Chapter 3

Implementation Plan

Chapter 3. Implementation Plan

3-1 Implementation Plan

3-1-1 Implementation Concept

The Project shall be implemented with the following concept in accordance with the intention of Japan's Grant Aid Scheme.

(1) For smooth implementation of the construction works, further efforts shall be made to arrive at a better understanding among Antigua government (Planning Division and Fishery Division of the Ministry of Agriculture, Lands, Fisheries, Planing and Co-operatives; ATB of the Ministry of Public Works), consultant and contractor through full exchange of opinions.

(2) Procurement of materials and labor forces shall be relatively easy as the projected site lies in the center of the capital St. John's and on the water front. An effective operational plan including procurement of construction materials and skilled workers shall be designed and materials of good quality shall be secured while elimination useless materials.

(3) The rights of ownership of the site reverts to the government of Antigua. In implementing construction works, such methods shall be adopted that requre minimum on-the-site work considering the influence on surrounding areas and anticipated problems arising from the closure of the West Bus Station and relocation of landing/berthing facilities, bus station, taxi stand, and removal of existing shops during the construction. A full explanation shall be given to the government concerning the plan for substitute lot and the construction methods and an approval shall be obtained in advance.

(4) For maintaining accuracy and quality of construction works, the followings should be taken into account:

1) Countermeasures to salt damage: As the construction site is sustainable to salt damages, salt-resistant materials shall be selected for construction and necessary measures shall be taken to protect materials and equipment to be used for the works..
2) Materials for the works corresponding to critical path such as foundation works, main structural members of wharf and building facilities, etc. should be procured in accordance with the project schedule in order not to delay the completion and the hand-over.

3-1-2 Implementation Conditions

As for large-scale civil engineering and construction works, large pier for cruise ships, large-scale resort hotels, etc. have been constructed in Antigua. The large pier for cruise ships was constructed by a Miami-based American construction company which has a lot of experiences in such works in Antigua and the Caribbean states.

(1) The local contractor, whose head office is in Miami, deals with works in various fields of both private and public sectors. Fostering of experts and enterprises of medium standing is not sufficient and skilled workers and experts are not fully trained. Therefore, introduction of expatriates from neighboring countries should be studied. In case another project of similar scale be planned at the same period, problem of shortage of skilled workers will be worsened. A good grasp of the situation of the construction market shall be required at the time of construction and necessary measures shall be taken.

(2) The annual precipitation in St. John's is approximately 1,000mm with often squalls throughout the year. The mean temperature is approx. 28° C and humidity is as high as 70~80% all the year making labor condition of the outer construction work quite severe. Government offices are closed on Saturdays and Sundays with five-day week. But some workers at private enterprises work on weekends. The projected site is active with fishing

activities. It is also busy as a key point of traffic terminal in urban area and the single and the largest market area in the nation. In these circumstances, preparation is required for continued fishing activities and transportation services at the substituted lot as the area will be completely closed during the construction. It is also required to make it known to the neighboring people by official notification. Procedural plans such as land preparation for the site, closure of sea area of the planned wharf, removal of existing facilities with enough time, etc. shall be designed with plenty of time schedule, at the same time local practices and situation taken into account.

3-1-3 Scope of Works

Scope of works for the Project contemplated herein by and between the Government of Antigua and Japan is as follows, and the cost estimation borne by the recipient country is shown in the Appendices;

Table 3-1-1 Scope of works

Contents of construction works, etc.	Japan	Antigua
1. Land acquisition, site preparation, and continuation of fishing activities, bus and taxi services during construction works through securing substitute lands		O
2. Introduction of utility to the site (Electricity, water supply and telephone)		O
3. Removal of small shops. buildings and other obstacles in the site		O
4. Construction works (Wharf, Distribution facility, Bus terminal , etc.)	O	
5. Import procedure, customs clearance		O
(1) Transportation for Antigua and Barbuda	O	
(2) Tax exemption and customs clearance		O
6. Payment of commission to Japanese banks of foreign exchange regarding Banking Arrangement (B/A)		O

7.	Legal advantage or favour for embarkation, disembarkation and stay at Antigua and Barbuda of Japanese people for the Project		O
8.	Suitable and effective management of facilities by Japan's Grant Aid		O
9.	Bearing all the cost incurred in construction of facility, transportation of furniture & materials, and installation works that cannot be covered by the Grant Aid		O
10.	All the procedure of application for approval or authorization regarding construction works		O
11.	Exemption of all the taxes levied on materials and services to be obtaind in Antigua and Barbuda by contractors		O

3-1-4 Consultant Supervision

Basic policy and important points of consultant supervision are as follows:

(1) With the progress of site works, the Consultant shall keep close contact with the Planning Division of the Ministry of Agriculture, Lands, Fisheries, Planning and Cooperatives in order to carry out the construction works smoothly.

Especially, the Consultant has to fully discuss the schedule and methods concerning acquisition of substitute lot for continued services during the construction, removal of existing facilities, and land preparation for the site in advance, as those items have significant relations with Japanese contractor's scope of works.

(2) Before the start of works, the Consultant shall examine construction plan and drawings carefully, and judge the appropriateness of the plan, time schedule, quality of planned materials and construction method.

(3) At the time of delivery after completion, the Consultant shall check whether

or not the completed contents meet the designed specification, and give suitable instruction if revision is necessary.

(4) The Project Manager shall supervise total construction works, and a civil engineer and an architect will assist him with technical matters.

3-1-5 Procurement Plan

Locally available materials are limited to aggregates, sands, gravels, soils for banking, etc. There are local contractors who can supply aggregates and ready mixed concrete.
Cements, bars, structural steels, and plywood are mainly imported from the United States, Venezuela, Trinidad Tobago, Brazil, etc. and there are some local stocks.

Construction materials, for example, cement, bar, wooden mold, metal mold, etc. will be procured locally in principle. But some items which are not available locally, or some items which are available but cannot be used from the viewpoint of quality and quantity of stock, shall be procured in Japan or third country and shall be shipped to Antigua.
As for construction machinery, those for construction works will be locally available but machine-loaded boats or barges for civil engineering works shall be procured in the neighboring East Caribbean nations.

Table 3-1-2 Procurement List

Items	Transportation method
1. Construction machineries and materials	
① Construction machineries	Marine transportation from the third countries
a) Dredger	-//-
b) Crane boat	-//-
c) Work boat	-//-
d) Anchor lift boat	-//-

e) Barge for muddy soil	-//-
f) Tugboat	Marine transportation from the third countries
g) Diver's boat	
② Construction materials	
a) Steel sheet piles	Marine transportation from Japan or the third countries
b) Roofing materials	-//-
c) Foundation pile	-//-

3-1-6 Implementation Schedule

When this Project is implemented in accordance with the Japan's Grant Aid Scheme, i)Exchange of Note (E/N) will be concluded between both Governments, ii)Consultant must complete tender documents, iii)Consultant must proceed with bidding and contractual process for construction works, and then start the works.

The implementation schedule shall be planned in accordance with the followings:

(1) Details design works

Based on Basic Design Study Report, the Consultant will perform detailed design and prepare bidding documents for the selection of a contractor of construction works. Necessary period for that work will be expected two and half (2.5) months.

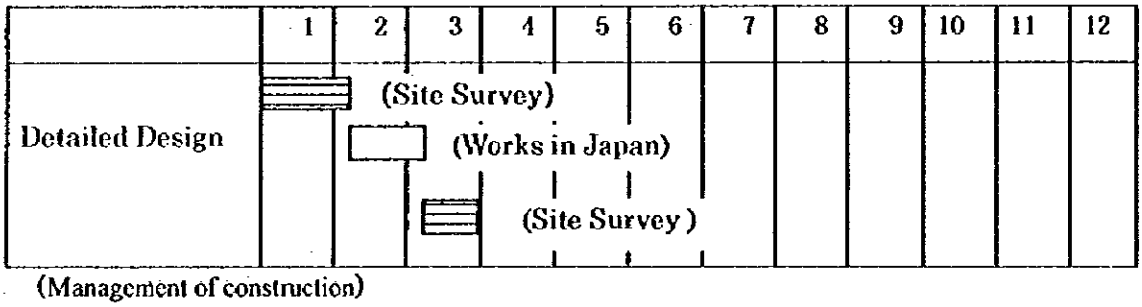
(2) Bidding works

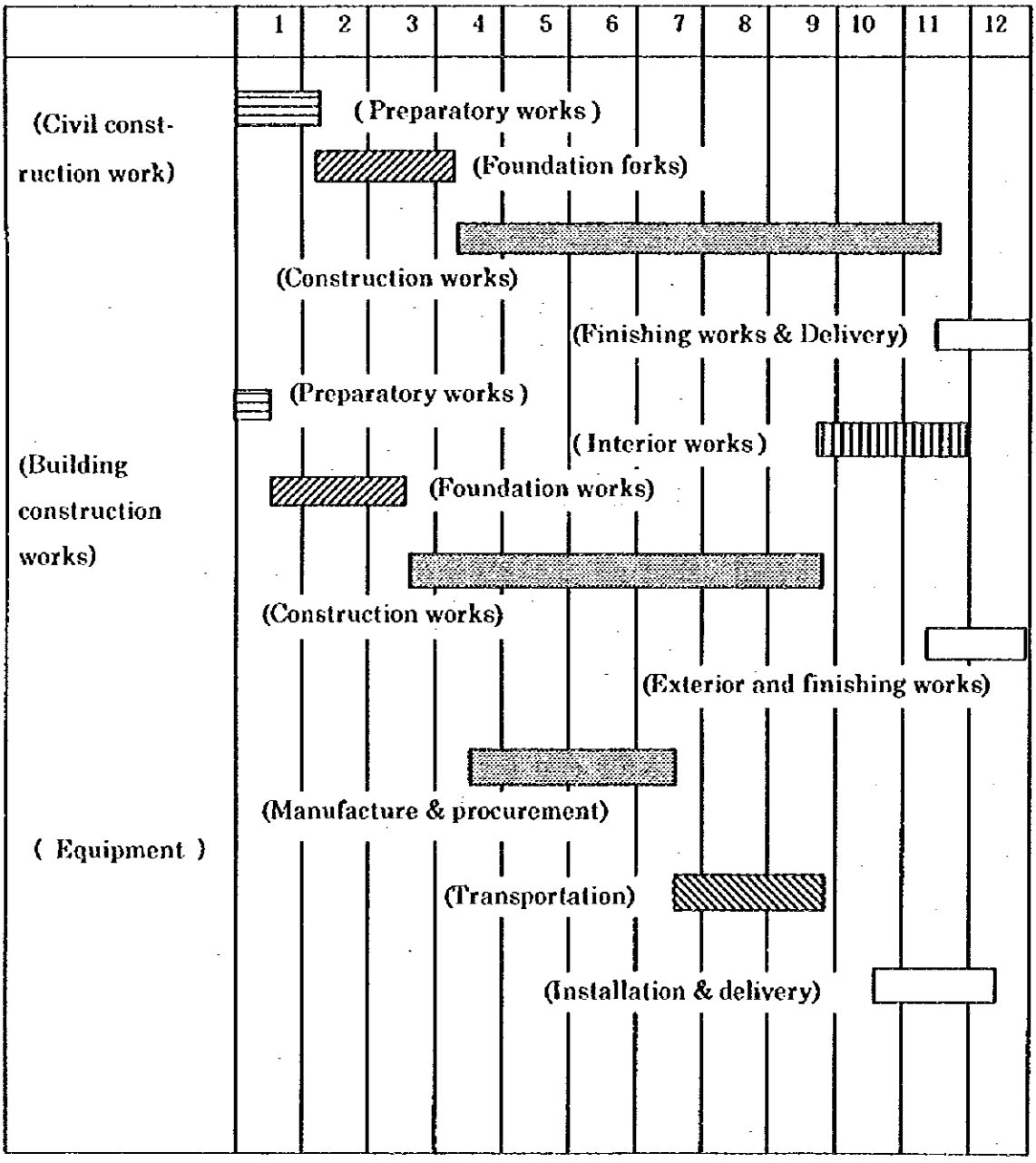
After completion of detailed design works, the Consultant will invite publicly Japanese candidate companies or participants in the bidding for the construction works of the Project, and then examine their qualifications for participation and decide the participants. Based on the examination results, the client of the Project will invite participants for bidding works in the presence of the parties concerned. It will take about one and half (1.5) months from above publicity to the conclusion of the contract.

(3) Construction works

After conclusion of construction contract, contract verification will be obtained from the Japanese Government for the commencement of the Project. Necessary period for total works will be around twelve (12) months. If the site preparation works borne by the government of Antigua are progressed smoothly without any serious problems, the schedule will roughly be as follows; the period for civil engineering works will be around eleven(11) months and construction works will be around twelve(12) months.

Table 3-1-3 Implementation Schedule





3-1-7 Obligations of recipient country

Site preparation works borne by Antigua side are as follows; Removal of existing facilities, site preparation, and connection works of electricity and water supply shall be completed before actual starting of construction works.

Table 3-1-4 Preparation works borne by Antigua side

1) Removal of existing facilities
2) Site preparation
3) Connection works of electricity
4) Connection works of water
5) Connection works of telephone
6) Preparation of substitute land for fishing activities and continuous services for bus/taxi.
7) Others (Bank commissions, etc.)

3-2 Operation and Maintenance Plan

(1) Operation and maintenance plan

As explained previously, the projected facilities consist of ① fish landing and distributing facilities, ② auxiliary facilities such as bus terminals, etc. AFL and ATB which are the management bodies of the Project will operate and maintain the facilities of ①(AFL) and ②(ATB) respectively. As the open space including pedestrian path, etc. is not to be fenced, the border of the above facilities shall be made clear for their maintenance and control.

1) Facilities managed by AFL

The facilities for AFL will be maintained and controlled by itself and used for its own business on independent profit basis as it has been. New fish market and wharf will be managed with allocated revenue of facility tariffs, in accordance with the principle that the beneficiary pays.

However, people have never paid any fee for the existing wharf at the site.

As it should be a public facility, practical measures shall be adopted for the convenience of fishing people. Public facilities are designed for the benefit of people but as in other countries the concept is not fully convinced. For maintenance of comfortable environment of the site, it is essential not only for management but also for users to invent measures that will contribute to their own convenience and benefit. An administrative committee shall be organized for the fish landing consisting of representatives from fishing people' groups and other groups concerned to make better use of the facilities with Fishery Division leading the committee.

As to fish market facilities, lease contracts will be made with fish retailers (period is to be optional for day/week/month/year) for effective control and impartial opportunities for users.

Operational cost for each facility shall be covered by the revenue from respective facilities with the principle that the beneficiary pays, i.e. cost for AFL will be covered by the revenue of AFL. As the objective of AFL's business is to make economic support for fishermen and other people concerned, those new supportive businesses shall be put under the management of AFL so that a system for comprehensive management will be established.

Financial estimation on AFL facilities shall be made based on the above condition.

2) Facilities managed by ATB

The facilities for bus terminals and kiosk will be operated by ATB. Any particular rental fee is not planned for the bus terminals. As ATB is responsible for approval of total permits and licenses for land transportation, operational cost for the facilities will be covered by the annual budget for ATB. Users of the small shops shall be selected fairly. They shall make rental contracts (per annum contract will be advisable) so that the facilities shall be managed effectively. Estimation of revenue and expenditure of the facilities managed by ATB shall be made on the above basis.

The expenses for maintenance of the facilities are estimated at EC$229,500 as

shown in Table 3-2-1.

Table 3-2-1 Maintenance Cost (Unit : 1000EC$)

Items	Amount	Note
1. Landing Facility	11.1	Inspection and repair
2. Distribution Facility		
AFL building facility	29.4	
Ice making and storage	(21.5)	Inspection and
Chilled room	(1.9)	maintenance
Facility maintenance	(6.0)	
3.Public Infrastructure	187.9	ATB annual budget for bus terminal maintenance.
Bus terminals	(182.9)	
Small shops	(5.0)	Almost is electric cost for lighting at night time.
4. Pickup truck	1.0	Check and repair
Total	229.5	

Note: Above amounts do not include any renewal cost of equipment nor facility.

(2) Financial Estimation of the Project

Estimation of revenue and expenditure of the management of the Project is shown as Table 3-2-2.

AFL

(Unit EC$ 1,000)

	Revenue	Expenditure	A-B
(1) Fish Landing facility operation	29.6	11.1	18.5
(2) Fish Market facility operation	15.6	12.6	3.0
(3) Fish purchase and processing operation	300.0	289.3	10.7
(4) Ice making and Ice sales operation	674.5	428.5	165.0
(5) Fishing gear purchase and sales	595.0	430.0	165.0
(6) Administration expenditure		195.4	-195.4
	1,614.7	1,366.9	247.8

ATB

	Revenue	Expenditure	A-B
(1) Bus terminal operation (*)	0.0	182.9	-182.9
(2) Small shop rental	273.0	5.0	268.0
	273.0	187.9	85.1

Note: *ATB will make annual budget for the operation.

Table 3-2-2 Revenue and Expenditure of the Project

① Estimated balance of AFL

Revenu e (A)				Expenditure(B)			
Income items	Unit price (EC$)	Q'ty	Annual amount (EC$1000)	Expenditure items	Unit price (EC$)	Q'ty	Annual amount.. (EC$1000)
1. Total of revenue			1614.7	1. Total of expenditure			1366.9
(1) Fish landing facility operation			29.6	(1) Fish landing facility operation			11.1
① Facility tariff	15/ week	38boats	29.6	① Maintenance fee a. Fender	11,100	a year	11.1 (11.1)
(2) Fish market operation			15.6	(2) Fish market operation			12.6
① Facility tariff	25/ week	12 booths	15.6	① Direct cost			12.6
(3) Fish purchase, process & sale			300	(3) Fish purchase, process & sales			289.3
	7500	40 ton/yr	300.0	① Direct cost a. Expense of fish purchase b.Electricity c.Water ② Manage.& Maintenance fee a Equipment maintenance fee	4500 0.78 10.97 1900	60ton/yr 73503kwh 465.1t/yr yearly	287.4 (225.0) (57.3) (5.1) 1.9 (1.9)
(4) Sales of Ice			674.5	(4) Sales of Ice			428.0
① Sales amount of Ice	280	6.6 ton/day	674.5	① Direct cost a.Electrucity b.Water ② Manage.& Maintenannce fee a.Operator b Maintenance parts	0.78 10.97 1,500 3,500	81840kwh 2628t/yr monthly yearly	
(5) Fishing gear purchase/sales			595.0	(5) Fishing gear purchase/sales			430.0
① Fishing gear sales amount	595,000	yearly	595.0	① Fishing gear purchase price	430,000	yearly	430.0
(6) General expenses				(6) General expense			195.4
				① Salary a Manager b.Chief c.General staff d.Sales staff e.Processor f.Cleaner ② Direct cost a.Water b.Electricity c.F/O of Generator d.Generator operator e.Collect&delivery cost ③ Manage.& Maintenannce cost a Facility b.Vehicle, etc.	3,800 1,800 1,400 1,400 1,200 1,100 10.97 0.78 6.85 750 6.85 6,000 1,000	1 persn/mt 2 persn/mt 1 persn/mt 1 persn/mt 1 persn/mt 960 ton 511kwh/yr 300gal/yr 1 persn/mt 293gal/yr yearly yearly	164.4 (45.6) (43.2) (16.8) (16.8) (28.8) (13.2) 24.0 (10.5) (0.4) (2.1) (9.0) (2.0) 7.0 (6.0) (1.0)

Balance	Revenu (A)	Expenditure (B)	(Unit : EC$1000) (A) - (B)
(1)Fish landing facility operation	26.9	11.1	18.5
(2)Fish market operation	15.6	12.6	3.0
(3)Fish purchase,processing & sale	300.0	289.3	10.7
(4)Sales of Ice	674.5	428.5	428.0
(5)Fishing gear purchase & sales	595.0	430.0	165.0
(6)General expense	0.0	195.4	195.4
	1,614.7	1,366.9	247.8

② ATB Revenue and Expenditure

Revenue (A)				Expenditure (B)			
Items	Unit Price (EC$)	Unit (s)	Annual Amount	Items	Unit Price (EC$)	Unit (s)	Annual Amount
1. Revenue total			273.0	1. Expenditure total			187.9
(1) Bus terminal operation			(189.9)	(1) Bus terminal Operation			(182.9)
① Budget		1 year	(189.9)	① Maintenance cost			(182.9)
				a. Cleaning	1200	6 persons	(86.4)
				b. Electric lighting cost	0.78	220,960 Kwh	(86.5)
				c .Repair cost	10, 000	1 year	(10.0)
(2) Small shop rental			273.0	(2) Small shop rental			5.0
① Small shop rental revenue	250	2/shops weekly	273.0	① Maintenance Cost			
				a. Cleaning Tenant will pay			
				b. Electric cost Tenant will pay			
				c. Repair	5,000		(5.0)

Balance			
	Revenue (A)	Expedition (B)	(A) - (B)
(1) Bus terminal operation	0. 0	182.9	-182.9 (ATB Budget)
(2) Small shop rental revenue	273.0	5. 0	268.0
	273.0	187. 9	85.1

Chapter 4

Project Evaluation and Recommendations

Chapter 4. Evaluation and Recommendations

4-1 Verification of the Appropriateness of the Project

4-1-1 Project Effect

A total number of 800 fishermen of St. John's who are the users of existing market wharf at West Bus Station and fishermen of Antigua Island who will be provided with ice. Small scale fish retailers at the market and about 39,000 residents in and around St. John's and 25,000 residents in the other areas of Antigua Island. Beneficiaries of the Project are estimated at no less than 64,000 people including residents of St. John's and other areas of Antigua Island, and small scale fish retailers and their family members. Actually, almost whole nation, 98% of the total population of Antigua and Barbuda, will be the beneficiaries.

Table-4-1-1 Problems, countermeasures, and effects

Problems	Countermeasure	Effects
1. Unloading & berthing condition is worsening because of 40 years old wharf with insufficient depth and sanitation caused by city sewage disposal.	• Construct completely improved fish landing facility • Extend and fill up the fish unloading functions as nearest landing spot to cunsummers market	• Activate fishing industry by easy access for boat to alongside the wharf • Create comfortable and sanitary environment by development of the waterfront
2. West bus station is extremely crowded with fishermen, shoppers and visitors, but obliged to do inconveniennt shopping and trading.	• Arrange the layout of whole facilities after reviewing traffic lines of people, vehicles and goods (adopt the layout plan to separate the delivery line of fishing gear and distribution line of fish products)	• Make effective utilization of the land in the market area • Can expect easing congestion at the market area with synergism of St.John's development project and public market revitalization project
3. Road around market are a nearly reached the limit of congestion by cars, taxies and buses.	• Construct public infrastructure facilities like bus terminal and small scale shops for proper use of the project site	• Can expect to decrease the factors creating the congestion by separation of lines of people, cars and goods at site
4. • Difficulties of getting parts with 15 years old ice making machine • Using Fron 502 as refrigerant is prohibited for environmental preservation as it causes destruction of ozone layer. • Fish retailers are obliged to trade on road side in front of existing fish market built in 1950s which roof is damaged by hurricane and not sufficient sanitary situation	• Construct ice plant, processing plant and fish market for strengthening existing AFL function and supporting fishermen's activities, and expect improving quality of fish products	• Improvement of ice supply at high fishing season • Promotion of using ice for marketing • Improvement of fish quality and post harvest loss • Increase of fish supply and the consumption through activation of fishing • Revitalization of fishermen's fishing mind • Promotion of development of small scale fisheries

4-1-2 Verification of the Appropriateness

West Bus Station is brisk as a base for fisheries activities, a traffic key point in urban area, and the largest market area in the nation. It plays quite an important role for both fishing people including fishermen, fish retailers, etc. and the consumers in the urban area.
Antigua's economy is monocle depending simply on tourist industry. Implementation of a fisheries project will mark a turning point in Antigua's fisheries development policy, which is promising for encouragement of the industry in view of the achievement by the neighboring nations. Demand by tourist industry make substitution for imported products, generate employment, etc. It is quite important for national economic development in that if bring about supply of fisheries which will meets the demand.

To promote promising small scale fishing, fishing people themselves are required to improve their consciousness of fisheries development. Construction of the landing and distribution facilities at St. John's will make the core of the Antigua's fisheries development and improvement of the market, giving a great and visual impact to the fishing people and residents. Therefore, implementation of the Project will be an impetus for development. Considering all those, prompt implementation of the Project is quite important and essential.

The Project should be appropriate and worthwhile as Japan's Grant Aid Scheme in view of the following points:

(1) The effect shall be extended to both urban and local residents and the number of beneficiaries will be 64,000 people which is equivalent to abt. 98% of the total population.

(2) It is a general market for fisheries, vegetables and fruits, meat and other fresh foods, etc. where most of the residents in St. John's and other areas in Antigua Island, 20km from north to south and 24km from east to west, visit every day. It is the largest bus terminal where 7,700 passengers use every day.

Accordingly, it shall be developed promptly as part of efforts for improvement of urban function from the standpoint of sanitation and environment.

(3) Independent management is expected possible from a balance estimation.

(4) The Project will contribute to the objectives of development such as effective utilization of land in urban area, establishment of a system for stable supply of fisheries for domestic consumers and tourists.

4-2 Recommendation

As stated above, the Project is expected to bring about various benefits and contribute to improvement of life standard of residents in many part of the country. Accordingly, it was concluded that implementation of the Project as Japan's Grant Aid Scheme should be worthwhile. The followings are recommended in implementing the above.

4-2-1 Project Implementation

(1) The site is in the currently brisk market area (West Bus Station). When implementation of the Project is approved, removal of existing facilities and preparation of land for construction site should be smoothly conducted.

(2) Before launching of construction works, the place for dumping of sludge should be confirmed as well as route and measures for its transportation.

(3) Total closure of the landing site and the west bus terminal is necessary during the construction. It will be necessary to publicize the construction in advance through bulletins and etc. and the public services may be continued in substitute lot during the construction so that users' confusion may be avoided.

4-2-2 Effective utilization of the projected facilities

(1) Coordination with the redevelopment plans of the market area

There are currently public markets for vegetables and fruits, fishes, and meats on the opposite side of the Project site with a road between. Redevelopment plans are being drafted by PMC and Ministry of Public Works. The following four items should be handled adequately and timely from the standpoint of effective utilization of the facilities.

① Preparation of substitute land for taxi stand

② Location and scale of parking area for visitors

③ Location of sewage for the new market for vegetables and fruits and route of drainage

④ Traffic control of the total market area

(2) Consideration on traffic congestion in the market area

One way traffic was recommended in OAS's urban redevelopment plan in 1986. However, only the city area centering round Heritage Quay is controlled by the traffic regulations including one way traffic, excluding the market area. Market Street in the north extending from Valley Road to central city is one way. The issues related to traffic regulations have been studied and put as feasible. But comprehensive countermeasures against traffic congestion for the whole area should be examined in coordination with future development plans for vegetables and fruits' market so that public infra-structural facilities such as bus terminals, and etc. should be effectively utilized, which are planned in the Project .

4-2-3 Encouragement of Fisheries

Rental fee will be collected at the planned fish market and wharf in accordance with the principle that beneficiary pays. However, rental fee has never been collected at the existing facilities. Considering the nature of their objectives, practical measures shall be adopted for the convenience of the fishing people. Public facilities are designed for the benefit of users. To keep their amenity environment

it is necessary for not only management who simply maintain the facilities but also for users to suggest some measures which will promote better utilization. For that purpose an administrative committee of landing/fish market shall be organized, which will consist of representatives of fishermen's groups and other organizations. It will be led by Fishery Division and aim for better utilization of the facilities. As the objective of AFL is providing assistance for fishermen and employees of fisheries industry, it is expected to include the above duties in their original duties and study on establishment of a system for comprehensive control and maintenance of the facilities.

APPENDICES

APPENDICES

1. Member List of the Study Team

1-1 Basic Design Study A-1

1-2 Draft Basic Design A-2

2. Survey Schedule

2-1 Basic Design Study A-3

2-2 Draft Basic Design A-5

3. List of Party Concerned in the Recipient Country

3-1 Basic Design Study A-6

3-2 Draft Basic Design A-7

4. Minutes of Discussion

4-1 Basic Design Study A-8

4-2 Draft Basic Design A-17

5. Cost Estimation Borne by the Recipient Country A-27

6. Result of Site Survey Works and Wave Analysis

6-1 Result of Site Survey Works (Selection) A-28

6-2 Result of Wave Analysis (Selection) A-38

7. References A-53

1. Member List of the Study Team

1-1 Basic Design Study

Mr. S. Shimura	Team Leader :	Development Specialist Japan International Cooperation Agency
Mr. F. Terashima	Coordinator :	Second Project Study Division, Grant Aid Project Study Department, Japan International Cooperation Agency
Mr. S. Nakamura	Technical Adviser :	International Affairs Division Ocean Fisheries Department Fisheries Agency, Ministry of Agriculture, Forestry and Fisheries
Mr. F. Sekine	Observer :	Second Secretary Embassy of Japan in Port of Spain
Mr. M. Kondo	Operation and Management Planner :	Chief Consultant CRC Overseas Cooperation Inc.
Mr. S. Kawamukai	Civil Engineer :	CRC Overseas Cooperation Inc.
Mr. O. Hiraoka	Fisheries Distribution Planner :	CRC Overseas Cooperation Inc.
Mr. T. Kawada	Architect :	CRC Overseas Cooperation Inc.
Mr. M. Ishii	Facilities and Equipment Planner :	CRC Overseas Cooperation Inc.

1-2 Draft Basic Design

Mr. S. Nakamura	Team Leader :	International Affairs Division Ocean Fisheries Department Fisheries Agency, Ministry of Agriculture, Forestry and Fisheries
Mr. M. Kondo	Chief Consultant / : Operation and Management Planner	CRC Overseas Cooperation Inc.
Mr. S. Kawamukai	Civil Engineer :	CRC Overseas Cooperation Inc.
Mr. O.Hiraoka	Fisheries : Distribution Planner	CRC Overseas Cooperation Inc.

2. Survey Schedule

2-1 Basic Design Study (11th of July,'97~4th of August,'97)

	Date	Week	Itinerary	Accomodation
1	7/11	Fri	Consultants left Tokyo (CP06),arrived 16:14	Toronto
2	7/12	Sat	Consultants left Toronto(AC960),arrived14:35 16:30 Contracted Site Survey Works	St. John's
3	7/13	Sun	S.S.(Site Survey)-1(See Ref.*1),Topographic survey(Land-1/2) (GovernmentalOfficials left Tokyo(JL06)12:00, arrived New York 11:20)	St. John's (New York)
4	7/14	Mon	S.S.-2, (Governmental Officials left New York 07:35(BW427), arrived Antigua 12:05), Site survey	St. John's
5	7/15	Tue	S.S.-3, 09:00~12:00 Courtesy call on Officials concerned, 14:30~1600 Conference with the officials concerned. Site survey	St. John's
6	7/16	Wed	S.S.-4, 09:30Discussion with Fisheries Div. 14:30 Meeting with AFL. Meeting with officials of Public Works. Soil investigation (started boring on land). Site survey	St. John's
7	7/17	Thu	S.S.-5, 09:30 Meeting at Transport Board. 11:00 Call at White Fish Market, 14:00 Meeting with Fisheries Division 16:00 Visited Caribbean Seafood Co. Discussion with Architecht and Civil Engineer. Site survey	St. John's
8	7/18	Fri	S.S.-6, Site survey. Boring on land (No.2). 14:30 Discussion with Antiguan officials. Preparation of Tide current survey.	St. John's
9	7/19	Sat	S.S.-7, 05:00 Tide current survey started (25 hours). Visited fish landing spots (High Point, Beach Comer, aring).	St. John's
10	7/20	Sun	S.S.-8, 06:00 Tide current survey completed. Boring started on sea. Site survey. Meeting in study mission.(Official obsever from Embassy of Japan in Port of Spain joined at 09:50)	St. John's
11	7/21	Mon	S.S.-9, Site survey. Conerence with Officials concerned.	St. John's
12	7/22	Tue	S.S.-10, boring at sea (No.2). 10:00 Drafted Minutes of Discussion.	St. John's

13	7/23	Wed	S.S.-11, Site survey. 08:30 Signed Minites of discussion.	St. John's
14	7/24	Thu	S.S.-12, Site survey. Reported to officials concerned. Submission of draft designs of wharf & building and had discussions with counterparts. (Official members of study mission left Antigua15:45(BW426),arrivedNewYork 20:15)	St. John's
15	7/25	Fri	S.S.-13, Site survey. Discussed basic plans of wharf and building. (Official members of study mission left NewYork13:30(JL005)).	St. John's
16	7/26	Sat	S.S.-14, Site survey. Dicussed about layout plan. (Official members arrived Tokyo 16:10)	St. John's
17	7/27	Sun	Put in order collected data. (4cosultant members left Antigua 16:55(BW415)	St. John's
18	7/28	Mon	Supplementary studies. Collect answers to Questionair.(4 consultant members reached Toronto 07:05)	St. John's /Toronto
19	7/29	Tue	Supplementary studies. (4 consultant members left Toronto 10:00(CP1)	St. John's
20	7/30	Wed	Discussed Project schedule with Planning and Fisheries. (Chief of consultant left Antigua 16:15(BW901) and arrived Port of Spain 17:35	Port of Spain
21	7/31	Thu	10:00 Chief of consultant reported to Embassy of Japan in Port of Spain	Port of Spain
22	8/01	Fri		Port of Spain
23	8/02	Sat	05:45 Chief of Consultant left Port of Spain & arrived Toronto 11:15 (AC965)	Toronto
24	8/03	Sun	10:05 Chief of Consultant left Toronto(CP001)	
25	8/04	Mon	12:00 Chief of Consultant arrived Tokyo	

2-2 Draft Basic Design Study

(7th of September,'97～19th of September,'97)

	Date	Week	Itinerary	Accomodation
1	9/7	Sun	Government official and Chief of Consultants left Tokyo (AA026),arrived Miami 21:05	Miami
2	9/8	Mon	Government official and Chief of Consultant left Miami 16:50 (AA1819),and arrived Port of Spain 20:50. (Other members of Consultant left Tokyo 11:00 (NH010), arrived New York 10:30	Port of Spain /(New York)
3	9/9	Tue	Reported to Embassy of Japan in Port of Spain and 13:20 left POS (BW426) and arrived to Antigua 16:55. (Other members of consultant left New York 07:35 (BW427), rrived Antigua 11:40)	St. John's
4	9/10	Wed	Discussion with Planning Division and Fisheries Divison about Draft Basic Design.	St. John's
5	9/11	Thu	Discussed with Architect and Civil Engineer about Draft Basic Design. Site survey.	St. John's
6	9/12	Fri	Discussed with Architect and Civil Engineer about Draft Basic Design. Site survey. Site survey	St. John's
7	9/13	Sat	Discussed with Architect and Civil Engineer about Draft Basic Design. Site survey.	St. John's
8	9/14	Sun	Discussion and site survey	St. John's
9	9/15	Mon	Discussion and site survey	St. John's
10	9/16	Tue	Discussion and Signing of Minutes of discussion	St. John's
11	9/17	Wed	Left Antigua 15:36 (AA732), arrived San Juan 16:35. Left San Juan 18:10 (AA688), arrived to New York 22:10	New York
12	9/18	Thu	Left New York 12:15 (NH009)	
13	9/19	Fri	Arrived Tokyo 14:50	

3. List of Party Concerned in the Recipient Country

3-1 Basic Design Study

Antigua & Barbuda Government

Hon. Lester Bird	: Prime Minister

Ministry of Finance; Agriculture, Fisheries and Lands; Planning and Cooperatives

Hon. John E. St. Luce	: Minister

Ministry of Foreign Affairs

Mr. Collin Murdoch	: Permanent Secretary

Ministry of Agriculture, Fisheries and Lands

Mr. Donald Edwards	: Permanent Secretary

Ministry of Planning

Mr. Daven Joseph	: Techincal Coordinator

Public Works Department

Mr. B.T.Lewis	: Director
Mr. Aldin Crump	: Civil Engineer
Mr. Ronadell A. Pyle	: Architect

Antigua and Barbuda Transport Board

Mr. Leroy Adams	: General Manager
Mr. Harry Josiah	: PR-Officer

Fisheries Department

Mr. Philmore James	: Fisheries Officer
Mr. Eustace Royer	: Fisheries Consultant

Public Market Committee

Mr. Saiid Greane	: Chairman

St. John's Development Corporation

Mr. Randolph Martin	: Executive Director

Antigua Fisheries Ltd.

Ms. Mavis George	: Manager

White's Fish Market

Mr. Sylvester White	: Owner

Caribbean Sea Food

Mr. Lucian M. Barreto	: Owner/ Manager

3-2 Draft Basic Design

Ministry of Finance; Agriculture, Fisheries and Lands; Planning and Cooperatives

Hon. John E. St. Luce	: Minister

Ministry of Planning

Mr. Daven Joseph	: Technical Coordinator
Mr. Aldin Crump	: Planner
Mr. Mario Spinella	: Architectual Consultant

Public Works Department

Mr. Ronadell A. Pyle	: Architect

Transport Board

Mr. Leroy Adams	: General Manager

Fisheries Department

Ms. Cheryl Jeffrey	: Chief Fisheries Officer
Mr. Eustace Royer	: Fisheries Consultant

Antigua Fisheries Ltd.

Ms. Mavis George	: Manager

Public Market Committee

Mr. Saiid Greane	: Chairman

St. John's Development Corporation

Mr. Randolph Martin	: Executuvie Director

4. Minuets of Discussions

4-1 Basic Design Study

MINUTES OF DISCUSSIONS
BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF FISH LANDING AND DISTRIBUTING FACILITIES IN ST. JOHN'S IN ANTIGUA AND BARBUDA

In response to the request from the Government of Antigua and Barbuda, the Government of Japan decided to conduct a basic design study on the project for construction of fish landing and distributing facilities in St. John's in Antigua & Barbuda and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Antigua & Barbuda a basic design study team (hereinafter referred to .s "the Study Team"), which is headed by Dr. SHIMURA Shigeru, Development Specialist, JICA, and scheduled to stay in Antigua & Barbuda from July 12 to July 30, 1997.

The Study Team held a series of discussions with the officials concerned of the Government of Antigua & Barbuda and conducted field surveys at the study areas.

Through the discussions and field surveys, both parties have confirmed several important points described in the attached sheets. The Study Team will proceed to further works in Antigua & Barbuda and Japan and prepare the Basic Design Study Report.

St. John's , July 23, 1997

Dr. SHIMURA Shigeru
Leader,
Basic Design Study Team,
JICA

Hon. John E. St. Luce
Minister,
Ministry of Finance; Agriculture,
Lands and Fisheries; Planning
and Cooperatives
Antigua & Barbuda

ATTACHMENT

1 Objective

The objective of the project is to construct fish landing and distributing facilities which are necessary for improving the fishing activities in St. John's.

2 Responsible Organization and Implementing Agency

Responsible Ministry : Ministry of Agriculture, Lands and Fisheries
Implementing Agency : Ministry of Planning and Cooperatives

3. Project Site

The project site is shown in ANNEX-1.

4 Major Items Requested by the Government of Antigua & Barbuda

After the series of discussions, the items listed in ANNEX-2 are finally requested by the Government of Antigua & Barbuda.
However, the final items, quantity and specifications covered under the project will be subject to further studies.

5. Preparation for the Project

The Government of Antigua & Barbuda will take necessary measures including removals of fishing boats, bus terminal, taxi stand, shops, restaurants and other buildings at the site for smooth implementation of the Project.

6 Management and Maintenance

Ministry of Planning will maintain and use the equipment purchased under the Grant Aid properly and effectively, and to assign the necessary staff members for operation and maintenance of them as well as to bear all the expenses other than those to be borne by the Grant Aid.

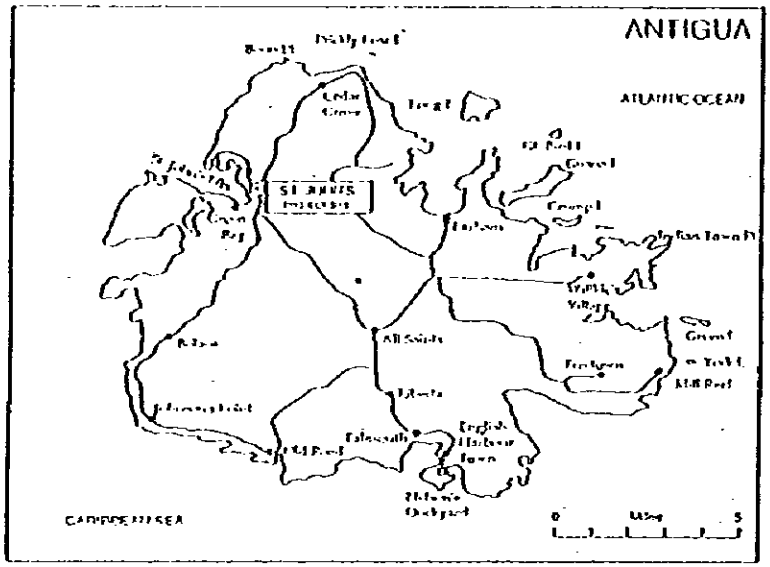
7. Japan's Grant Aid System

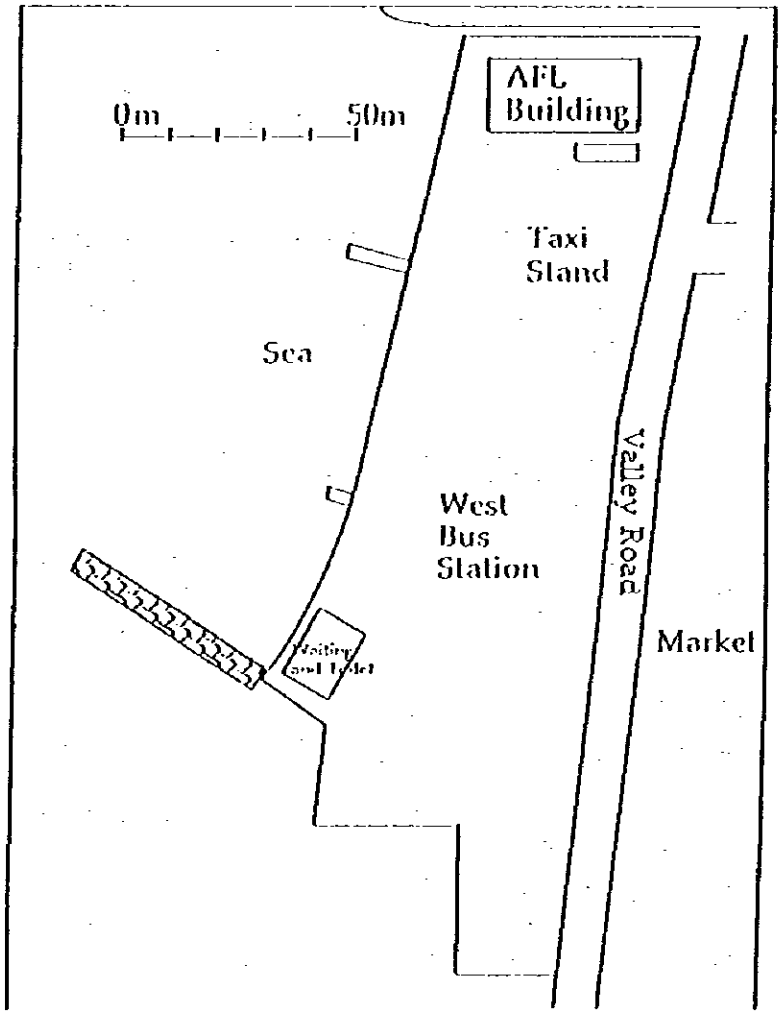
1) The Government of Antigua & Barbuda has understood the system of the Japan's Grant Aid explained by the Study Team; the main feature is described in ANNEX-3.
2) The Government of Antigua & Barbuda will take the necessary measures, described in ANNEX-4 for the smooth implementation of the project on condition that the Grant Aid by the Government of Japan is extended to the project.

8 Further Schedule of the Study

1) The Study Team will proceed to further studies in Antigua & Barbuda until July 30, 1997.
2) Based on the results of the Basic Design Study, JICA will prepare the Draft Basic Design of the project and dispatch a team in September 1997 in order to consult with the Government of Antigua & Barbuda on outline of the Draft Basic Design.
3) Upon acceptance of the Draft Basic Design by the Government of Antigua & Barbuda, JICA will complete the Basic Design Study Report and forward it to the Government of Antigua & Barbuda around November, 1997.

ANNEX-1: PROJECT SITE





ANNEX-2: ITEMS FINALLY REQUESTED BY THE GOVERNMENT OF ANTIGUA AND BARBUDA

1. Fish Landing Facilities

1) Mooring wharf

2. Fish Processing/Distributing Facilities

1) Chilled room
2) Processing area
3) Marketing area

3. Fish Processing/Distributing Equipment *

1) Ice making plant(s)
2) Processing table(s)
3) Retail counter(s)
4) Trolley(s)
5) Platform scale
6) Retail scale(s)
7) VHF Radio

4. Managing Facilities

1) Administrative office
2) Meeting room
3) Equipment store
4) Backup generator
5) Toilet(s)

5. Transport Facilities

1) Bus Terminal
2) Kiosk (small shops)

* After evaluation of the previous fish transport records and a future plan on fish collection by the planned insulated pick-up truck, if it is reasonable, an insulated pick-up truck may be added.

ANNEX-3: JAPAN'S GRANT AID SCHEME

1. Grant Aid Procedure

1) Japan's Grant Aid Program is executed through the following procedures.

Application	(Request made by a recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal & Approval Cabinet)	(Appraisal by the Government of Japan & Approval by
Determination of Implementation	(The Notes exchanged between the Governments of Japan and the recipient country)

2) Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study), using Japanese consulting firms.

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Program, based on the Basic Design Study report prepared by JICA and the results are then submitted to the Cabinet for approval.

Fourth, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Government of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

2. Basic Design Study

1) Contents of the Study

The aim of the Basic Design Study (hereinafter referred to as "the Study"), conducted by JICA on the requested project (hereinafter referred to as "the Project"), is to provide a basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Study are as follows:

a) confirmation of the background, objectives and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation;
b) evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from the technical, social and economic points of view;
c) confirmation of items agreed on by both parties concerning the basic concept

of the Project;

d) preparation of a basic design of the Project; and

e) estimation of costs of the Project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

2) Selection of Consultants

For the smooth implementation of the Study, JICA uses a consulting firm selected through its own procedure (competitive proposal). The selected firm participates the Study and prepares a report based upon the terms of reference set by JICA.

At the beginning of implementation after the Exchange of Notes, JICA recommends the same consulting firm which participated in the Study be used for the services of the Detailed Design and Construction Supervision of the Project. This is necessary in order to maintain the technical consistency between the Basic Design and Detailed Design as well as to avoid any undue delay caused by the selection of a new consulting firm.

3. Japan's Grant Aid Scheme

1) What is Grant Aid?

The Grant Aid Program provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.

2) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

3) "The period of the Grant" means the one fiscal year which the Cabinet approves the project for. Within the fiscal year, all procedure such as exchanging of the Notes,

concluding contracts with consulting firms and contractors and final payment to them must be completed.

However, in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

4) Under the Grant, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However, the prime contractors, namely consulting, contracting and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

5) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability of Japanese taxpayers.

6) Undertakings required to the Government of the recipient country

a) to secure a lot of land necessary for the construction of the Project and to clear the site;
b) to provide facilities for distribution of electricity, water supply, drainage and other incidental facilities outside the site;
c) to ensure prompt unloading, tax exemption and customs clearance at ports of disembarkation in the recipient country and internal transportation therein of the products purchased under the Grant Aid.
d) to exempt Japanese nationals from customs duties, internal direct taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts.
e) 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 the recipient country and stay therein for the performance of their work.
f) to ensure that the facilities constructed and products purchased under the Grant Aid be maintained and used properly and effectively for the Project; and
g) to bear all the expenses other than those covered by the Grant Aid, necessary for the Project

7) "Proper Use"

The recipient country is required to maintain and use the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign the necessary staff for operation and maintenance of them as well as to bear all the expenses other than those covered by the Grant Aid.

8) "Re-export"

The products purchased under the Grant Aid shall not re-exported from the recipient country.

9) Banking Arrangement (B/A)

a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in an authorized foreign exchange bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the verified contracts.

b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an authorization to pay issued by the Government of recipient country or its designated authority.

ANNEX-4: NECESSARY MEASURES TO BE TAKEN BY THE GOVERNMENT OF ANTIGUA AND BARBUDA

The following necessary measures should be taken by the Government of Antigua and Barbuda 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 and to clear the site.

2. To provide facilities for distribution of electricity, water supply, drainage and other incidental facilities outside the site.

3. To ensure prompt unloading, tax exemption and customs clearance at ports of disembarkation in Antigua and Barbuda and internal transportation therein of the products purchased under the Grant Aid.

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

5. 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 Antigua and Barbuda and stay therein for the performance of their work.

6. To maintain and use facilities constructed under the Grant Aid properly and effectively for the Project.

7. To bear commissions to the Japanese foreign exchange bank for its banking services based upon the Banking Arrangement, namely the advising commission of the "Authorization to Pay" and payment commissions.

8. To bear all the expenses, other than those covered by the Grant Aid, necessary for the Project.

MINUTES OF DISCUSSIONS
BASIC DESIGN STUDY ON
THE PROJECT FOR CONSTRUCTION OF
FISH LANDING AND DISTRIBUTING FACILITIES
IN ST. JOHN'S IN ANTIGUA AND BARBUDA

(Consultation on the Draft Basic Design)

The Japan International Cooperation Agency (JICA) has dispatched a basic design study team on the Project for Construction of Fish Landing and Distributing Facilities in St. John's (hereinafter referred to as "the Project") to Antigua and Barbuda in July 1997. As a result of the series of discussions, field survey in Antigua and Barbuda, and technical examination of the results in Japan, JICA prepared the Draft Basic Design of the Project.

To inform Antigua and Barbuda side with the components of the Draft Basic Design, JICA sent to Antigua and Barbuda a study team headed by Mr. NAKAMURA Shinnichi, Fisheries Agency. The team is scheduled to stay in Antigua and Barbuda from September 9 to 17, 1997.

As a result of discussions, both sides have confirmed the main items, quantity and specifications described on the attached sheets. The team will proceed to further works and finalize the Basic Design Study Report.

St. John's, September 15, 1997

Mr. NAKAMURA Shinnichi
Leader,
Study Team,
JICA

Hon. John E. St. Luce
Minister,
Ministry of Finance;
Agriculture, Lands and
Fisheries; Planning and
Cooperatives,
Antigua and Barbuda

ATTACHMENT

1. Components of the Draft Basic Design

The Government of Antigua and Barbuda has in principle accepted the components of the Draft Basic Design proposed by the team : the main items, quantity are described in ANNEX-1.

2. Responsible Organization and Implementing Agency

Responsible Ministry : Ministry of Agriculture, Lands and Fisheries

Implementing Agency : Ministry of Planning and Cooperatives

3. Preparation for the Project

The Government of Antigua and Barbuda will take necessary measures including removals of fishing boats, bus terminal, taxi stand, shops, restaurants and other buildings at the site for smooth implementation of the Project. Alternative sites for continuing existing public services during the construction works of the Project are tentatively planned as shown in ANNEX-4, and the details of final plan will be informed to the Government of Japan in due course in accordance with the implementation schedule of the Project.

4. Management and Maintenance

Ministry of Planning will maintain and use the facilities and the equipment purchased under the Grant Aid properly and effectively, and to assign the necessary staff members for operation and maintenance of them as well as to bear all the expenses other than those to be borne by the Grant Aid.

5. Japan's Grant Aid System

1) The Government of Antigua and Barbuda has understood the system of Japan's Grant Aid explained by the team : the main feature is described in ANNEX-2.
2) The Government of Antigua and Barbuda will take necessary measures, described in ANNEX-3, for smooth implementation of the project on condition that the Grant Aid by the Government of Japan is extended to the Project.

6. Further Schedule of the Study

JICA will complete the Basic Design Study Report in accordance with the confirmed items, and forward it in its final form to the Government of Antigua and Barbuda around December, 1997.

ANNEX-1 : COMPONENTS OF THE DRAFT BASIC DESIGN

Main items	Specifications	Quantity
1. Facility		
1-1 Fish landing facility (Mooring wharf)	Steel sheet pile wharf with back tension anchor pile:130m. Width of apron : 10m	1 lot
1-2 Fish distribution facility (Building)	RC structure 2 stories : abt. 1080 m² Partly with steel frame roof structure	1 lot
	(1) Administrative office (216m²) (2) Fishing gear storage (144m²)	
	(3) Ice making/storage (72m²) (4) Cold storage (36m²)	
	(5) Fish processing area (144m²) (6) Fish shop area (36m²)	
	(7) Fish market (94m²) (8) Fishermen's space (158m²)	
	(9) Other common spaces (180m²)	
1-3 Public Infrastracture facility		1 lot
① Bus terminal facility		
	2 berths in total (8berths × 3 lanes), platform with steel frame roof	
② Kiosk (Small shops)		
	Concrete block structure, 21 units (3m × 4m=12m² /unit)	
2 Equipment		
① Ice making machine and storage bin	Ice making capacity 3.5tons/day x 2 units, plate type ice Storage bin capacity 15 tons	1 set
② Cold Storage	Capacity approx 1ton, -5℃	1 set
③ Generator	35KVA, Diesel engine driven	1 set
④ Processing table	Stainless Steel 3.0m x 0.8m x 0.77m	2 sets
⑤ Fish retail counter	Chilled case, 3.5m x 0.7m x0.8m	1 set
⑥ VHF radio	Marine band VHF Radio, 25W, with antenna set	1 set
⑦ Insulated truck	Pick up type with insulated van, Payload 500kg	1 set
⑧ Trolley (Push cart)	Table size 0.7m x 1.2m	4 sets
⑨ Retail scale	For fish market : 60lbs	6 sets
Platform scale	For fish processing : 200lbs	1 set
⑩ Spare parts	For Ice machine, Cold storage, Generator, Push cart and Insulated pick up truck	1 lot

Government of Japan. The contents of the Study are as follows:

a) confirmation of the background, objectives, and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation;
b) evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from the technical, social and economic points of view;
c) confirmation of items agreed on by both parties concerning the basic concept of the Project;
d) preparation of a basic design of the Project; and
e) estimation of costs of the Project

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

2) Selection of Consultants

For smooth implementation of the Study, JICA uses a consulting firm selected through its own procedure (competitive proposal). The selected firm participates the Study and prepares a report based upon terms of reference set by JICA.

At the beginning of implementation after the Exchange of Notes, JICA recommends the same consulting firm which participated in the Study be used for the services of the Detailed Design and Construction Supervision of the Project. This is necessary in order to maintain the technical consistency between the Basic Design and Detailed Design as well as to avoid any undue delay caused by the selection of a new consulting firm.

3. Japan's Grant Aid Scheme

1) What is Grant Aid ?

The Grant Aid Program provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.

2) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

3) "The period of the Grant Aid" means the one fiscal year which the Cabinet approves the project for. Within the fiscal year, all procedures such as exchanging of the Notes, concluding contracts with consulting firms and contractors and final payment to them must be completed.

However in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

4) Under the Grant, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However the prime contractors, namely, consulting, contracting and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

5) Necessity of the "Verification".

The Government of the recipient country or its designated authority will conclude

40

contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

6) Undertaking required to the Government of the recipient country.

a) to secure a lot of land necessary for the construction of the Project and to clear the site;

b) to provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities outside the site;

c) to ensure prompt unloading, tax exemption and customs clearance at ports of disembarkation in the recipient country and internal transportation therein of the products purchased under the Grant Aid.

d) to exempt Japanese nationals from customs duties, internal direct taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts.

e) 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 the recipient country and stay therein for the performance of their work.

f) to ensure that the facilities constructed and products purchased under the Grant Aid be maintained and used properly and effectively for the Project; and

g) to bear all the expenses other than those covered by the Grant Aid, necessary for the Project.

7) "Proper Use"

The recipient country is required to maintain and use the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign the necessary staff for operation and maintenance of them as well as to bear all the expenses other than those covered by the Grant Aid.

8) "Re-export"

The products purchased under the Grant Aid should not be re-exported from the recipient country.

40

9) Banking Arrangements (B/A)

a) The Government of the recipient country or its designated authority should open an account in the name of Government of the recipient country in an authorized foreign exchange bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the verified contracts.

b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an authorization to pay issued by the Government of recipient country or its designated authority.

ANNEX-2 : JAPAN'S GRANT AID SCHEME

1. Grant Aid Procedures

1) The Japan's Grant Aid Program is executed through the following procedures.

Application (Request made by a recipient country)
Study (Basic Design Study conducted by JICA)
Appraisal & Approval (Appraisal by the Government of Japan and Approval by Cabinet)
Determination of Implementation (The Notes exchanged between the Government of Japan and the recipient country)

2) Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid.
If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study), using Japanese consulting firm(s).

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Program, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourth, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Governments of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

2. Basic Design Study

1) Contents of the Study

The aim of the Basic Design Study (hereinafter referred to as "the Study") conducted by JICA on a requested project (hereinafter referred to as "the Project") is to provide a basic document necessary for the appraisal of the Project by the

ANNEX-3: NECESSARY MEASURES TO BE TAKEN BY THE GOVERNMENT OF ANTIGUA AND BARBUDA

The following necessary measures should be taken by the Government of Antigua and Barbuda 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 and to clear the site.

2. To provide facilities for distribution of electricity, water supply, drainage and other incidental facilities outside the site.

3. To ensure prompt unloading, tax exemption and customs clearance at ports of disembarkation in Antigua and Barbuda and internal transportation therein of the products purchased under the Grant Aid.

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

5. 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 Antigua and Barbuda and stay therein for the performance of their work.

6. To maintain and use facilities constructed under the Grant Aid properly and effectively for the Project.

7. To bear all commissions to the Japanese foreign exchange bank for its banking services based upon the Banking Arrangement, namely the advising commission of the "Authorization to Pay" and payment commissions.

8. To bear all the expenses, other than those covered by the Grant Aid, necessary for the Project.

ANNEX-4 : ALTERNATIVE SITES PLAN FOR CONTINUING EXISTING PUBLIC SERVICES (FISHERY WHARF, BUS, TAXI, VENDORS, ETC.)

(1) Fisherman's site

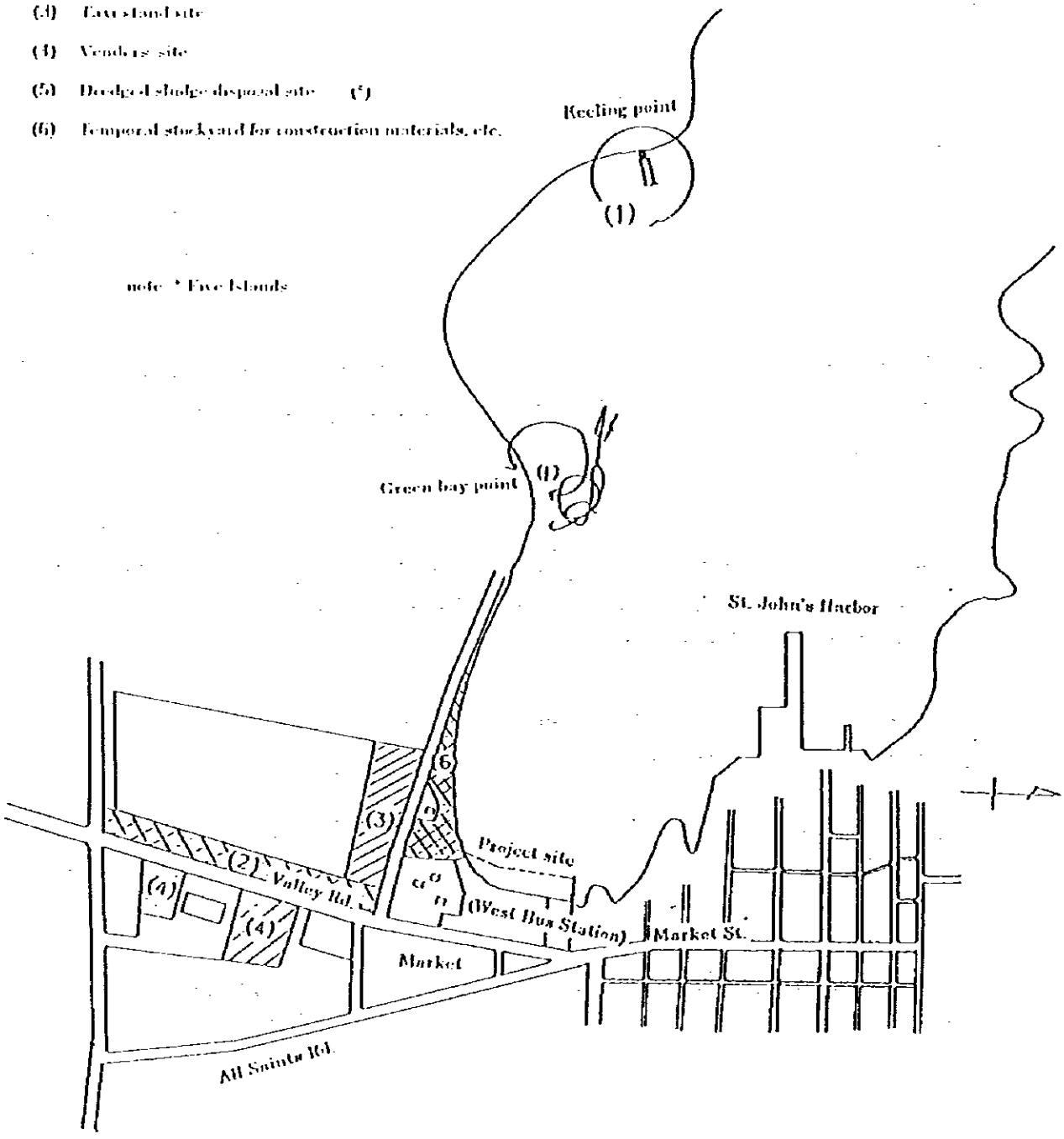
(2) Bus terminal site

(3) Taxi stand site

(4) Vendors' site

(5) Dredged sludge disposal site (*)

(6) Temporal stockyard for construction materials, etc.



5. Cost Estimation Borne by the Recipient Country

Cost Estimated of undertakings required to the Government of Antigua and Barbuda is as follows.

1)	Removal of existing facilities, and site preparation	EC$ 23,000
2)	Connection works of electricity	EC$ 4,500
3)	Connection works of water supply	EC$ 5,800
4)	Connection works of telephone line	EC$ 2,300
5)	Disposal of damping sludge	EC$ 11,300
6)	Preparation of substirute lands (for Fishing activities, continuous services for bus, taxi and small shops)	EC$ 17,000
7)	Others (Bank commission, etc.)	EC$ 29,100
	Total	EC$ 93,000

6. Result of Site Survey Works and Wave Analysis

6 - 1 Result of Site Survey Works (Selection)

REPORT

ON

THE SURVEY WORKS

FOR

THE CONSTRUCTION OF FISH LANDING AND

DISTRIBUTING FACILITIES IN ST. JOHN'S

Job No GA 97 138

Prepared by: Geotech Associates
St. Mary's Street
St. John's
Antigua

for: C R C Overseas Cooperation Inc.
2-7-5 Minamisua
Koto - Ku
Tokyo, Japan

Dated: 29th July 1997

CONTENTS

1. INTRODUCTION

2. DRAWINGS

2.1 Drawing of Land Survey

2.2 Drawing of Sea Bed Survey

3. FACTUAL REPORT ON SOIL INVESTIGATION

3.1 Scope of Work

3.2 Work Progress

3.3 Enclosures

Enclosure 1 Borehole Location Plan

Enclosure 2 Borehole BH 1

Enclosure 3 Borehole BH 2

Enclosure 4 Borehole S 1

Enclosure 5 Borehole S 2

Enclosure 6 Laboratory Test Results

Enclosure 7 Permeability Test Results

4. RESULTS OF MATERIALS INVESTIGATION

4.1 Fill Materials

4.2 Aggregates (stones)

APPENDIX I Copy of Agreement

APPENDIX II Comments on Sea Bed Survey

3. FACTUAL REPORT ON SOIL INVESTIGATION

3.1 Scope of Work

The soil survey consisted of drilling two (2) boreholes on land and two (2) on sea, each taken to 20 m or to refusal. Refusal was defined as five (5) consecutive SPT samples at one (1) meter intervals where N-Values exceeded fifty (50).

Soil sampling was carried at one meter interval in general and where conditions permitted thin walled shelby tube samples (undisturbed) were taken.

Laboratory tests carried out included:-

Density Tests
Natural Water Contents
Liquid & Plastic Limits
Sieve Analysis
Specific Gravity Tests
and Unconfirmed Compression Tests

Two field permeability or percolation tests were also carried out.

3.2 Work Progress

Field work began with the drilling of Borehole BH1 on 16th July, 1997 and ended with Borehole S1 on 22nd July, 1997.

The Boreholes were drilled at predetermined location set by CRC Overseas Inc. Please refer to Enclosure No. 1.

Borehole BH 1 was taken to 20.5m. In Borehole BH 2 refusal was reached at 17.0m. In Borehole S 1 and S 2 refusal was encountered at 6.5m and 8.0m respectively below seabed.

The borings were advanced by washboring techniques using a tripod derrick, on one leg of which was mounted a portable cat head.

One Shelby tube sample was taken all others were SPT's.

Samples were visually identified in the field, logged and sealed in preperation for laboratory testing.

Borehole logs are shown on Enclosures Nos 2 to 5 and the results of laboratory tests are shown on Enclosure No. 6. Some laboratory tests are included on the borehole logs.

Permeability or Percolation Tests

Permeability or Percolation Tests were carried out in BH2 and in a fresh hole near BH 1. It was not possible to carryout the test in BH1 as an extensive area around this borehole was excavated in an attempt to remove the the casing.

Buried Waterline

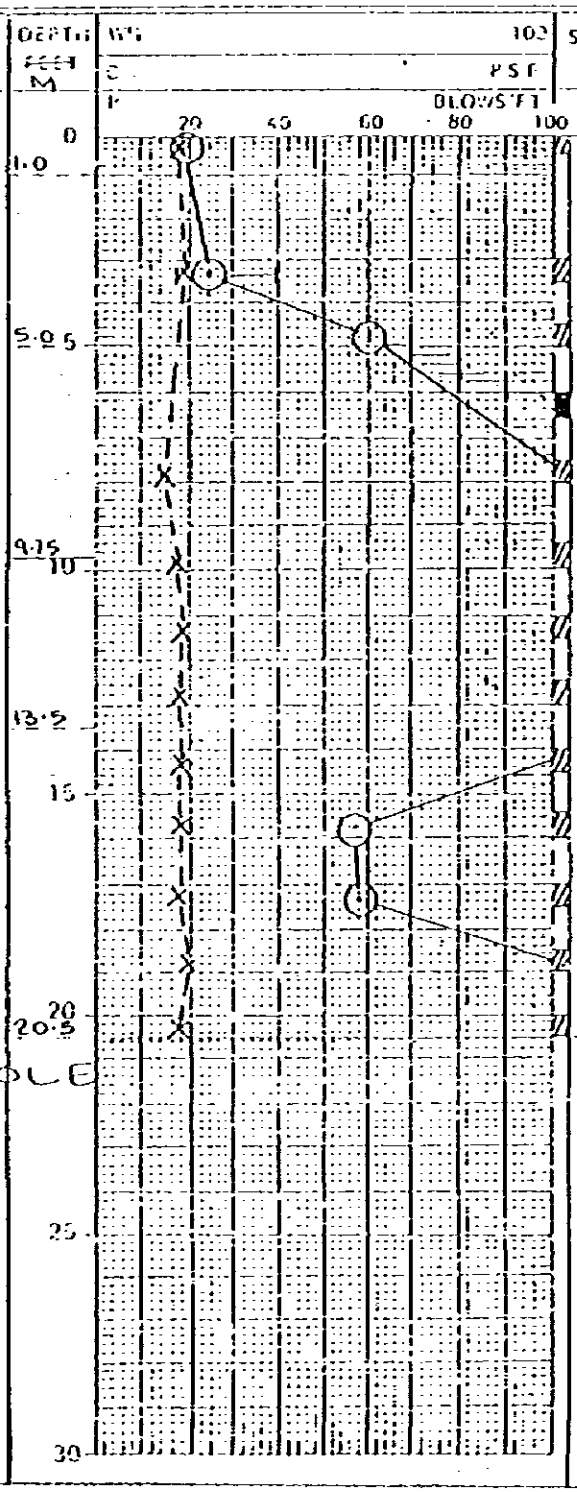
A buried active 3" (75 mm) waterline was encountered near borehole BH1. It was understood that it runs across the site from the AFL building on the bus shed.

REPORT No GA 97138 — GEOTECH ASSOCIATES, TRINIDAD, W.I. — Borehole BH1

Client: CRC Overseas Corp Inc.
Project: ST JOHNS FISHING HARBOUR
Location: ANTIGUA, WEST INDIES
Hole Location: Ref. End. No 1.
Start Date: 16th Jul. 97 Prep.: W.D.
End Date: 17th Jul. 97 Checked: GHL.

LEGEND: Split spoon; Wash sample; Shelby Tube; Core sample; Water Level

Symbol	DESCRIPTION	ELEV. FEET	DEPTH FEET M	Sample No	Dry density per
	GROUND SURFACE		0		
	Compact yellowish br. Clayey crushed STONE / Stiff to V. Stiff Gravelly Silty CLAY, brown.		1.0	1	
				2	
			5.0	3	No recovery
	Hard brown & grey Sandy Silty CLAY with some fine Gravel			4	"
				5	N > 100
			9.75 10	6	"
	Hard light grey & brown Silty CLAY			7	"
				8	"
			13.5	9	"
	Hard reddish br. Sandy Silty CLAY with some Gravel		15	10	
				11	
				12	N > 100
	END OF BOREHOLE		20.5 20	13	"
			25		
			30		



REPORT No GA 97 138 | GEOTECH ASSOCIATES, TRINIDAD, W.I. | Borehole: BH2

Client: CRC Overseas Corp Inc.
Project: ST. JOHN'S FISHING HARBOUR
Location: ANTIGUA, WEST INDIES
Hole Location: Prof. Encl. No 1.
Start Date: 18th Jul. 97 Prep: W.D.
End Date: 19th Jul 97 Checked: G.W.

LEGEND
- Split spoon
- Wash sample
- Shelby Tube
- Core sample
- Water Level

Symbol	DESCRIPTION	ELEV. FEET	DEPTH FEET M	% C P	100 PSF BLOWS/FT. 20 40 60 80 100	Sample No	Dry density pcf
	GROUND SURFACE		0				
	Loose yellowish br. Clayey Silty GRAVEL w. organic		1.8			1 2	
	Firm br. Sandy Silty CLAY w. organic		3.5			3	
	V. Stiff br. & black Silty CLAY w. organic		5			4	
	V. Stiff br. w. reddish grey Sandy Silty CLAY		6.0			5	γ = 166 pcf
	Hard reddish brown becoming whitish grey with depth, Sandy Silty CLAY		8.0 10 15			6 7 8 9 10 11 12	N > 100 " "
	END OF BOREHOLE (REFUSAL)		17.0 20 25 30				

REPORT No GA 97138

GEOTECH ASSOCIATES
TRINIDAD, W.I.

ENCLOSURE No A-1

Borehole S1

Client: CRC Overseas Corp Inc.
Project: ST JOHN'S FISHING HARBOUR
Location: ANTIGUA, WEST INDIES
Hole Location: Ref. Encl. No. 1.
Start Date: 22ND Jul. 97 Prep.: W.D.
End Date: 22ND Jul. 97 Checked: GTH

LEGEND
- Split spoon
- Wash sample
- Shelby Tube
- Core sample
- Water Level

Symbol	DESCRIPTION	ELEV. FEET	DEPTH FEET M	Sample No.	Dry density per
	SEA SURFACE		0		
	SEA WATER		2.75		
	SOFT MUD		3.35		
	Hard reddish br Silty CLAY, initially organic.		5 5.85	1	N > 100
	Hard reddish br. & grey Sandy Silty CLAY		6.85	2 3	N > 100
	Hard reddish br. & grey Silty CLAY, some Gravel.		9.85	4 5	" "
	END OF BOREHOLE (REFUSAL)		10 15 20 25 30		

C P — PSF — BLOWS/FT. 20 40 60 80 100

REPORT No. GA. 97 13B

GEOTECH ASSOCIATES
TRINIDAD, W.I.

ENCLOSURE No. 5

Borehole: 52

Client: CRC Overseas Corp Inc.
Project: ST. JOHN'S FISHING HARBOUR
Location: ANTIGUA, WEST INDIES
Hole Location: Brf. End. No. 1
Start Date: 20th Jul. 97 Prep.: W.D.
End Date: 21st Jul. 97 Checked: GHL

LEGEND
- Split spoon
- Wash sample
- Shelby Tube
- Core sample
- Water Level

Water Content (%)
Plastic and liquid limit water content — — ∘ — —
Shear Strength (C)
Unconfined compressive Vane test and field vane (S) Hand test
Penetration Resistance (P)
2" Split tube
2" Dia. Core
Casing

Symbol	DESCRIPTION	ELEV. FEET	DEPTH FEET M	W% 100 / C P.S.F. / P BLOWS/FT. 20 40 60 80 100	Sample No.	Dry density pcf
	SEA SURFACE		0			
	SOFT MUD		3.35 4.0		1	
	V. Stiff reddish br. Silty CLAY		5 6.0		2	
	Hard reddish br. Silty CLAY		7.5		3	N > 100
	Hard reddish br. Silty CLAY with Sand & Gravel becoming less with depth		10 12.0		4 5 6	" " "
	END OF BOREHOLE (REFUSAL)		15 20 25 30			

4. RESULTS OF MATERIALS INVESTIGATION

4.1 Fill Materials

Please refer to the Map of Antigua Map 4.1 which shows the location of quarries which supply fill materials.

1	Project Location
2	Monroe Spencer, Bendals
3	Geotech Quarry, Burma
4	Government Quarry operated by C.O., Williams
5	Thomas Quarry, Parham Hill

All the above quarries can supply fill in excess of 50.000 cubic meters.

Sieves	Quarry 2.	Quarry 3
2"	100 - 80	100 - 80
3/4"	100 - 50	100 - 50
3/8"	60 - 40	70 - 40
No. 4	45 - 25	60 - 35
No. 16	40 - 20	40 - 30
No. 200	15 - 5	25 - 10
Specific Gravity	2.12	2.52

4.2 Aggregates (Stones)

Aggregates can be obtained from the following sources. Please refer to Map 4.1.

3 Geotech Quarry, Burma

6 Gov't Quarry operated by C. O. Williams, Bendals

7 Antigua Masonry Products (Devcon) Green Castle

8 Jennings Building Products, Jennings

Sources 6 & 7 produce in excess of 300,000 Tonnes per year.

Source: 6, Gov't Quarry, Bendals

Strength (Abrasion Value) 22%

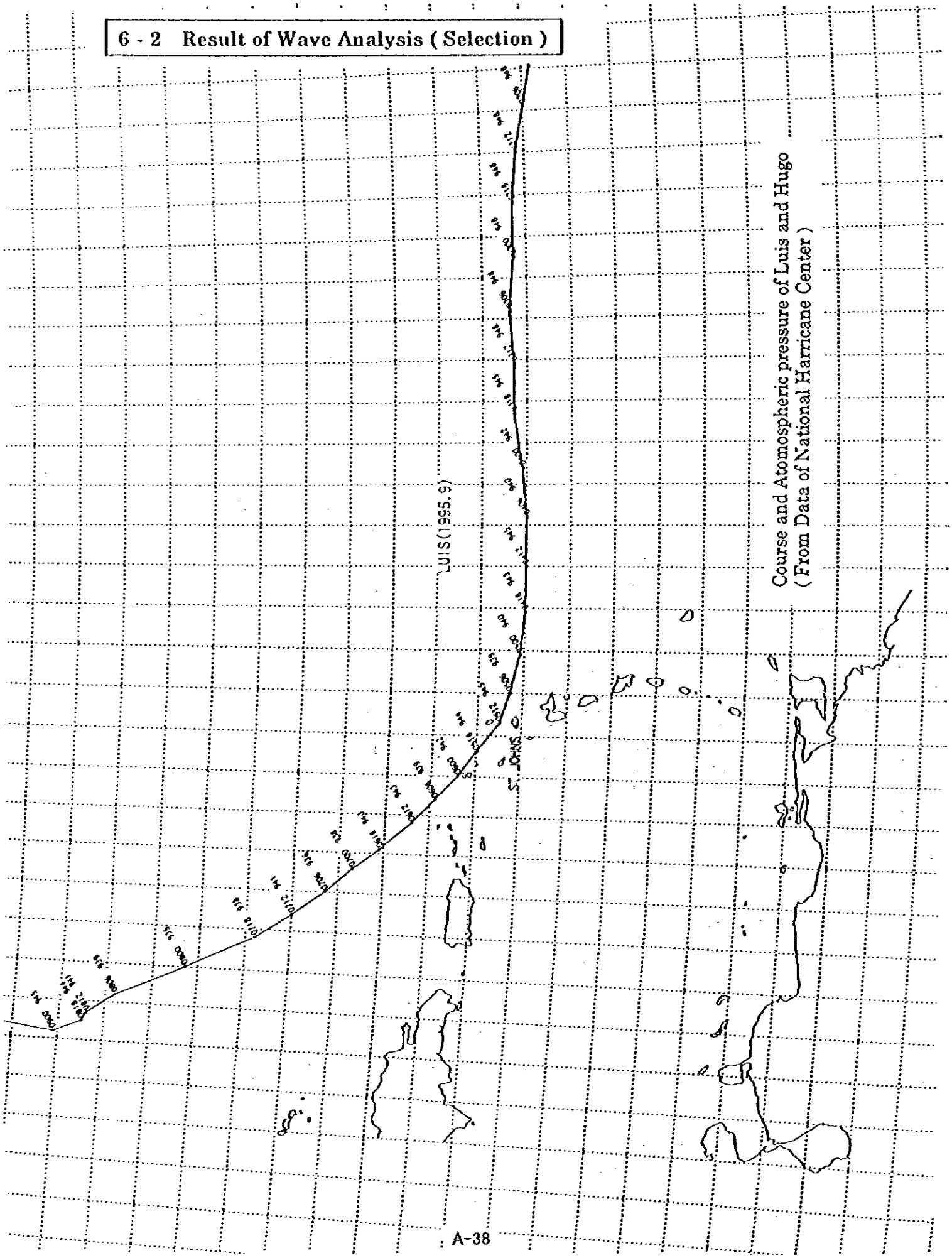
Specific Gravity 2.46 ..... Absorption 5.25%

Source 7, Antigua Masonry Products

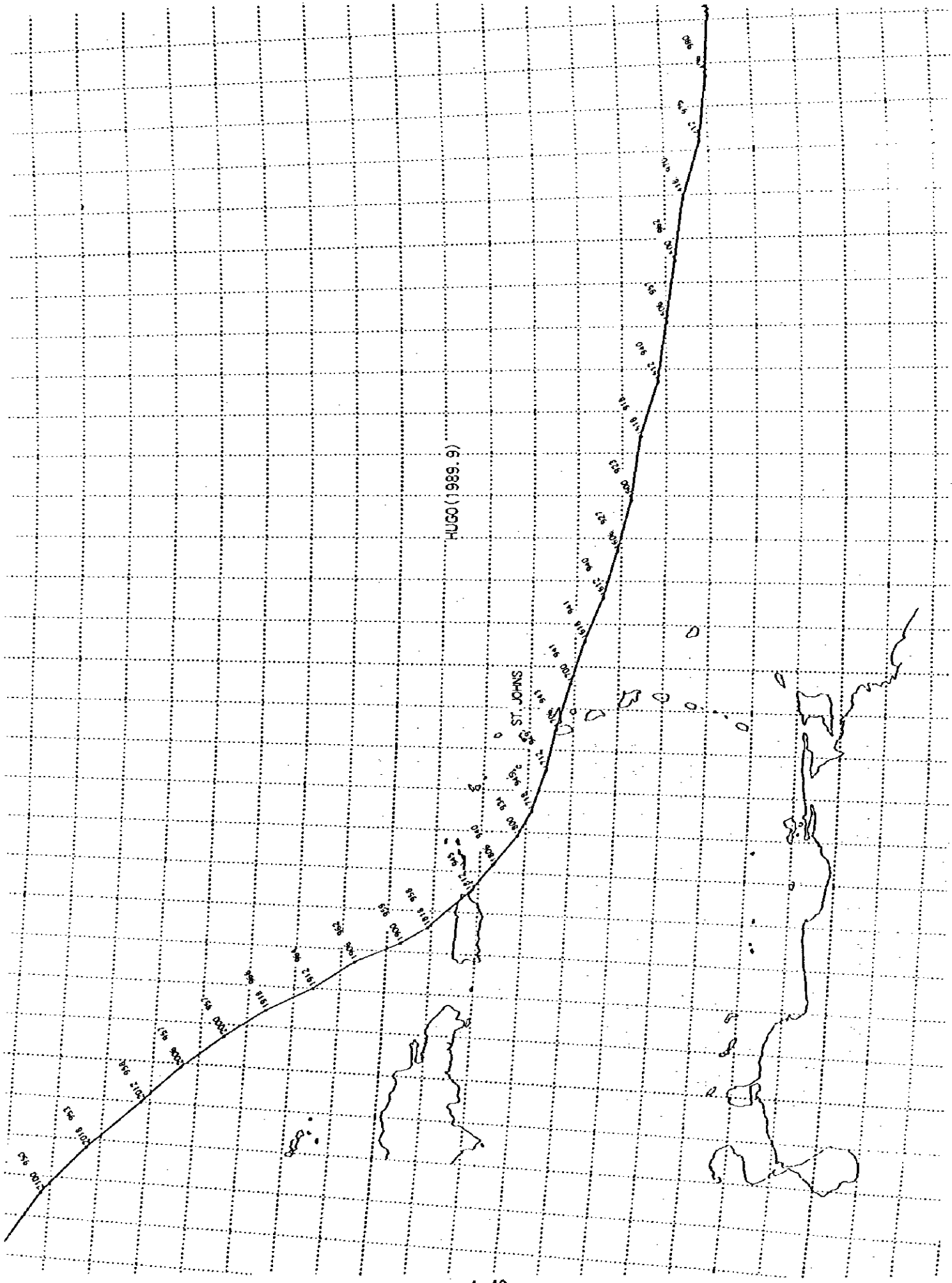
Strength (Abrasion Value) 26%

Specific Gravity 2.6 ..... Absorption 1.75%

6 - 2 Result of Wave Analysis (Selection)



199512	LUIS	1995	8	28	18	11.4	27.5	30 1008
199512	LUIS	1995	8	29	0	11.6	29.0	35 1005
199512	LUIS	1995	8	29	6	11.8	30.5	40 1000
199512	LUIS	1995	8	29	12	12.2	31.9	40 1000
199512	LUIS	1995	8	29	18	12.7	33.1	35 1003
199512	LUIS	1995	8	30	0	13.0	34.2	35 1005
199512	LUIS	1995	8	30	6	13.2	35.3	35 1005
199512	LUIS	1995	8	30	12	13.4	36.2	35 1005
199512	LUIS	1995	8	30	18	13.7	37.0	45 1002
199512	LUIS	1995	8	31	0	14.0	37.9	55 998
199512	LUIS	1995	8	31	6	14.3	38.8	75 992
199512	LUIS	1995	8	31	12	14.6	39.7	80 979
199512	LUIS	1995	8	31	18	15.0	40.7	90 971
199512	LUIS	1995	9	1	0	15.4	41.7	100 965
199512	LUIS	1995	9	1	6	15.8	42.6	105 958
199512	LUIS	1995	9	1	12	16.2	43.6	115 950
199512	LUIS	1995	9	1	18	16.5	44.7	115 948
199512	LUIS	1995	9	2	0	16.8	45.8	115 948
199512	LUIS	1995	9	2	6	17.0	46.9	115 948
199512	LUIS	1995	9	2	12	17.2	48.0	120 948
199512	LUIS	1995	9	2	18	17.3	49.2	120 948
199512	LUIS	1995	9	3	0	17.3	50.5	120 948
199512	LUIS	1995	9	3	6	17.4	51.8	120 948
199512	LUIS	1995	9	3	12	17.3	53.1	120 948
199512	LUIS	1995	9	3	18	17.3	54.3	125 945
199512	LUIS	1995	9	4	0	17.1	55.6	125 942
199512	LUIS	1995	9	4	6	17.0	56.8	130 940
199512	LUIS	1995	9	4	12	17.0	58.0	130 945
199512	LUIS	1995	9	4	18	17.0	59.1	125 943
199512	LUIS	1995	9	5	0	17.1	60.1	125 940
199512	LUIS	1995	9	5	6	17.3	61.0	120 939
199512	LUIS	1995	9	5	12	17.5	61.7	115 945
199512	LUIS	1995	9	5	18	18.0	62.4	115 944
199512	LUIS	1995	9	6	0	18.4	63.0	115 942
199512	LUIS	1995	9	6	6	18.9	63.6	120 939
199512	LUIS	1995	9	6	12	19.4	64.2	120 943
199512	LUIS	1995	9	6	18	20.1	64.9	125 940
199512	LUIS	1995	9	7	0	20.7	65.4	125 938
199512	LUIS	1995	9	7	6	21.3	66.0	120 936
199512	LUIS	1995	9	7	12	22.0	66.6	115 941
199512	LUIS	1995	9	7	18	22.8	67.2	115 938
199512	LUIS	1995	9	8	0	24.3	68.0	115 935
199512	LUIS	1995	9	8	6	25.8	68.8	115 939
199512	LUIS	1995	9	8	12	26.4	69.3	110 941
199512	LUIS	1995	9	8	18	26.5	69.5	105 944
199512	LUIS	1995	9	9	0	27.1	69.8	100 945
199512	LUIS	1995	9	9	6	29.1	69.5	95 949
199512	LUIS	1995	9	9	12	31.0	69.1	90 952
199512	LUIS	1995	9	9	18	32.7	68.6	85 955
199512	LUIS	1995	9	10	0	34.5	67.2	85 959
199512	LUIS	1995	9	10	6	36.5	65.4	85 963
199512	LUIS	1995	9	10	12	38.4	63.7	85 961
199512	LUIS	1995	9	10	18	40.9	60.9	85 966
199512	LUIS	1995	9	11	0	43.9	57.7	95 965
199512	LUIS	1995	9	11	6	47.1	54.2	105 963
199512	LUIS	1995	9	11	12	51.5	48.5	90 960
199512	LUIS	1995	9	11	18	55.0	46.0	75 958
199512	LUIS	1995	9	12	0	57.0	45.0	60 955
199512	LUIS	1995	9	12	6	58.0	44.0	60 950
199512	LUIS	1995	9	12	12	59.0	42.0	60 955
199512	LUIS	1995	9	12	18	60.0	40.0	50 960


HUGO(1989.9)
ST.JOHNS

198908	HUGO	1989	9	10	12	13.2	20.0	25	1010
198908	HUGO	1989	9	10	18	13.3	21.8	25	1010
198908	HUGO	1989	9	11	0	13.2	23.7	30	1009
198908	HUGO	1989	9	11	6	13.0	25.5	30	1007
198908	HUGO	1989	9	11	12	12.8	27.3	30	1005
198908	HUGO	1989	9	11	18	12.5	29.2	35	1003
198908	HUGO	1989	9	12	0	12.5	31.0	40	1002
198908	HUGO	1989	9	12	6	12.5	32.9	45	1000
198908	HUGO	1989	9	12	12	12.5	34.8	45	998
198908	HUGO	1989	9	12	18	12.6	36.7	50	996
198908	HUGO	1989	9	13	0	12.6	38.2	55	994
198908	HUGO	1989	9	13	6	12.7	40.0	55	992
198908	HUGO	1989	9	13	12	12.8	41.8	60	990
198908	HUGO	1989	9	13	18	12.8	43.5	65	987
198908	HUGO	1989	9	14	0	12.9	44.9	70	984
198908	HUGO	1989	9	14	6	13.0	46.3	80	980
198908	HUGO	1989	9	14	12	13.2	47.8	85	975
198908	HUGO	1989	9	14	18	13.6	49.1	90	970
198908	HUGO	1989	9	15	0	13.8	50.5	100	962
198908	HUGO	1989	9	15	6	14.0	51.9	110	957
198908	HUGO	1989	9	15	12	14.2	53.3	125	940
198908	HUGO	1989	9	15	18	14.6	54.6	140	918
198908	HUGO	1989	9	16	0	14.8	56.1	135	923
198908	HUGO	1989	9	16	6	15.1	57.3	130	927
198908	HUGO	1989	9	16	12	15.4	58.4	120	940
198908	HUGO	1989	9	16	18	15.8	59.4	120	941
198908	HUGO	1989	9	17	0	16.1	60.4	120	941
198908	HUGO	1989	9	17	6	16.4	61.5	120	943
198908	HUGO	1989	9	17	12	16.6	62.5	125	949
198908	HUGO	1989	9	17	18	16.9	63.5	125	945
198908	HUGO	1989	9	18	0	17.2	64.1	130	934
198908	HUGO	1989	9	18	6	17.7	64.8	120	940
198908	HUGO	1989	9	18	12	18.2	65.5	110	945
198908	HUGO	1989	9	18	18	19.1	66.4	105	958
198908	HUGO	1989	9	19	0	19.7	66.8	100	959
198908	HUGO	1989	9	19	6	20.7	67.3	90	962
198908	HUGO	1989	9	19	12	21.6	68.0	90	964
198908	HUGO	1989	9	19	18	22.6	68.6	90	966
198908	HUGO	1989	9	20	0	23.5	69.3	90	957
198908	HUGO	1989	9	20	6	24.4	70.1	90	957
198908	HUGO	1989	9	20	12	25.2	71.0	95	958
198908	HUGO	1989	9	20	18	26.3	72.2	95	953
198908	HUGO	1989	9	21	0	27.2	73.4	100	950
198908	HUGO	1989	9	21	6	28.0	74.9	100	950
198908	HUGO	1989	9	21	12	29.0	76.1	110	948
198908	HUGO	1989	9	21	18	30.2	77.5	120	944
198908	HUGO	1989	9	22	0	31.7	78.8	120	935
198908	HUGO	1989	9	22	6	33.5	80.3	85	952
198908	HUGO	1989	9	22	12	35.9	81.7	55	975
198908	HUGO	1989	9	22	18	38.5	81.8	40	987
198908	HUGO	1989	9	23	0	42.2	80.2	35	988
198908	HUGO	1989	9	23	6	46.0	74.5	40	990
198908	HUGO	1989	9	23	12	49.0	69.0	40	992
198908	HUGO	1989	9	23	18	51.0	65.0	40	993
198908	HUGO	1989	9	24	0	52.0	62.0	40	994
198908	HUGO	1989	9	24	6	52.5	60.5	40	993
198908	HUGO	1989	9	24	12	53.0	59.5	40	991
198908	HUGO	1989	9	24	18	53.5	58.5	40	989
198908	HUGO	1989	9	25	0	54.0	57.0	40	983
198908	HUGO	1989	9	25	6	56.0	52.0	40	979
198908	HUGO	1989	9	25	12	58.0	46.0	40	974

LUIS

YYMMDDHH	Lat	Long	Pc			R992
95 9 3 0	17.3	50.5	948.	0.	0.	180.
95 9 3 6	17.4	51.8	948.	0.	0.	180.
95 9 312	17.3	53.1	948.	0.	0.	180.
95 9 318	17.3	54.3	945.	0.	0.	180.
95 9 4 0	17.1	55.6	942.	0.	0.	180.
95 9 4 6	17.0	56.8	940.	0.	0.	180.
95 9 412	17.0	58.0	945.	0.	0.	180.
95 9 418	17.0	59.1	943.	0.	0.	180.
95 9 5 0	17.1	60.1	940.	0.	0.	180.
95 9 5 6	17.3	61.0	939.	0.	0.	180.
95 9 512	17.5	61.7	945.	0.	0.	180.
95 9 518	18.0	62.4	944.	0.	0.	180.
95 9 6 0	18.4	63.0	942.	0.	0.	180.
95 9 6 6	18.9	63.6	939.	0.	0.	180.
95 9 612	19.4	64.2	943.	0.	0.	180.
95 9 618	20.1	64.9	940.	0.	0.	180.
95 9 7 0	20.7	65.4	938.	0.	0.	180.
95 9 7 6	21.3	66.0	936.	0.	0.	180.
95 9 712	22.0	66.6	941.	0.	0.	180.
95 9 718	22.8	67.2	938.	0.	0.	180.

C1 = 0.70 C2 = 0.70

Results of Wave Calculation

LUIS

No.1 (17.28, 63.9N)

c1 = 0.70 c2 = 0.70

	Max. wave			Max. swell			WNW				NW				NNW				N			
MMDDHH	Wo	Hw	Tw	Wo	Hs	Ts	Hw	Tw	Hs	Ts	Hw	Tw	Hs	Ts	Hw	Tw	Hs	Ts	Hw	Tw	Hs	Ts
90419	N	30	68		0	0	16	49	0	0	21	55	0	0	27	64	0	0	30	68	0	0
90420	N	32	70		0	0	17	50	0	0	23	58	0	0	28	65	0	0	32	70	0	0
90421	N	35	73		0	0	19	52	0	0	23	59	0	0	31	67	0	0	35	73	0	0
90422	N	37	75		0	0	20	54	0	0	25	61	0	0	33	69	0	0	37	75	0	0
90423	N	39	77		0	0	22	56	0	0	26	62	0	0	35	72	0	0	39	77	0	0
90424	N	42	80		0	0	24	58	0	0	28	64	0	0	36	73	0	0	42	80	0	0
90501	N	45	82		0	0	25	60	0	0	30	66	0	0	39	75	0	0	45	82	0	0
90502	N	47	84		0	0	27	62	0	0	32	69	0	0	41	76	0	0	47	84	0	0
90503	N	50	86		0	0	29	63	0	0	35	71	0	0	43	78	0	0	50	86	0	0
90504	N	53	88		0	0	32	66	0	0	37	72	0	0	46	81	0	0	53	88	0	0
90505	N	56	90		0	0	35	68	0	0	40	75	0	0	49	83	0	0	56	90	0	0
90506	N	58	92		0	0	38	71	0	0	42	76	0	0	51	84	0	0	58	92	0	0
90507	N	59	93		0	0	42	74	0	0	45	79	0	0	54	87	0	0	59	93	0	0
90508	N	60	94		0	0	45	76	0	0	47	79	0	0	55	88	0	0	60	94	0	0
90509	N	61	94		0	0	46	78	0	0	50	83	0	0	57	89	0	0	61	94	0	0
90510	N	61	94	N	57	96	48	79	0	0	51	83	0	0	58	90	0	0	61	94	57	96
90511	NNW	58	90	N	56	97	47	79	0	0	52	85	0	0	58	90	0	0	30	59	56	97
90512	NNW	57	90	NNW	56	90	45	78	0	0	52	85	0	0	57	90	56	90	0	0	55	98
90513	NW	50	84	N	55	98	43	77	0	0	50	84	47	83	0	0	54	90	0	0	55	98
90514	WNW	39	75	N	53	96	39	75	0	0	0	0	48	84	0	0	51	90	0	0	53	96
90515	WNW	36	72	N	49	95	36	72	35	72	0	0	45	84	0	0	46	89	0	0	49	95
90516	WNW	10	35	NW	43	85	10	35	33	80	0	0	43	85	0	0	41	87	0	0	41	91
90517		0	0	NW	42	85	0	0	36	83	0	0	42	85	0	0	37	86	0	0	36	88
90518		0	0	WNW	37	85	0	0	37	85	0	0	37	84	0	0	32	83	0	0	32	85
90519		0	0	WNW	38	87	0	0	38	87	0	0	35	84	0	0	29	81	0	0	28	83
90520		0	0	WNW	39	87	0	0	39	87	0	0	33	85	0	0	26	80	0	0	25	81
90521		0	0	WNW	39	89	0	0	39	89	0	0	34	85	0	0	23	77	0	0	22	78
90522		0	0	WNW	39	89	0	0	39	89	0	0	32	84	0	0	21	75	0	0	20	76
90523		0	0	WNW	39	90	0	0	39	90	0	0	30	84	0	0	19	74	0	0	18	73
90524		0	0	WNW	38	92	0	0	38	92	0	0	28	83	0	0	17	72	0	0	17	73
90601		0	0	WNW	38	93	0	0	38	93	0	0	27	84	0	0	16	71	0	0	15	71
90602		0	0	WNW	38	94	0	0	38	94	0	0	28	85	0	0	14	69	0	0	13	69
90603		0	0	WNW	37	95	0	0	37	95	0	0	27	86	0	0	13	67	0	0	12	68
90604		0	0	WNW	36	95	0	0	36	95	0	0	24	84	0	0	12	66	0	0	12	67
90605		0	0	WNW	36	95	0	0	36	95	0	0	22	83	0	0	11	65	0	0	11	65
90606		0	0	WNW	35	97	0	0	35	97	0	0	22	81	0	0	10	63	0	0	10	63
90607		0	0	WNW	35	97	0	0	35	97	0	0	21	82	0	0	9	62	0	0	9	62
90608		0	0	WNW	34	97	0	0	34	97	0	0	21	82	0	0	9	61	0	0	9	62
90609		0	0	WNW	34	98	0	0	34	98	0	0	20	82	0	0	8	60	0	0	8	60
90610		0	0	WNW	33	98	0	0	33	98	0	0	19	81	0	0	8	59	0	0	8	59
90611		0	0	WNW	33	98	0	0	33	98	0	0	17	80	0	0	7	59	0	0	7	58
90612		0	0	WNW	32	99	0	0	32	99	0	0	16	78	0	0	7	58	0	0	6	58
90613		0	0	WNW	32	99	0	0	32	99	0	0	16	80	0	0	6	57	0	0	6	56
90614		0	0	WNW	31	99	0	0	31	99	0	0	17	80	0	0	6	56	0	0	5	55
90615		0	0	WNW	30	99	0	0	30	99	0	0	17	80	0	0	6	55	0	0	5	55

Wo: Wave direction

Wave : Hw(0.1m), Tw(0.1s)
Swell : Hs(0.1m), Ts(0.1s)

LUIS

YYMMDDHH	Lat	Long	Pc			r992
95 9 3 0	17.3	50.5	948.	0.	0.	180.
95 9 3 6	17.4	51.8	948.	0.	0.	180.
95 9 312	17.3	53.1	948.	0.	0.	180.
95 9 318	17.3	54.3	945.	0.	0.	180.
95 9 4 0	17.1	55.6	942.	0.	0.	180.
95 9 4 6	17.0	56.8	940.	0.	0.	180.
95 9 412	17.0	58.0	945.	0.	0.	180.
95 9 418	17.0	59.1	943.	0.	0.	180.
95 9 5 0	17.1	60.1	940.	0.	0.	180.
95 9 5 6	17.3	61.0	939.	0.	0.	180.
95 9 512	17.5	61.7	945.	0.	0.	180.
95 9 518	18.0	62.4	944.	0.	0.	180.
95 9 6 0	18.4	63.0	942.	0.	0.	180.
95 9 6 6	18.9	63.6	939.	0.	0.	180.
95 9 612	19.4	64.2	943.	0.	0.	180.
95 9 618	20.1	64.9	940.	0.	0.	180.
95 9 7 0	20.7	65.4	938.	0.	0.	180.
95 9 7 6	21.3	66.0	936.	0.	0.	180.
95 9 712	22.0	66.6	941.	0.	0.	180.
95 9 718	22.8	67.2	938.	0.	0.	180.

c1 = 0.70 c2 = 0.70

Results of Wave Calculation

LUIS

No.1 (17.2N, 61.9W)

c1 = 0.70 c2 = 0.70

	Max. wave			Max. swell			NNE				NE				ENE							
MMDDHH	Wo	Hw	Tw	Wo	Hs	Ts	Hw	Tw	Hs	Ts	Hw	Tw	Hs	Ts	Hw	Tw	Hs	Ts	Hw	Tw	Hs	Ts
90416	NNE	20	58		0	0	20	58	0	0	9	39	0	0	0	0	0	0	0	0	0	0
90417	NNE	23	61		0	0	23	61	0	0	10	42	0	0	0	0	0	0	0	0	0	0
90418	NNE	24	63		0	0	24	63	0	0	12	46	0	0	0	0	0	0	0	0	0	0
90419	NNE	27	66		0	0	27	66	0	0	15	51	0	0	0	0	0	0	0	0	0	0
90420	NNE	29	69		0	0	29	69	0	0	18	55	0	0	0	0	0	0	0	0	0	0
90421	NNE	33	73	NE	23	64	33	73	0	0	21	60	23	64	0	0	0	0	0	0	0	0
90422	NNE	35	75	ENE	56	121	35	75	0	0	21	58	28	72	0	0	56	121	0	0	0	0
90423	NNE	39	78	ENE	64	125	39	78	0	0	21	57	34	79	0	0	64	125	0	0	0	0
90424	NNE	42	82	ENE	70	128	42	82	0	0	20	55	41	87	0	0	70	128	0	0	0	0
90501	NNE	46	85	ENE	74	129	46	85	0	0	21	56	48	94	0	0	74	129	0	0	0	0
90502	NNE	50	88	ENE	80	130	50	88	0	0	19	52	53	98	0	0	80	130	0	0	0	0
90503	NNE	53	91	ENE	85	131	53	91	0	0	20	53	59	102	0	0	85	131	0	0	0	0
90504	NNE	57	93	ENE	87	131	57	93	0	0	21	54	64	105	0	0	87	131	0	0	0	0
90505	NNE	61	96	ENE	90	132	61	96	0	0	14	43	70	109	0	0	90	132	0	0	0	0
90506	NNE	64	98	ENE	92	133	64	98	0	0	14	43	74	212	0	0	92	131	0	0	0	0
90507	NNE	68	100	ENE	94	131	68	100	0	0	0	0	79	115	0	0	94	131	0	0	0	0
90508	NNE	69	101	ENE	92	130	69	101	70	103	0	0	82	116	0	0	92	130	0	0	0	0
90509	NNE	35	65	ENE	89	128	35	65	72	105	0	0	84	117	0	0	89	128	0	0	0	0
90510	NNE	35	65	ENE	84	125	35	65	72	105	0	0	84	117	0	0	84	125	0	0	0	0
90511		0	0	NE	80	116	0	0	72	105	0	0	80	116	0	0	75	121	0	0	0	0
90512		0	0	NE	72	113	0	0	68	105	0	0	72	113	0	0	68	116	0	0	0	0
90513		0	0	NE	67	110	0	0	65	104	0	0	67	110	0	0	59	111	0	0	0	0
90514		0	0	NNE	60	102	0	0	60	102	0	0	57	106	0	0	52	107	0	0	0	0
90515		0	0	NNE	51	99	0	0	51	99	0	0	50	101	0	0	46	103	0	0	0	0
90516		0	0	NE	43	96	0	0	43	95	0	0	43	96	0	0	41	100	0	0	0	0
90517		0	0	ENE	39	98	0	0	38	92	0	0	38	94	0	0	39	98	0	0	0	0
90518		0	0	NE	36	92	0	0	33	89	0	0	36	92	0	0	34	94	0	0	0	0
90519		0	0	ENE	32	93	0	0	29	85	0	0	32	90	0	0	32	93	0	0	0	0
90520		0	0	ENE	29	90	0	0	25	83	0	0	28	87	0	0	29	90	0	0	0	0
90521		0	0	NE	26	85	0	0	22	82	0	0	26	85	0	0	25	88	0	0	0	0
90522		0	0	ENE	25	87	0	0	21	79	0	0	23	83	0	0	25	87	0	0	0	0
90523		0	0	NE	22	81	0	0	17	76	0	0	22	81	0	0	21	85	0	0	0	0
90524		0	0	ENE	21	85	0	0	17	75	0	0	20	80	0	0	21	85	0	0	0	0

Wo: Wave direction

Wave : Hw(0.1m), Tw(0.1s)
Swell : Hs(0.1m), Ts(0.1s)

HUGO

YYMMDDHH	Lat	Long	Pc			r992
89 915 0	13.8	50.5	962.	0.	0.	230.
89 915 6	14.0	51.9	957.	0.	0.	230.
89 91512	14.2	53.3	940.	0.	0.	230.
89 91518	14.6	54.6	918.	0.	0.	230.
89 916 0	14.8	56.1	923.	0.	0.	230.
89 916 6	15.1	57.3	927.	0.	0.	230.
89 91612	15.4	58.4	940.	0.	0.	230.
89 91618	15.8	59.4	941.	0.	0.	230.
89 917 0	16.1	60.4	941.	0.	0.	230.
89 917 6	16.4	61.5	943.	0.	0.	230.
89 91712	16.6	62.5	949.	0.	0.	230.
89 91718	16.9	63.5	945.	0.	0.	230.
89 918 0	17.2	64.1	934.	0.	0.	230.
89 918 6	17.7	64.8	940.	0.	0.	230.
89 91812	18.2	65.5	945.	0.	0.	230.
89 91818	19.1	66.4	958.	0.	0.	230.
89 919 0	19.7	66.8	959.	0.	0.	230.
89 919 6	20.7	67.3	962.	0.	0.	230.
89 91912	21.6	68.0	964.	0.	0.	230.
89 91918	22.6	68.6	966.	0.	0.	230.

c1 = 0.70 c2 = 0.70

Results of Wave Calculation

HUGO

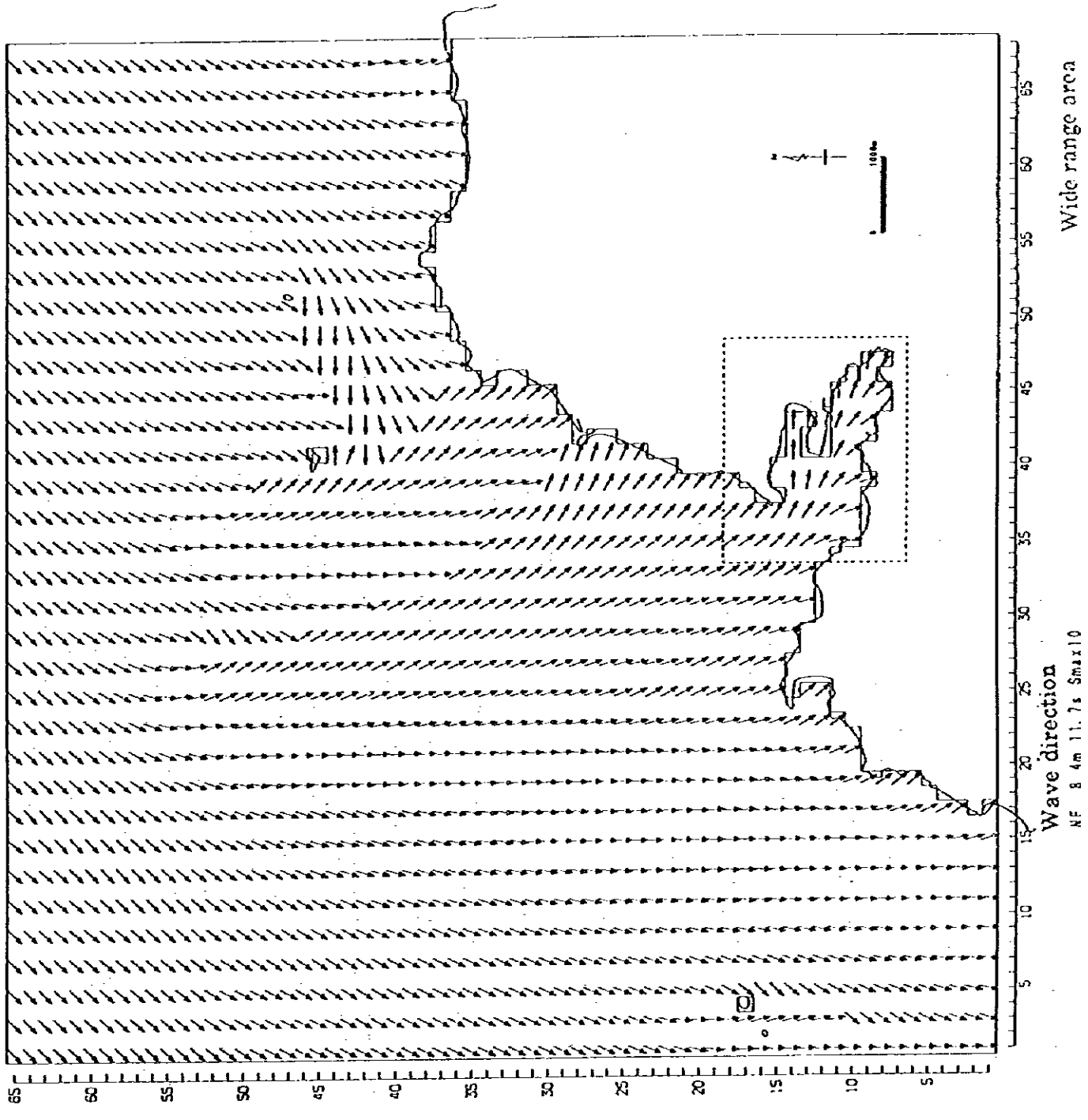
No.1 (17.2N, 61.9W)

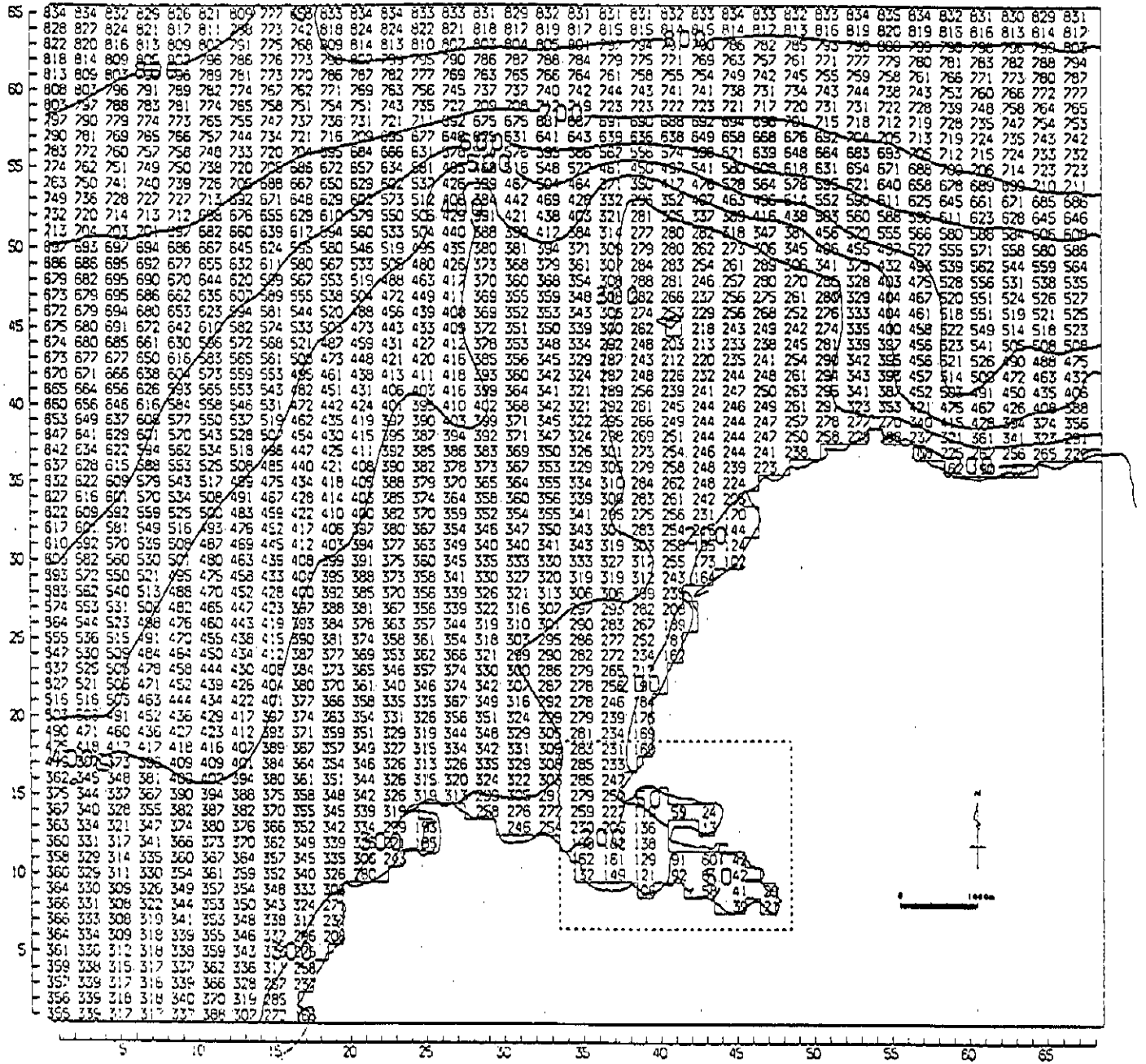
c1 = 0.70 c2 = 0.70

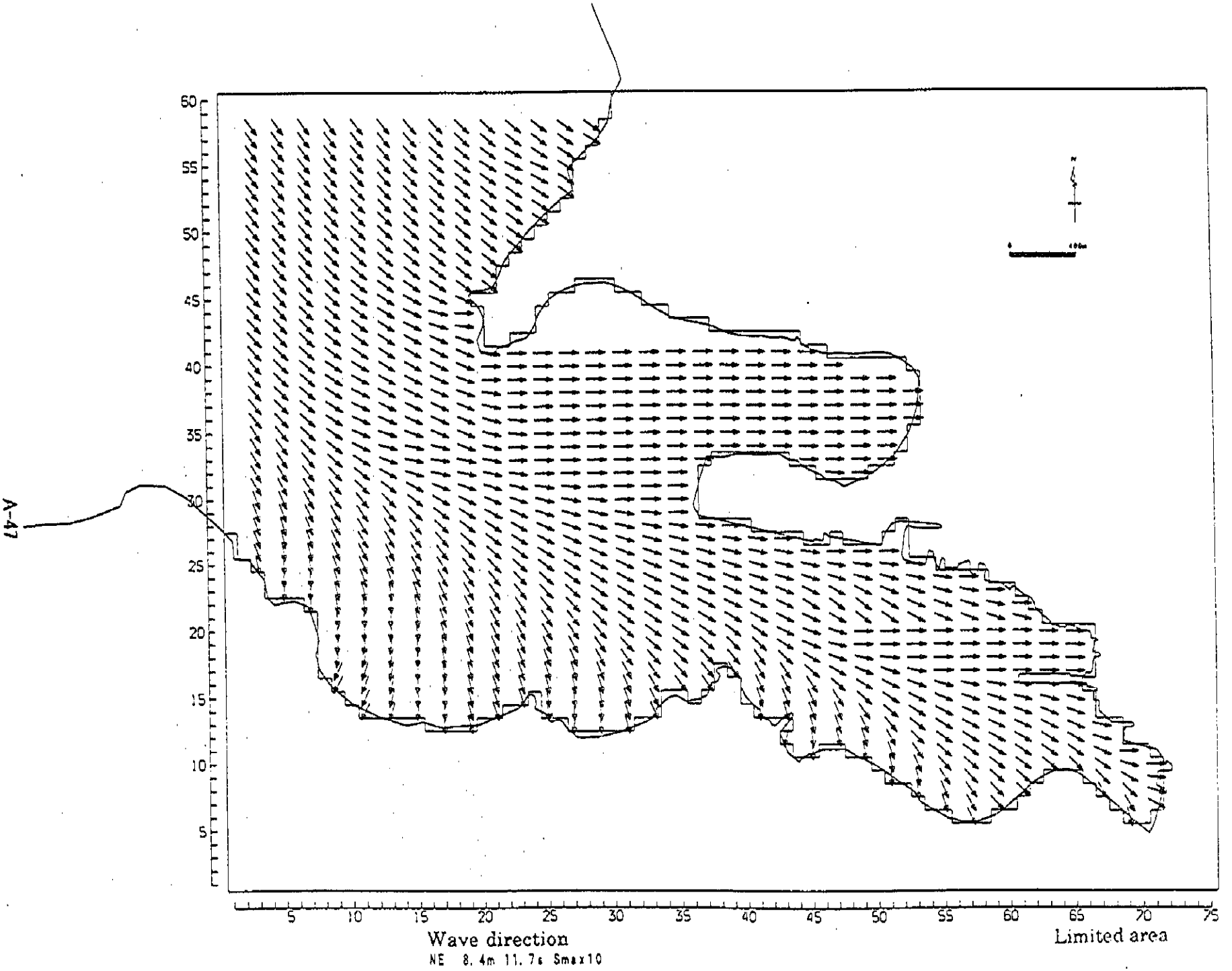
	Max. wave			Max. swell			N				NNE				NE				ENE			
MMDDHH	Wo	Hw	Tw	Wo	Hs	Ts	Hw	Tw	Hs	Ts	Hw	Tw	Hs	Ts	Hw	Tw	Hs	Ts	Hw	Tw	Hs	Ts
91610	N	21	56		0	0	21	56	0	0	20	57	0	0	16	52	0	0	0	0	0	0
91611	N	22	58		0	0	22	58	0	0	21	58	0	0	17	54	0	0	6	31	0	0
91612	NNE	23	60		0	0	23	59	0	0	23	60	0	0	19	56	0	0	8	36	0	0
91613	NNE	24	62		0	0	24	61	0	0	24	62	0	0	21	59	0	0	8	37	0	0
91614	NNE	26	64		0	0	26	63	0	0	26	64	0	0	23	62	0	0	10	42	0	0
91615	NNE	28	66		0	0	27	64	0	0	28	66	0	0	26	65	0	0	11	44	0	0
91616	NNE	30	69		0	0	29	66	0	0	30	69	0	0	28	67	0	0	13	48	0	0
91617	NNE	32	71		0	0	30	67	0	0	32	71	0	0	29	69	0	0	16	52	0	0
91618	NNE	35	73		0	0	33	70	0	0	35	73	0	0	33	73	0	0	21	60	0	0
91619	NNE	37	75		0	0	34	71	0	0	37	75	0	0	35	75	0	0	26	67	0	0
91620	NNE	39	77		0	0	36	73	0	0	39	77	0	0	39	79	0	0	33	75	0	0
91621	NE	43	82		0	0	38	75	0	0	41	79	9	0	43	82	0	0	39	81	0	0
91622	NE	46	85		0	0	40	76	0	0	44	81	0	0	46	85	0	0	45	88	0	0
91623	ENE	53	94		0	0	42	78	0	0	47	83	0	0	50	89	0	0	53	94	0	0
91624	ENE	59	99		0	0	44	80	0	0	50	86	0	0	54	92	0	0	59	99	0	0
91701	ENE	66	104		0	0	46	82	0	0	52	88	0	0	59	95	0	0	66	104	0	0
91702	ENE	73	108		0	0	48	83	0	0	56	90	0	0	64	98	0	0	73	108	0	0
91703	ENE	79	112		0	0	49	84	0	0	58	92	0	0	69	101	0	0	79	112	0	0
91704	ENE	85	115		0	0	50	85	0	0	61	94	0	0	73	104	0	0	85	115	0	0
91705	ENE	91	118		0	0	50	85	0	0	62	95	0	0	76	106	0	0	91	118	0	0
91706	ENE	95	120		0	0	49	85	0	0	64	96	0	0	78	107	0	0	95	120	0	0
91707	ENE	97	121		0	0	47	83	0	0	64	96	0	0	79	108	0	0	97	121	0	0
91708	ENE	98	121		0	0	43	81	0	0	62	95	0	0	79	108	0	0	98	121	0	0
91709	ENE	97	121	N	35	80	39	78	35	80	60	94	0	0	78	107	0	0	97	121	0	0
91710	ENE	94	118	N	33	79	0	0	33	79	55	91	0	0	75	106	0	0	94	118	0	0
91711	ENE	89	117	NNE	47	87	0	0	30	78	50	87	47	87	69	103	0	0	89	117	0	0
91712	ENE	82	113	NNE	43	85	0	0	28	76	0	0	43	85	63	99	0	0	82	113	0	0
91713	ENE	75	109	NE	53	93	0	0	25	74	0	0	37	84	57	95	53	93	75	109	0	0
91714	ENE	69	105	NE	50	93	0	0	21	73	0	0	33	82	0	0	50	91	69	105	0	0
91715	ENE	62	102	NE	45	91	0	0	20	71	0	0	30	81	20	50	45	91	62	102	0	0
91716	ENE	57	96	NE	40	88	0	0	18	70	0	0	27	79	0	0	40	88	57	96	0	0
91717	ENE	52	94	ENE	50	93	0	0	16	69	0	0	23	78	0	0	34	86	52	94	50	93
91718	ENE	19	50	ENE	46	92	0	0	14	67	0	0	21	77	0	0	31	84	19	50	46	92
91719	ENE	15	45	ENE	42	91	0	0	13	66	0	0	19	75	0	0	27	82	15	45	42	91
91720		0	0	ENE	38	89	0	0	13	65	0	0	17	73	0	0	26	82	0	0	38	89
91721	ENE	12	41	ENE	34	87	0	0	11	64	0	0	16	71	0	0	23	80	12	41	34	87
91722		0	0	ENE	32	86	0	0	11	63	0	0	14	69	0	0	22	78	0	0	32	86
91723		0	0	ENE	29	84	0	0	10	62	0	0	13	68	0	0	20	76	0	0	29	84
91724		0	0	ENE	27	83	0	0	9	61	0	0	11	67	0	0	18	75	0	0	27	83
91801		0	0	ENE	24	81	0	0	8	60	0	0	12	67	0	0	18	74	0	0	24	81
91802		0	0	ENE	23	80	0	0	8	59	0	0	11	65	0	0	16	72	0	0	23	80
91803		0	0	ENE	21	78	0	0	7	58	0	0	10	64	0	0	15	71	0	0	21	78

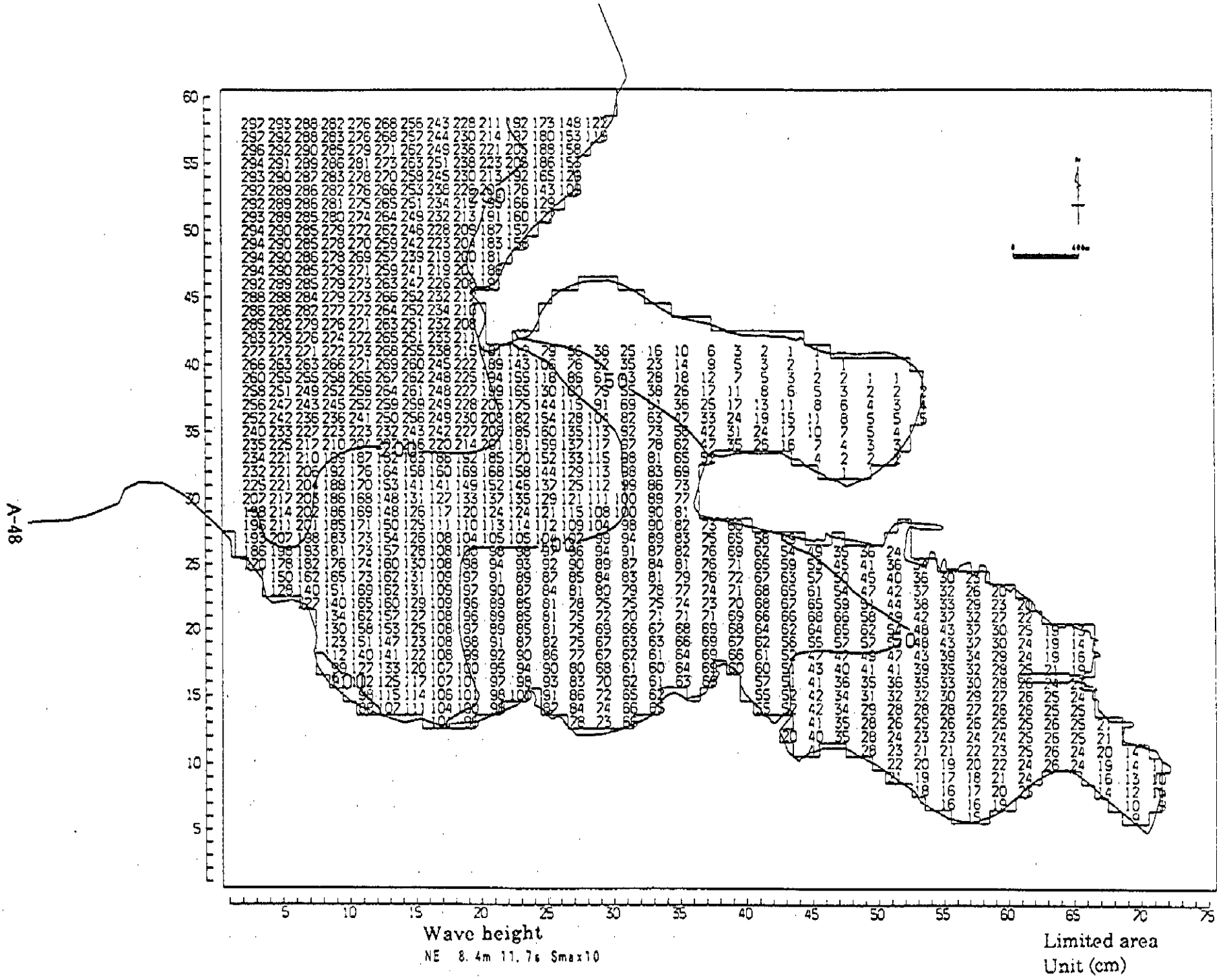
Depth distribution

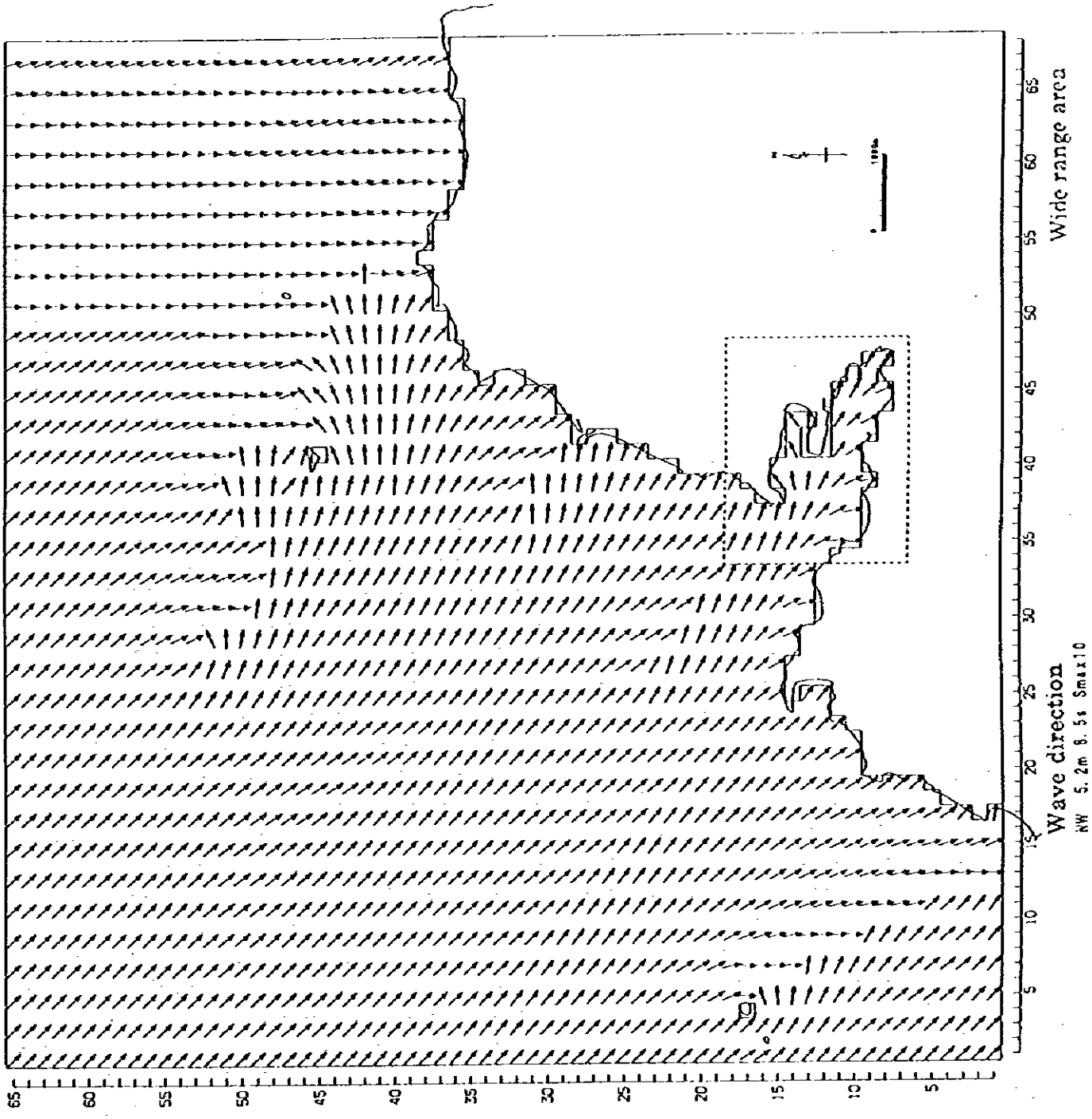
Wave : Hw(0.1m), Tw(0.1s)
Swell : Hs(0.1m), Ts(0.1s)


Wide range area
Wave direction
NF 8 4m 11.7s Smax10

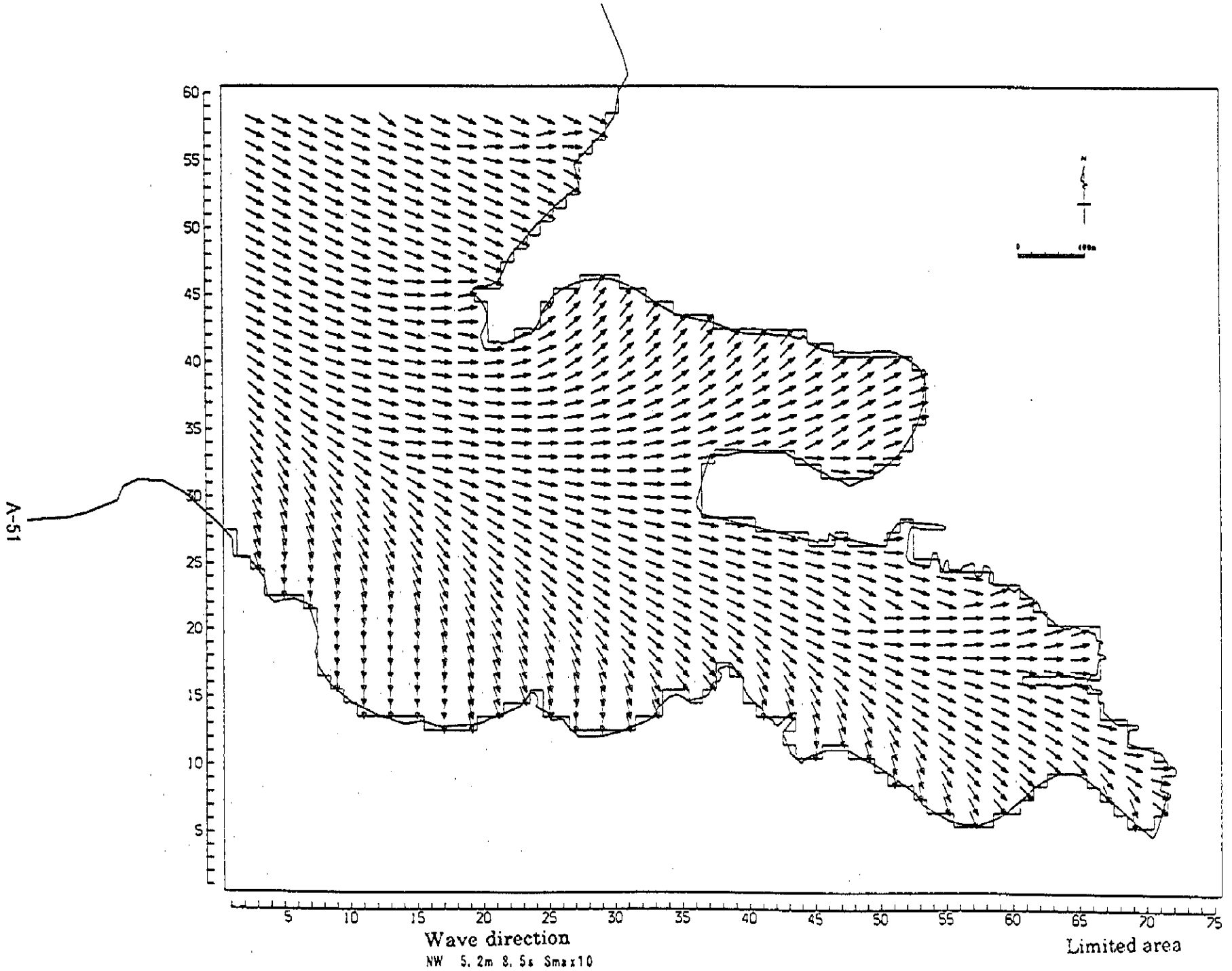

Wave height
NE 8.4m 11.7s Smax10
Wide range area
Unit (cm)

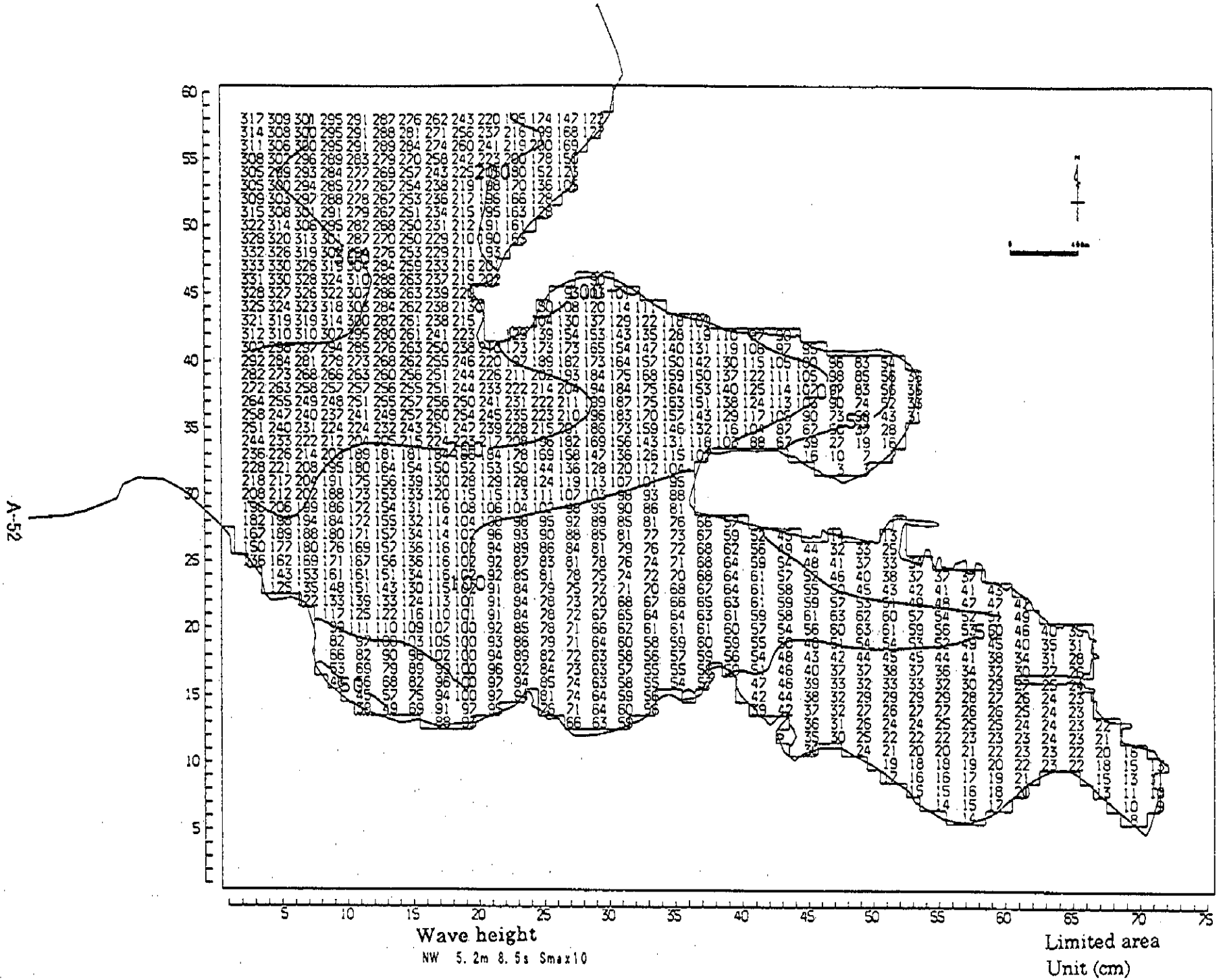

A-47
60
55
50
45
40
35
30
25
20
15
10
5
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
Wave direction
NE 8.4m 11.7s Smax10
Limited area


A-48
Wave height
NE 8.4m 11.7s Smax10
Limited area
Unit (cm)


Wide range area
Wave direction
NW 5.2m 8.5s Smax10

Wave height
NW 5.2m 8.5s Smax10
Wide range area
Unit (cm)

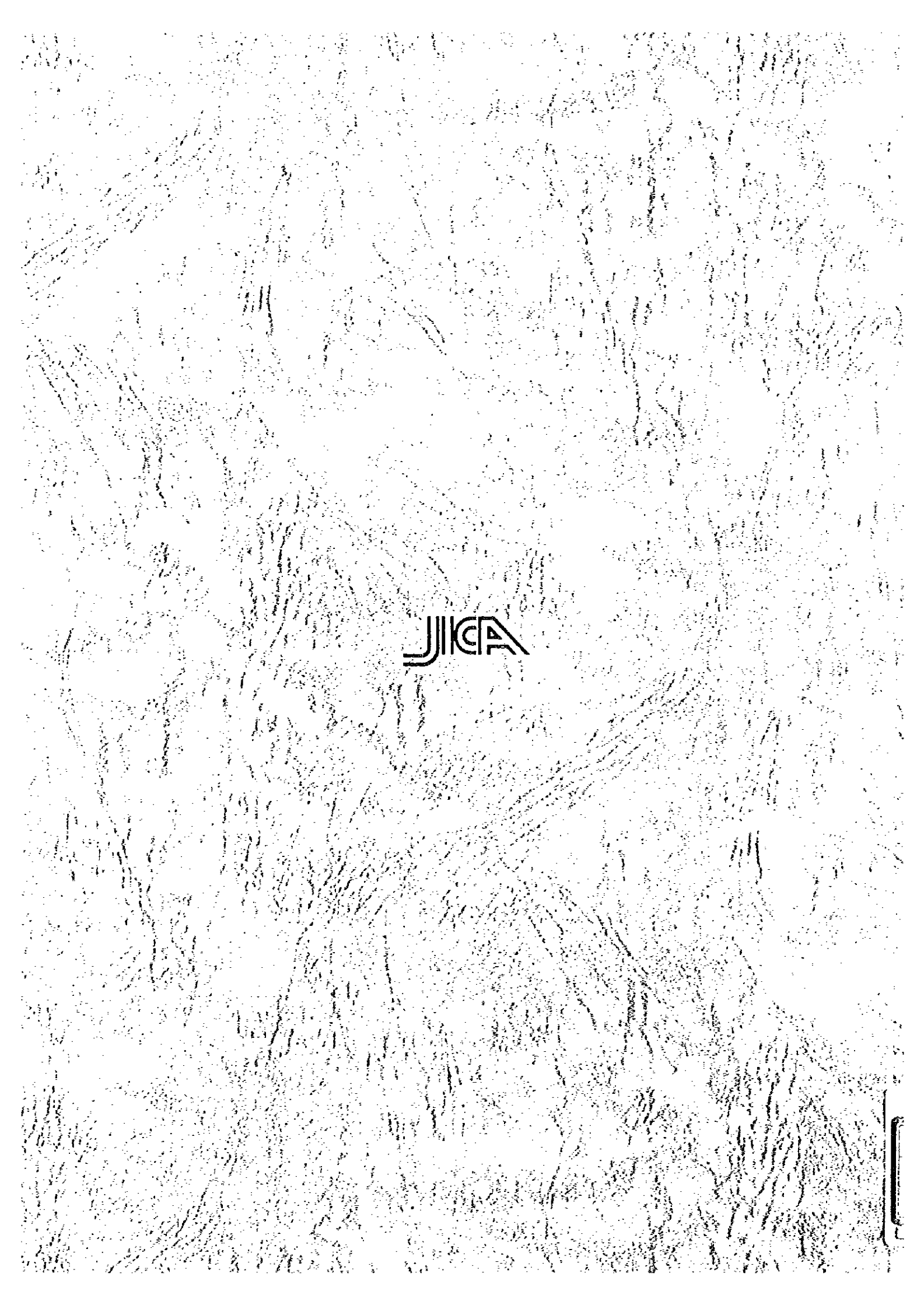

A-51
60
55
50
45
40
35
30
25
20
15
10
5
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
Wave direction
NW 5.2m 8.5s Smax10
Limited area


A-52
Wave height
NW 5.2m 8.5s Smax10
Limited area
Unit (cm)

7. References

[Name of Reference]		[Issued by]	[Published in]
(1)	Estimates of Recurrent Revenue and Expenditure 1997	Ministry of Finance A & B Government	1997
(2)	Estimates of Recurrent Revenue and Expenditure 1996	Ministry of Finance A & B Government	1996
(3)	Recurrent Revenue and Expenditure 1995	Ministry of Finance A & B Government	1995
(4)	Throne Speech at the Opening of Parliament of Antigua and Barbuda	Governor's General	21 March,'97
(5)	Budget Speech	Minister of Finance	March,'97
(6)	1991 Population and Housing Census	Census Office Statistic Department	1992
(7)	Meteorological Statistics (1969-1991)	V.C. Bird International Airport, Antigua	1992
(8)	Admiralty Tide Tables and Tidal Streem Tables Volume 2, 1997	The Hydrographic Office United Kingdom	1996
(9)	Antigua Fisheries Limited Balance Sheet 1994	Antigua Fisheries Limited	1994
(10)	Guidelines for the Design and Operation of Fish Processing Establishments in Antigua and Barbuda	Fisheries Division Point Wharf St. John's, Antigua	Draft(1997)
(11)	Proposed Medium Term Organizational Chart for the Fisheries Division, 1997	Ministry of Agriculture, Lands, Fisheries Division, 1997	1997
(12)	Ice Sales Records Sep.1995-Aug.1996	Antigua Fisheries Limited	(1995-1996)
(13)	Fishing Boat Registration Record	Fisheries Division	(1995-1997)
(14)	Fish Purchasing Records : AFL	Antigua Fisheries Limited	(1996-1997)
(15)	Estimates of Sea-Food Lnadings for Antigua and Barbuda (1991-1995)	Fisheries Division	22 July,'97
(16)	Seafood Landings for 1994(Revision)	Fisheries Division	July, 1997
(17)	Fish Sales Records	White Fish Market	July, 1997
(18)	Information for West Bus Station	Antigua and Barbuda Transport Board	July, 1997
(19)	The Transport Board Act, 1995	Government Printing Office	1996
(20)	Air, Sea & Cruise ship arrivals to Antigua (1977-1995)	Antigua Development of Tourism	1996

【 Name of Reference】		【Issued by】	【Published in】
(21)	List of Hotels, Apartments, Guest Houses in Antigua and Barbuda(1997)	Surveyed by Department of Tourism	July,'97
(22)	Antigua and Barbuda Medium-Term Economic Strategy Paper 1996-2000	A & B Government (Prepared with Assistance from the Caribbean Development Bank)	June,'96
(23)	GDP by Economic Activity, at Factor Cost in Constant Prices	Eastern Caribbean Central Bank	1997
(24)	Selected Tourism Statistics	Eastern Caribbean Central Bank	1995
(25)	Overview : Antigua and Barbuda 1996	Eastern Caribbean Central Bank	1997
(26)	Overview : Antigua and Barbuda 1995	Eastern Caribbean Centra lBank	1996


JICA