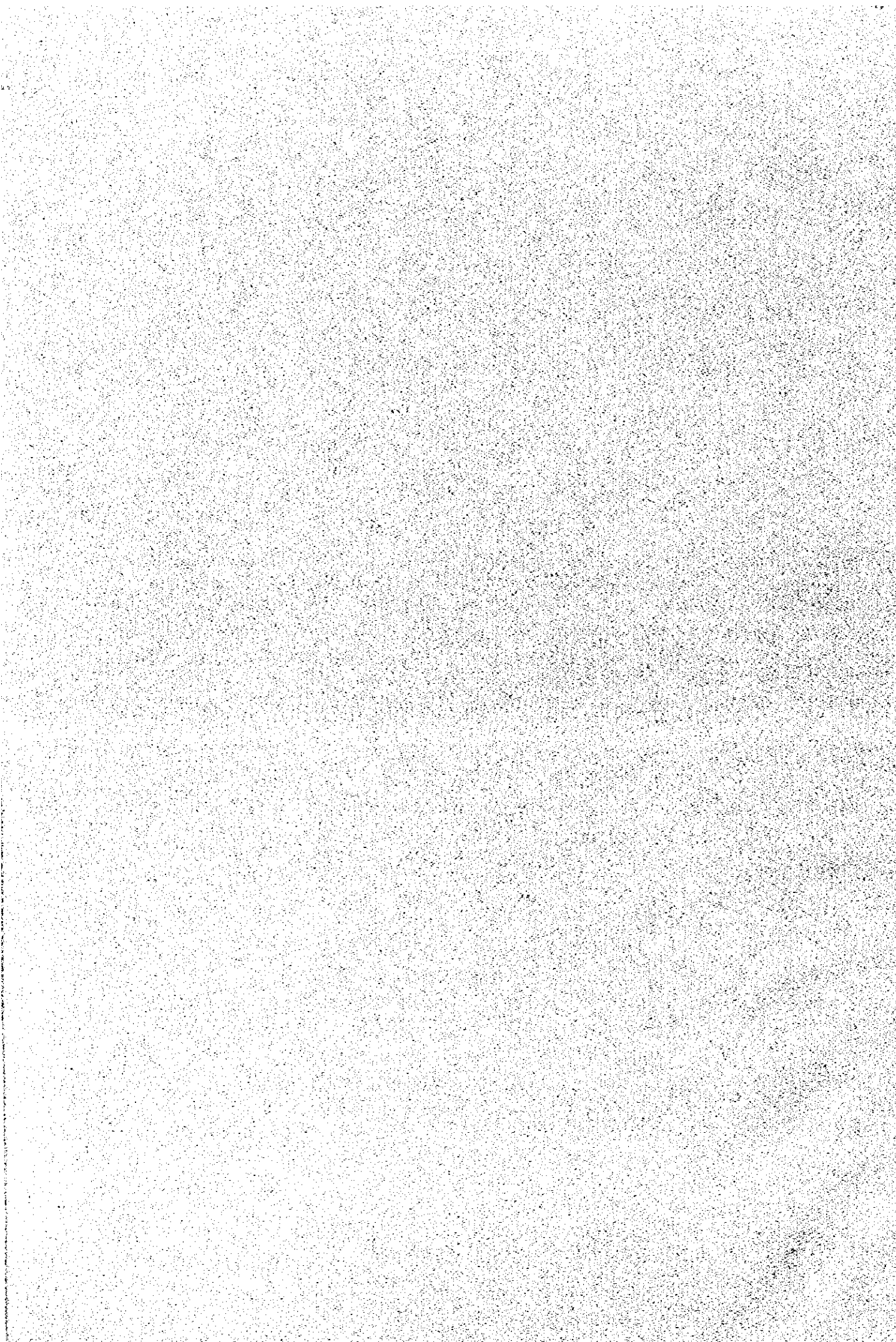


APPENDIX



Appendix-1 Member List of the Study Team

Field Survey

Name	Assignment	Organization
Official Member		
Mr. Atsuyoshi TODA	Leader	Development Planning Specialist, JICA
Mr. Jun YOKOYAMA	Technical Adviser	Fishing Port Department, Fisheries Agency, MOAFF
Consultant Member		
Mr. Tatsuo FUKE	Chief Consultant/ Fishing Port Planner	Tetra Co., Ltd.
Mr. Makoto NAMATAME	Port Civil Engineer	Tetra Co., Ltd.
Mr. Shuji SAKAI	Natural Condition/ Environmental Consideration	Tetra Co., Ltd.
Mr. Akira YAJIMA	Construction Planner/ Cost Estimation	Tetra Co., Ltd.

Explanation of Draft Basic Design

Name	Assignment	Organization
Official Member		
Mr. Atsuyoshi TODA	Leader	Development Planning Specialist, JICA
Consultant Member		
Mr. Tatsuo FUKE	Chief Consultant/ Fishing Port Planner	Tetra Co., Ltd.
Mr. Makoto NAMATAME	Port Civil Engineer	Tetra Co., Ltd.

JICA : Japan International Cooperation Agency

MOAFF: Ministry of Agriculture, Forest and Fishery

Appendix-2 Survey Schedule

Field Survey

No.	Date			Itinerary	Activities
1	3	21	Sat	Tokyo - Guam	Movement : Official Members (Mr. Toda and Mr. Yokoyama)
2		22	Sun	Guam - Koror Tokyo - Guam - Koror Tokyo - Guam	Movement : Official Members (Mr. Toda and Mr. Yokoyama) Consultant Members (Mr. Fuke and Mr. Namatame) Consultant Members (Mr. Sakai and Mr. Yajima)
3		23	Mon		Courtesy Call (Office of President, Ministry of Resources and Development) Explanation of Inception Report. Movement : Consultant Members (Mr. Sakai and Mr. Yajima)
4		24	Tue	Koror - Peleliu Peleliu - Koror	Movement : Official Members and Consultant Members Courtesy Call (Governor of Peleliu State) Field Study at Peleliu (Official Members and Consultant Members) Movement : Mr. Toda, Mr. Yokoyama, Mr. Fuke and Mr. Namatame
5		25	Wed		Discussion with Office of President, Ministry of Resources and Development Field Study at Peleliu (Mr. Sakai and Mr. Yajima)
6		26	Thu	Peleliu - Koror	Signing of Minutes of Discussions Consultant Members Continue Data Collection, Field Study Movement : Consultant Member (Mr. Yajima)
7		27	Fri		Study Team Meeting, Data Collection Field study at Peleliu (Mr. Sakai)
8		28	Sat		Study Team Meeting, Data Collection, Field study
9		29	Sun	Koror - Guam	Movement : Official Members (Mr. Toda and Mr. Yokoyama) Study Team Meeting, Field Study
10		30	Mon	Guam - Tokyo	Movement : Official Members (Mr. Toda and Mr. Yokoyama) Data Collection, Field Study
11		31	Tue		Data Collection, Field Study
12	4	1	Wed		Data Collection, Field Study
13		2	Thu		Data Collection, Field Study
14		3	Fri	Koror - Peleliu	Data Collection, Field Study Movement : Consultant Members (Mr. Fuke and Mr. Namatame) Discussion with Governor of Peleliu State
15		4	Sat	Koror - Guam - Kansai	Data Collection, Field Study Movement : Consultant Member (Mr. Yajima)
16		5	Sun		Study Team Meeting, Data Collection, Field Study
17		6	Mon	Peleliu - Koror	Data Collection, Field Study Movement : Consultant Members (Mr. Fuke and Mr. Namatame)
18		7	Tue		Discussion with Office of President, Field Study
19		8	Wed		Discussion with Office of President, Field Study
20		9	Thu		Discussion with Office of President, Field Study
21		10	Fri		Data Collection, Field Study
22		11	Sat		Data Collection, Field Study
23		12	Sun		Data Collection, Field Study
24		13	Mon		Data Collection, Field Study
25		14	Tue	Peleliu - Koror	Data Collection, Field Study Movement : Consultant Member (Mr. Sakai)
26		15	Wed		Study Team Meeting.
27		16	Thu		Data Collection, Discussion with Geo-testing, Inc.
28		17	Fri		Data Collection, Discussion with Geo-testing, Inc.
29		18	Sat		Research of Ngaraard Fishing Port and Ngardmau Fishing Port
30		19	Sun		Study Team Meeting
31		20	Mon	Koror - Guam - Tokyo	Movement : Consultant Members (Mr. Fuke, Mr. Namatame and Mr. Sakai) Report to Consulate-General of Japan at Agana

Explanation of Draft Basic Design

No.	Date			Itinerary	Activities
1	6	1	Mon	Tokyo - Guam	Movement : Official Member (Mr. Toda) Report to Consulate-General of Japan at Agana
2		2	Tue	Guam - Koror Tokyo - Guam - Koror	Movement : Official Members (Mr. Toda) Consultant Members (Mr. Fuke and Mr. Namatame)
3		3	Wed	Guam - Koror	Courtesy Call and Discussion with Organization Concerned
4		4	Thu		Discussion with Organization Concerned Meeting about "Environmental Impact Assessment" with Office of President (Mr. Marhence Madranchar) Meeting with Captain of Nippon Maru and Captain of Tairyō Maru
5		5	Fri		Signing of Minutes of Discussions
6		6	Sat	Koror - Guam - Tokyo	Movement : Official Members (Mr. Toda) Data Collection
7		7	Sun		Study Team Meeting, Data Collection
8		8	Mon	Koror - Guam - Tokyo	Movement : Consultant Members (Mr. Fuke and Mr. Namatame) Report to Consulate-General of Japan at Agana

Appendix-3 List of Party Concerned in the Recipient Country

1. OFFICE OF PRESIDENT

MR. KUNIWO NAKAMURA	PRESIDENT
MR. KOICHI L. WONG	NATIONAL PLANNER, OFFICE OF PLANNING & STATISTICS
MR. LEE T. OTOBED	ASSISTANT NATIONAL PLANNER, OFFICE OF PLANNING & STATISTICS

2. MINISTRY OF RESOURCES AND DEVELOPMENT

MR. MARCELINO MELAIRESI	MINISTER
MR. THEO ISAMU	CHIEF, DIVISION OF MARINE RESOURCES
MR. MASASINGE ARURANG	MANAGER, CAPITAL IMPROVEMENT PROGRAM BUREAU OF PUBLIC WORKS
MR. VIVIANO MAD	ACTG. DIRECTOR, BUREAU OF PUBLIC WORKS
MR. HERMAN FRANCISCO	CHIEF, BUREAU OF AGRICULTURE

3. MINISTRY OF STATE

MR. SABINO ANASTACIO	MINISTER
MR. FRITZ KOSHIBA	DIRECTOR, BUREAU OF STATE REPUBLIC OF PALAU

4. MINISTRY OF ADMINISTRATION

MR. SWENNY ONGIDOBEL	DIRECTOR, BUREAU OF REVENUE, CUSTOMS & TAXATION
MR. NORMAN K. CHIN	DIRECTOR, BUREAU OF PUBLIC SERVICE SYSTEM
MR. KALEB UDUI JR.	FINANCIAL ADVISOR

5. MINISTRY OF COMMUNITY AND CULTURAL AFFAIRS

MR. ALEXANDER S. MEREP	MINISTER
------------------------	----------

6. MINISTRY OF COMMERCE AND TRADE

MR. OKADA TECHITONG	MINISTER
MR. ALONSO JOSEPH	CHIEF, DIVISION OF ECONOMIC DEVELOPMENT
MR. HENARO E. ANTONIO	CHIEF, DIVISION OF LABOR

7. MINISTRY OF JUSTICE

MR. KAORU BRELL	DIRECTOR, BUREAU OF PUBLIC SAFTY
-----------------	----------------------------------

8. PELELIU STATE OFFICE

MR. JACKSON NGIRAINGAS	GOVERNOR
MR. OBAK ISAO	CHIEF OF PELELIU STATE

9. PALAU VISITORS AUTHORITY

MR. JOHNNY P. KISHIGAWA	CHAIRMAN, BOARD OF DIRECTORS
MR. HIRAO KLOULECHAD	VICE CHAIRMAN, BOARD OF DIRECTORS OFFICER IN CHARCE, NATIONAL WEATHER SERVICE

10. ENVIRONMENTAL QUALITY PROTECTION BOARD

MR. LICIO ABRAHAM	EXECUTIVE OFFICER
-------------------	-------------------

11. PALAU FEDERATION OF FISHING ASSOCIATIONS

MR. FRANNY REKLAI	MANAGER, PALAU FISHERY ASSOCIATIONS & PALAU FEDERATION OF FFISHING ASSOCIATIONS
MR. ALGER T. SINGUNUM	

12. BELAU FISHING COOPERATION ASSOCIATIONS

MR. EDWIN N. REKEMESIK	MANAGER
------------------------	---------

13. PALAU MODEKNGEL CO. INC.

MS. JURIA FRANCE

14. NATIONAL WEATHER SERVICE

MR. HIJOB MESUBED

15. OKAMURA CORP.

MR. ELIAS OKAMURA	OWNNER
-------------------	--------

MINUTES OF DISCUSSIONS

BASIC DESIGN STUDY ON
THE PROJECT FOR
DEVELOPMENT OF FISHING COMMUNITY
IN PELELIU STATE
IN THE REPUBLIC OF PALAU

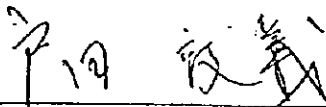
In response to the request from the Government of the Republic of Palau, the Government of Japan has decided to conduct a basic design study on the project for the development of fishing community in Peleliu State (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA has sent to Palau a basic design study team (hereinafter referred to as "the Team"), which is headed by Mr. Atsuyoshi TODA, JICA. The Team is scheduled to stay in the country from 22 March to 20 April 1998.

The Team held a series of discussions with the officials concerned of the Government of Palau and conducted a field survey at the study area.

In the course of the discussions and field survey, both parties have confirmed the main items described in the attachment.

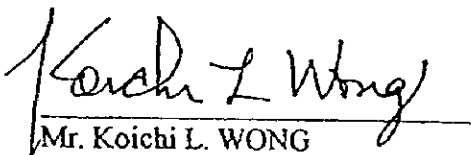
Koror, 26 March 1998



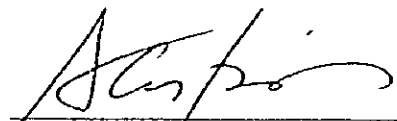
Mr. Atsuyoshi TODA
Leader
Basic Design Study Team
JICA



Mr. Marcelino MELAIREI
Minister
Ministry of Resources & Development
Republic of Palau



Mr. Koichi L. WONG
National Planner
Republic of Palau



Mr. Sabino ANASTACIO
Minister
Ministry of State,
Republic of Palau

Main Points of Discussion:

(1) Requested Project Components

They are:

- dredging of the access channel down to 2.5m depth at lowest tide;
- dredging of the wharf/turning basin area down to 2.5m depth at lowest tide;
- improvement of the fishery/community dock;
- construction of a slipway; and
- channel markers (20) and channel light beacons (3).

The Palau side stated the need to repair the existing wharf seawall.

(2) Project Objectives

The project aims at the development of local fisheries and this is considered to be the second phase of the project having commenced in 1993. However, considering the multi-purpose nature of the channel and wharf, the project should essentially cater for other development objectives of the island, including the development of tourism.

(3) Responsible Organizations

The Ministry of Resources and Development is responsible for the execution of the project. Operation/maintenance of the facilities and equipment are the responsibility of the Peleliu State Government, while the oversight responsibility rests upon the National Government through a Memorandum of Understanding.

(4) Deposit Site for Dredged Materials

The Palau side is responsible for securing the site and undertaking of any necessary site clearance. They will provide the Team with candidate deposit site(s) at the earliest time so that the Team may evaluate the site(s) and design earth-moving operations.

(5) Environmental Permit Issuance

The Palau side will obtain environmental permit(s) for dredging and earth-moving works at the earliest time so as to facilitate the smooth implementation of the project.

(6) Environmental Considerations

The study will pay due attentions to environmental impact of the project, both during its construction phase and at its completion stage. The Team includes a professional responsible for the marine eco-system base-line survey.

(7) Development of Alternative Schemes

The Team will produce several alternatives, with different combinations of scale, layout, and engineering design and method. These alternatives will be evaluated in terms of cost, effectiveness and environmental impact, and presented to decision-makers.

Kew

J

S

M

(8) Users' Points of View

The Team will make their efforts to integrate users' points of view in designing the facilities and equipment and evaluating the alternative schemes. The users include fishermen, boat operators and local citizens.

(9) Further Schedule of the Study

The Team will proceed to further studies in Palau until 20 April, 1998. On the basis of the Minutes of Discussions and technical examination of the study results, JICA will prepare a Draft Basic Design Report and dispatch a team to Palau around May 1998 in order to present the outline of the Draft Basic Design Report to Palau Government. Upon acceptance of the Draft Basic Design by the Government of Palau, JICA will complete the Basic Design Study Report and forward it in its final form to the Government of Palau by July 1998.

(10) Japan's Grant Aid System

The Government of Palau will take the necessary measures, described in ANNEX for the smooth implementation of the Project on condition that the Grant Aid by the Government of Japan is extended to the Project

(11) Mutual Appreciation

Both sides highly appreciate the spirit of mutual friendship and cooperation. The Japanese side expressed their appreciation for the logistic support, already being extended by the Palau side, including boats, vehicles, surveyors and a diver.

Ken

A7

SP

M

ANNEX NECESSARY MEASURES TO BE TAKEN BY THE GOVERNMENT OF PALAU

The following necessary measures should be taken by the Government of Palau on condition that the Grant Aid by the Government of Japan is extended to the Project.

1. to secure a lot of land necessary for the Project;
2. to clear and level the site for the Project prior to the commencement of the construction;
3. to provide a proper access road to the site;
4. to provide facilities for distribution of electricity, water supply, telephone trunk line, drainage and other incidental facilities outside the site;
5. to undertake incidental outdoor works, such as gardening, fencing, exterior lightning, and other incidental facilities in and around the site, if necessary;
6. to ensure prompt unloading and customs clearance of the products purchased under the Japan's Grant Aid at ports of disembarkation in Palau;
7. to exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in Palau with respect to the supply of the products and services under the verified contracts;
8. to accord Japanese nationals whose services may be required in connection with the supply of the products and services under the verified contracts such facilities as may be necessary for their entry into Palau and stay therein for the performance of their work;
9. to bear commissions, namely advising commissions of the Authorization to Pay (AP) and payment commissions, to the Japanese foreign exchange bank for its banking services based upon the Banking Arrangement (B/A);
10. to provide necessary permissions, licenses and other authorization for implementing the Project, if necessary;
11. to ensure that the facilities constructed and equipment purchased under the Japan's Grant Aid be maintained and used properly and effectively for the Project; and
12. to bear all the expenses, other than those covered by the Japan's Grant Aid, necessary for the Project.

Kew

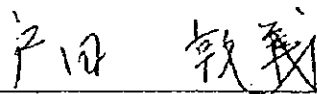
SM

MINUTES OF DISCUSSIONS
BASIC DESIGN STUDY ON
THE PROJECT FOR
DEVELOPMENT OF FISHING COMMUNITY
IN PELELIU STATE
IN THE REPUBLIC OF PALAU
(Consultation on the Draft Basic Design)

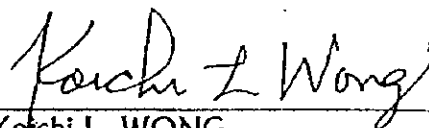
In March 1998, the Japan International Cooperation Agency (JICA) sent to the Republic of Palau a Basic Design Study team on the Project for Development of Fishing Community in Peleliu State. Through discussions, field survey, and subsequent technical examination in Japan, the team has prepared a draft report.

In order to explain and consult with the Palau side on substance of the draft report, JICA sent to Palau a mission headed by Mr. Atsuyoshi TODA, JICA. During their stay in Palau of June 2-7, 1998, both sides have had a series of meetings. The attached is a summary of the main points of discussion.

Koror, June 5, 1998



Atsuyoshi TODA
Leader
Draft Basic Design Team
JICA



Korchi L. WONG
National Planner
Republic of Palau

(2) No Agreement

Both sides agreed that there still exists some differences of opinion regarding a landing quay, beacons and navigation markers. Differences are described below:

4) Landing Quay

Japanese side: repairs and renovations of the existing one.

Palau side: construction of a new quay in addition to the renovation of the existing one.

5) Beacons and Navigation Markers

Japanese side: not included in the scope.

Palau side: 1 beacon at the channel entrance and markers along the channel

2. OTHER DISCUSSED MATTERS

(1) Environmental Permit

The Palau side already prepared an Environmental Assessment required for processing an environmental permit application. The Japanese side appreciated its work. The Palau side will incorporate in the Environment Assessment document some portions of the appendices of the draft report and other relevant information. Upon their request, the study team will provide the Palau side with other relevant information.

(2) Deposit Site

The Palau side assured the Japanese side that the Government of Palau guarantees that the dredged material deposit site will be provided.

Ken



(3) Technical Discussion on the Report

The Palau side has prepared a list of comments on the draft report. The Japanese side will respond in due course by means of a letter. The final report should incorporate the comments by Palau side when feasible or considered appropriate.

3. ACCOMPLISHMENTS AND FUTURE STEPS

(1) Accomplishments

Both sides have reached an agreement on major issues as described on item 1 (1). We have successfully narrowed down the subjects for further discussions and thus laid solid foundations for future steps.

(2) Future Steps

While respecting the differences in points of views of each other, both sides agreed to make efforts to resolve the differences. For that purpose, the communication channel should be kept open for further dialogues.

(3) Appreciation

Both sides agreed that the meetings have further strengthened the spirit of mutual respect and both sides appreciated the existence of good working and friendly relationship.

K
①

Appendix 5 Soil Condition

At the Project Site, investigation by boring was conducted at 1 point (BH-C) on the land and 6 points on the sea (BH-A~B, BH-D~G). The points investigated and the soil boring log are shown in Figure A.5.1 and 2, respectively. The results of investigation are as summarized below.

1) Access channel and berthing area

The soil of the access channel and berthing area at the Project Site consists of the silt-mixed sand layer (0.3~1.5m thick) formed as a result of sedimentation of sand over many years, a comparatively soft limestone layer (with a strength of 80~150 kg/cm², 1.0~1.5m thick), followed by a limestone layer with a strength of 150~200 kg/cm². As the latter limestone layer is at a depth greater than 2.5m, it will not be a big obstacle to the dredging plan of 1.5m. Accordingly, back hoe or grab dredgers can be used for dredging of the access channel and berthing area.

2) Vicinity of the landing quay

In the vicinity of the site where the landing quay is to be repaired, a comparatively soft limestone layer (strength: 80~200 kg/cm²) exists under the coral sand layer formed as a result of sedimentation of sand in the same manner as in the berthing area. As the depth of this layer is about 1.7m, excavation of the limestone becomes necessary if a water depth of 2.0m is required. This limestone has a strength high enough as a bearing layer for the gravity type structure. For the sheet pile or pipe pile structure, however, design cannot be worked out because of difficulties in pile placing.

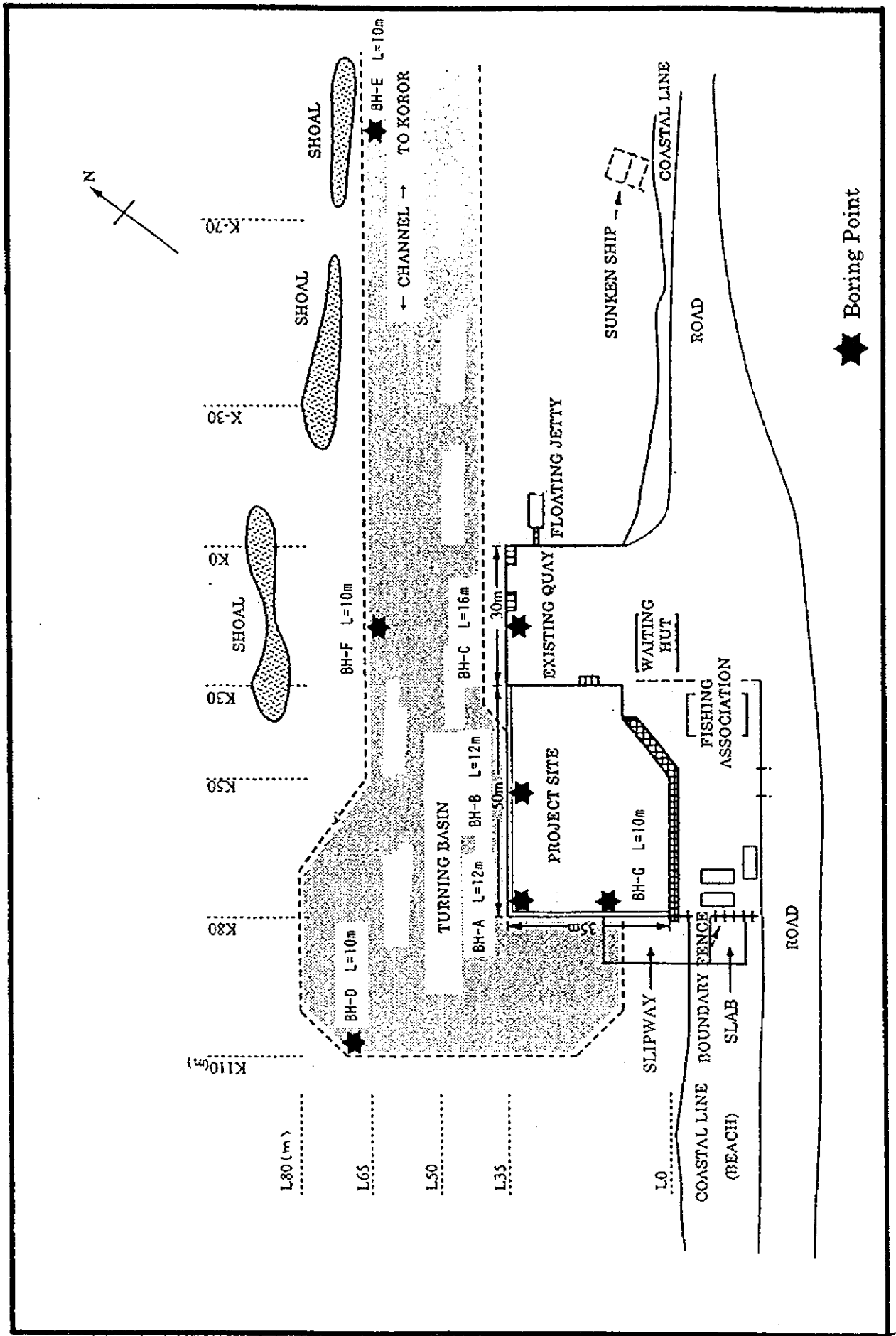


Figure A.5.1 Location of Boring Point

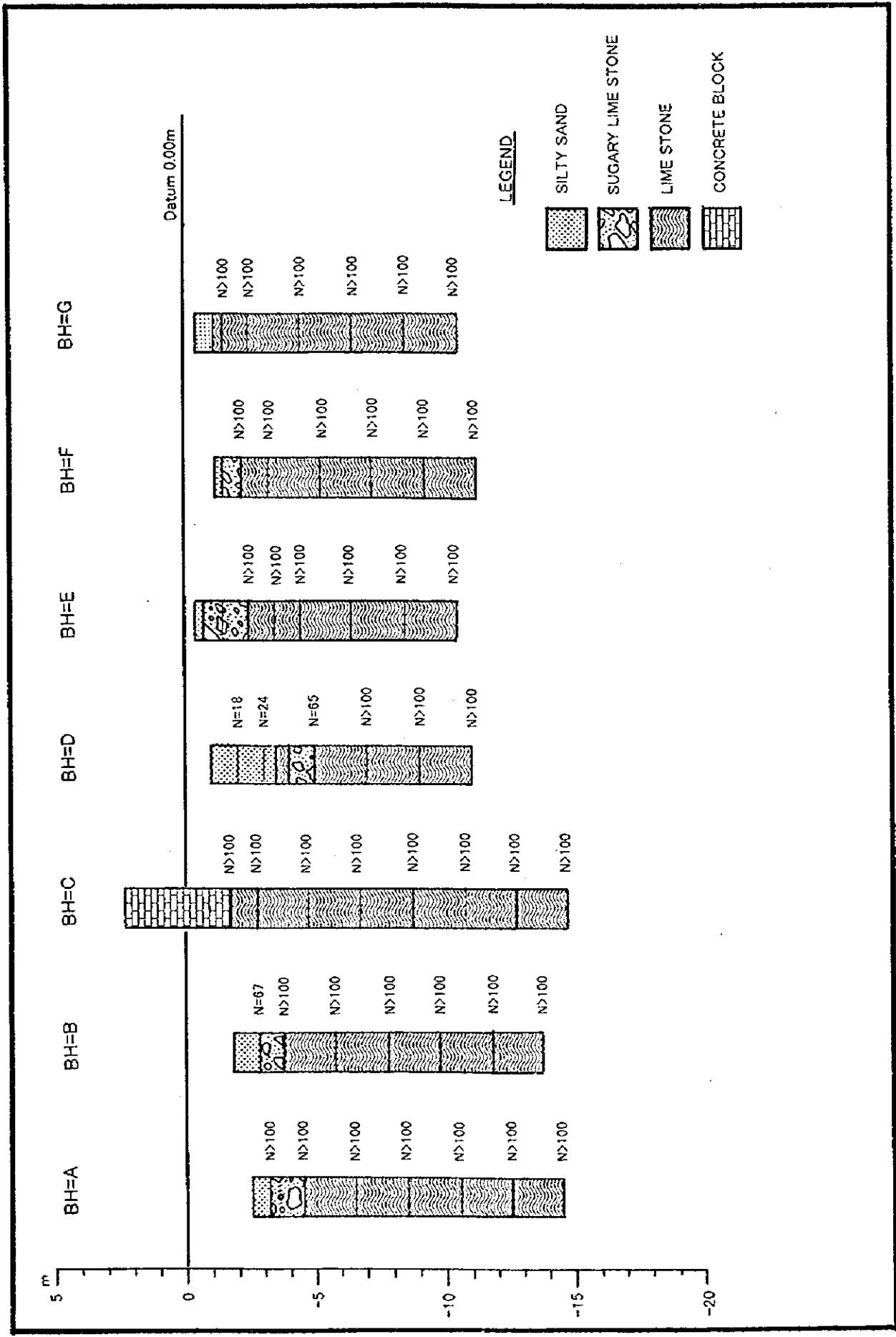


Figure A.5.2 Boring Logs

Appendix 6 Environmental Assessment

1. Survey of marine ecosystem

The existence of a variety of marine ecosystem is confirmed at the Project Site. Valuable data for future planning, design and work has been obtained from the survey of the actual state of marine ecosystem. The results of this survey can be summarized as follows:

1) Seaweed

The extensive seaweed ground, consisting mainly of sea grass (*Enarlus Acoroides*), exists in the natural access channel, manmade access channel, and their adjacent sea area.

2) Reef-producing coral

In the area where the survey was conducted, about 10 colonies of beach coral (*Porites tenuis* Verrill) which is about 1~2m in diameter were observed around the navigation marker R10 in the channel.

The distribution of seaweed ground is shown in Figure A.6.1.

2. Seabed condition

The sediment at the bottom of the sea was sampled from 12 points along the channel as shown in Figure A.6.2 and was analyzed, the results of which are shown in Table A.6.1.

Table A.6.1 Results of sediment analysis

	No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10	No.11	No.12
Specific gravity	2.62				2.56							
Water content (%)	28.5	22.4	22.4	30.8	25.5	30.1	30.1	34.3	31.5	31.5	32.7	32.7
Intermediate grain size (D50:mm)	0.19	0.53	0.50	0.26	0.34	0.23	0.23	0.34	0.42	0.50	0.50	0.50
Silt content (%)	8	6	5	8	7	7	7	6	6	5	5	4

According to the results of grain size analysis, silt (smaller than 0.075mm) accounts for 5~10%, the rest being sand (0.075~5.0mm). As the silt content

which is the cause for turbidity in the dredging work is comparatively small, it is considered that the propagation of turbidity can be prevented by taking an appropriate measure, such as the installation of silt protector, when dredging is carried out.

3. Water quality survey

The water quality was investigated by sampling the sea water from 8 points along the existing access channel and the tap water from the water source as shown in Figure A.6.3 (1) and (2) and analyzing the water quality by means of instruments. The results of survey are shown in Table A.6.2. The tap water quality is quite clean without any problems.

Table A.6.2 Results of water quality test (Date: Apr. 5, 1998)

	Unit	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	Tap
Water temperature	°C	28	28	28	27	26	27	27	26	26	26	28
Salt content	%	3.4	3.4	3.4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	0.1
PH		8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	7.5
Electric conductivity	ms/cm	52	52	52	52	52	52	53	53	53	53	2
Turbidity		0	0	0	0	0	0	0	0	0	0	0

4. Environmental assessment

1) Dredging work

As described previously, the extensive seaweed ground, consisting mainly of sea grass (*Enarlus Acoroides*), is distributed in the access channel and adjacent sea area. Accordingly, there is a possibility that part of the precious seaweed ground which provides a habitat for marine ecosystem, such as fish and sea turtle, may be lost for a while by the planned dredging work. However, the dredging work will give an influence to only 1% of the sea weed ground area and after the dredging work, the surrounding sea grass is expected to extend to the damaged area through the subterranean stems and will be recovered and rehabilitated quickly. Therefore, the dredging work along the access channel will not give a serious influence to the seaweed ground. It is, however, necessary to employ such a dredging method which can minimize this influence.

According to the results of grain size analysis of the soil to be dredged, the content of silt which is the cause for turbidity is only 5 ~ 10%. This content is not so high. According to the results of tidal current survey, the current flows along the channel in the southern direction at high tide but in the northern direction at low tide. In the direction at right angles to the access channel, the influence of turbid water is considered to be small. It is confirmed through this analysis that the diffusion phenomena of turbidity outside the access channel is limited.

The beach coral around the navigation marker R10 have some possibility to suffer from fine particles, such as silt, which are produced by the dredging work. However, this influence can be prevented by installing a silt fence or a similar device around the beach coral. Besides, among reef-producing corals, beach coral is relatively resistant to turbid sea water.

In view of the results of survey described above, the influence on environment can be minimized by installing the silt fence during the dredging work as is being usually done in Japan. Additionally, water quality monitoring is required to evaluate the environmental impact before, during and after dredging.

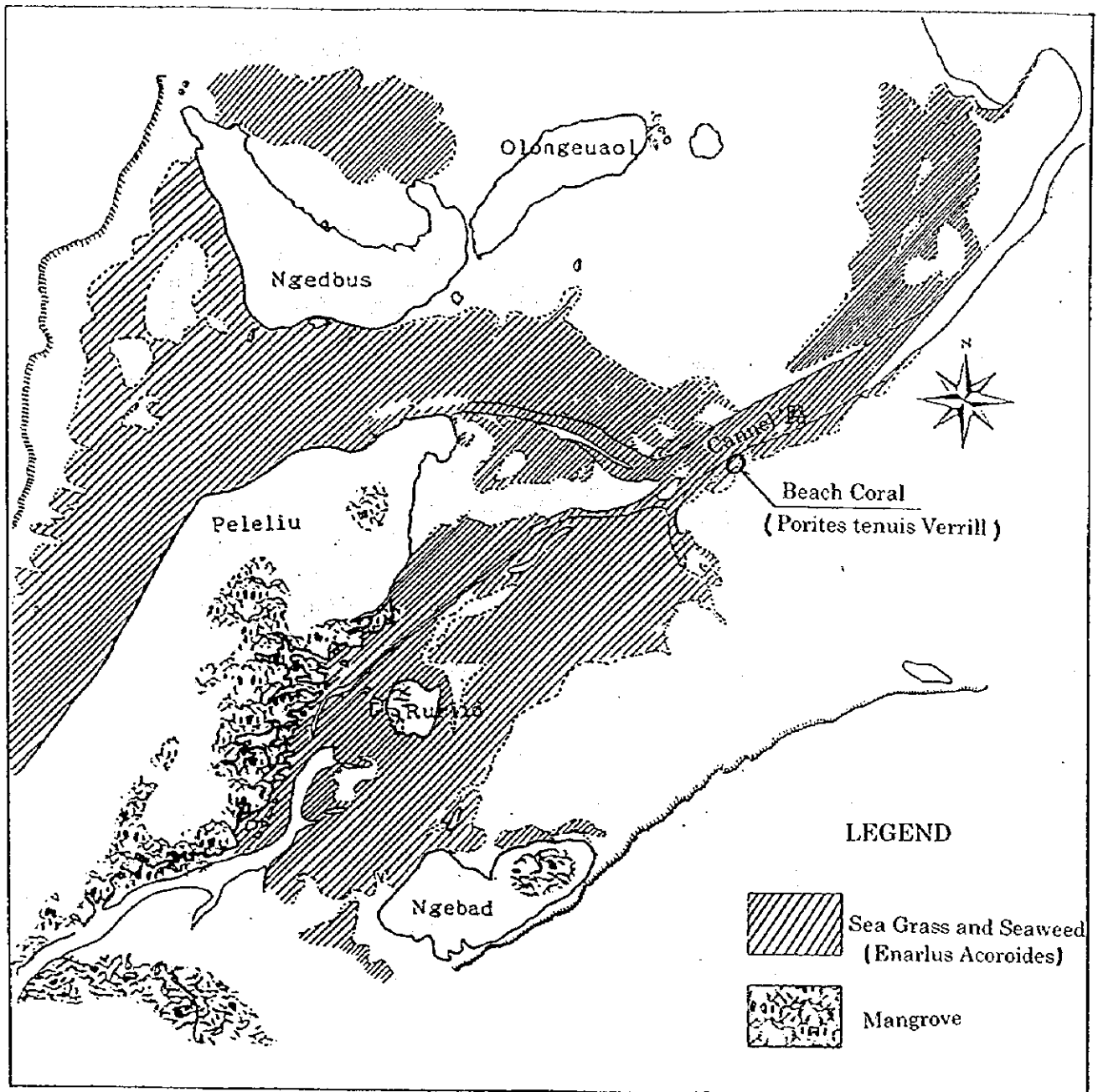


Figure A.6.1 Distribution of Seaweed Ground Adjacent to the Project Site

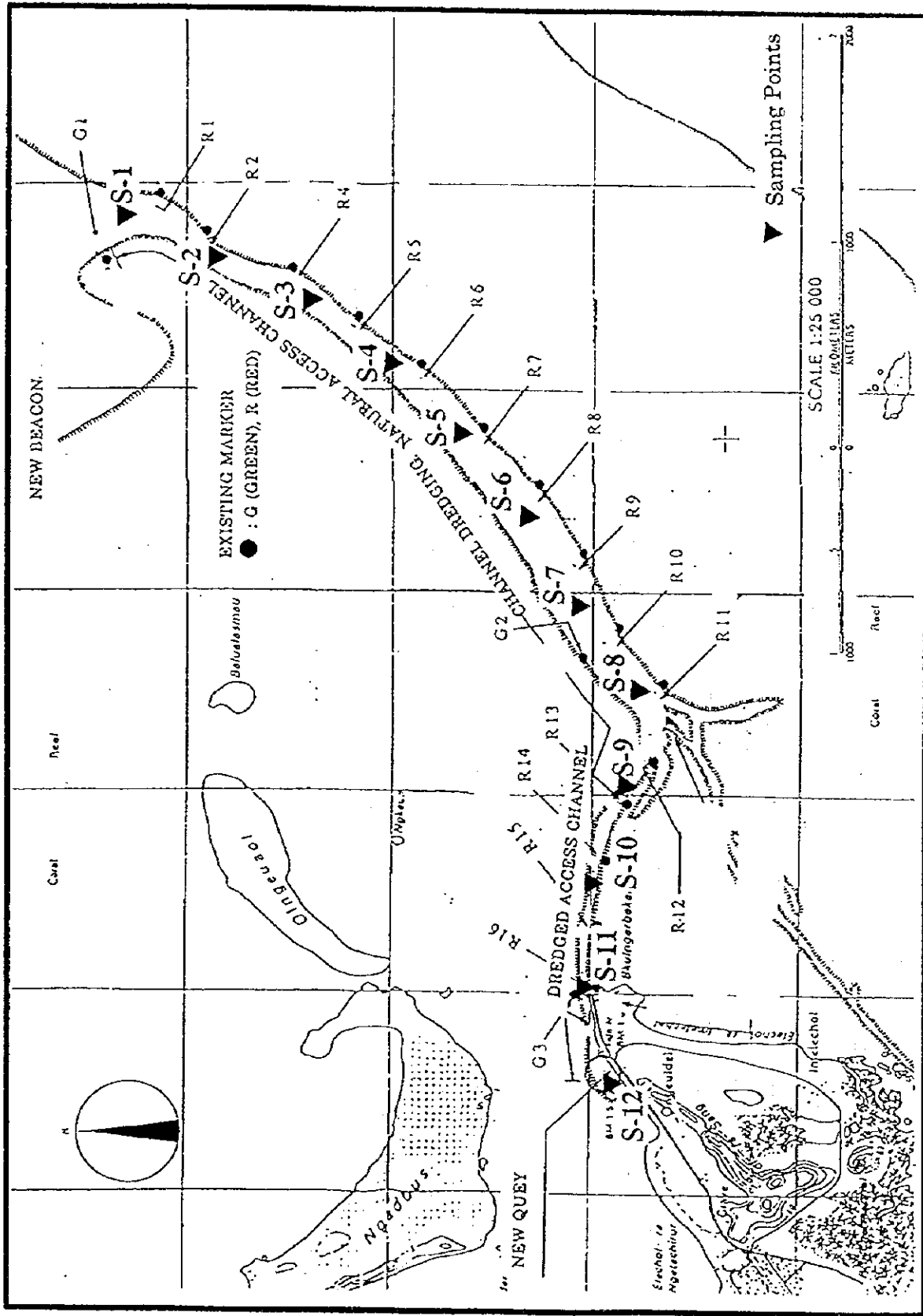


Figure A.6.2 Location of Sampling Points of Sediment Analysis

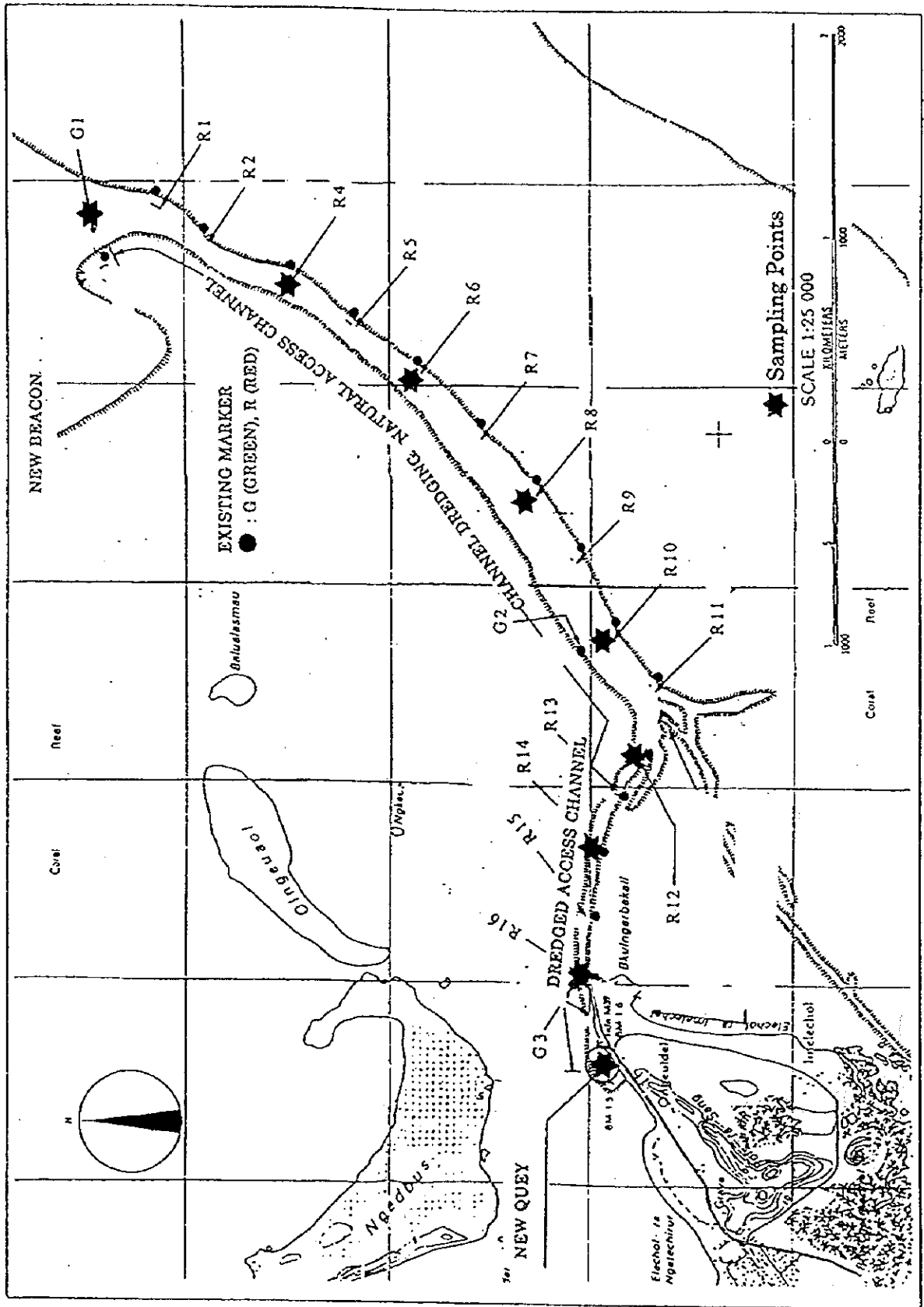


Figure A.6.3 (1) Location of Sampling Points of Water Quality Test(1)

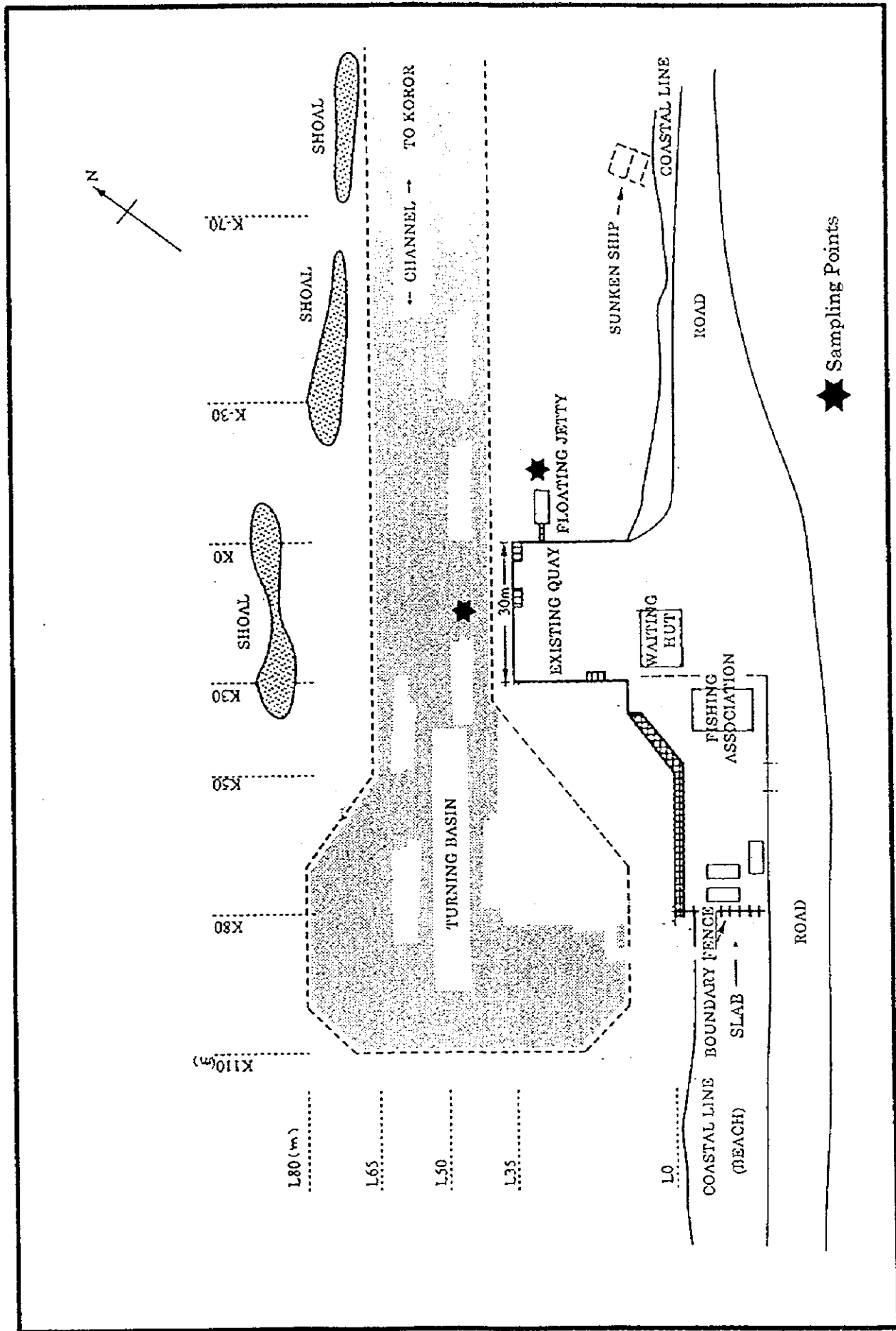


Figure A.6.3 (2) Location of Sampling Points of Water Quality Test(2)

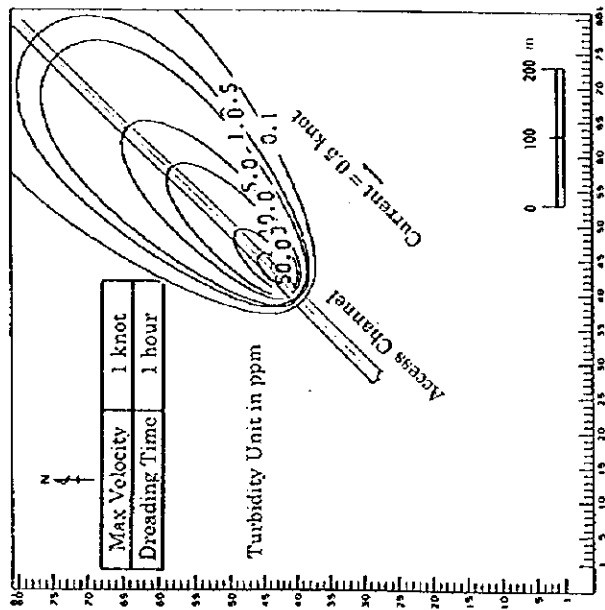
Appendix-7 Numerical Simulation on Diffusion of Silty Material

The semi-analytical model developed by Chritodoulou, G. C. was adopted to evaluate the diffusion of silty material generated during dredging works. Numerical simulation is carried out under the conditions.

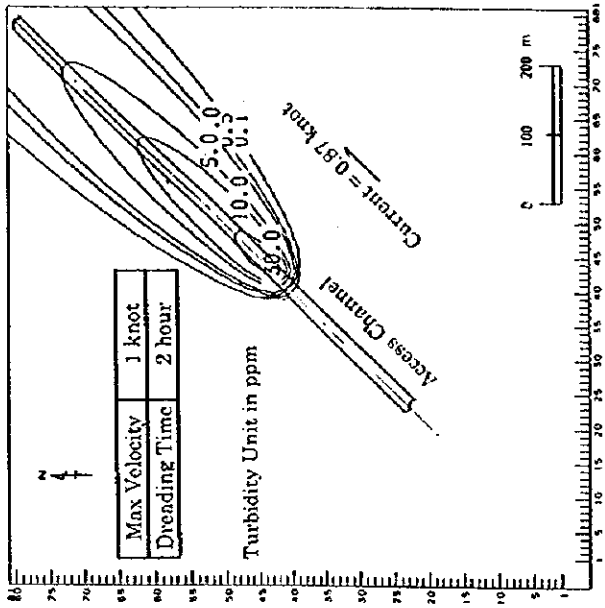
- 1) Dredging work hour : 8 hours/day
- 2) Dredging volume : 300 m³/day
- 3) Turbidity volume : Silty material (grain size ;less than 0.075mm)
= 5% of daily dredging volume
= 300 m³ x 0.05 = 15 m³ → 30 t/ m³
- 4) Maximum current velocity : 1 knot (0.5 m/s)

Figure A.7.1 and A.7.2 show the diffusion phenomena of silty dredging material on every hour from the commencement of dredging works until 8 hours and 0.1 and 0.2 hours right after the termination of the dredging work. It will be cleared that the silt diffusion depends on the current where the stronger the current is the diffusion area becomes wider to down-stream. Degree of the diffusion along the current (turbidity) decreased rapidly as the distance from the dredging point becomes long. After termination of the dredging work, turbidity decreases very quickly and within 0.2 hours it gets down to only 5 ppm.

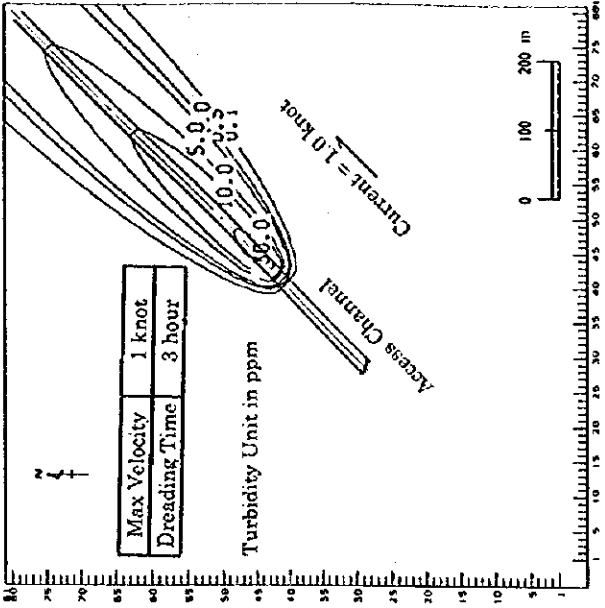
From the results of above numerical simulation, the turbidity caused by dredging will diffuse mainly along the access channel and not much beyond. Settlement of silty dredged material is also very rapid and the turbidity decreases very quickly as it moves away from the dredging point. In conclusion, the diffusion could be controlled by installing anti-silt diffusion fence around the dredging site.



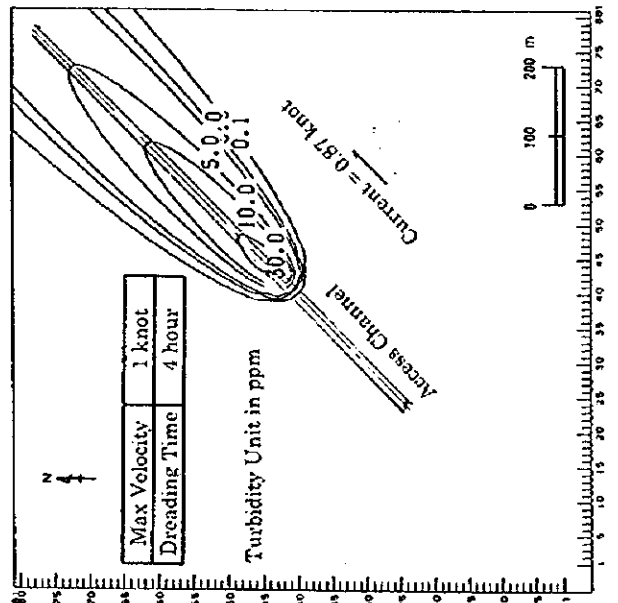
(1) 1 hour after work commencement



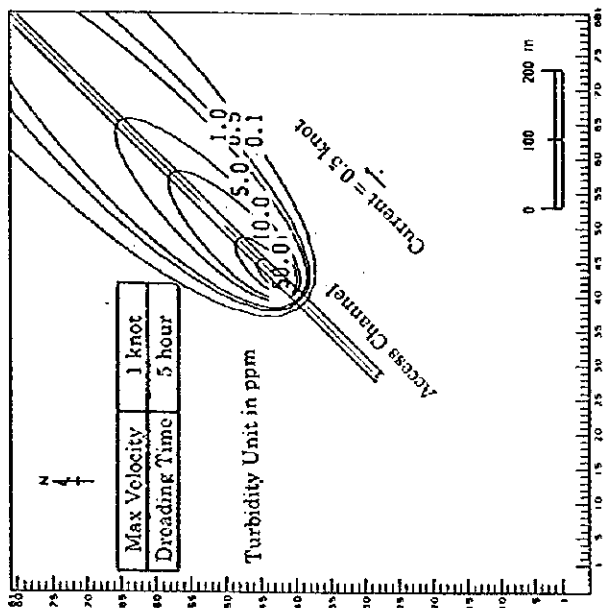
(2) 2 hour after work commencement



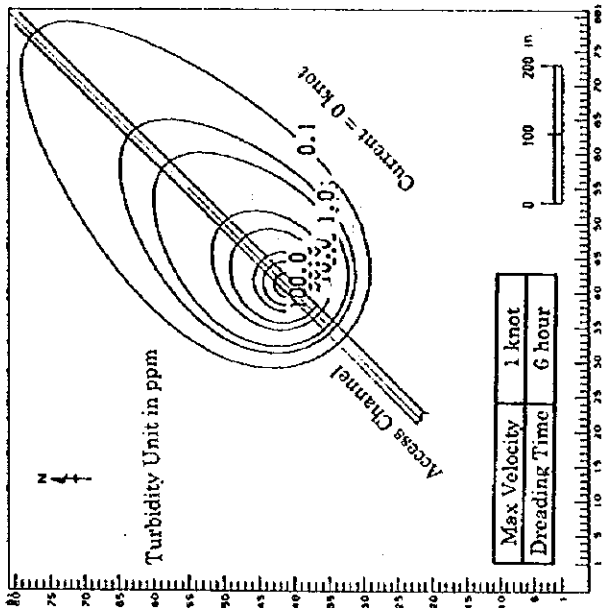
(3) 3 hour after work commencement



(4) 4 hour after work commencement



(5) 5 hour after work commencement



(6) 6 hour after work commencement

Figure-A.7.1 Numerical Simulation on Diffusion of Dredging Material(1)

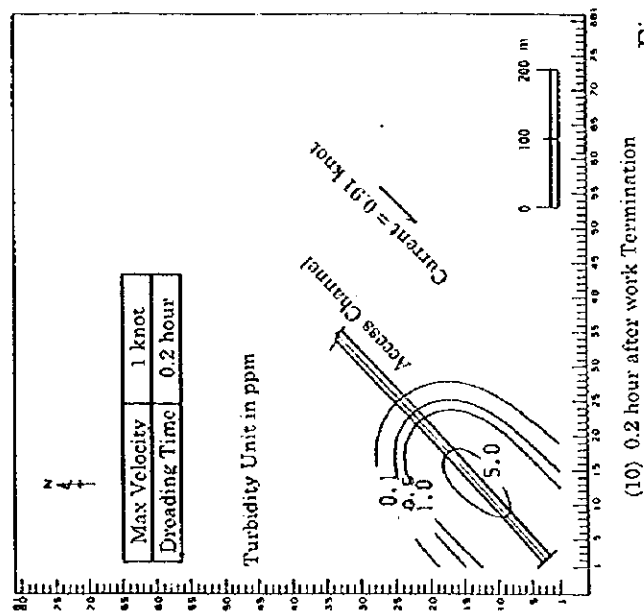
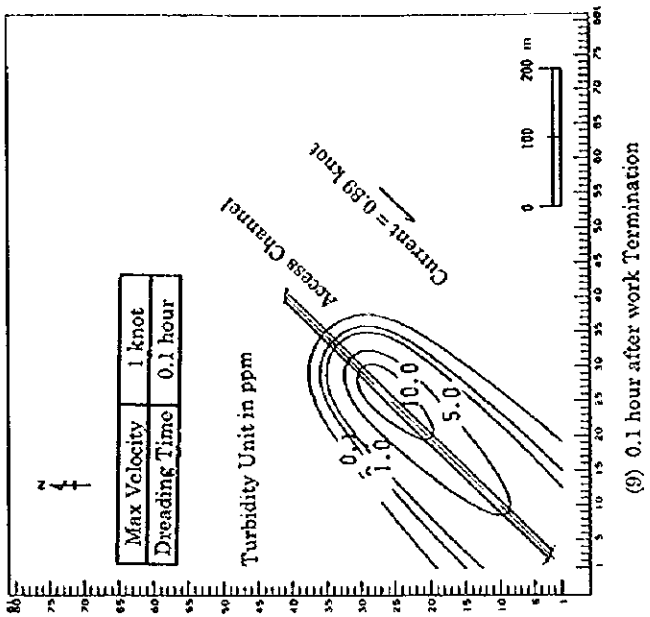
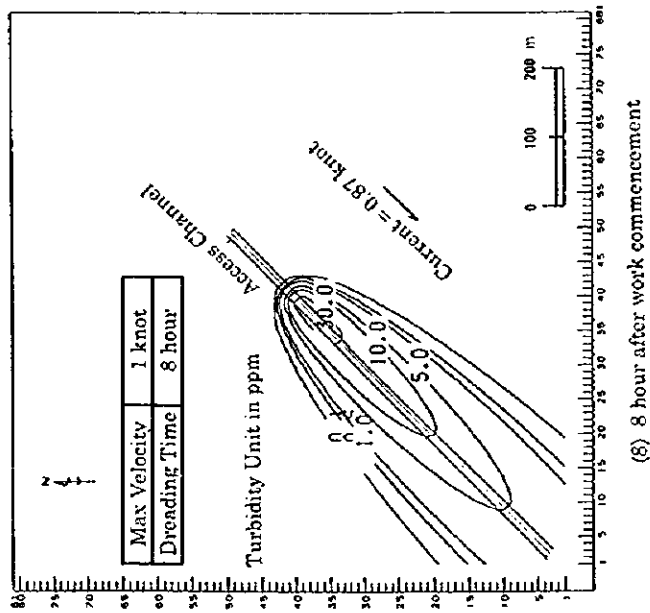
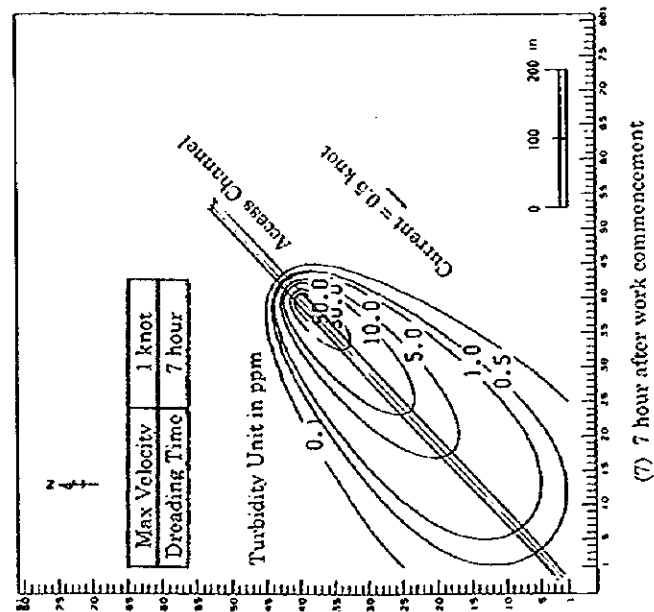


Figure-A.7.2 Numerical Simulation on Diffusion of Dredging Material(2)

Appendix-8 Wind Condition

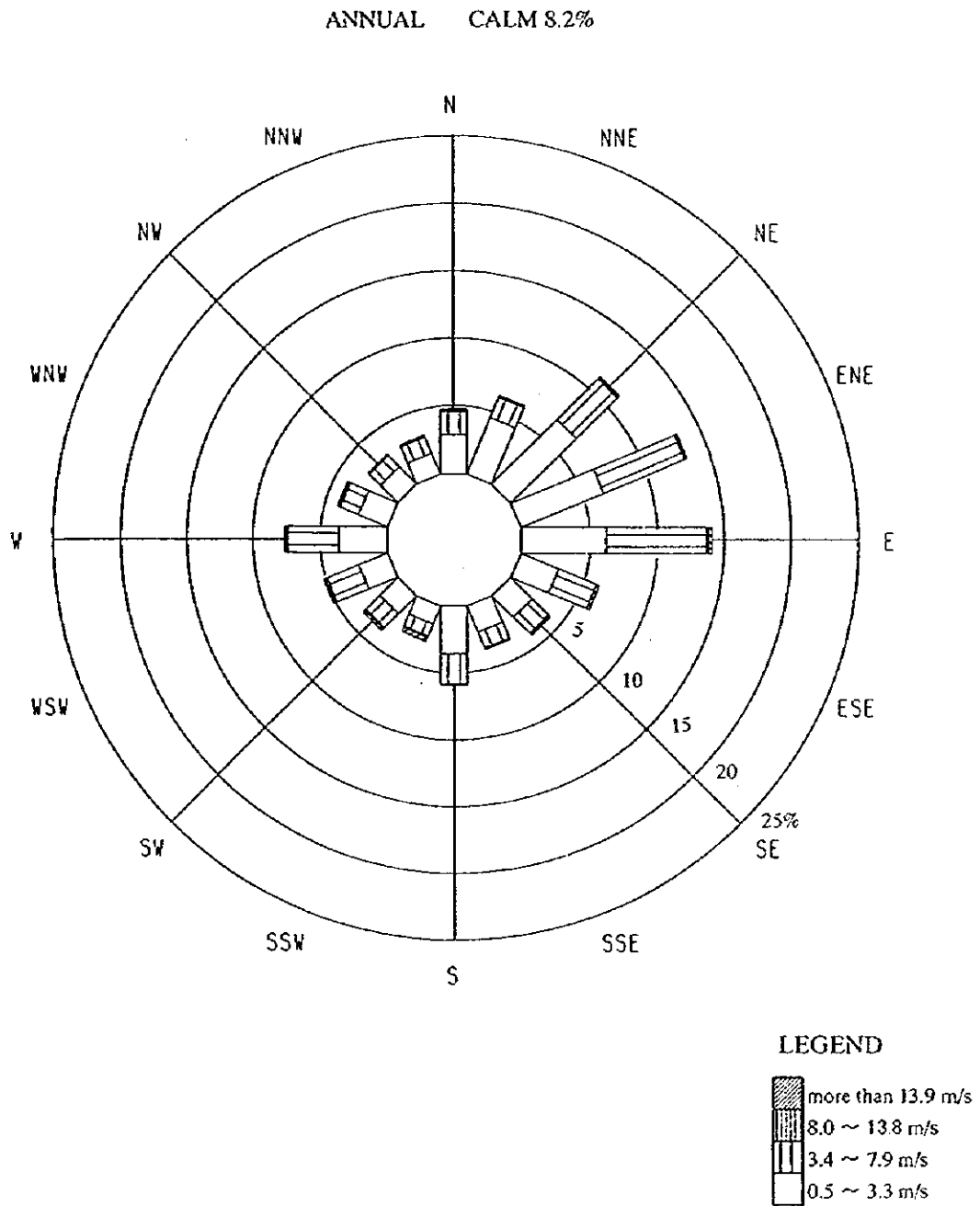


Figure-A.8.1 Wind Rose (Annual)

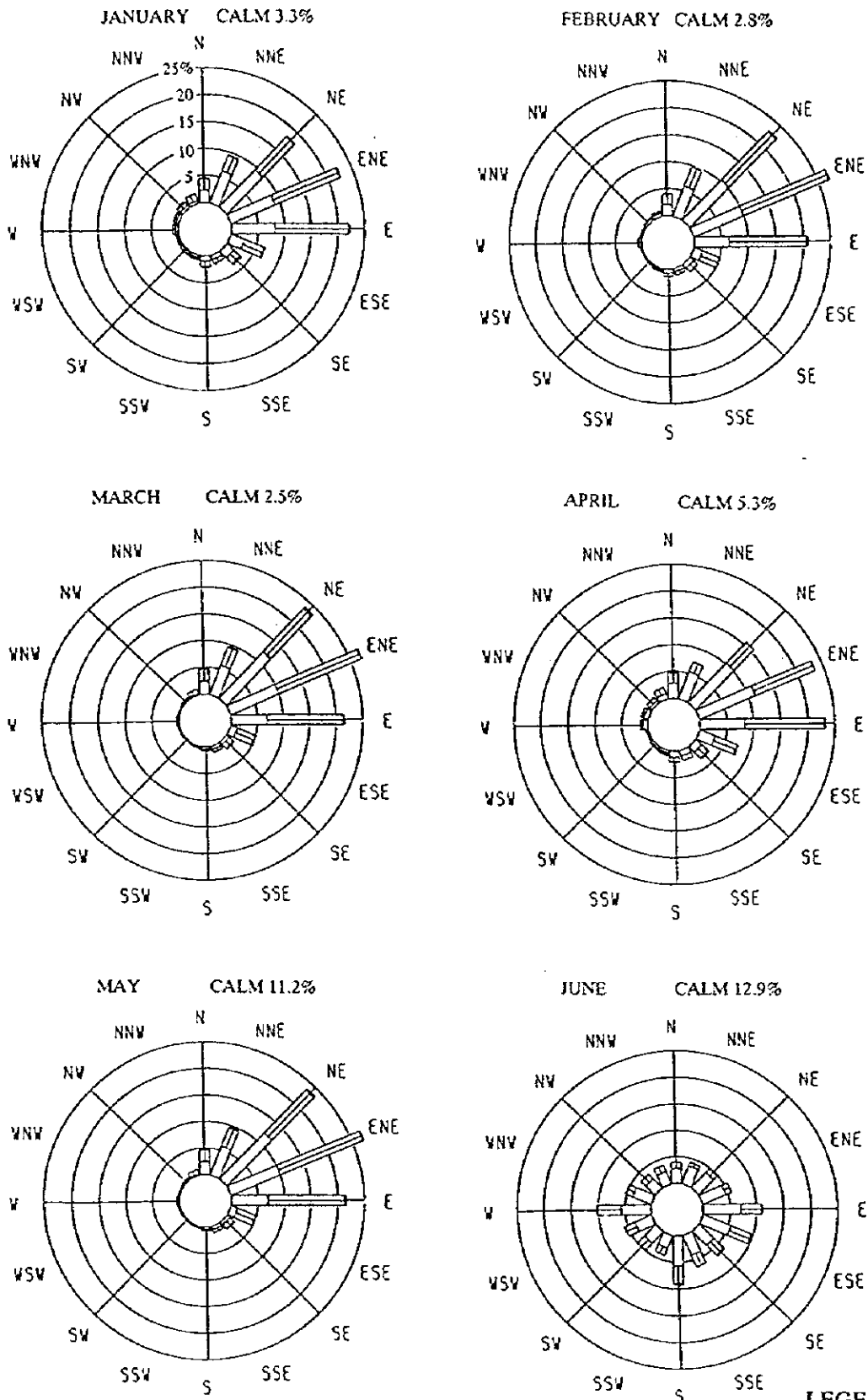
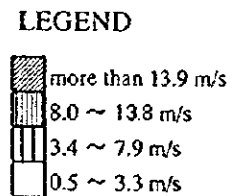


Figure-A.8.2 Wind Rose (Monthly)(1)



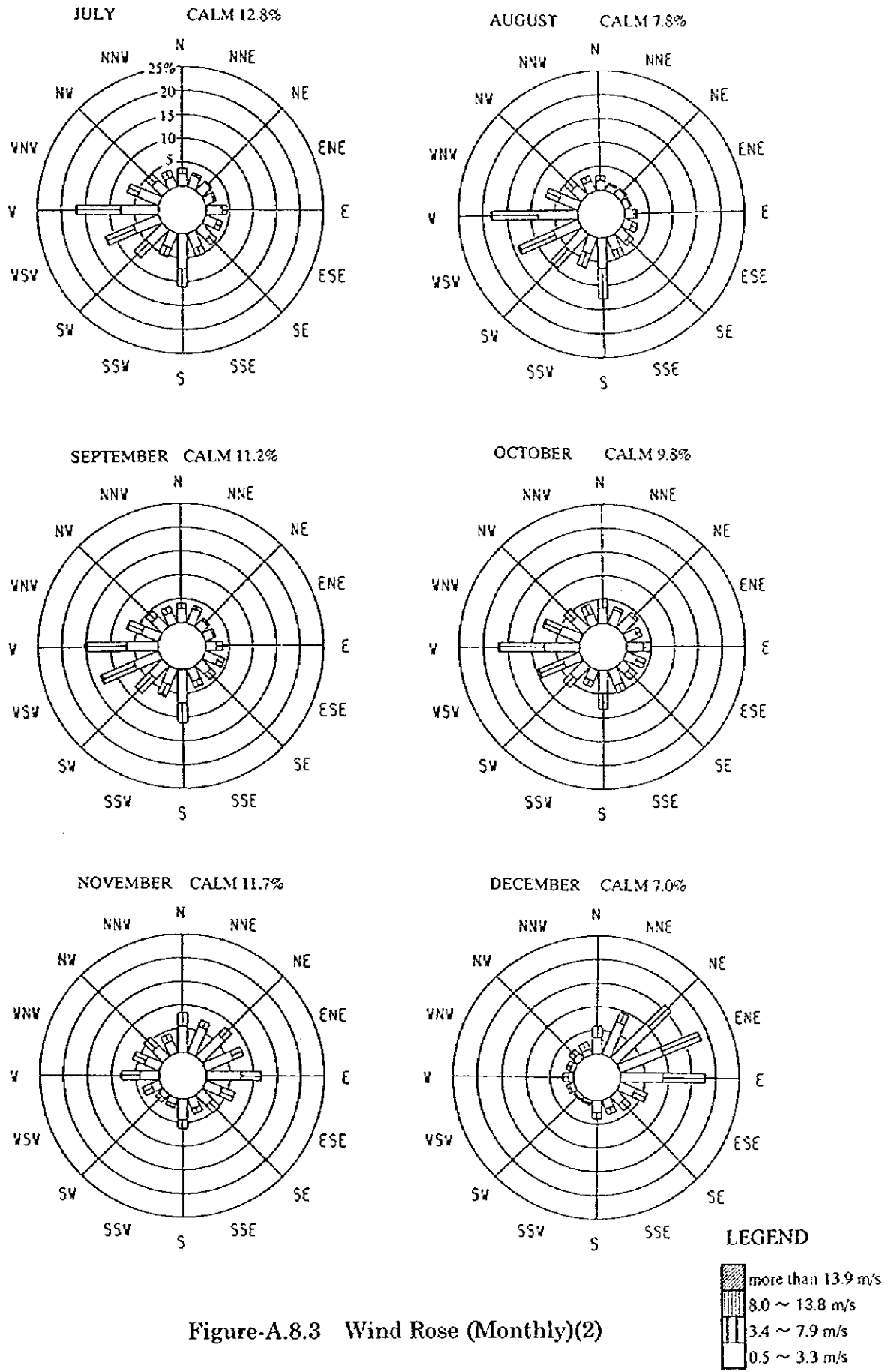


Figure-A.8.3 Wind Rose (Monthly)(2)

Appendix-9 Result of Sea Conditions

Table-A.9.1 Result of the Harmonic Analysis

Observation Point : Peleliu North Dock
 Latitude : 7° 2' 49" North
 Longitude : 134° 15' 50" East
 Observation Period : March 26~April 9, 1998
 Datum Level : C.D.L.

Component Tides	Amplitude (cm)	Lag Angle (°)
M2	41.7	237.9
S2	15.5	259.5
K2	4.2	259.5
N2	4.5	208.1
K1	20.4	251.2
O1	8.9	239.7
P1	6.8	251.2
Q1	3.4	171.5
M4	11.4	48.7
MS4	8.4	59.1
A0	89.8	

JICA