this survey, the mission concluded that Barombong was the best site. This judgement is also supported by the Indonesian counterparts who accompanied the mission.

In addition to these investigations, the mission carried out research into construction material prices, availability of materials, standards of engineering and techniques, and construction related laws and codes.

4. Second Site Investigations

During the second site investigations which lasted four days, the officials concerned of the Directorate General of Sea Communications who were accompanying the mission carried out investigations and calculations, with the aid of the mission, chiefly on the Indonesian authority's responsibilities such as on land acquisition, roads improvement, etc., while the mission conducted, subsequent to the previous study, investigations pertaining to soil conditions, construction data and associated laws.

The largest concern of the Indonesian authorities seemed to lie in the acquisition of land and improvement of roads, therefore, the mission made the following recommendations:

a. Acquisition of land

This site is of the shape as illustrated on page 12, about 1 hectare to the east of the road being congested with many private houses, therefore it seems that it will be very difficult to acquire. On the 6.5 hectares on the west side there are two private houses and one state-owned building (in the north). These buildings should be avoided. It seems advisable to buy approximately 5 hectares of the southerly portion of the site. However, the area to the north of this 5 hectare portion should be used to accommodate the school staff quarters and future additions to it.

b. Road Surfacing

The existing 8 km long road has to be improved and widened to provide a 6 m wide paved road. Since the survey in 1975 this road has been patched up in places, but has not been paved at all. To deliver construction materials, it will be necessary to completely improve and pave at least a width of 3.5 m before commencement of construction.

1-4 EXCHANGE OF THE MINUTES

At the completion of the first site investigations, the findings and the discussions held were summarized in the Minutes. In the Minutes signed by Mr. Huhnholz (Secretary to the Director General of Sea Communications) and by Prof. Shintani (Leader of the Japanese mission) it was agreed that Barombang was the best project site. The determination of the project site was much concerned by both the Indonesian authorities and the mission because all of them are well aware that the costs (to be borne by the Indonesian Government) differ between the sites studied and that in fact Barombang will not be the cheapest to develop.

The Minutes also cover the following: the training plan; the buildings and facilities to be provided by the Government of Japan; and the items whose cost is to be borne by the Government of Indonesia. The full text of the Minutes is shown on the following pages.

MINUTES OF THE CONSTRUCTION PROGRAM
OF THE RATING SCHOOL IN UJUNG PANDANG
The Republic of Indonesia

At the request of the Government of the Republic of Indonesia for assistance in establishing the RATING SCHOOL in Ujung Pandang (hereinafter referred to as "The School"), the Government of Japan through Japan International Cooperation Agency (hereinafter referred to as "JICA") has sent a survey team headed by Professor F. SHINTANI (Chairman of Navigation Department, Institute for Sea Training, Ministry of Transport) to conduct the Basic Design Survey on the program for twenty eight days from October 19, 1977. The team held a series of discussions and exchanged views with the Indonesian Authorities concerned on the establishment and construction of the School.

Draft Final Report will be expected to be submitted to the Indonesian Authorities in February 1978.

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 School. Minutes of the discussions are attached herewith.

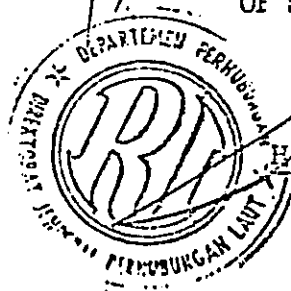
1st November 1977
Jakarta, Indonesia

Professor Fumio SHINTANI
Team Leader
The Japanese Survey Team

As.

F. Shintani


DIRECTOR GENERAL OF SEA COMMUNICATION
FOR HIM
SECRETARY TO THE DIRECTOR GENERAL
OF SEA COMMUNICATION



H U H N H O L Z

Minutes

1. The proposed school will be established at Barombong Site in Ujung Pandang, South Sulawesi Province.
2. The objectives of the School are to provide practical and theoretical training for potential skilled seamen who will contribute their skills acquired through the training to the development of marine transport in Indonesia.
3. The school will consist of two (2) courses aiming at training a maximum of two hundred and ten (210) seamen at a time projected in Annex I.
4. The Government of Japan will take necessary measures to provide such buildings of the School as listed in Annex II.
5. The Government of Indonesia will take necessary measures as follow :
 - (a) To provide data and information necessary for the construction, including topographic survey, soil test and other geological survey reports.
 - (b) To secure a lot of land necessary for the construction.
 - (c) To clear and level the site before the start of the construction.
 - (d) To construct and pave access road to the site before the start of the construction.
 - (e) To provide other items listed in Annex III.

J.S. 

Annex I

Training plan

(1) Training courses, term and number of enrollment.

Deck Department	6 mos.	35 x 3 = 105
Engine Department	6 mos.	35 x 3 = 105

(2) Curriculum for each course.

- (a) Class hours per week 40 hours
- (b) Weeks for class hour per term 20 weeks
- (c) Training subjects. (Listed in Annex I-A)

Annex I-A

Deck Department

A. General Subjects

1. Religion
2. Laws
3. Indonesian Language
4. English
5. Mathematics
6. Physics
7. Physical training
(including swimming)
8. First aids

B. Specialized Subjects

1. Deck work
2. Ship maintenance
3. Meteorology & oceanography
4. Ship structure
5. Ship building
6. Navigation along coast &
river
7. Navigation tools
8. Laws & regulations related
to ships
9. Compass reading (including
practical training)
10. Boat (Rowing & sailing)
11. Signals
12. Marine engine
13. Fire fighting

Engine Department

A. General Subjects

1. Religion
2. Laws
3. Indonesian Language
4. English
5. Mathematics
6. Physics
7. Physical training
(including swimming)
8. First aids

B. Specialized Subjects

1. Engine work
2. Internal combustion engine
3. Boiler
4. Steam Machinery
5. Auxiliary machinery
6. Marine electricity (includ-
ing practical training)
7. Ship construction
8. Engineering drawing
9. Labor safety knowledge
10. Boat (Rowing & sailing)
11. Materials
12. Laws and regulations relating
to ships
13. Fire fighting

J.S. H

Annex II

Buildings and facilities for training to be provided by the Government of Japan.

1. Buildings.

Main Building

- a. Administration office
- b. Lecture rooms
- c. Instructors rooms
- d. Conference room
- e. Library
- f. Clinic
- g. Model room

Annex Buildings

- a. Practical training building
- b. Boat house

Dormitory

- a. Bed rooms
- b. Dining room
- c. Kitchen
- d. Recreation room

2. Facilities for Training.

Facilities and equipment for practical and theoretical training.

J.S. for

Annex III

Items whose cost should be borne by the Republic of Indonesia.

Infra - structure

- a. Power supply
- b. Water supply
- c. Drainage and sewage
- d. Landscaping
- e. Gateway, fence work, exterior lighting and pavements
- f. Furniture, rugs and drapes.

F.H.S. *fl*

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 Ujung Pandang Rating School in the Republic of Indonesia."

The Japan International Cooperation Agency dispatched a survey mission to Indonesia for thirteen days from February 20, 1978 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 Indonesian officials concerned. The officials in principle agreed to all matters described in the report regarding the design of the buildings, facilities and items of training equipment except for the groynes.

Based on the results of the sounding, the location of the groynes has been slightly transferred southward in this final report.

The Indonesian officials and the mission further confirmed that the scope of the works to be provided by the Indonesian Government and 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 Indonesian Government.

PROPOSE SITE (TOWARD THE SEA)



PROPOSED SITE (APPROACH)



CHAPTER 2: BRIEF DESCRIPTION OF THE RATING SCHOOL

2-1 BASIC CONCEPT

Since seamen will have to work in ships where they must depend upon their own self reliance, training in this has traditionally been given in boarding schools. These schools, with their residential facilities which provide the additional benefits of learning to live with others, are not suited to mass training unlike other general education institutes. The Ujung Pandang Rating School has been planned to employ such conventional seamen's training system.

1. Numbers of Enrollment and Training Courses

For an education system containing a lot of practical training courses, the number of students should preferably be less than 40 in a class. Therefore, the rating school has been planned to have an enrollment of 35 students in a class. (In the S.P.M. 30 students per class)

To make optimum use of the educational facilities, equipment and dormitories, three classes will be arranged for the deck courses and three for the engine courses.

2. Training Term

Considering that modern ships are of a higher performance and greater size than ever, it seems that at least a year will be required for training junior high school graduates to be ratings. However, it is recommended that the length of courses at this

school should be six months for the moment and desirably be extended when the rating training program now under consideration has been completely established. (In Japan ratings are trained for two years.)

3. Curriculum

On a six month's training course the actual period for training use will be approximately five months or twenty weeks, with the remaining period having to be used for entrance exam preparation, graduation and applications for employment. There will be 40 class hours per week. (For information, in Japan there are 34 - 38 teaching hours in a week and 595 - 665 class hours in six months although the class hours in Japan are slightly different from those of Indonesia.) Table 1 shows an example curriculum with class hours prepared on the basis of the training subjects listed in the Minutes.

4. Requirements for Admission

Both physical and academic examinations will be required for admission to the school. Generally, applicants must be of junior high school graduate standard. A desirable age for admission will be between 15 to 17 years but may be extended to 20 years for the first intakes of trainees. This age limit will be lowered when the initial program to increase the number of seamen has begun to take effect.

5. Scholarship System

As the boarding school system places a high financial burden on the students, it is necessary to set up a national or local public body or private scholarship system to help the students financially.

CURRICULUM

DECK DEPARTMENT

Total class hours Class hours per week

A. General Subjects

1. Religion	20	1
2. Laws	20	1
3. Indonesian language	20	2
4. English	40	2
5. Mathematics	40	2
6. Physics	40	2
7. Physical training (incl. swimming)	20	1
8. First aids	20	1

B. Specialized Subjects

1. Deck work (For its content see Table 1)	160	8
2. Ship maintenance	30	1.5
3. Meteorology and oceanography	30	1.5
4. Ship structure	20	1
5. Ship building	20	1
6. Navigation along coast river	60	3
7. Navigation tools	50	2.5
8. Laws and regulations related to ships	20	1
9. Compass reading (incl. practical training)	20	1
10. Boat (rowing and sailing)	80	4
11. Signals	30	1.5
12. Marine engine	20	1
13. Fire fighting	20	1

TOTAL 800 40

ENGINE DEPARTMENT

Total class hours Class hours per week

A. General Subjects

1. Religion	20	1
2. Laws	20	1
3. Indonesian language	40	2
4. English	40	2
5. Mathematics	40	2
6. Physics	40	2
7. Physical training (incl. swimming)	20	1
8. First aids	20	1

B. Specialized Subjects

1. Engine work (For its content see Table 2)	160	8
2. Internal combustion engine	40	2
3. Boiler	20	1
4. Steam machinery	40	2
5. Auxiliary machinery	40	2
6. Marine electricity (incl. practical training)	60	3
7. Ship construction	20	1
8. Engineering drawing	20	1
9. Labor safety knowledge	20	1
10. Boat (rowing and sailing)	60	3
11. Materials	40	2
12. Laws and regulations related to ships	20	1
13. Fire fighting	20	1

TOTAL 800 40

Table 1 Content and class hour ratio of deck work

	Rope working	Wire splice	Cargo working	Canvas making	Painting skills
Ratio	3	2	2	0.5	0.5

Table 2 Content and class hour ratio of engine work

	Hand finishing	Skills with tooling	Practical training of packing replacement	Disassembly and adjustment of machine	Engine operation
Ratio	2	1.5	0.5	2	2

NOTE: Rating schools in Japan require 40 weeks per year, 37 class hours per week; therefore, class hours for half a school year amount to 740 (i.e. 20 weeks x 37 class hours).

2-2 THE SIGNIFICANCE OF THIS PROJECT TO SEAMEN'S EDUCATION IN INDONESIA AND JAPAN'S POSSIBLE CONTRIBUTION TO IT

As detailed in the "Survey Report on Rating School Plan in the Republic of Indonesia" submitted by the Japan International Cooperation Agency in August 1975, it will take at least five years to establish four rating schools in the proposed islands. In order to meet the five-year plan for strengthening the marine transport services, the construction of these rating schools should start as early as possible. The establishment of the Ujung Pandang Rating School should be seen as a very significant step in the establishment of seamen's training schools in Indonesia. The Project does not mean merely the construction of one rating school but should be considered as the "Pilot project" for the development of the future seamen's educational system in Indonesia.

To implement the Ujung Pandang Rating School Project, the Government of Indonesia will set up a project team, which should remain in existence until the long term seamen's education plan has begun to take effect.

The Government of Japan, as a country with a long experience in the education of ratings, will contribute to the establishment of the seamen's training program through its technical cooperation at the request of the Government of the Republic of Indonesia. For this purpose, it would be advisable for Japan to be invited to send a specialist to join the project team and two other specialists to the Ujung Pandang Rating School. The former specialist will be required to promote the project and the latter two as consultants to the Indonesian instructors for both the deck and engine courses.

CHAPTER 3: BASIC DESIGN

3-1 GENERAL DESCRIPTION

This basic design has been worked out on the basis of the three surveys made so far; a preliminary survey in May - June, 1975, a field survey in October - November, 1977 for basic designing and one in February - March, 1978 for explanation of the basic design.

A variety of building requirements were furnished to the team by the Government officials concerned in the Maritime Transport Educational and Training Center and the Bureau of Planning; and Vith Maritime District and S.P.M. in Ujung Pandang. After technical studies these requirements were incorporated into the design concept described in this report.

The Government of Indonesia should undertake a part of the work relating to the present construction project. This work, however, is described briefly in this report where it is related to the function and construction of the proposed buildings.

Cost estimates and a time schedule for construction have also been prepared on the basis of data and information obtained regarding local materials and labor costs, construction time for similar projects, building contractors, regulations and codes and standards of construction techniques. These cost estimates and construction schedule, however, must be further studied in detail since some of the conditions still remain uncertain.

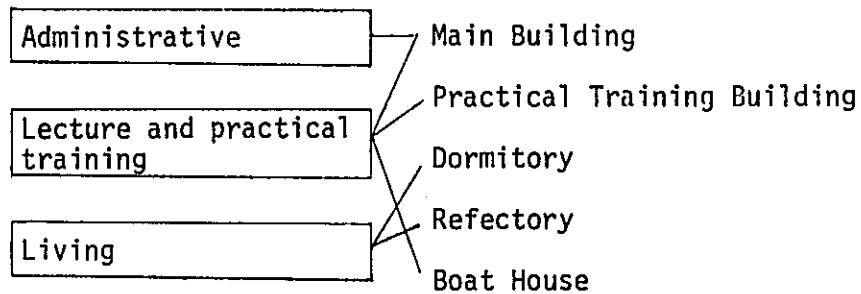
3-2 SUMMARY OF PROJECT

1. General

The present project comprises the following three parts: construction of school buildings, installation of training facilities and supply of training equipment.

a. Buildings

The proposed buildings are composed of a main building, a practical training building, a dormitory, a refectory and a boat house. The school buildings are connected with each other in a relationship reflecting their functions as follows:



b. Training Facilities

These are the outside facilities to be installed and used for practical training. They include the following:

- Groynes (Incl. dredging)
- Quay, slipway and apron
- Boat davit
- Cargo crane (combined with flag staff)

c. Boats and Training Equipment

Life boat with engine

Cutters

Training equipment (for indoor use)

2. Outline of the Buildings

All the buildings are of reinforced concrete structure and have a combined total floor area of 5,873.625 m². The following is the outline of each building:

a. Main Building

No. of stories: Two storied

Floor area:	First floor	1,083.375 m ²
	Second floor	923.906 m ²

Total	2,007.281 m ²
-------	--------------------------

b. Practical Training Building

No. of stories: Single storied

Floor area:	Floor	612.563 m ²
	Corridor	190.406 m ²

Total	802.969 m ²
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c. Dormitory Building

No. of stories: Two storied

Floor area:	First floor	1,083.375 m ²
	Second floor	923.906 m ²

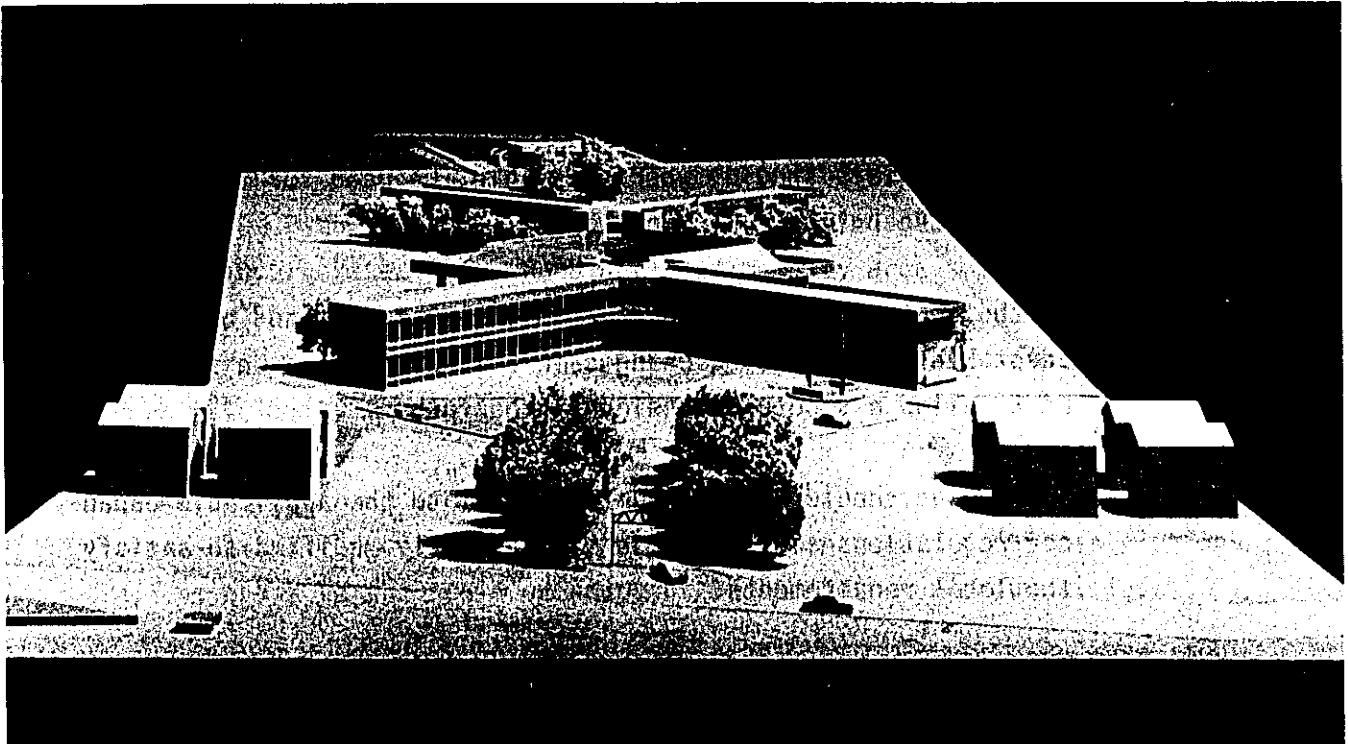
Total	2,007.281 m ²
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d. Refectory

No. of stories:	Single storied	
Floor area:	Floor	612.563 m ²
	Corridor	190.406 m ²
		<hr/>
Total		802.969 m ²

e. Boat House

No. of stories:	Single storied
Floor area:	253.125 m ²



3-3 DESIGN PRINCIPLES

The basic design of the buildings and facilities has been prepared on the following principles:

1. The intention and requirements of the Indonesian people who will occupy or utilize the buildings should be taken into consideration, where possible.
2. Local conditions such as natural environment and climatic conditions should be taken into account.
3. The buildings should reflect local customs and modes of living and be easy to use and maintain.
4. The buildings should be designed with due consideration to local construction methods, building trade practice, etc.
5. Local materials should, where possible, be used for the construction of the buildings.
6. The buildings should have a flexible plan layout and be readily adaptable to any future changes in utilization and be so designed as to allow a smooth expansion in the future.
7. The design should be planned to conform to the applicable Japanese regulations and standards and be easily modified to satisfy the local requirements.

3-4 SITE CONDITIONS

1. Location

Ujung Pandang (lat. 5°05'S. Long. 119°05'E) faces the Makassar Strait at the south end of Sulawesi Island and is the capital city of South Sulawesi Province with a population of some 650,000. The site proposed by the Indonesian Government, as previously described, is about 9 km south from the city center as the crow flies. The land is roughly rectangular 400 m long in the east-west direction and 170 m long in the north-south direction. There is a gentle slope eastward to the beach.

At present the site is occupied by a resort house and some remains of old houses, which can be easily removed at the time of the construction of the rating school.

2. Future Plans for the Neighboring Area

The Barombong Area was an independent village, and was recently incorporated into the Ujung Pandang City area. The City office plans to develop the southern region including this area as a recreational zone. The present project is considered a suitable activity for this part of the plan.

Since there are no building regulations or other legal restrictions for city planning in Ujung Pandang, no special restrictions apply to the scale or shape of the buildings and facilities.

3. Climatic Conditions

Ujung Pandang lies in the tropical zone, with a temperature of 25° - 27°C all the year around.

In the daytime, the temperature goes up to about 30°C and the humidity to 80%.

Annual rainfall is about 3,000 mm, almost all of which is concentrated in the rainy season between November and April. The maximum monthly rainfall is around 1,100 mm and generally occurs in January. A daily rainfall of 295 mm was recorded in January, 1977 but that was the highest record for the last ten years. Unlike the squalls generally observed in tropical zones, in this area it rains continuously for about a week in the rainy season.

The prevailing wind blows in both southeasterly and northwesterly directions. There is an especially strong wind in January which blows from the northwesterly direction at a speed of 15 m/sec. Usually, however, the breeze has an average speed of 1 - 2 m/sec and a maximum speed of 7 m/sec in the dry season. It is said that this area has never suffered from typhoons.

The following are the basic meteorological data at the site:

a. Temperature

Daily average	24.9° - 26.9°C
Daily maximum	30° - 34.8°C (Sept. and Oct.) 29° - 33°C (Other months)
Daily minimum	19° - 25°C

b. Humidity

Mean Minimum	54% - 75% (August and September)
Mean Maximum	80% - 86% (January - March)

c. Rainfall*

Annual	3,000 mm approx.
Monthly mean max.	800 - 1,155 mm (December - February) A monthly rainfall of 1,155 mm recorded in Feb. 1977 is the maximum since 1962.
Daily maximum	295 mm/day (Recorded in Jan. 1977)
Rainy days	19 - 22 days/month (Dec. - Mar.) 7 - 11 days/month (Nov., April and May) 2 - 4 days/month (June - September)

* Based on the data recorded between 1962 and 1977.

d. Wind

Average wind velocity and directions	1.0 - 3.1 m/sec in southeasterly and northwesterly directions
Maximum wind velocity and directions	6.2 - 23.1 m/sec in westerly and (northwesterly) and easterly directions

4. Topography

a. Terrain

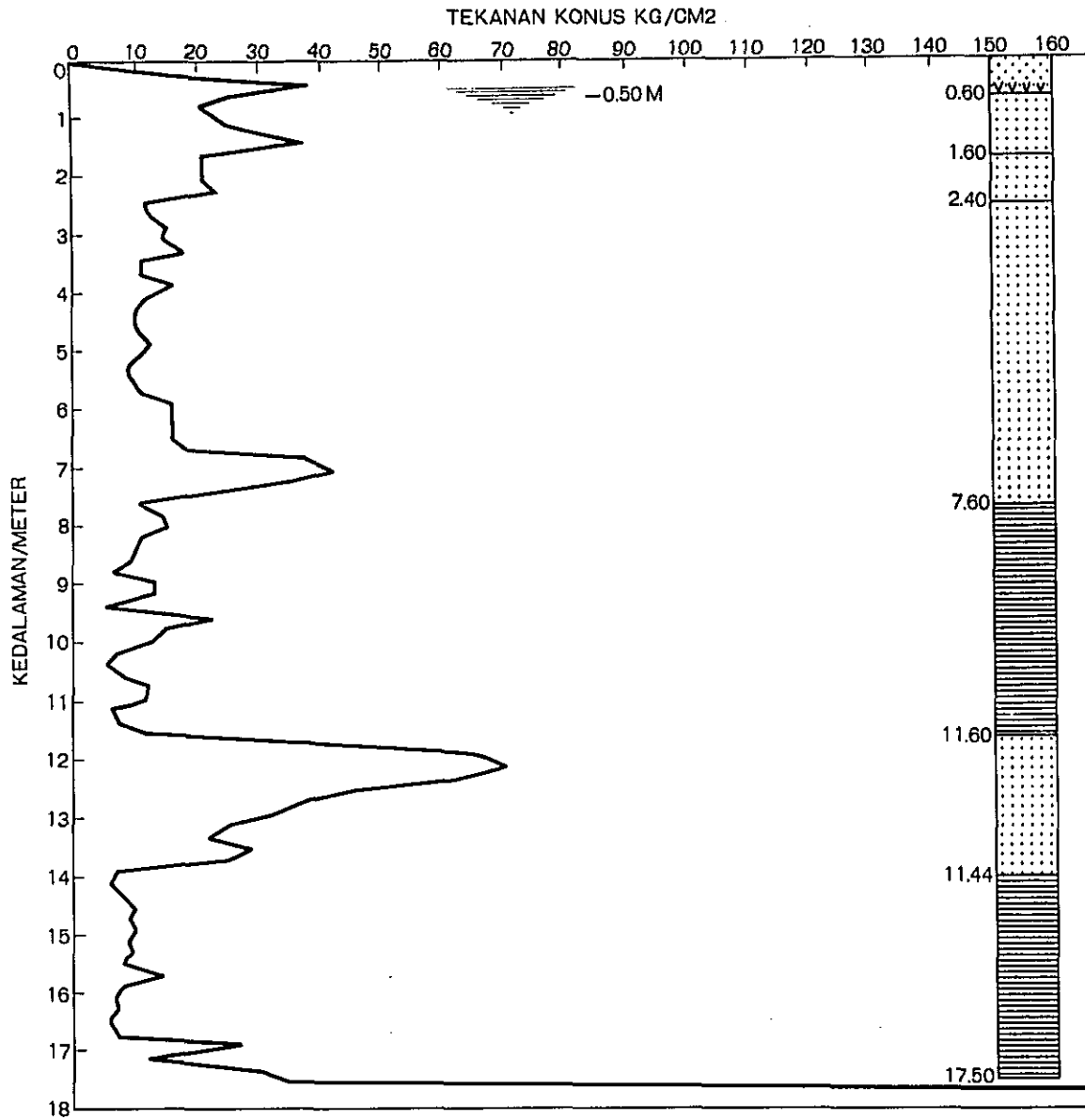
The site is flat land adjacent to a gently sloping beach and appears to have a uniform strata free from undulation.

b. Soil Conditions

A geological map for the whole area of Ujung Pandang has been prepared by the Bandung Geological Institute. The survey team made two exploratory excavation on the site and found that the subsoil was dark grey fine sand down to 1.65 m and 1.45 m below G.L. respectively. The soil deeper than 0.8 m

SONDIR 43
BARONGBANG

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in one hole and 1.0 m in the other hole was wet, showing that the ground water level was high, and deeper excavation was prevented by water seepage.

The team obtained the results of a soil test made by the use of Dutch cones at Barombong as shown on Page 40. By applying N-values to the test results, the following soil conditions were obtained:

	<u>N-value</u>	
Down to 2.4 m below G.L.	5 - 9	Sandy soil
2.4 m - 7.6 m below G.L.	2 - 3	Sandy soil
7.6 m - 11.6 m below G.L.	2 - 3	Clayey soil
11.6 m - 14.0 m below G.L.	5 - 15	Sandy soil
14.0 m - 17.5 m below G.L.	2 - 3	Clay
17.5 m or deeper	50 or more	Sandy clay

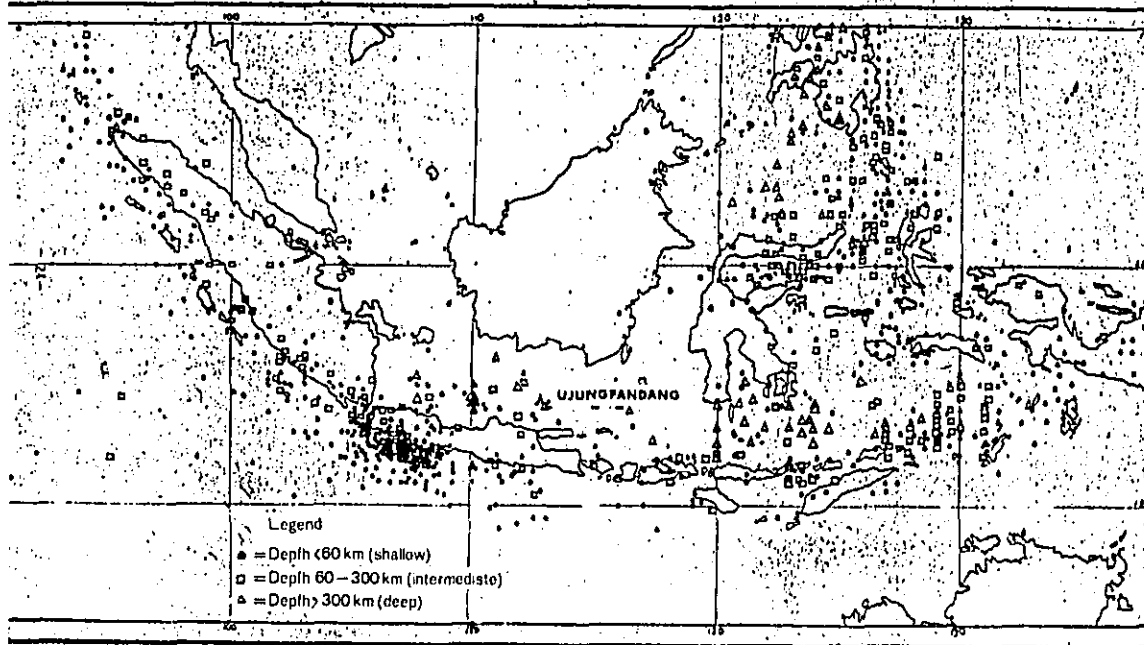
Since the proposed buildings will be single or two-storied reinforced concrete structures only they will not have a very great dead weight/square meter. They therefore should be able to stand directly on the ground as long as the site soil test shows sufficient bearing capacity. The final design will be made after the verification of the soil test which was requested to the Government of Indonesia by the survey team during their survey.

5. Earthquakes

The Indonesian Islands lie in one of the world's zones that are prone to seismic disturbance and there have been in the past many serious earthquakes.

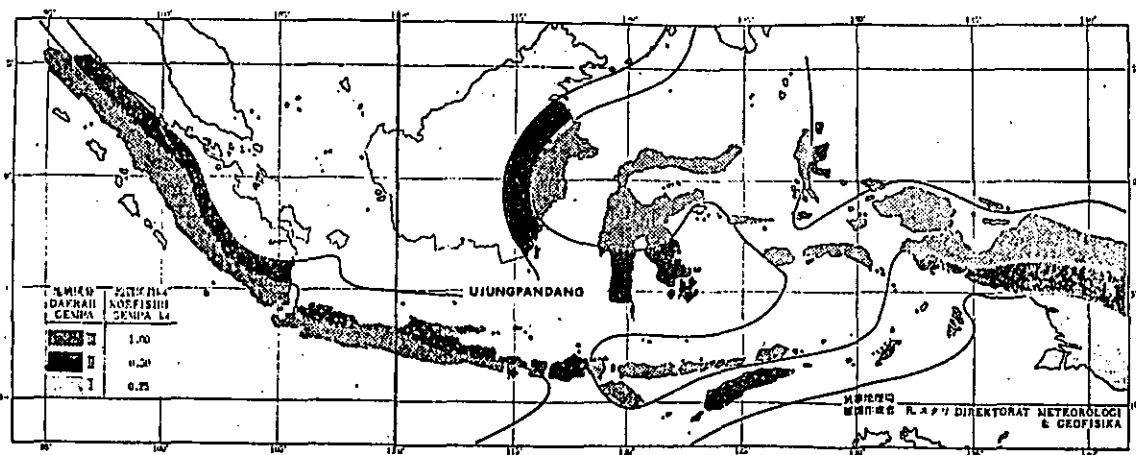
Seismicity Map of Indonesia

1



PETA DAERAH GEMPA INDONESIA

2



PERCEPATAN MAX. GEMPA BUMI DLM GRAVITASI
 SELAMA TH. 1900—1970. DI SULAWESI SELATAN

3

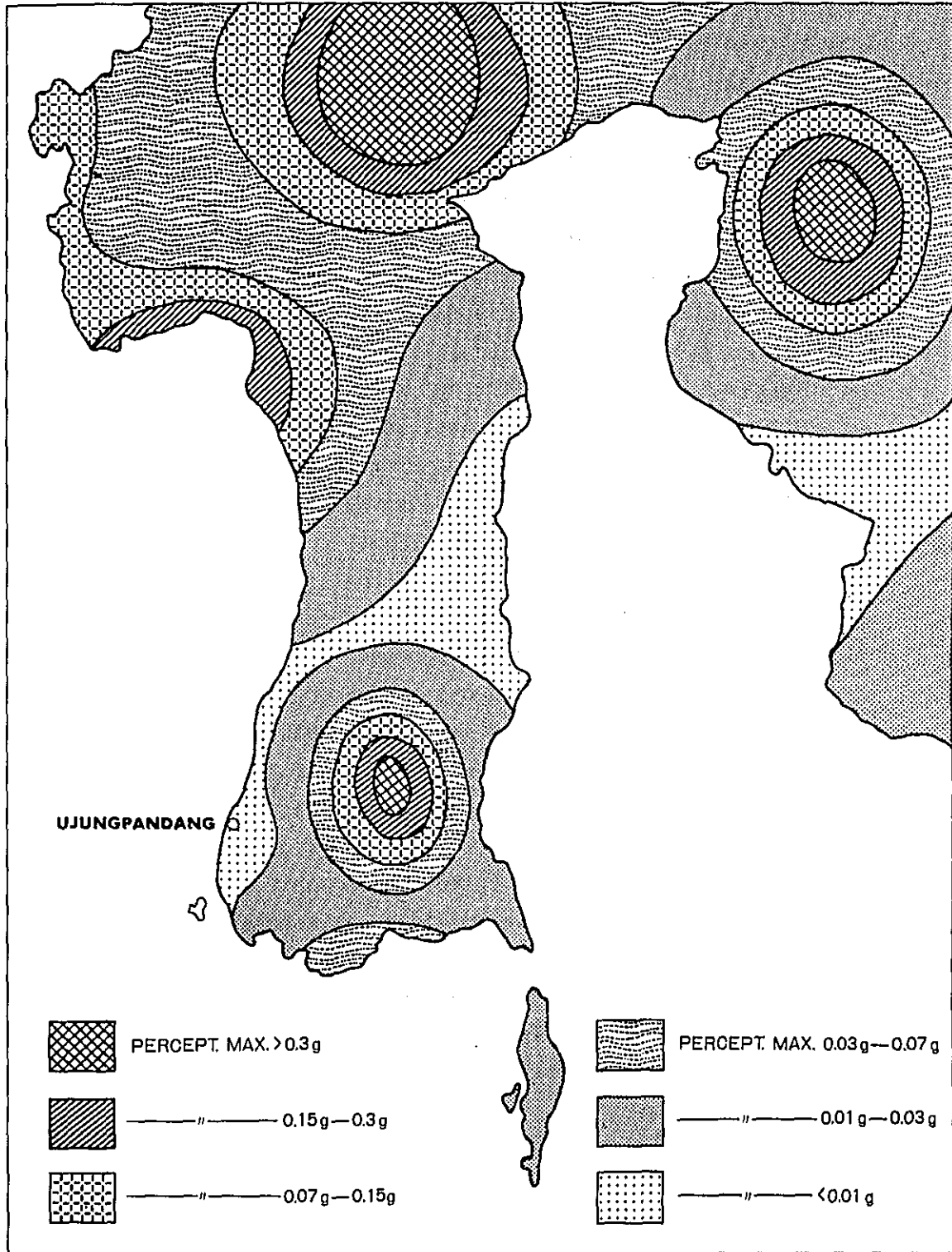


Fig. 1. is an illustration to show the epicenters classified by depth of the earthquakes recorded in the past.

Fig. 2. is an illustration showing the zoning of the Indonesian Islands by prevalence of earthquakes into three categories (III most serious; II intermediate; I least activity) to enable suitable design regulations to be administered. South Sulawesi can be seen to be situated in the intermediate zone. However these regulations are only advisory at present and are not statutory.

Fig. 3. is an illustration showing the zoning of the south-western part of Sulawesi Island by the Modified-Mercalli scale of the earthquakes recorded between 1900 and 1970. It will be seen that Ujung Pandang is situated in the least critical area.

The survey team inspected the most recent seismic records and noted a disturbance of Magnitude 7 in August 1977 (epicenter Bali) and also one of 5.5 in November 1977 (epicenter 1,800 km south east of Jakarta).

6. Electricity & Telephone Services

There is no electricity or telephone cable to the site at present. Because a river divides the site area from the city there has been a delay in providing these public utilities. However a road bridge is now under construction and it's hoped that when completed this connection will facilitate the further development of the site area.

7. Water Supply and Waste Disposal Service

There are no public facilities serving the site. The present residents depend upon shallow wells (3 - 5 m deep) for their water requirements and they report that the water is sweet and free from brackishness. Two exploratory pits were dug by the survey team. Although it was during the period towards the end of the dry season the water table appeared nevertheless to be high. Wet soil was encountered at a depth of 1 m below G.L. and by 1.7 m water seepage prevented any further excavation. This would appear to indicate a very ample supply of easily obtainable well water. Because of the close proximity to the sea a thorough analysis of the water will be required and if necessary a purification and filtration plant must be specified.

There is no public utility for waste water treatment and existing habitations dispose of soil water by soakaways after treatment in septic tanks.

8. Fuel

Since there is no city gas supply serving the city of Ujung Pandang oil is generally chosen as a means of cooking fuel. There are establishments, mostly commercial hotels, schools, etc. which make use of L.P.G., however, a constant supply of L.P.G. cylinders is not always assured. The facts that the site is remote from the city center and that the electricity generators must be run on oil have meant that oil is the best choice for a cooking fuel also.

3-5 GENERAL LAYOUT PLAN

1. Site

In the Barombong Area, the southern part occupying some 5 ha has been selected for the project, except for an existing resort house owned by the Province and two private houses.

2. Access Road to Site

There are three highways running northward, eastward and southward from the city center. The site is accessible by the highway to the south of the city area. At a distance of 18 km along the road from the city center, an old road runs west to the Barombong Regional Office, which is about 8 km from the turn off. The site is 500 m north from the office along the old road.

Another approach to the site can be made by a mud road, branching westward from the highway, thereby reducing the travel distance to about 9 km. This road, however, is only accessible by pedestrians in the dry season because the bridge over the Jeneberang River has been broken and no definite future plans have been made for its reconstruction.

In addition to the approaches from the south to the site, the inhabitants in the Barombong area reported that people can walk directly to the site south from the city center following the coast.

3. Public Transport

Approach to the proposed site from the city center will be made by car. A Public bus service is provided only along the exist-

ing highway to Sungguminasa, a town on the north of the Jeneberang River. The branch road accessible to the site has a sufficient width to allow car traffic and will be paved before the start of the building construction.

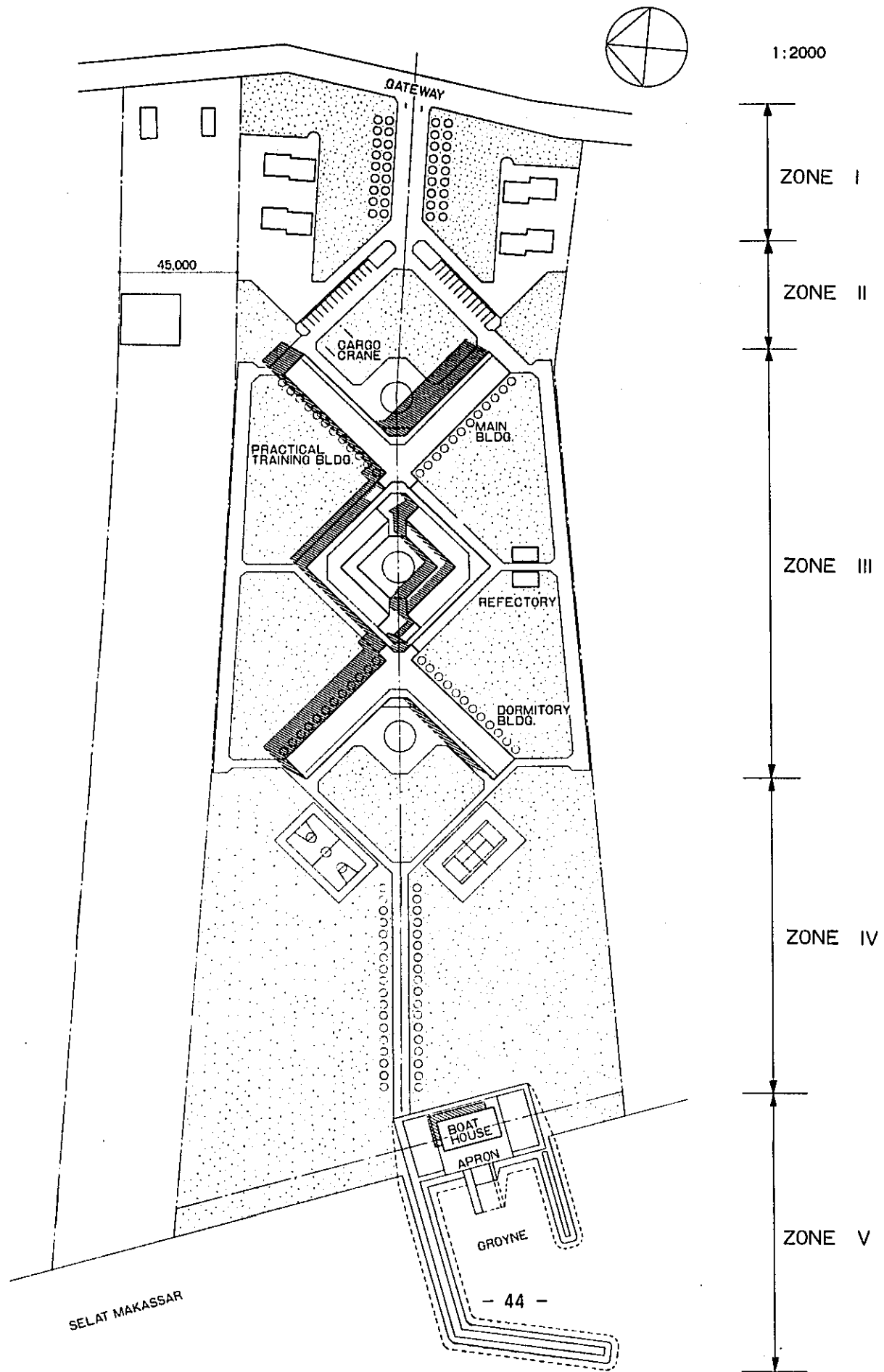
4. Block Layout

The school buildings and facilities are divided into five blocks as described below and each block is laid out in a line along the longitudinal east-west axis of the site.

- I. Faculty housing, gateway and service approach
- II. Front yard and parking lots
- III. Buildings
 - a. Main building
 - b. Practical training building and Refectory
 - c. Dormitory
- IV. West yard, utility space and physical exercise facilities
- V. Boat house, Groynes and Mooring Quay

This block layout was designed to provide the following advantages:

- a. It enables faculty housing to be in harmony with the existing residences.
- b. A cargo crane, installed in the front yard, will be a landmark of the rating school. The yard will also separate the school buildings and facilities from the faculty housing.
- c. It clarifies the zoning of the buildings by function e.g. the administration zone, the training zone and the living zone. This layout was determined after due consideration of both physical and psychological aspects such as the



climatic condions, the outlook, minimising runs of building services and traffic circulation routes and preserving a balance between the needs of privacy and social contact of the occupants.

- d. The west yard is reserved for physical exercise or recreational use for the students and can also be used as a service area.
- e. The buildings and facilities are accessible by car by the service approach roads to be provided along the south and north boundaries. These service approaches will become even more useful when the site is extended north or south in the future.

3-6 BUILDING DESIGN

1. Architectural Design

Generally, the corridor layout has been arranged to reinforce the feeling of solidarity amongst the students by intersecting at two nodal points. The column spacing and room layout has been planned to a module of 2.250 m which was determined to provide the optimum size and shape for class rooms and bed rooms in the dormitory block.

a. Main Building

Administrative rooms are generally situated on the first floor and class rooms on the second floor.

A combined class room is provided on the first floor and can be used as an auditorium. A library is planned to serve as a waiting room for part-time instructors. The clinic will also serve inhabitants near the school.

b. Practical Training Building and Refectory

The Exterior corridors around these buildings will still be effective if the buildings are extended in the future.

Both buildings are provided with high ceilings and skylights, which provide good natural lighting and ventilation. The Courtyard between these two buildings can be used as an open passageway when it is paved.

c. Dormitory

The dormitory has been arranged to accommodate eight students in each bedroom taking into consideration the comfort of the occupants. (The dormitories both in the A.I.P. and the S.P.M.

accommodate 16 persons in each bedroom.)

The Recreation, Barber's and Conference Rooms are all located in the center on the first floor. The dormitory quarters, composed of two buildings, meet each other at a right angle and have been arranged compactly to encourage friendly relationships amongst the students.

d. Boat House

The boat house will be a robust, single-storied, reinforced concrete structure. It will be provided with storage space on both the north and south sides. It will be kept open so that the pleasant views to the west will not be obstructed especially the vista along the central axis of the school.

2. Structural Design

a. General

- i. The structure of the proposed buildings will be reinforced concrete. Rigid frames will be generally used, in the form of load-bearing walls arranged where necessary.
- ii. Reinforced concrete mat foundations are considered at present for the buildings. However, this can only be finally determined after soil tests at site.
- iii. As described previously in Section 3-4.5, the site area is situated in the intermediate zone of seismic prevalence in Indonesia. The maximum wind velocity so far recorded in this area was only 20 m/sec.

Based on this data, it can be considered that the lateral forces on buildings are relatively small in Indonesia in comparison with the forces observed in Japan and therefore, no technical difficulty is anticipated in the structural designing.

- iv. Expansion joints are provided at suitable locations in order to avoid adverse effects due to movement in materials or structures due to thermal stresses, unequal settlement of earthquakes.
- v. All structural materials should be local products, where possible.

b. Design Principles

Although there is no uniform design standard or code in Indonesia, the designs of buildings are guided by an advisory standard which may be legalized in future; therefore, the present design was carried out on the following design principles based on the said standard.

- i. External force and design loads on buildings should be determined in consideration of local climatic and soil conditions observed at site and construction techniques in Indonesia. They should also be determined according to the expected use of the proposed buildings.
- ii. Allowable stresses in structural materials should be determined in accordance with the standards set forth by the Architectural Institute of Japan with due consideration to the characteristics of local products.

iii. Stresses and sections of the framework will be computed and determined in accordance with the standards set forth by the Architectural Institute of Japan.

c. Design Loads and External Forces

Based on the aforesaid principles, the following design loads and external forces were adopted for the present design:

i. Live loads

Live loads are determined in accordance with the Japanese Building Code as outlined below and modified to meet the local condition.

<u>Rooms</u>	<u>Floor loading</u>	<u>Column or Beam</u>	<u>Seismic Load</u> (kg/m ²)
Residential	180	130	60
Offices	300	180	80
Class rooms	230	210	110
Hall (fixed seats)	300	270	160
Hall (movable seats)	360	330	210
Garage	550	400	200

Live Loads set forth by the Japanese Building Code

ii. Seismic Coefficient $K = 0.1$

iii. Wind Load

To be determined to meet the local conditions. It seems that wind loading is considerably smaller than that required in Japan and is not larger than the seismic load.

iv. Soil Bearing Capacity

To be determined after verification by a loading test on site.

v. Concrete Strength

Design standard $F = 180 \text{ kg/cm}^2$

3. Finishing Materials

a. Exterior Finishes

Roof: Urethane waterproofing membrane + corrugated
 asbestos cement board

Walls: Concrete, exposed

Doors & Wooden sash, oil-stained

Windows: Partially glazed with clear glass panes or glass
 louvers

Berms: Graveled

b. Interior Finishes

i. Corridors

Floor: Terrazzo tiles (300 X 300 mm) (Laid onto the
 cement waterproofing base on the second floor)

Walls: Concrete, exposed

Ceilings: Painted

ii. Offices and Class Rooms

Floor: Terrazzo tiles (300 X 300 mm)

Walls: Mortar, painted

Ceilings: Timber strip boarding

iii. Training Rooms

Floor: Mortar, painted

Walls: Mortar, painted

Ceilings: Painted

iv. Warehouse

Floor: Mortar, painted

Walls: Mortar, painted

Ceilings: Asbestos cement board, painted

v. Lavatories

Floor: Mosaic tiles (applied on urethane water-proofing membrane on the second floor)

Walls: Ceramic tiles

Ceilings: Asbestos cement board, painted

3-7 SERVICES PLANNING

1. Design Principles

Services planning should be in compliance with the basic principles described in Section 3-3 but should be made with special consideration given to the following requirements:

- a. Although special equipment will be provided for training, all the buildings services should be arranged so that they may be used as part of training programs.
- b. Planning should be made with consideration given to the maintenance and supervision of the facilities after completion.
- c. Local construction methods should be adopted as much as is practicable.

Considering that the project site is far from the city area and that professional engineers are scarce in Ujung Pandang, the maximum use of standard equipment and materials will be advisable. Standard components can either be procured locally by using local manufactures or by importing, but the design will be arranged so that standby equipment is available for use when replacing damaged parts or for periodical maintenance.

2. Electrical Services

- a. The Electric power supply is to be provided at the expense of the Indonesian Authorities. For this purpose, the high tension distribution line should be extended to serve the site or special power generator system installed

serving the school buildings only because there is at present no mains electricity service provided to the site.

b. Power Mains System

Power will be fed from the mains intake panel in the electrical room or generator room to the respective power and lighting distribution boards.

The supply voltage for power use should be:

3 ϕ 3w 380V for motors

1 ϕ 2w 220V for lights and socket outlets

Should a 3 ϕ 220V or 1 ϕ 100V be found necessary for training equipment, etc. this requirement could be met by the use of a small transformer situated close to the equipment needing it.

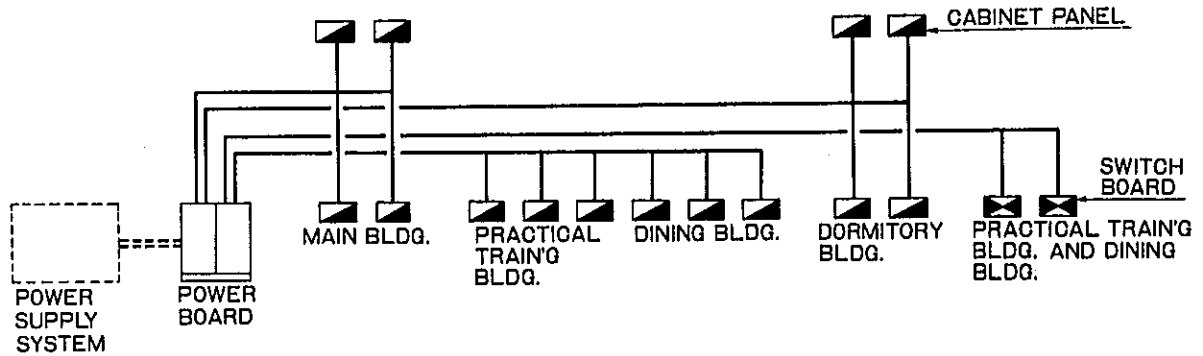
Although fuses are generally used in Indonesia for the prevention of overloading by power surges, lights and socket outlet circuits in this design will use moulded case circuit breakers (M.C.C.B.).

c. Lighting Fixtures and Socket Outlets

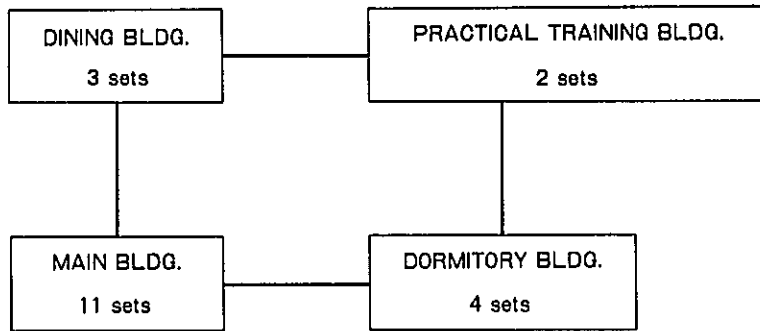
In most cases lighting will be provided using fluorescent lamps, with incandescent or mercury lamps in some places. Lighting fixtures will generally be of an exposed type, with the intensities of illumination being approximately as follows:

Instructors' Room and Conference Room:	300 lx
Class Rooms	: 300 lx
Practical Training Room and Kitchen	: 300 lx
Lavatories, Stores and Corridors	: 100 lx

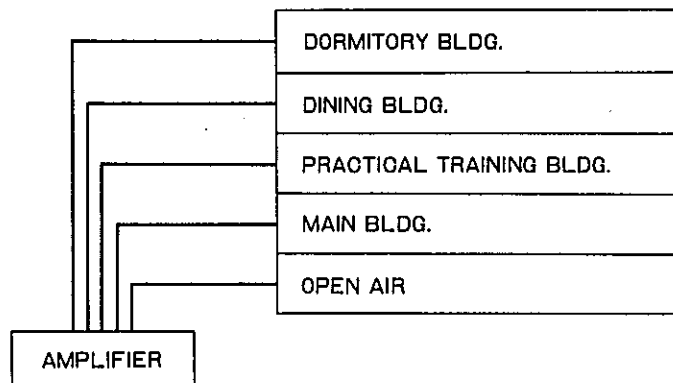
Parts in broken line (----) show the work which must be done by the Indonesian Government.



MAIN POWER CONNECTION DIAGRAM



INTERPHONE SYSTEM DIAGRAM



PUBLIC-ADDRESS SYSTEM DIAGRAM

d. Public Address System

A public address system will be provided for making announcement throughout the school. The amplifier will be situated in the office. A clock system will be incorporated to enable time check chimes to be heard throughout the school grounds.

e. Internal Communication System

An internal telephone system will be provided for use as school communication. It is expected that 20 telephone sets will be sufficient.

f. Telephone System

As there is no telephone line existing in the vicinity of the project site, telephone conduits for future use will be installed. However, as it appears that some means for communicating with the outside such as the office of Sea Communication or the SPM will be required a radio communication system will be specified subject to Government permits, if needed.

g. Emergency Alarm System

An alarm system will be provided for use in emergencies. The main equipment will be located in the office and push-buttons and alarm bells provided close to all fire hydrants.

h. TV Antenna Outlets

The Recreation Room, Dining Hall, Superintendent's Room and Conference Room will be provided with an outlet for TV antenna.

i. Electrical System for Training Equipment

The electrical system will be provided for training equipment such as anemoscope, anemometer, boring machine and lathe.

3. Cooling and Ventilation System

a. Cooling System

The Superintendent's Room, Conference Room, Head Official's Room and Clinic will each be provided with a window cooler. The design is to provide for an ambient external temperature of 35°C and an internal room temperature of 26°C. The chiller units therefore will be designed to handle a 10°C drop in temperature.

b. Ventilation System

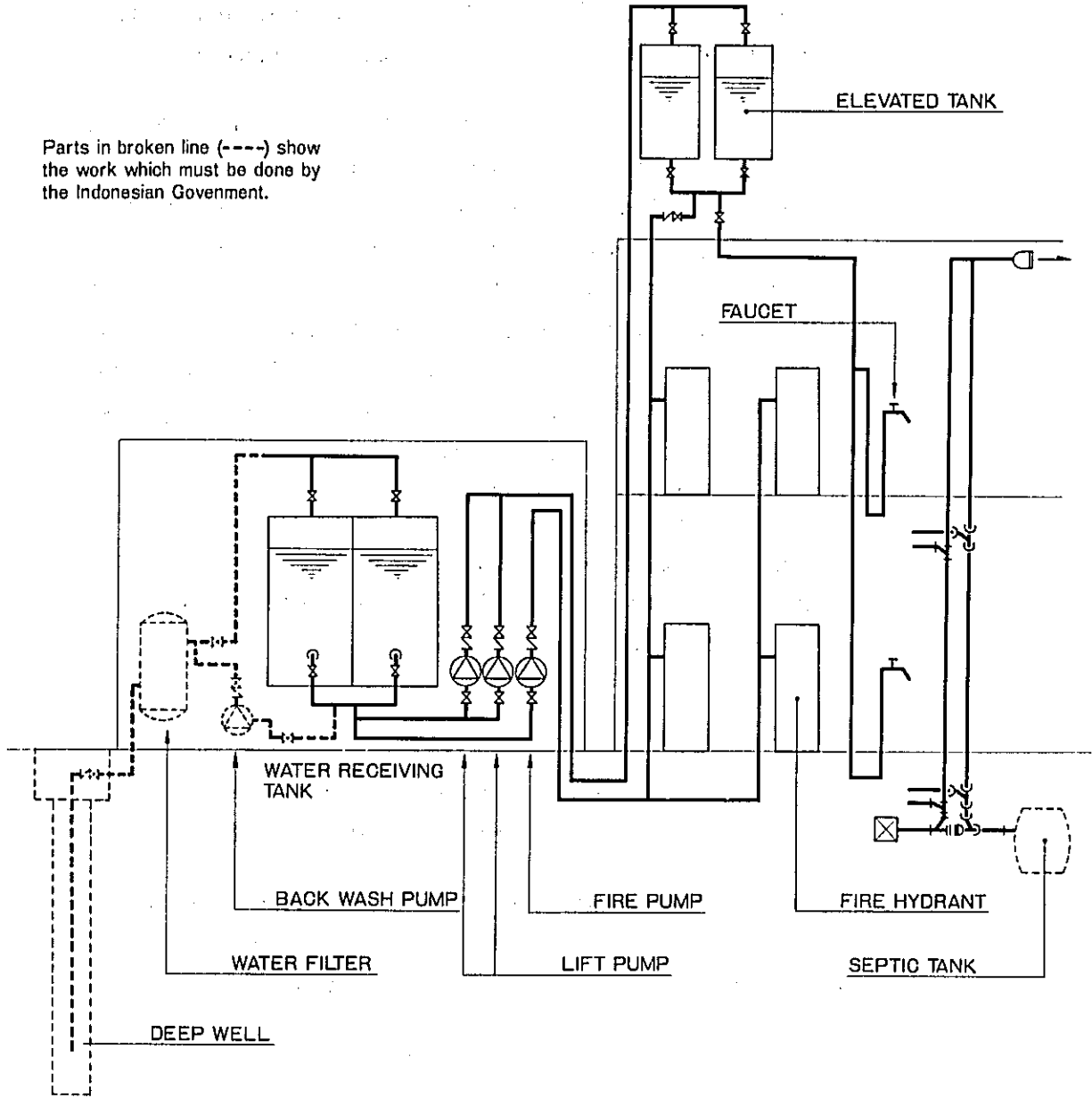
This has been designed to mechanically ventilate the Kitchen, Dining Hall, Practical Training Rooms (for engine and deck courses) and all toilets. Class rooms, office and residential quarters will be naturally ventilated by openable windows. Mechanical ventilation will be by wall-mounted ventilating fans.

4. Plumbing Systems

a. Water Supply System

The water supply facility up to a water receiving tank will be provided by the Indonesian Government. There is no city water supply facility existing at the project site, so a deep well should be provided. Water filtration equipment may be necessary depending on the results of analysis

Parts in broken line (----) show the work which must be done by the Indonesian Government.



WATER SUPPLY AND FIRE EXTINGUISHING FLOW DIAGRAM

of the deep-well water. All water analysis and filtration equipment will be at the cost of the Indonesian Government.

In accordance with the school's accommodation capacity, the water receiving tank should be approximately 40 m³ (20 m³ x 2 tanks) which can also be used in an emergency as fire fighting water tanks. High level water storage will be of approximately 10 m³ capacity (5 m³ x 2 tanks). However, these water receiving tanks capacities are based on the assumption that the deep well's potential volume of water is approximately 200 l/min., and they may have to be adjusted depending on the actual yields observed after completion of well drilling.

The water receiving tanks will be made of concrete, the high level water tank, of F.R.P., and water supply pipes, of steel or P.V.C.

b. Hot-water Supply System

The kitchen will be provided with a hot water supply system for washing-up use, but this water will not be drinkable.

A tea making room will be provided with electric socket outlets only for water boilers which are to be provided by the occupants. No hot water supply system has been planned.

c. Drainage System

The septic tanks will be provided by the Indonesian Authorities. The budget includes connection from the toilet water closets and urinals to the septic tanks.

All other waste water drainage will be led to storm water gullies.

d. Fire-Fighting System

A layout has been designed for an interior fire-hydrant system. A fire pump will be situated near the water receiving tanks. The fire pump will have a capacity of 750 ℓ/min. approximately, and will be capable of being started automatically from any of the fire hydrants.

e. Sanitary Fixtures

Water closets will generally be of the flushing Japanese type, with one or two Western type pans in each toilet. Urinals will be of the wall-mounted type. The design will also include wash-hand basins, shower sets and water and electricity connections for laundry washing machines.

f. Kitchen Equipment

Kitchen equipment to prepare the meals of students, instructors and office staff will be provided. The fuel used will be oil. The kitchen equipment planned will be as follows:

- i. Oil-fired hot water heaters (for washing-up)
- ii. Electric refrigerators
- iii. Oil-fired ranges
- iv. Sinks and tables

3-8 HARBOR FACILITIES

1. General

The project site faces a wide gently sloping sandy beach, and there is no natural berthing area for cutters and other boats. Therefore, a deep water basin and quay will be necessary to allow boats to moor safely and be carried to the boat house. The following facilities only has been planned taking into account the basic requirements and minimum expense:

- a. Rubble stone groynes
- b. Slipway (7 m wide)
- c. Concrete mooring quay

2. Marine Conditions

As outlined in Section 3-4.3, the prevailing wind over this region blows from the northwest. The direction of waves is generally also from the northwest. The 1978 tide table indicates that the annual tide level difference is about 1.2 m. There is no detailed data available for the waves of the water directly in front of the project site. Neither is data available about drift sand, but it is almost certain that drift sand originates from the Jeneberang River located to the north of the project site and is carried mostly along the coast from the north. Regarding the water table at the project site, the results of site investigations have indicated that there is a relatively steep slope approximately 30 - 50 m out from the beach line and an even depth of 1 - 1.5 m appears to continue for 100 - 120 m distance. As this seabed data, however, will largely affect the size of structure, a further more detailed survey will be necessary.

In addition, the datum level for this entire region uses the M.S.L. (median sea level) in Port Makassar, therefore, at the site L.W.L. is M.S.L. -0.7 m and H.W.L. is M.S.L. +0.5 m. The site level to be used for this design will be taken as approximately M.S.L. +3.5 m at the terrace of the existing Province-owned resort house.

3. Design Principles

a. Groyne

Considering the prevailing marine conditions and the expected condition of the water surface within the groyne, the following design principles will be established:

- i. Taking into account the direction of the prevailing wind and the deposit of sand from the Jeneberang River, the groyne will be arranged in such a manner as to block the north and west sides.
- ii. The harbor must be deep enough to provide a draft at low tide and will be dredged to maintain a minimum depth of L.W.L.-0.5 m.
- iii. The material used for groyne construction will be rubble stones as this will be possible within the budget cost and provide the most effective method of construction.
- iv. Though there is no exact data available on the maximum height of waves, the design will assume a wave height of 1.0 m taking into account the annual wind velocity data and the need to restrict costs as much as possible.
- v. The south wall is to deal with erosion control and the

southerly wind which blows very seldom. Basically, however, the occasional waves from the south-west will be ignored to allow the length of the groyne to be as short as possible, taking into account the length of time which will be required using only manual construction methods (as outlined in vi. below).

- vi. Because of the extent of the underwater work, the use of heavy construction equipment will not be practical; therefore, manual labour will be used. This will result in a less dense construction and some problems in respect to the function of blocking waves forces may arise. When the wall is washed by a wave higher than that assumed in design or until the rubble between the larger stones has settled the wall must be carefully inspected and repaired where needed.
- vii. There is no reliable data available on the marine conditions of seabed topography or littoral drift, and re-assessment of the design will have to be made as soon as this data becomes available in the future.

b. Slipway and Apron

- i. The clear width of the slipway will be 7 m to accommodate the width of a cutter.
- ii. Boats will be pulled ashore by means of a platform cart. No rail, ramp or power driven equipment has been planned.
- iii. The slipway will be provided with a gradient of 1/7.
- iv. An apron, at least 9 m wide, has been planned as a guide area so that the boats may be allowed to be carried from the slipway to the boat house.

- v. The slipway will be constructed in the water without employing sheet piles or other means to stem water.

c. Quay

- i. To allow students to board and leave cutters and to allow cutters to be moored temporarily, quay made of concrete has been planned.
- ii. The difference of 1.2 m in tides will be dealt with by using ladders.
- iii. The quay has been planned to be united with the slipway and to serve as its retaining wall.
- iv. The exact height of the quay must be re-assessed following observation of the tide in the future.

4. Outlines of the Facilities

Rubble stone groyne	:	155m long X 3.5m wide at top
Slipway	:	7m (W) X 18.2m (L) gradient 1/7
Quay	:	2m (W) X 13m (effective width = 10m)
Area of apron in m ²	:	238.5m ² = 9m (W) X 26.5m (L) concrete pavement
Area to be graded around boat house in m ²	:	50m X 25m = 1,250m ² (inclusive of apron)
Area to be dredged in m ² :		Approx. 4,000m ²
Ladders	:	3 sets
Fenders	:	4 sets
Mooring Posts	:	2 sets

3-9 SCOPE OF CONSTRUCTION WORK

1. Works included in Budget

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

- | | |
|---|--|
| a. Construction of the five buildings (incl. utilities) | Main Building
Practical Training Building
Dormitory
Refectory
Boat House |
| b. External Work | Berms and yard construction on both east and west sides of the buildings

Graveling in the courtyard

Drainage systems from the buildings to the nearest basins

Gateway

Services connections from the Mechanical Room to the buildings |
| c. Construction of training facilities | Groyne (incl. dredging)

Slipway and apron

Boat davit (Radial type, manual operated)

Cargo crane (with flag staff) |

d. Installation of training equipment

One life boat with engine
Three cutters

Equipment for deck and engine department as listed on Page 72

2. Works not covered by Budget

a. Land acquisition and demolishing and removal of existing buildings and obstacles

b. Site preparation and leveling work

c. Access road pavement

d. Electricity supply

e. Water supply up to the receiving tanks

f. Drainage system

g. Septic tanks

h. Pavement within the site and parking lots

i. Landscaping, fence work and exterior lighting

j. Furniture and other interior decorative work

k. Garage, guard house and faculty housing

l. Telephone sets and telephone wiring

m. Surveying and soil tests

The illustration on Page 73 shows comparatively the external works covered by the Budget and works not covered by the Budget. The works not covered by the Budget were described and accepted

in the record of discussions submitted to Captain J.H. Warokka during the survey visit on November 14th, 1977. The specifications for the works will, as agreed, be submitted again with some detail modifications when the basic design has been completed. (See Page 69)

LIST OF MAJOR TRAINING EQUIPMENT

DECK DEPARTMENT

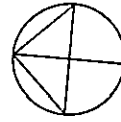
<u>Item</u>	<u>Quantity</u>
a. <u>Model Room</u>	
Magnetic compass	1
Echo Sounder	1
Ship light	1 set
Structure model of freighter	1
Structure model of tanker	1
Structure model of container ship	1
Structure model of ore carrier	1
Structure model of rudders	1 set
Structure model of cargo gear	1
Inflatable life raft	1
b. <u>Practical Training Room</u>	
Tools for sail making	1 set
Tools for hull maintenance	1 set
Signal equipment	1 set
Meteorological equipment	1 set

ENGINE DEPARTMENT

<u>Item</u>	<u>Quantity</u>
a. <u>Model Room</u>	
Marine main diesel engine model	3
Steering gear model	1
Variable pitch propeller model	1
Induction motor model	1
Generator model	1
Pumps	
b. <u>Practical Training Room</u>	
Diesel engine (Second-hand)	1
Oil purifier	1
Refrigerating plant	1
Boiler simulator	1
Finishing and assembly tools	1
Lathe	1
Drilling machine	1
Gas welding machine	2
Electric welding machine	2
Diesel engine generator (100KVA)	2 sets
Diesel engine generator (20KVA)	1 set

WORKS INCLUDED

1:2000



WORKS NOT INCLUDED

GATEWAY

GATEWAY

ACCESS ROAD

45,000

FACULTY HOUSING

GATE

GARAGE

GUARD HOUSE

POWER AND WATER
CONNECTING WORK

CARGO
CRANE

DRAINAGE SYSTEM

FRONT YARD PAVEMENT

PRACTICAL
TRAINING BLDG.

MAIN
BLDG.

PAVEMENT AND
SERVICE ROAD

COURT YARD PAVEMENT

MECHANICAL
EQUIPMENT ROOM

PAVEMENT
(SHADOWED)

REFECTORY

POWER SUPPLY
WATER SUPPLY

WEST YARD PAVEMENT

DORMITORY
BLDG.

SEPTIC TANKS

PIPING TO SEPTIC TANK
DRAINAGE (UP TO BASIN)

FENCE WORK

BUILDINGS

EXTERIOR LIGHTING

EDUCATIONAL
FACILITIES

TRACK AND FIELD

EDUCATIONAL
EQUIPMENT

TELEPHONE WIRING

FURNITURE AND
OTHER DECORATIVE
WORK

LAND ACQUISITION

TOPOGRAPHIC
SURVEYING

SOIL TEST

DEMOLITION AND
LEVELLING WORK

BOAT
HOUSE

APRON

GROYNE

SELAT MAKASSAR

**DEPARTEMEN PERHUBUNGAN
DIREKTORAT JENDERAL PERHUBUNGAN LAUT**

NO. : *DLR 880/1/12.*
LAMPIRAN :
PERIHAL :

JAKARTA ~~REDEEMED~~ *24/11/77*

Jakarta, November 14, 1977.

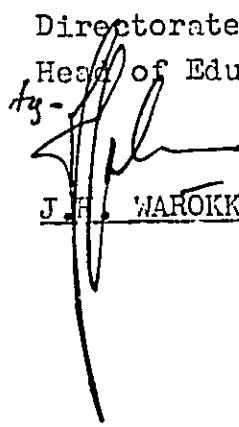
Mr. N. UEDA.
Architect for Japanese Survey Team.

Dear Sir,

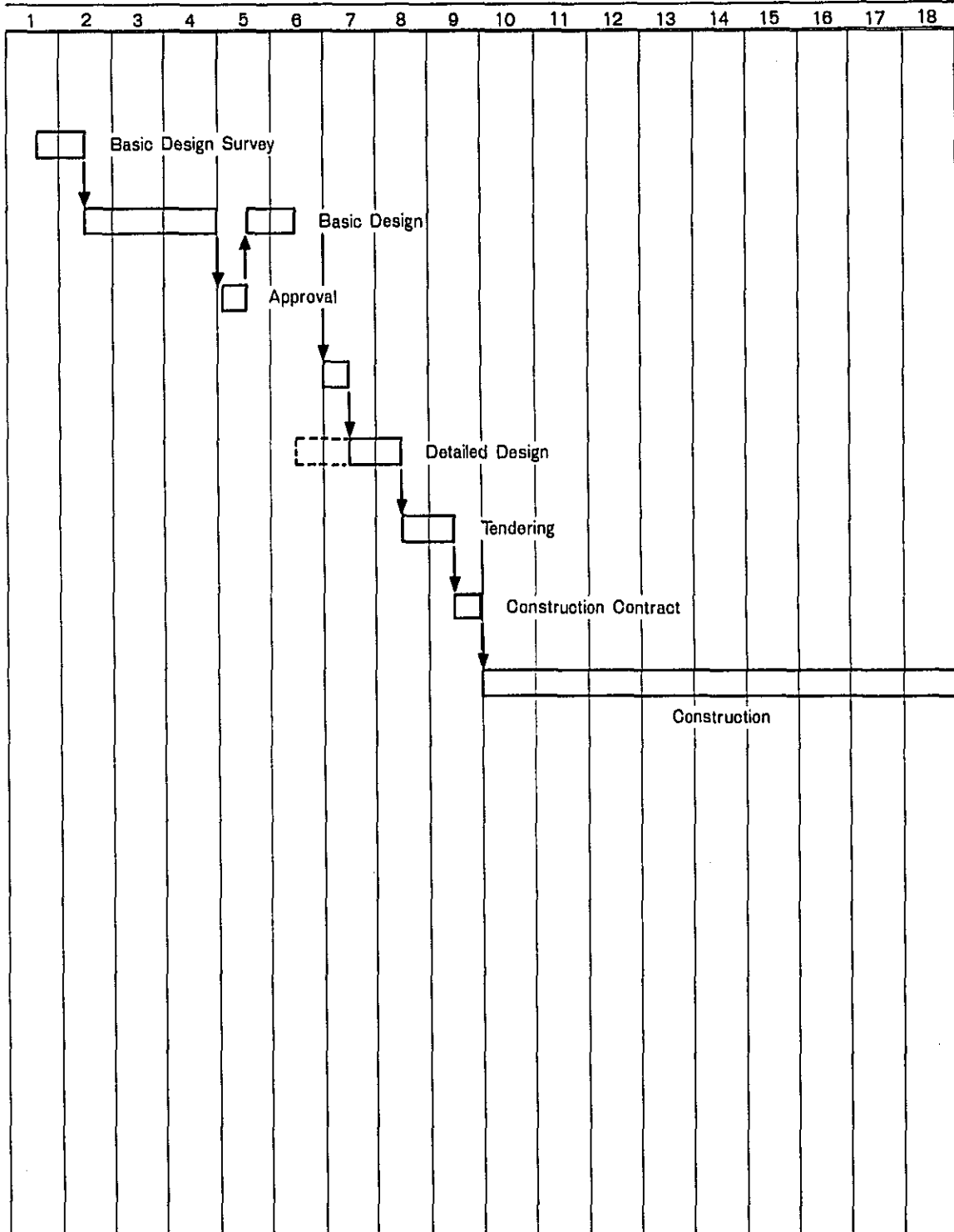
Rating School project,
We have received the Records of discussions made between the Japanese Survey Team and the Indonesian Team as to the technical matters for design and construction of the school buildings during October 19, 1977 to November 14, 1977.

Respectfully yours.

Directorate General of Sea Communication
Head of Education & Training Centre.

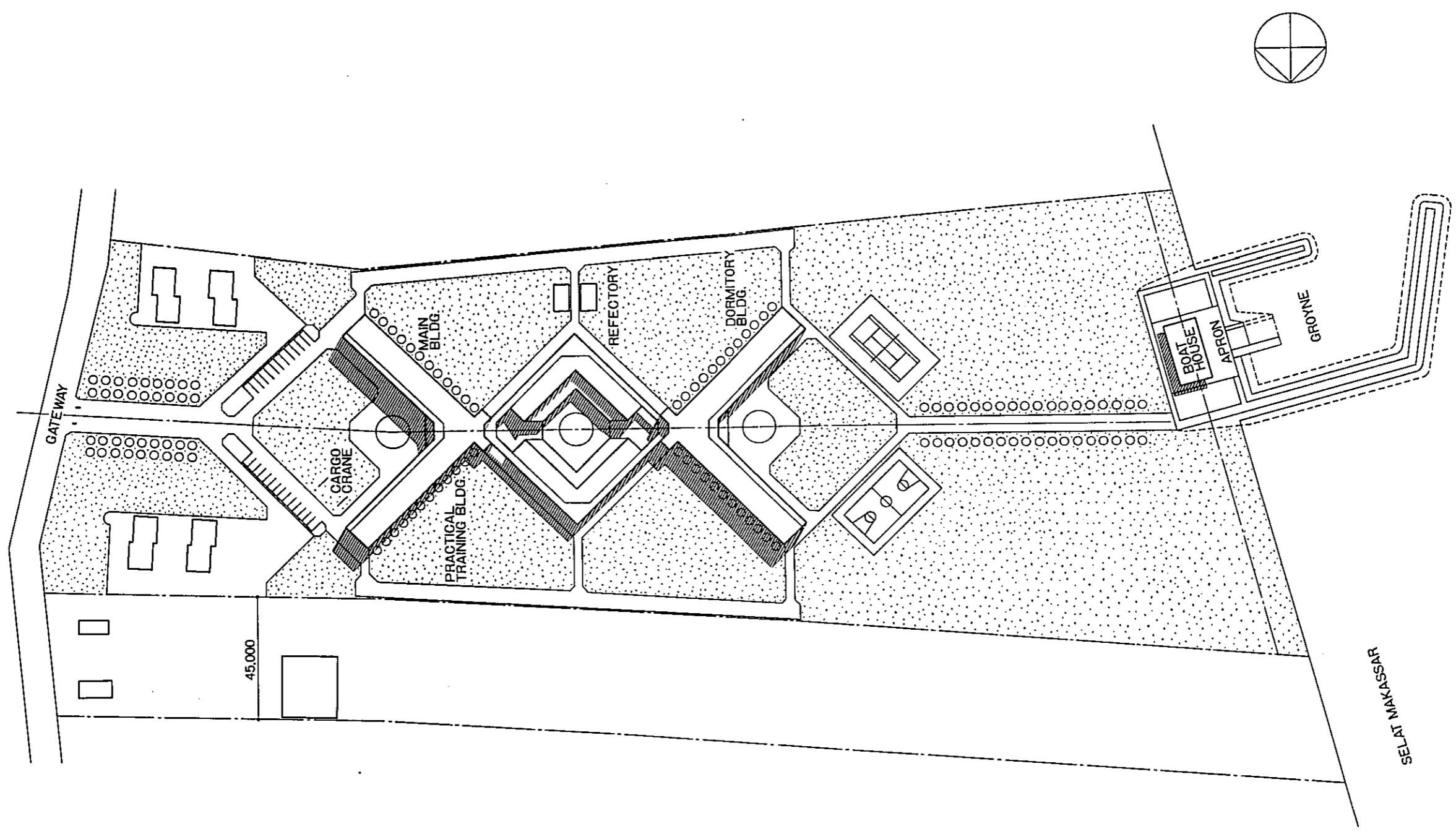
ty -

J. F. WAROKKA.

SCHEDULE

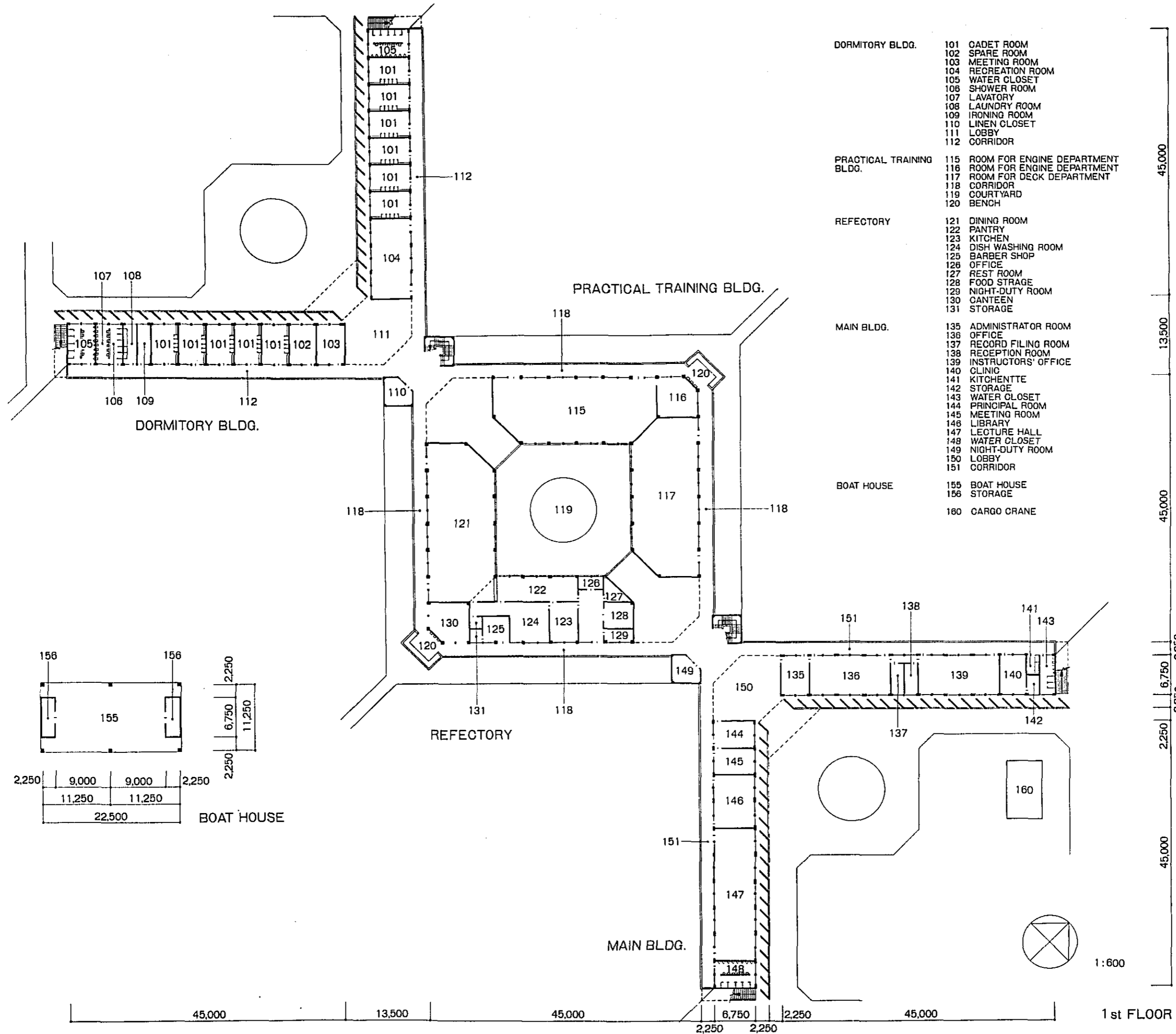


3 - 11 ROUGH ESTIMATES OF CONSTRUCTION COST

1. Building Construction	¥693,000,000
2. Training Facilities	¥58,000,000
3. Training Equipment	¥201,500,000
4. Design and Supervising Fee	¥97,500,000
<hr/>	
TOTAL	¥1,050,000,000

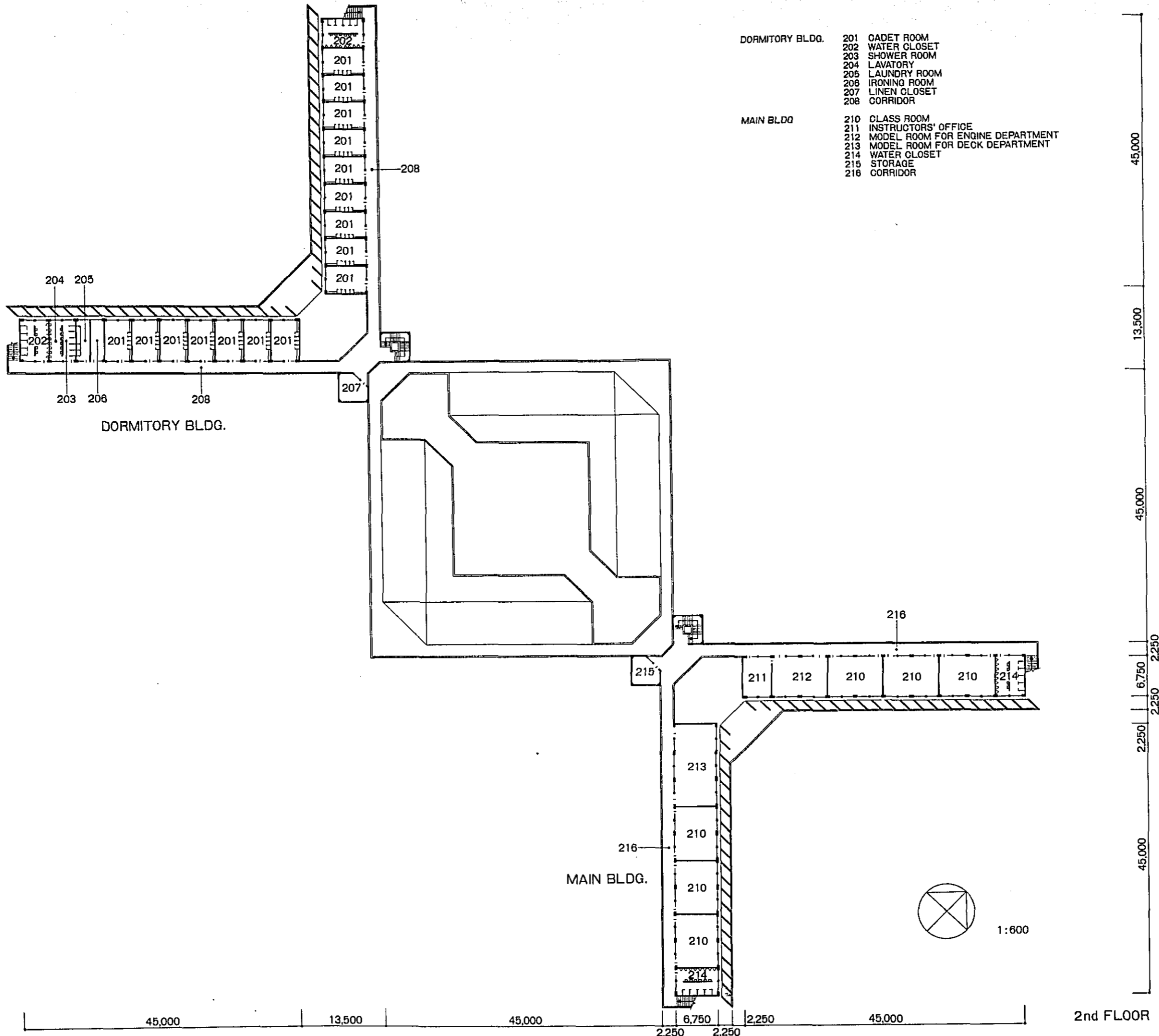


1:1600 SITE PLAN



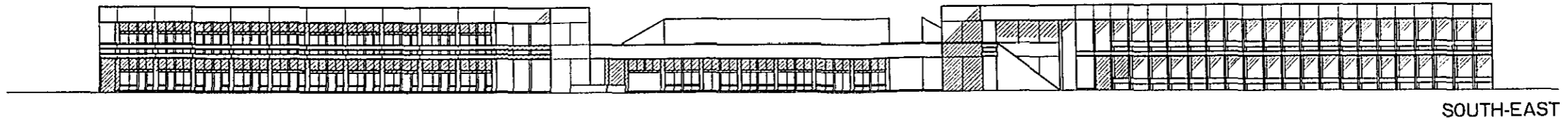
- DORMITORY BLDG.
 - 101 CADET ROOM
 - 102 SPARE ROOM
 - 103 MEETING ROOM
 - 104 RECREATION ROOM
 - 105 WATER CLOSET
 - 106 SHOWER ROOM
 - 107 LAVATORY
 - 108 LAUNDRY ROOM
 - 109 IRONING ROOM
 - 110 LINEN CLOSET
 - 111 LOBBY
 - 112 CORRIDOR
- PRACTICAL TRAINING BLDG.
 - 115 ROOM FOR ENGINE DEPARTMENT
 - 116 ROOM FOR ENGINE DEPARTMENT
 - 117 ROOM FOR DECK DEPARTMENT
 - 118 CORRIDOR
 - 119 COURTYARD
 - 120 BENCH
- REFECTORY
 - 121 DINING ROOM
 - 122 PANTRY
 - 123 KITCHEN
 - 124 DISH WASHING ROOM
 - 125 BARBER SHOP
 - 126 OFFICE
 - 127 REST ROOM
 - 128 FOOD STRAGE
 - 129 NIGHT-DUTY ROOM
 - 130 CANTEEN
 - 131 STORAGE
- MAIN BLDG.
 - 135 ADMINISTRATOR ROOM
 - 136 OFFICE
 - 137 RECORD FILING ROOM
 - 138 RECEPTION ROOM
 - 139 INSTRUCTORS' OFFICE
 - 140 CLINIC
 - 141 KITCHENTTE
 - 142 STORAGE
 - 143 WATER CLOSET
 - 144 PRINCIPAL ROOM
 - 145 MEETING ROOM
 - 146 LIBRARY
 - 147 LECTURE HALL
 - 148 WATER CLOSET
 - 149 NIGHT-DUTY ROOM
 - 150 LOBBY
 - 151 CORRIDOR
- BOAT HOUSE
 - 155 BOAT HOUSE
 - 156 STORAGE
 - 180 CARGO CRANE

45,000
 13,500
 45,000
 2,250
 6,750
 2,250
 45,000
 2,250
 2,250
 45,000
 1st FLOOR

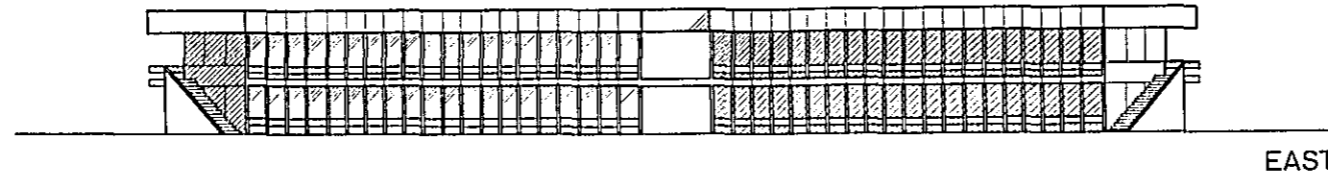




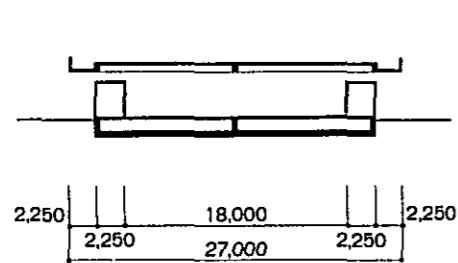
SOUTH



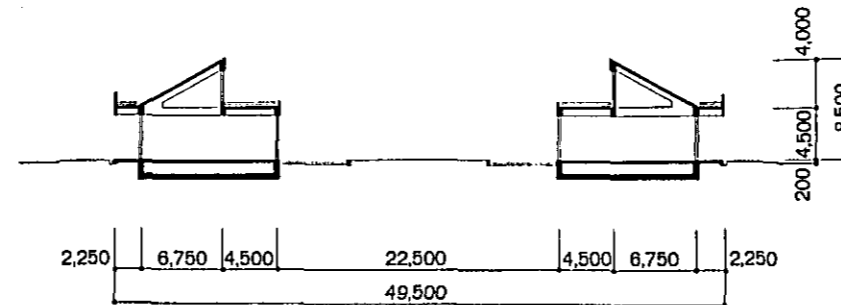
SOUTH-EAST



EAST

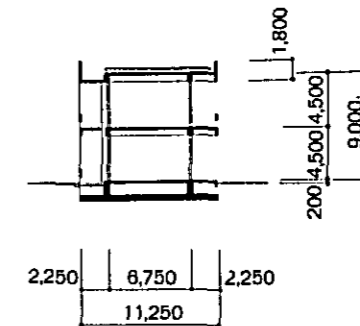


BOAT HOUSE



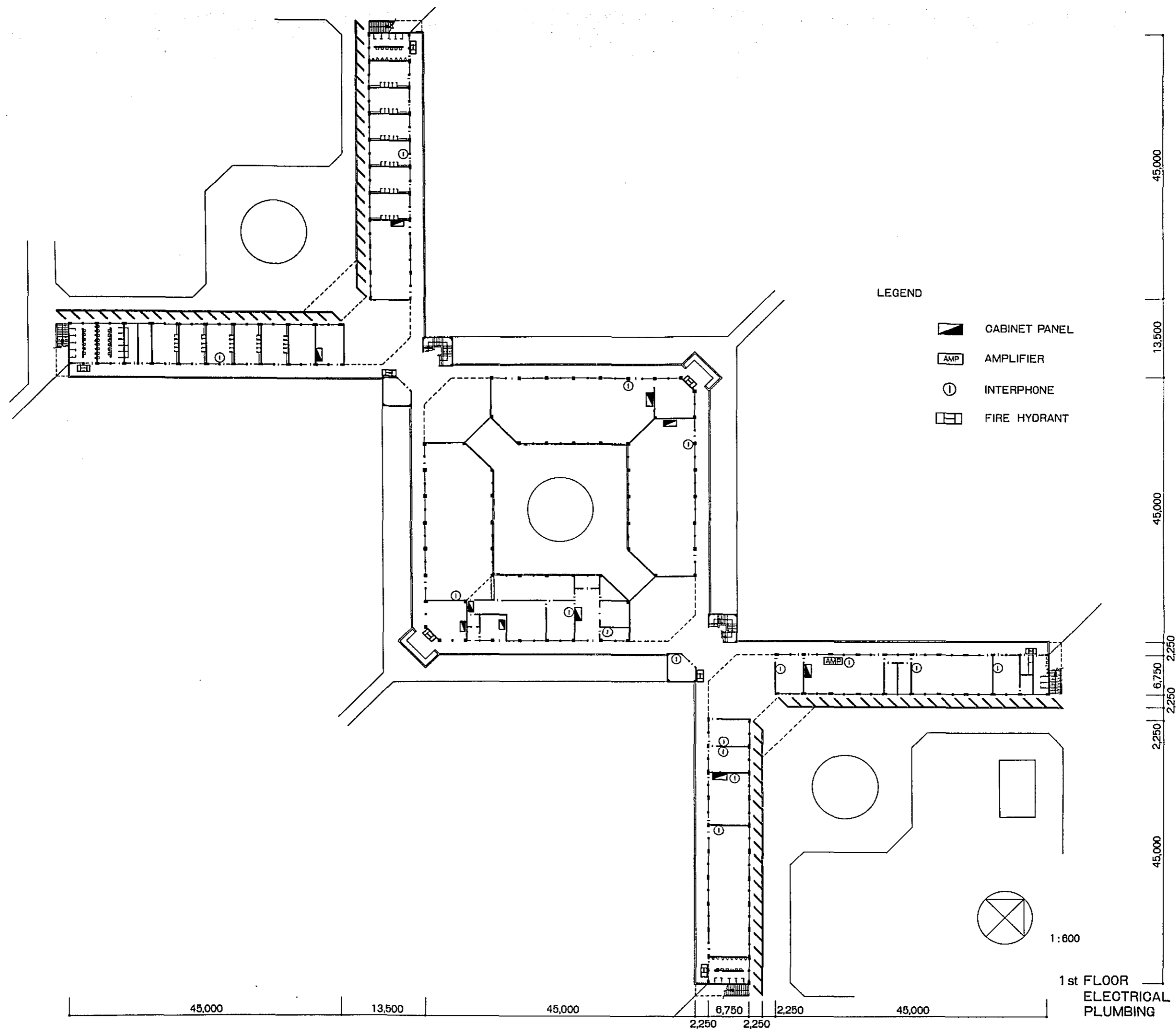
PRACTICAL TRAINING BLDG.

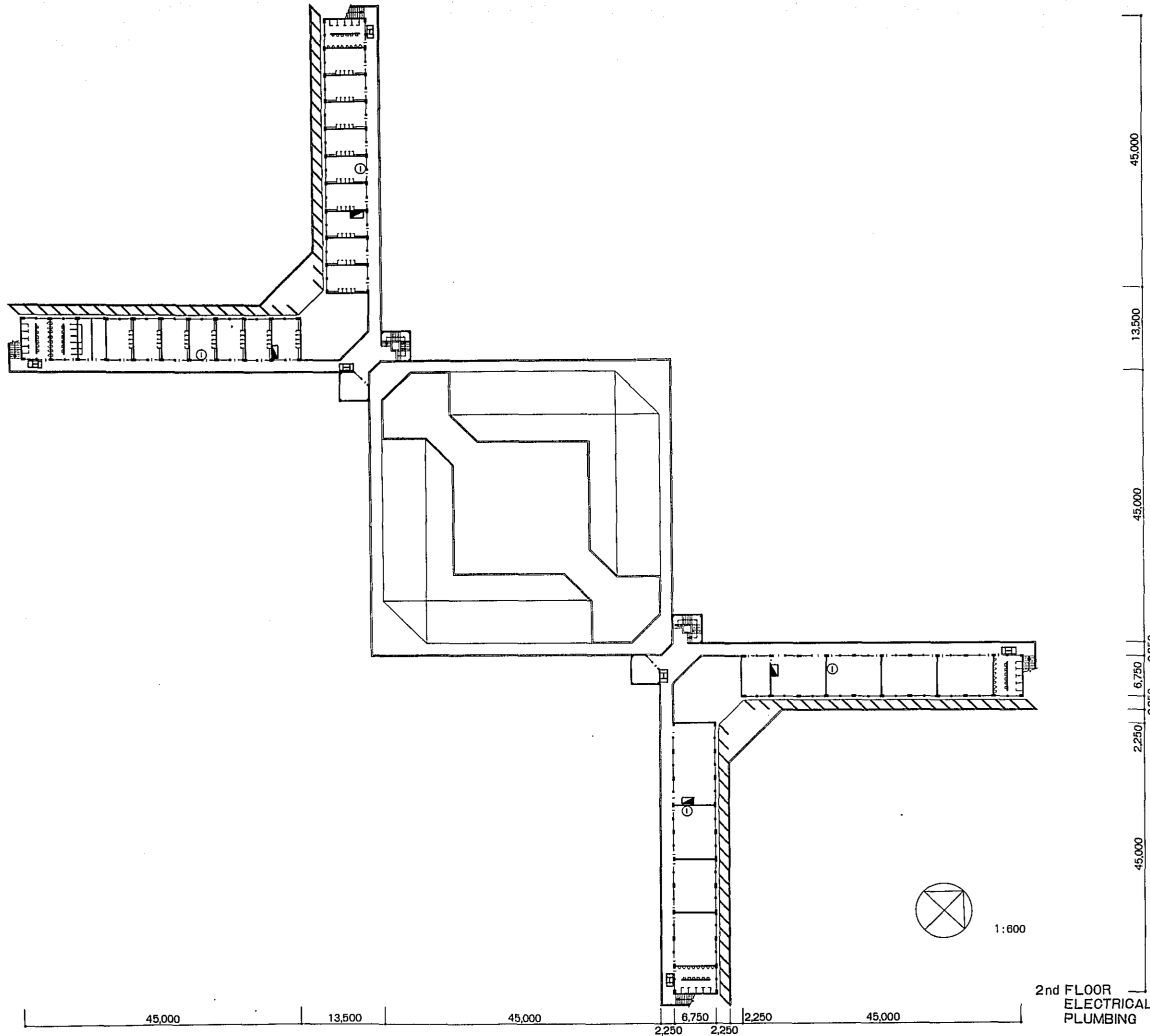
REFECTORY



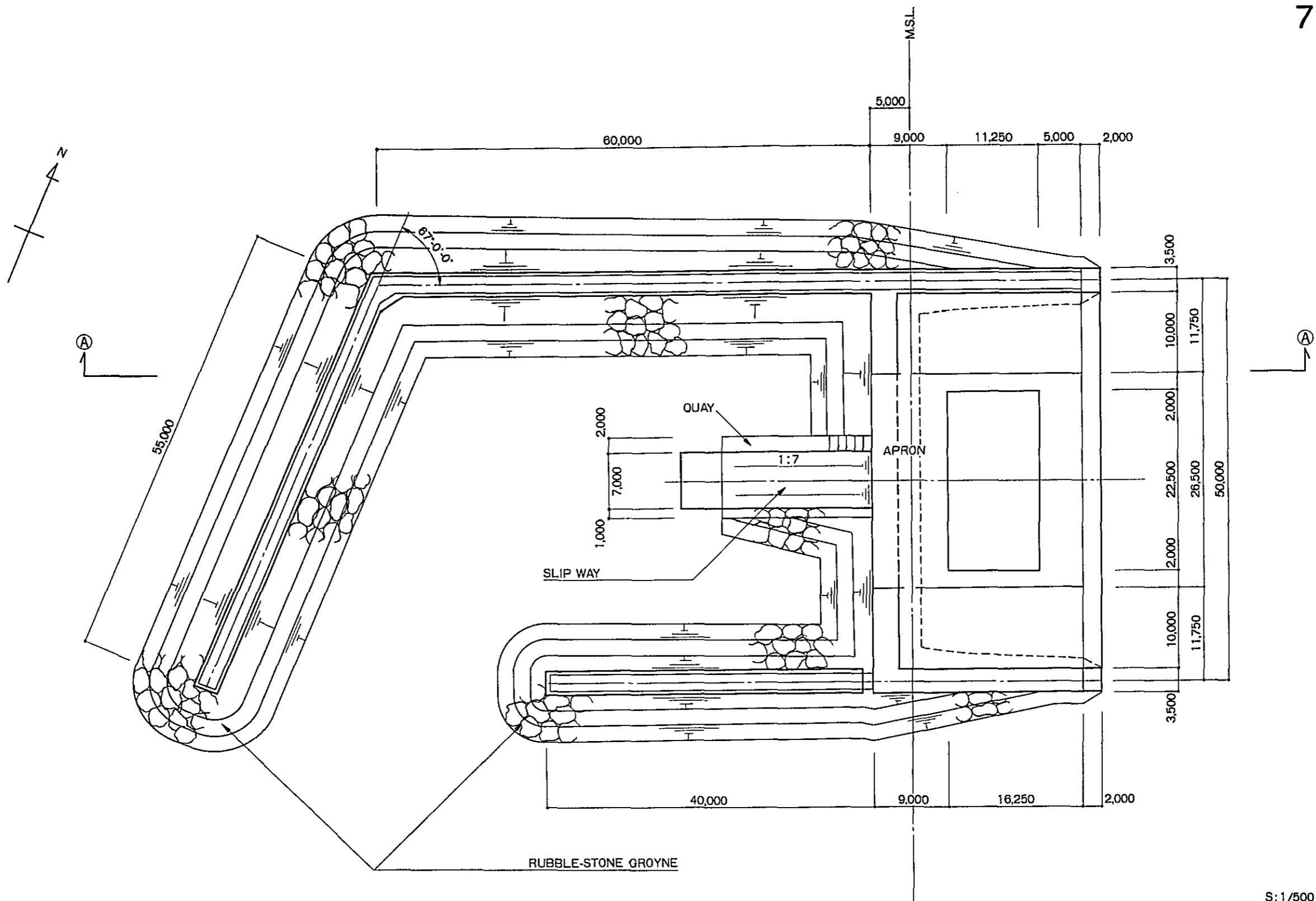
MAIN BLDG.

1:600 ELEVATION & SECTION





2nd FLOOR
ELECTRICAL
PLUMBING



S: 1/500
GENERAL PLAN

APPENDICES

APPENDIX I SURVEY MISSION FOR BASIC DESIGN

1. Members
2. Diary
3. List of Persons Concerned

APPENDIX II SURVEY MISSION FOR EXPLAINING BASIC DESIGN

1. Members
2. Diary
3. List of Persons Concerned

APPENDIX III ORGANIZATION OF DEPARTMENT

APPENDIX I SURVEY MISSION FOR BASIC DESIGN

1. Members

Professor Fumio SHINTANI (Leader)	Chairman Navigation Department Institute for Sea Training Ministry of Transport
Mr. Iwao TAKAYAMA	Deputy Director Education Division Seafarer's Bureau Ministry of Transport
Mr. Shoogo ARAI	Deputy Director Policy Division Secretariat to the Minister Ministry of Transport
Mr. Yoichi SEKI	Councilor Social Development Cooperation Department Japan International Cooperation Agency
Mr. Nobuya UEDA	Project Architect Nikken Sekkei
Mr. Tadashi ISHIZAKI	Project Engineer Nikken Sekkei
Mr. Koosaku MAEKAWA	Architect Nikken Sekkei
Mr. Junso NAKAGAWA	Engineer Nikken Sekkei
Mr. Keiji IIMURA	Secretary, 2nd Economic Cooperation Economic Cooperation Bureau Ministry of Foreign Affairs

2. Diary

<u>Date</u>	<u>Day</u>	<u>Description</u>
Oct. 19	Wed.	Tokyo - Jakarta
20	Thu.	Courtesy call to the Japanese Embassy and the Directorate General of Sea Communications; Discussion about schedule, field survey, etc.
21	Fri.	Meeting with Admiral H. Nimpuno, the Director General of Sea Communications and Mr. Huhnholz, Secretary to the Director General of Sea Communications Discussion with the Indonesian counterparts
22	Sat.	Meeting with Ir. S. Abdulrachman, the Director of Bureau of Planning Discussion with the Indonesian counterparts
23	Sun.	Jakarta - Ujung Pandang
24	Mon.	Visit to the VI th Maritime District and meeting with Mr. F. Masengi, Head of the District Visit to the S.P.M.
25	Tue.	Visit to the proposed sites (Barombong, Navy Base, Tellok River and S.P.M.) Meeting with the Indonesian counterparts
26	Wed.	Visit to Building Division, Ujung Pandang City Office Meeting at D.P.U., South Sulawesi and the S.P.M.

<u>Date</u>	<u>Day</u>	<u>Description</u>
Oct. 27	Thu.	Visit to P.L.N. and the With Maritime District Discussion with Ir. Prasio, Head of Technical Department, With Maritime District Ujung Pandang - Jakarta
28	Fri.	Meeting with Ir. S. Abdulrachman Visit to D.P.U.T.L.
29	Sat.	Meeting with Captain J.H. Warokka, Head of Maritime Transport Educational and Training Center and Mr. R. Adji, Control and Evaluation Division
30	Sun.	Team meeting regarding Minutes
31	Mon.	Meeting with Captain Warokka and Mr. Adji
Nov. 1	Tue.	Exchange of the Minutes between Mr. Huhnholz and Prof. Shintani Visit to the Indonesia Architects Association
2	Wed.	Meeting with Captain Warokka and Mr. Adji re- garding buildings and facilities
3	Thu.	Meeting with Mr. Adji Collecting data on local construction costs
4	Fri.	Meeting with Mr. Adji Collecting data on local construction costs
5	Sat.	Meeting with Mr. Adji Discussion about the second trip schedule to Ujung Pandang

<u>Date</u>	<u>Day</u>	<u>Description</u>
Nov. 6	Sun.	Jakarta - Ujung Pandang
7	Mon.	Surveying at the Barombong site
8	Tue.	Meeting with Ir. Presidio regarding local construction costs Visit to the Telecommunication Office and the Building Division of the City Office
9	Wed.	Investigation of constructional materials available in Ujung Pandang; Visit to S.P.M. Ujung Pandang - Jakarta
10	Thu.	Meeting with Captain J.H. Warokka and Mr. Adji; Collecting information on building industry in Indonesia Visit to the Engineers Association of Indonesia
11	Fri.	Meeting with Captain J.H. Warokka and Mr. Adji; Collecting data on construction costs
12	Sat.	Meeting with Captain J.H. Warokka and Mr. Adji; Collecting data on construction costs
13	Sun.	Visit to the Marine Academy (A.I.P.)
14	Mon.	Delivery of Record of Discussion to Captain Warokka by Mr. Ueda Briefing at the Japanese Embassy and JICA Jakarta Office
15	Tue.	Jakarta - Tokyo

3. List of Persons Concerned

Admiral H. Nimpuno	Director General Directorate General of Sea Communications
Mr. Huhnholz	Secretary Directorate General of Sea Communications
Ir. S. Abdulrachman	Director, Bureau of Planning Secretariate General of Department
Captain J. H. Warokka	Head, Maritime Transport Educational and Training Center Directorate General of Sea Communications
Mr. Frans Masengi	Head, Vith Maritime District Directorate General of Sea Communications
Mr. Soeyono	Head, Planning Division Secretariate, Directorate General of Sea Communications
Mr. R. Adji	Control and Evaluation Division Maritime Transport Educational and Training Center
Mr. M.L. Palumian	Control and Evaluation Division Maritime Transport Educational and Training Center Directorate General of Sea Communications
Mr. Soepomo Soegeng	Program Division Maritime Transport Educational and Training Center Directorate General of Sea Communications
Drs. Soedjanadi	Planning Division/Foreign Technical Cooperation Secretariate, Directorate General of Sea Communications
Drs. Djoko Pratomo	Program Division Maritime Transport Educational and Training Center Directorate General of Sea Communications
Ir. Prasadio Notosusanto	Head, Technical Department, Vith Maritime District Directorate General of Sea Communications
Mr. H. Bilondatu	Superintendent, SPM

APPENDIX II SURVEY MISSION FOR EXPLAINING
BASIC DESIGN

1. Members

Professor Fumio SHINTANI (Leader)	Chairman Navigation Department Institute for Sea Training Ministry of Transport
Mr. Iwao TAKAYAMA	Deputy Director Education Division Seafarer's Bureau Ministry of Transport
Mr. Shoji SHINBO	Japan International Cooperation Agency
Mr. Nobuya UEDA	Project Architect Nikken Sekkei
Mr. Naoki UCHIDA	Project Engineer Nikken Sekkei
Mr. Junso NAKAGAWA	Engineer Nikken Sekkei

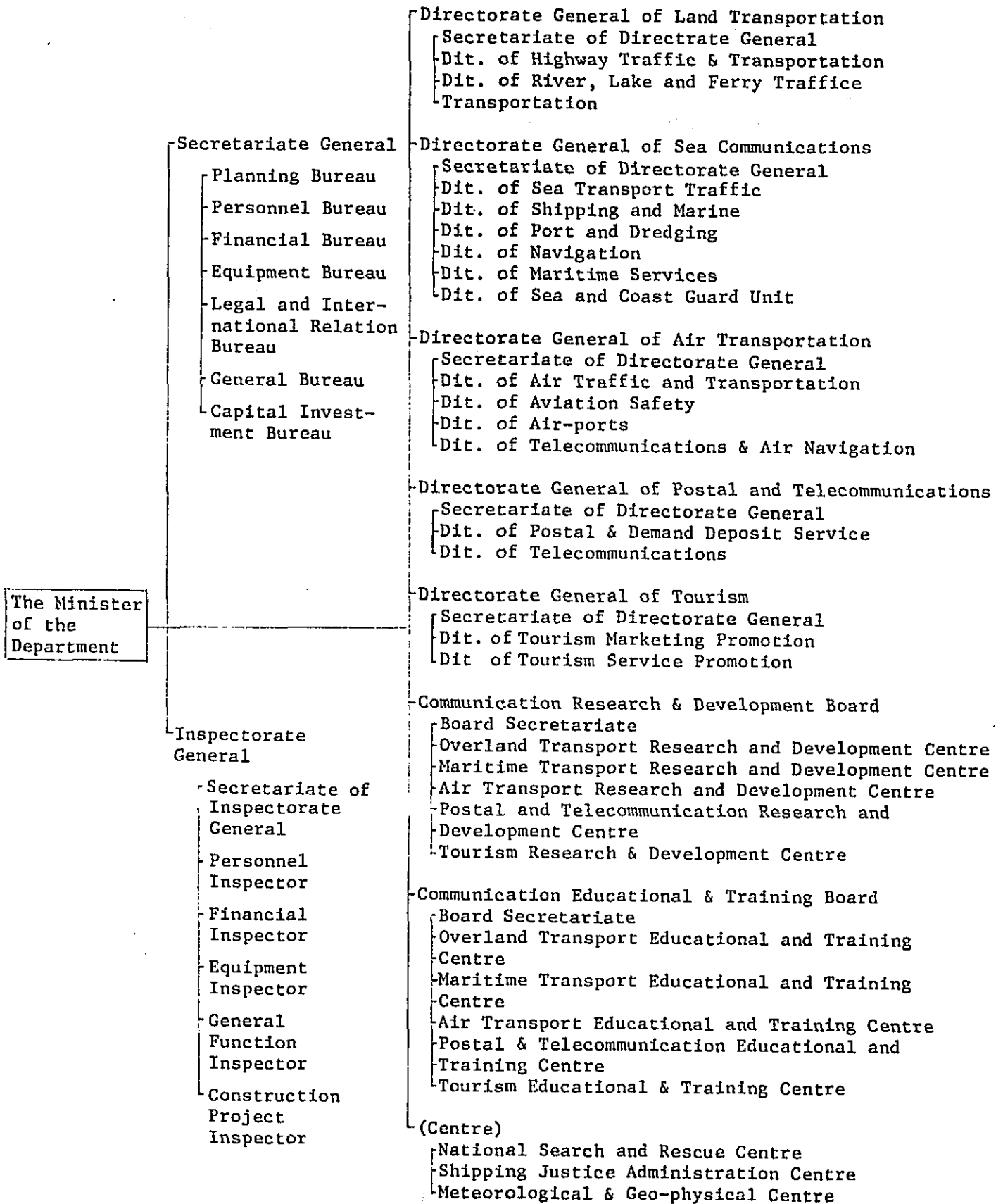
2. Diary

<u>Date</u>	<u>Day</u>	<u>Description</u>
Feb. 20	Mon.	Tokyo - Jakarta
21	Tue.	Courtesy call to the Japanese Embassy Explanation of the basic design
22	Wed.	Meeting with Mr. Pongky Soepardjo, Secretary to the Director General of Sea Communications and other officials concerned Explanation of the basic design; discussion about schedule, test results and list of training equip- ment
23	Thu.	Discussion with Ir. Soenarno and the engineers concerned about the basic design
24	Fri.	Discussion with the Indonesian counterparts about schedule and details of the field survey at the Barombong site
25	Sat.	Meeting at the Directorate General of Sea Communi- cations Issue of a letter of confirmation by Mr. Pongky Soepardjo
26	Sun.	Visit to construction fields at Jakarta and sup- plementary investigation on construction costs
27	Mon.	Courtesy call to BAPPENAS Explanation of the basic design
28	Tue.	Jakarta - Ujung Pandang Courtesy call to the Consulate General of Japan Explanation of the basic design at the VIth Maritime District

<u>Date</u>	<u>Day</u>	<u>Description</u>
Mar. 1	Wed.	Survey at the Barombong site
2	Thu.	On-board observation of the marine conditions Visit to the Building Division of the City Office
3	Fri.	Ujung Pandang - Jakarta Delivery of a counter letter by Prof. Shintani acknowledging receipt of the confirmation letter issued by Mr. Soepardjo and requesting some data
4	Sat.	Jakarta - Tokyo

3. List of Persons Concerned

Mr. Pongky Soepardjo	Secretary to the Director General of Sea Communications
Ir. A.S. Soenarno	Head, Planning Division Directorate General of Sea Communications
Captain Warokka	Head, Maritime Transport Educational and Training Center Directorate General of Sea Communications
Mr. Nurdin Nawawi	Head, Vith Maritime District Directorate General of Sea Communications
Mr. J.B. Mawckere	Harbor Master Vith Maritime District
Mr. Soepomo Soengeng	Program Division Maritime Transport Educational and Training Center Directorate General of Sea Communications
Mr. R. Adji	Control and Evaluation Division Maritime Transport Educational and Training Center Directorate General of Sea Communications
Ir. Sutoyo	Planning Division Directorate General of Sea Communications
Ir. Supanghat	Secretary to Head Vith Maritime District
Mr. Bung Salim	Chief of Port and Dredging Section Vith Maritime District
Ir. Syamsunandar	Engineer of Port Administration of Makassar Vith Maritime District
Mr. Bilondatu	Chief of S.P.M.
Mr. Arief Jantuso	Staff member of S.P.M.
Ir. Djohar Hajat	Planning Division Directorate General of Sea Communications



Secretariate of the
Directorate of Sea
Communications

Planning Division

Sub Division

1. Planning & Program Preparation
2. System & Procedure
3. Evaluation & Reporting

Personnel Division

Sub Division

1. Personnel Administration
2. Manpower Managing
3. Retirement & Pension

Finance Division

Sub Division

1. Budget Preparation
2. Budget Implementation
3. Treasure

Facility Division

Sub Division

1. Analysis of Facility Requirement
2. Procurement & Distribution
3. Inventory & Facility Administration

Operation Control Division

Sub Division

1. Data Collecting & Processing
2. Transport Control
3. Information & Visualization

General Division

Sub Division

1. Administration (Office Management)
2. Public Relation & Household
3. Legal & International Relation

GENERAL AFFAIRS DIVISION

Sub Division:

1. Personnel & Administration
2. Finance
3. Supply & Home Affairs

PROGRAM DIVISION

Sub Division:

1. Program Compilation
2. Methodical & Didactic Curriculum
3. Material & Teaching Aids

Maritime Transport Educational & Training Centre

EXECUTION DIVISION

Sub Division:

1. Education & Training Cooperation
2. Execution of Education & Training of Dit. Gen. of Sea Comm.
3. Execution of Education & Training for Personnel's Up-grading

CONTROL & EVALUATION DIVISION

Sub Division:

1. Control on Execution of Education & Training
2. Evaluation & Report
3. Documentation & Library

