Documento anexo IV Acta das reuniões (cópia)

(1ª investigação local)

MINUTES OF DISCUSSIONS

BASIC DESIGN STUDY
ON
THE PROJECT FOR ESTABLISHMENT OF REPAIR FACILITIES FOR FISHING VESSELS IN THE REPUBLIC OF MOZAMBIQUE

Based on the results of the Preliminary Study, the Japan International Cooperation Agency (JICA) has decided to conduct a Basic Design Study on the Project for Establishment of Repair Facilities for Fishing Vessels in the Republic of Mozambique (hereinafter refered to as "the-Project").

JICA has sent to Mozambique the study team headed by Mr. Norio Nagashima, Deputy Director, Fishing Boat Division, Oceanic Fisheries Department, Fisheries Agency, Ministry of Agriculture, Forestry and Fisheries. The team plans to stay in the country from April 21 to May 14, 1992.

The team held discussions with the officials concerned of the Government of the Republic of Mozambique and conducted field surveys at the study area.

In the course of discussions and field surveys, both parties have confirmed the main items described on the attached sheets. The team will proceed to further works and prepare the Interim Report.

Maputo, May 4, 1992

Norio Nagashima
Leader,
Basic Design Study Team,
Japan International
Cooperation Agency

Rodrigues Bila
Director for
International Cooperation,
State Secretariat for
Fisheries

ATTACHMENT

1. Objective

The objective of the Project is to improve the capacity of fishing boats repair and maintenance by constructing boat reparing facilities and providing equipment necessary for maintenance.

2. Project Site

The two prospective sites for the Project are located at the city of Quelimane which are shown in Annex-I. The definitive site will be finalized as the result of the second field study of the Basic Design Study.

3. Responsible Organization and Executing Organization

(1) Responsible Organization: Secretaria de Estado das Pescas (SEP)
(2) Executing Organization: Suitable organization to be decided by SEP taking also into consideration the recommendation to be made by the first field study of the Basic Design Study

4. Items Requested by the Government of Mozambique

The following items have been definitively confirmed as the request by the Government of Mozambique.

1) Slipping facilities for fishing vessels of approx. 40 m LOA
2) Cranes, winches or other associated equipment for the facilities
3) Workshop, office or other necessary buildings
4) Related machinery, equipment and tools for workshop
5) Other incidental facilities

However, the team stated that the docking system suitable for the prospective sites will be decided after the further studies by the team.

5. Japan's Grant Aid System

(1) The Government of Mozambique has understood the system of Japan's Grant Aid explained by the team.

(2) The Government of Mozambique will take the necessary measures, described in Annex II, for smooth implementation of the Project on condition that the Grant Aid assistance by the Government of Japan is extended to the Project.

6. Schedule of the Study

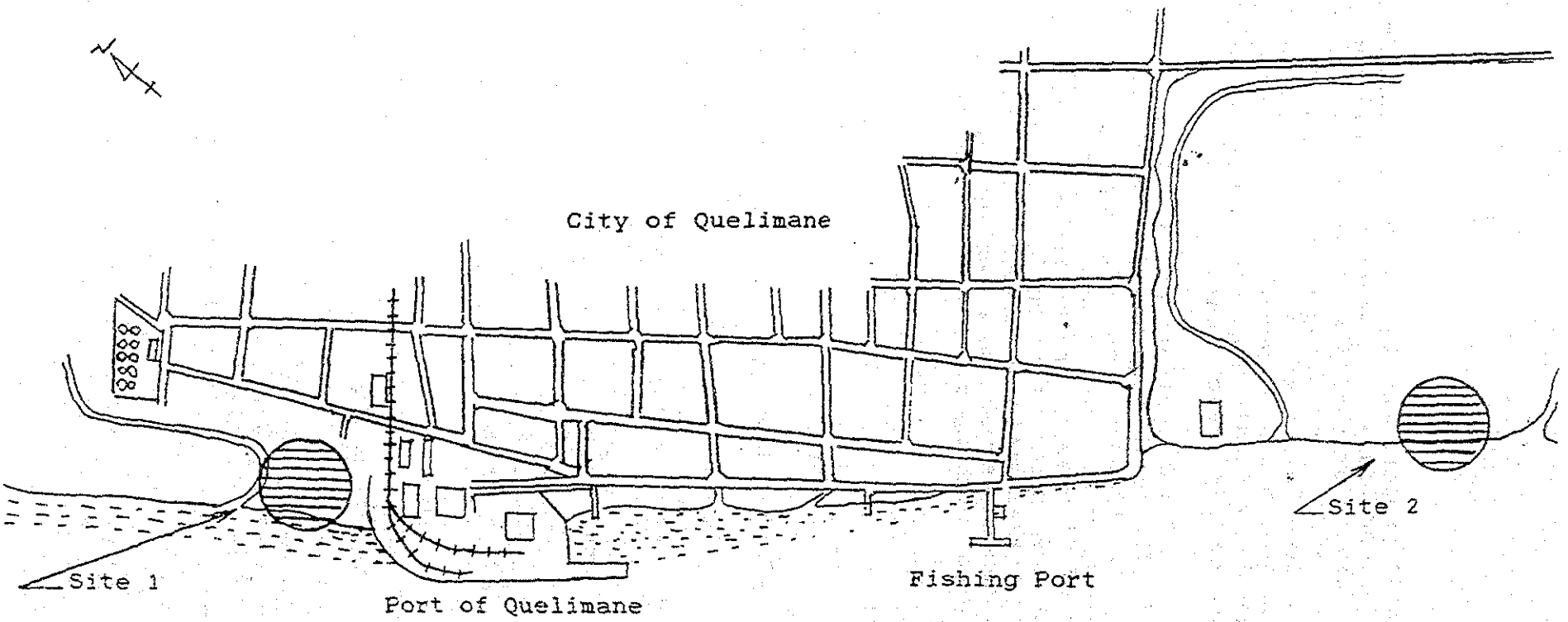
(1) The consultants will proceed to the further studies in Mozambique until May 14, 1992.

(2) JICA will prepare the Interim Report in Portuguese and dispatch the second mission in order to submit the report and explain the results of the first field survey and conduct the second field survey including natural condition survey around the middle of July, 1992. After studying of the results of the field surveys and designing of the details of the Project, JICA will prepare the draft final report in Portuguese and dispatch a mission and explain its contents.

(3) In case that the contents of the final report is accepted in principle by the Mozambique side, JICA will complete the report and send it to the Government of Mozambique.

7. Minutes of Discussion in English ~~and Portuguese were~~ was exchanged between the Government of Mozambique and the team, in order to confirm the agreed matters. However, Minutes of Discussion in English exchanged between both parties shall be refered to clarify its original meanings.

Annex-I. Location of the Two Prospective Sites



Annex-II. Necessary Measures to be taken by the Government of Mozambique in case Japan's Grant Aid is extended.

1. To secure the site for the Project.

2. To clear, level and reclaim the site prior to the commencement of the construction.

3. To undertake incidental outdoor works such as gardening, fencing, gates and exterior lighting in and around the site.

4. To construct the access road to the site prior to the commencement of the construction.

5. To provide facilities for distribution of electricity, water supply, telephone, drainage, sewage and other incidental facilities to the Project site.

(1) Electricity distributing line to the site.
(2) City water distribution main to the site.
(3) Drainage main to the site.
(4) Telephone trunk line to the site.
(5) General furniture such as carpets, curtains, tables and others.

6. To bear commissions to the Japanese foreign exchange bank for the banking services based upon the Banking Arrangement.

7. To exempt taxes and to take necessary measures for custom clearance of the materials and equipment brought for the Project at the port of disembarkation.

8. To accord Japanese nationals whoes services may be required in connection with the supply of products and the services under the verified contract such facilities as may be necessary for their entry in Mozambique and stay therein for the performance of their works.

9. To maintain and use properly and effectively that the facilities constructed and equipment purchased under the Grant.

10. To bear all the expences other than those to be born by the Grant, necessary for construction of the facilities as well as for the transportation and the installation of the equipment.

(Nº explicação do relatório intermediário)

MINUTES OF DISCUSSIONS

BASIC DESIGN STUDY ON THE PROJECT FOR ESTABLISHMENT OF REPAIR FACILITIES FOR FISHING VESSELS IN THE REPUBLIC OF MOZAMBIQUE

(CONSULTATION ON INTERIM REPORT)

In April 1992, the Japan International Cooperation Agency (JICA) dispatched a Basic Study Design team on the Project for Establishment of Repair Facilities for Fishing Vessels (hereinafter referred to as "the Project") to the Republic of Mozambique, and through discussions, field study, and technical examination of the results in Japan, has prepared the interim report of the study.

In order to explain and to consult the Mozambiqan side on the components of the interim report, JICA sent to Mozambique a study team, which is headed by Mr. Noboru Tazoe, Deputy Director, Office of Overseas Fisheries Cooperation, Overseas Fisheries Department, Fisheries Agency, and is scheduled to stay in the country from July 21 to 29, 1992.

In the course of discussions, both parties confirmed the main items described on the attached sheets.

Maputo, July 27, 1922

Noboru Tazoe
Leader,
Interim Report
Explanation Team,
Japan International
Cooperation Agency

Rodrigues Bila
Director for
International Cooperation,
State Secretariat for
Fisheries

ATTACHMENT

1. Component of the Interim Report

The Government of Mozambique has agreed and accepted in principle the components of the interim report proposed by the Team.

2. Proprietary Right of the Facilities

Secretaria de Estado das Pescas (SEP) will maintain the proprietary right of the facilities and will not transfer this right to any private entity.

3. Executing Organization

The executing organization of the Project will be Porto de Pesca de Quelimane (PPQ) which will act in accordance with the policy and principles to be established by SEP for fishing boat industry sub-sector.

4. Project Site

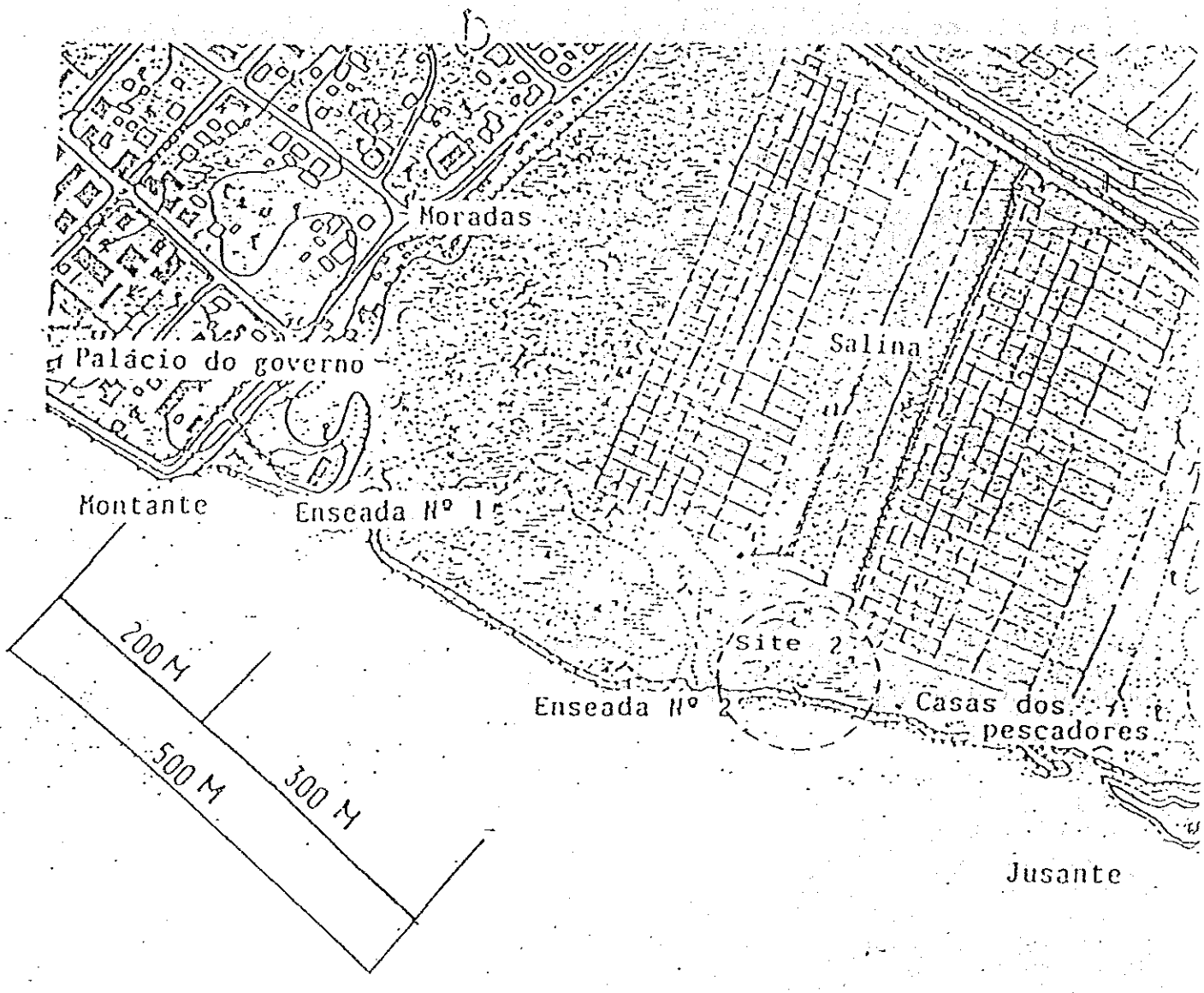
As a result of the first field study, Site 2, which is indicated in Annex-I, has been judged as the appropriate site for the Project, and SEP has confirmed that Site 2 area will be secured for the Project.

5. Docking System

In the light of the physical conditions of the site and the ease of operations of the facilities, the dry dock system is recommended, and accepted by SEP.

N. T

ANNEX-I. Site Location Map



N. T.

(2ª investigação local)

MINUTES OF DISCUSSIONS
BASIC DESIGN STUDY
ON
THE PROJECT FOR ESTABLISHMENT OF REPAIR FACILITIES FOR FISHING VESSELS IN THE REPUBLIC OF MOZAMBIQUE

Based on the results of the first phase of the Basic Design Study and the subsequent explanation of the Interim Report on the Project for Establishment of Repair Facilities for Fishing Vessels in the Republic of Mozambique (hereinafter referred to as "the Project"), the Japan International Cooperation Agency (JICA) has decided to conduct the second phase of the Basic Design Study on the Project.

JICA has sent to Mozambique the study team headed by Mr. Kenichi Sakurai, Senior Officer for Fishing Boat Technology, Fishing Boat Division, Oceanic Fisheries Department, Fisheries Agency, Ministry of Agriculture, Forestry and Fisheries, and is scheduled to stay in the country from September 1 to 21, 1992.

The team held discussions with the officials concerned of the Government of Mozambique and conducted a field survey at the study area.

In the course of discussions and field survey, both parities have confirmed the main items described on the attached sheets. The team will proceed to further works and prepare the Basic Design Study Report.

Maputo, September 17, 1992

Kenichi Sakurai
Leader,
Basic Design Study Team,
Japan International
Cooperation Agency

Rodrigues Bila
Director for
International Cooperation,
State Secretariat for
Fisheries

ATTACHMENT

1. Objective
The objective of the Project is to improve the capacity of fishing boats repair and maintenance by constructing boat repairing facilities and providing equipment necessary for maintenance.

2. Project Site
The Project site is located at Muarrua, Quelimane, Province of Zambezia, which appears in Annex I.

3. Responsible Organization and Executing Organization
(1) Responsible Organization: Secretaria de Estado das Pescas
(2) Executing Organization: Porto de Pesca de Quelimane (PPQ)

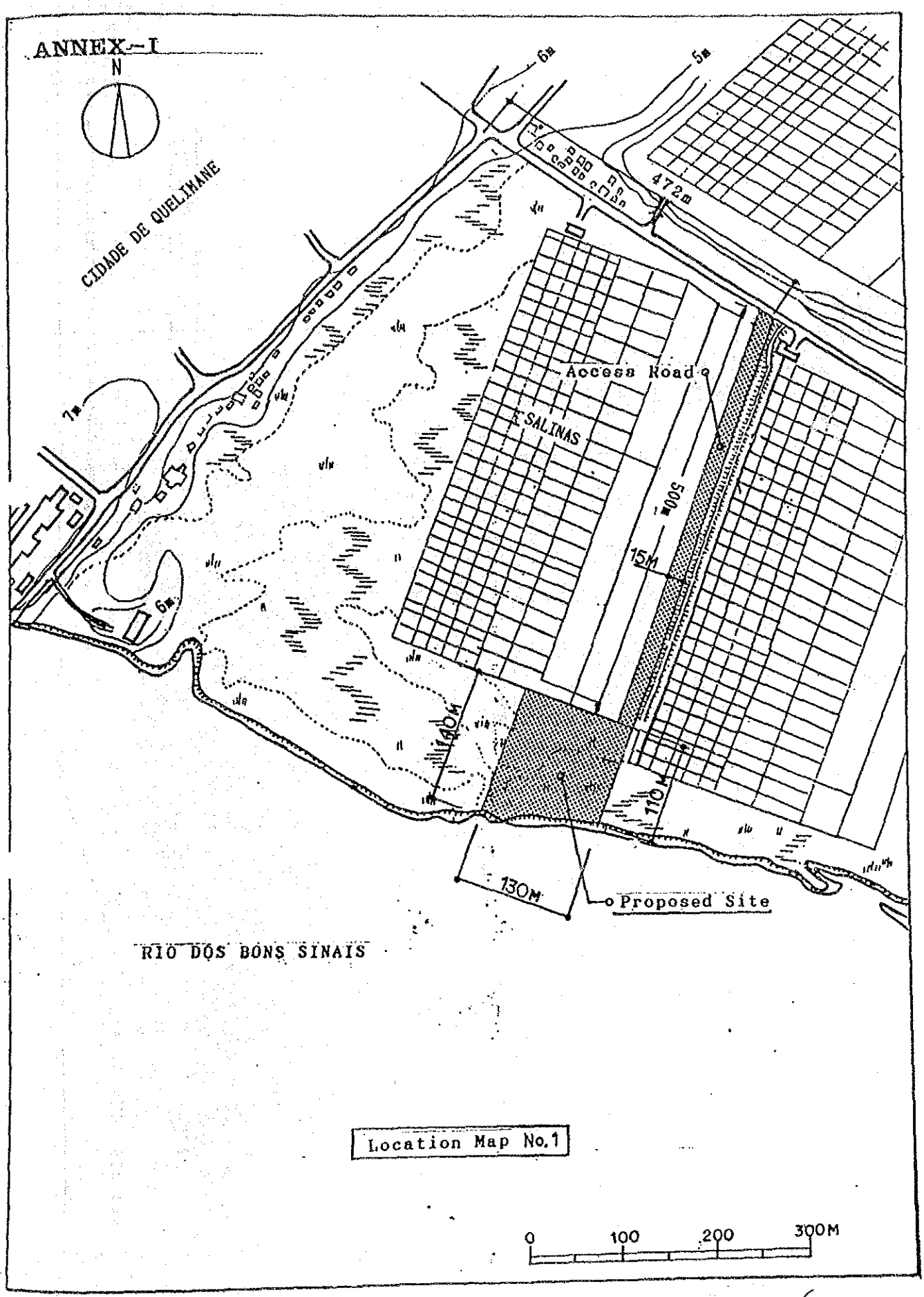
4. Necessary Items for the Realization of the Project Requested by the Government of Mozambique
After discussions with the Basic Design Study Team, the following items were judged necessary for the realization of the Project.

(1) Dry dock of approx. 45m L x 12m W bottom area to accommodate the shrimp trawlers being operated in the areas north to Quelimane.
(2) Mobile cranes, pumps, winches and other associated equipment attached to the dry dock.
(3) Workshop, Office and other incidental buildings.
(4) Machinery, equipment and tools for the workshop.
(5) Other incidental facilities
However, the final components of the Project may differ from the above items, if it is judged after further studies.

5. Japan's Grant Aid System
(1) The Government of Mozambique has understood the system of Japanese Grant Aid explained by the team.
(2) The Government of Mozambique will take necessary measures described in Annex II for smooth implementation of the Project, on condition that the Grant Aid Assistance by the Government of Japan is extended to the Project.

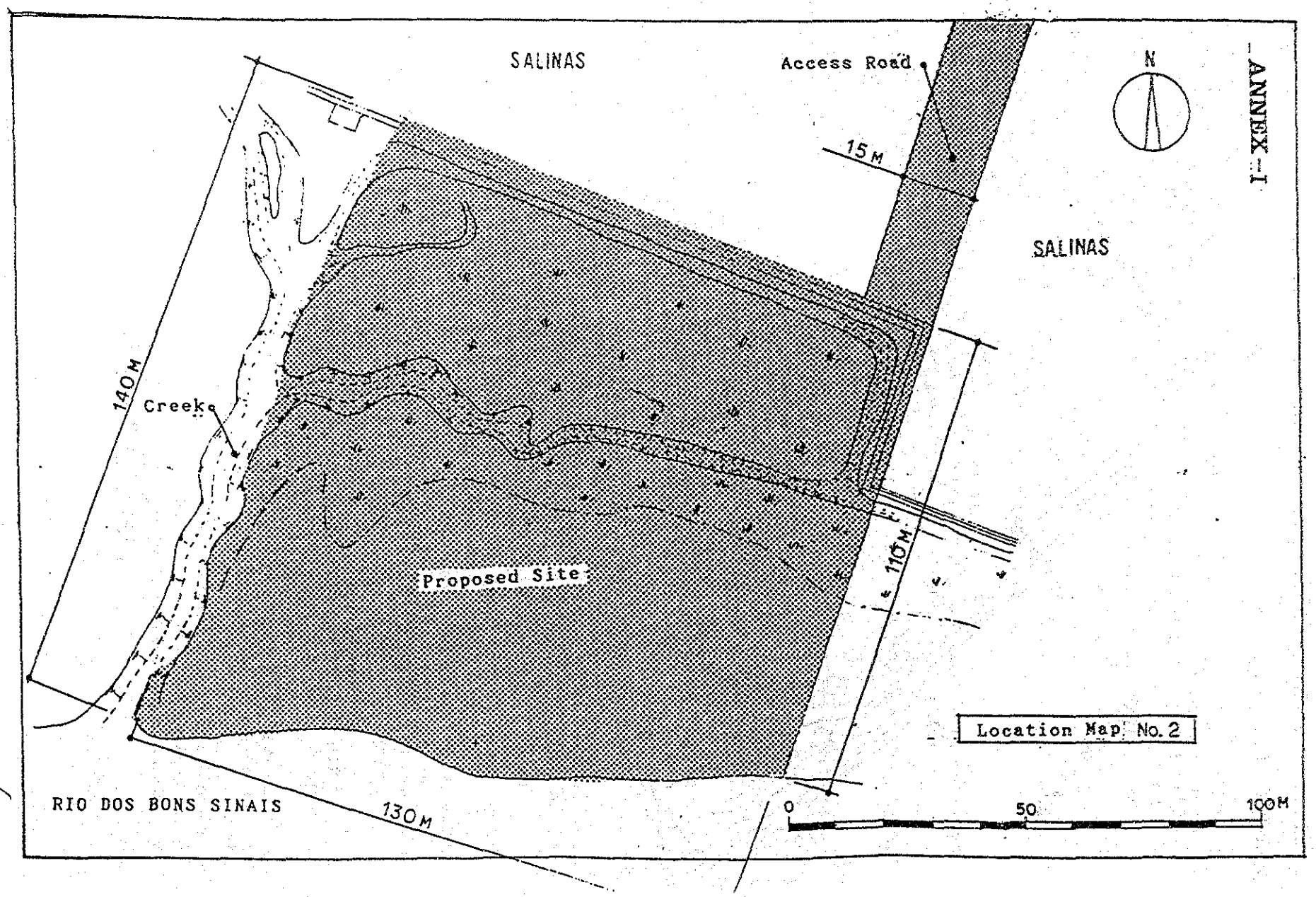
6. Schedule of the Study
(1) The consultants will proceed to the further study in Mozambique until September 21, 1992.
(2) JICA will prepare the draft report in Portuguese and dispatch a mission in order to explain its contents around mid November, 1992.
(3) In case that the contents of the report is accepted in principle by Mozambican side, JICA will complete the final report and send it to the Government of Mozambique by January 1993.

ANNEX-I



Location Map No.1

ANNEX - I


SALINAS
Access Road
N
15 M
SALINAS
140 M
Creek
Proposed Site
110 M
Location Map No. 2
RIO DOS BONS SINAIS
130 M
0
50
100M

Annex II Necessary Measures to be taken by the Government of Mozambique in case Japan's Grant Aid is extended.

1. To secure the site for the Project.

2. To clear, level and reclaim the site prior to the commencement of the construction.

3. To undertake incidental outdoor works such as gardening, fencing, gates and exterior lighting in and around the site.

4. To construct the access road to the site prior to the commencement of the construction.

5. To provide facilities for distribution of electricity, water supply, telephone, drainage, sewage and other incidental facilities to the Project site.

   (1) Electricity distributing line to the site.
   (2) City water distribution main to the site.
   (3) Drainage main to the site.
   (4) Telephone trunk line to the site.
   (5) General furniture such as carpets, curtains, tables and others.

6. To bear commissions to the Japanese foreign exchange bank for the banking services based upon the Banking Arrangement.

7. To exempt taxes and to take necessary measures for custom clearance of the materials and equipment brought for the Project at the port of disembarkation.

8. To accord Japanese nationals whoes services may be required in connection with the supply of products and the services under the verified contract such facilities as may be necessary for their entry in Mozambique and stay therein for the performance of their works.

9. To maintain and use properly and effectively the facilities constructed and equipment purchased under the Grant.

10. To bear all the expences other than those to be born by the Grant, necessary for construction of the facilities as well as for the transportation and the installation of the equipment.

(Na explicação do relatório preliminar)

MINUTES OF DISCUSSIONS
BASIC DESIGN STUDY
ON
THE PROJECT FOR ESTABLISHMENT OF REPAIR FACILITIES FOR FISHING VESSELS IN THE REPUBLIC OF MOZAMBIQUE
(CONSULTATION ON DRAFT REPORT)

In April 1992, the Japan International Cooperation Agency (JICA) dispatched a Basic Design Study team on the Project for Establishment of Repair Facilities for Fishing Vessels (hereinafter referred to as "the Project") to the Republic of Mozambique followed by the explanation of the interim report in July and the second phase of the Basic Design Study in September 1992, and through discussions, field study, and technical examination of the results in Japan, has prepared the draft report of the study.

In order to explain and to consult the Mozambiqan side on the components of the draft report, JICA sent to Mozambique a study team, which is headed by Mr. Tsuneo Kokubu, Deputy Director, Office of Overseas Fisheries Cooperation, Overseas Fisheries Department, Fisheries Agency, and is scheduled to stay in the country from November 19 to 26, 1992.

As a result of discussions, both parties confirmed the main items described on the attached sheets.

Maputo, November 24, 1992

Tsuneo Kokubu
Leader,
Draft Report
Explanation Team,
Japan International
Cooperation Agency

Rodrigues Bila
Director for
International Cooperation,
State Secretariat for
Fisheries

ATTACHMENT

1. Component of the Draft Report
The Government of Mozambique has agreed and accepted in principle the components of the draft report proposed by the team with the necessary amendments.

2. Japan's Grant Aid System
(1) The Government of Mozambique has understood the system of Japanese Grant Aid explained by the team.
(2) The Government of Mozambique will take necessary measures described in Annex, on condition that the Grant Aid by the Government of Japan is extended to the Project.

3. Further Schedule
The team will make the final report in accordance with the confirmed items, and send it to the Government of Mozambique by the end of January, 1993.

Annex

Necessary Measures to be taken by the Government of Mozambique in case Japan's Grant Aid is extended.

1. To secure the site for the Project.

2. To clear, level and reclaim the site prior to the commencement of the construction.

3. To undertake incidental outdoor works such as gardening, fencing, gates and exterior lighting in and around the site.

4. To construct the access road to the site prior to the commencement of the construction.

5. To provide facilities for distribution of electricity, water supply, telephone, drainage, sewage and other incidental facilities to the Project site.

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9. To maintain and use properly and effectively the facilities constructed and equipment purchased under the Grant.

10. To bear all the expenses other than those to be born by the Grant, necessary for construction of the facilities as well as for the transportation and the installation of the equipment.

V. Dados suplementares

V-1 Direção, velocidade e taxa de ocorrência dos ventos por mês

V-2 Velocidades médias dos ventos por horário e mês

V-3 Temperatura por mês

V-4 Índice pluviométrico por ano e mês

V-5 Umidade média por mês

V-6 Figura dos níveis das marés

V-7 Gráfico das curvas das 4 estções das marés

V-8 Figura da elipse

V-9 Figura de medição topográfica

V-10 Figura de medição da profundidade

V-11 Figura da coluna cilíndrica de camadas do solo

V-12 Lista dos materiais e equipamentos

V-13 Estudo do sistema de construção normal da rampa e da doca seca

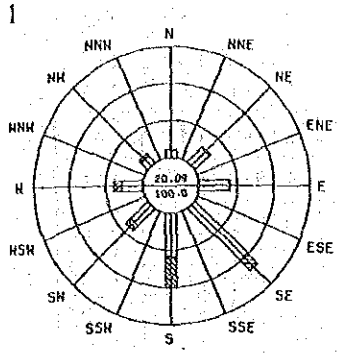
V-14 Tabela de cálculo de análise econômica

V-15 Tabela de cálculo de análise financeira

V-1 Direção, velocidade e taxa de ocorrência dos ventos por mês

Período: Janeiro/1982 a Dezembro/1991

1



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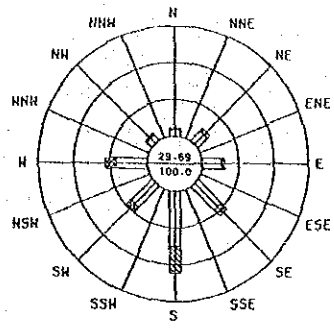

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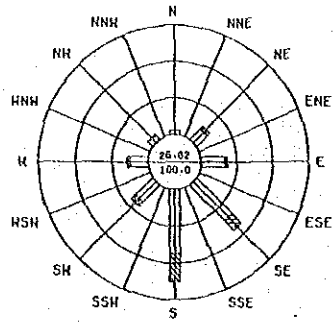
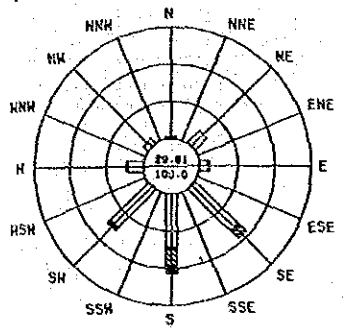


0 10 20 30 %

4



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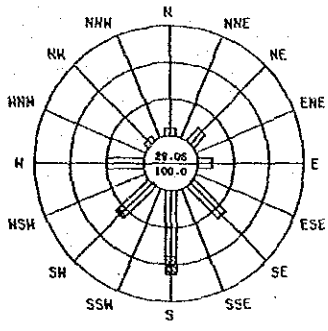

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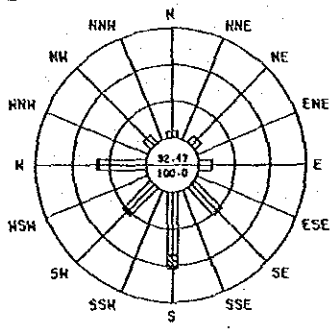
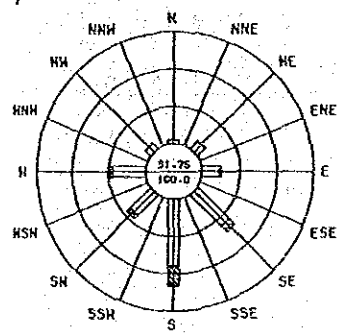


10.0≤
5.0 ~9.9
0.1 ~4.9

7



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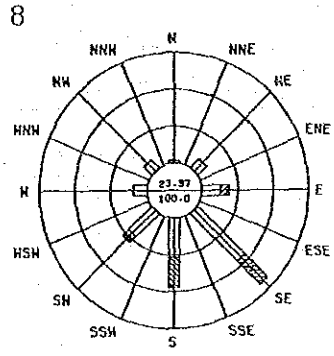

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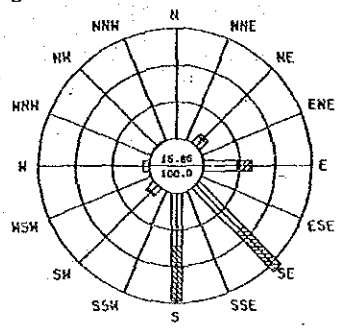

0 10 20 30 %

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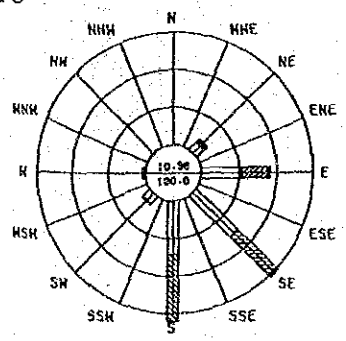

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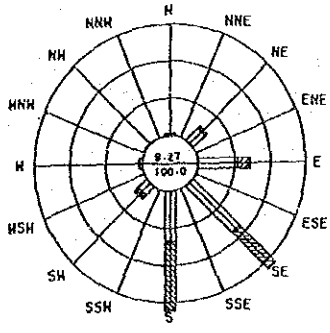
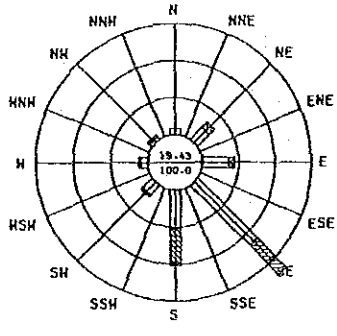


12



10.0≤
5.0 ~9.9
0.1 ~4.9

V-2 Velocidades médias dos ventos por horário e mês

1991

m/s

	1	2	3	4	5	6	7	8	9	10	11	12	mean
09-00	1.9	1.2	2.2	1.9	2.1	1.7	1.0	1.7	2.6	4.3	4.0	3.8	2.4
15-00	3.6	2.6	4.5	4.3	3.9	2.2	3.1	4.2	5.0	6.9	7.2	6.1	4.5
21-00	0.8	0.5	0.6	0.6	1.2	0.6	0.1	0.8	1.7	3.3	3.5	2.6	1.4
mean	2.1	1.4	2.4	2.3	2.4	1.5	1.4	2.2	3.1	4.8	4.9	4.2	2.8

V-3 Temperatura por mês

1991

℃

	1	2	3	4	5	6	7	8	9	10	11	12	MEAN
MAX	32.0	31.9	31.6	31.2	29.3	28.1	26.8	27.0	28.8	32.0	32.6	33.4	30.4
MIN	23.4	23.0	21.9	20.8	19.2	17.7	14.8	15.2	17.2	19.5	20.7	21.7	19.6
MEAN	27.7	27.5	26.7	26.0	24.3	22.9	20.8	21.1	22.9	25.8	26.7	27.6	25.0

V-4 Indice pluviométrico por ano e mês

mm

	1	2	3	4	5	6	7	8	9	10	11	12	
1982	483.1	245.1	23.4	171.2	50.8	26.6	62.8	23,4	86.8	159.4	49.6	112.7	1,494.9
1983	86.6	193.8	140.7	32.9	60.9	20.4	95.7	47.1	0.6	29.5	8.4	150.7	867.3
1984	403.4	341.6	365.0	88.5	113.1	73.8	41.1	29.3	0.2	73.1	237.1	71.0	1,837.2
1985	252.4	195.9	104.0	218.0	54.8	42.5	14.0	29.7	1.9	74.2	140.3	206.0	1,333.7
1986	385.7	289.0	337.2	269.9	47.8	44.5	59.9	1.0	4.3	105.5	12.3	189.0	1,746.1
1987	279.9	96.8	160.2	93.2	35.5	52.9	10.8	9.4	6.6	20.2	12.4	44.8	882.7
1988	217.7	293.2	239.9	92.5	29.8	59.2	73.2	24.6	1.9	32.6	104.2	254.5	1,423.3
1989	150.8	410.8	357.2	100.1	37.9	72.7	31.0	2.8	18.7	35.9	178.5	281.1	1,677.5
1990	272.5	127.7	43.2	56.4	163.3	96.6	22.1	46.8	19.6	2.5	70.6	78.7	1,000.0
1991	149.3	315.6	291.7	178.3	29.0	41.9	52.2	19.0	59.5	0	83.0	73.2	1,292.7
MEAN	261.1	251.0	206.3	130.1	62.3	53.1	46.3	23.3	20.0	53.3	89.6	146.2	1,355.5

V-5 Umidade média por mês

1982-1991

%

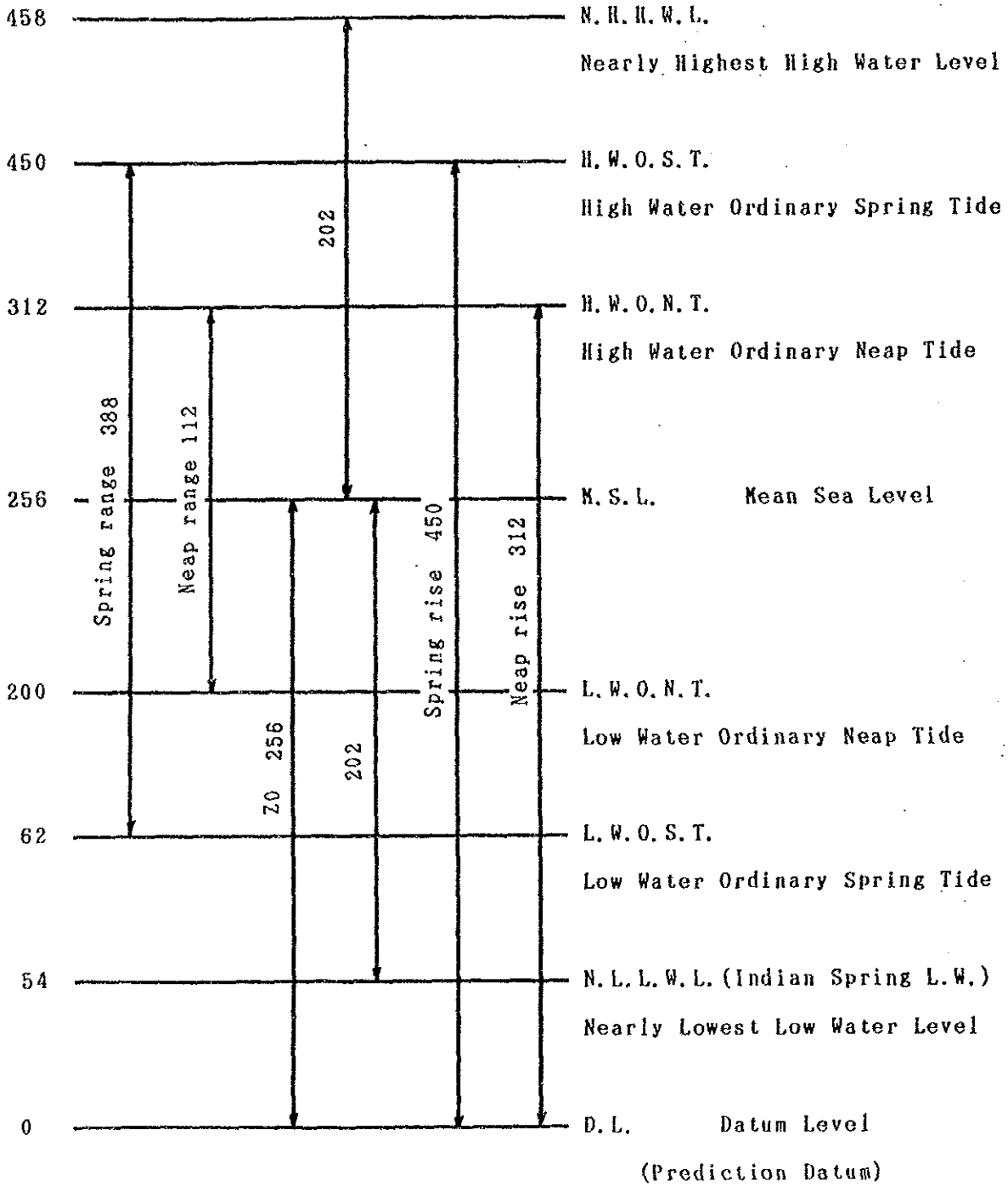
	1	2	3	4	5	6	7	8	9	10	11	12	MEAN
1982	82	83	82	83	81	81	82	78	78	77	78	78	80
1983	81	84	82	79	79	82	80	78	76	73	74	78	79
1984	80	83	83	80	84	85	84	73	80	75	81	80	81
1985	81	83	83	81	84	83	81	81	77	76	79	83	81
1986	85	83	82	85	83	79	81	79	75	80	75	79	80
1987	81	80	81	81	80	79	78	79	75	72	72	73	78
1988	74	83	84	82	82	82	84	79	76	79	75	80	80
1989	79	85	84	83	82	84	81	79	76	75	77	82	81
1990	83	80	79	82	82	85	82	81	78	72	73	74	79
1991	81	84	84	82	81	83	82	79	76	77	76	76	80
MEAN	81	83	83	82	82	82	82	79	77	76	76	78	80

V-6 Figura dos nfveis das marés

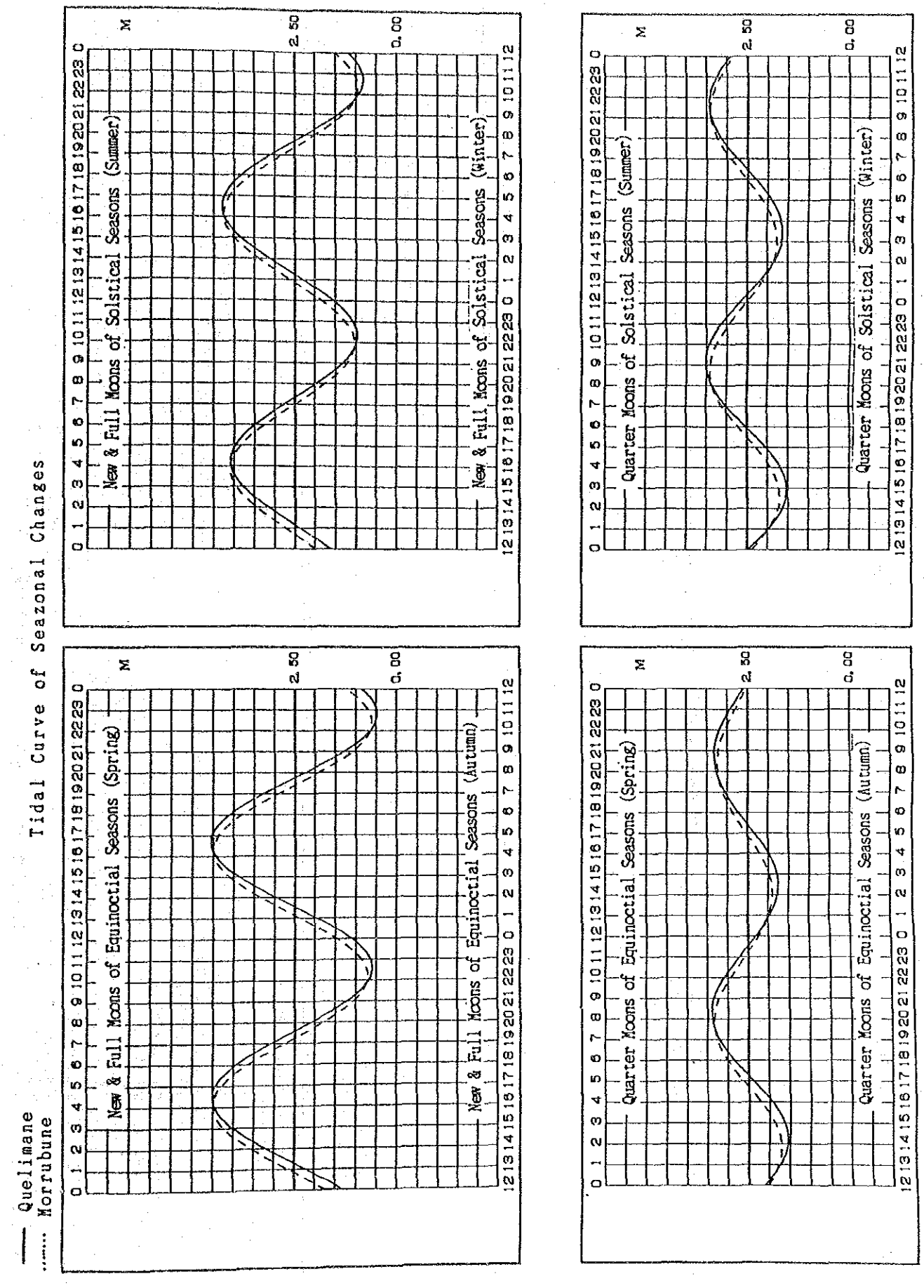
Relationship Between
Tidal Various Levels

Unit…in cm

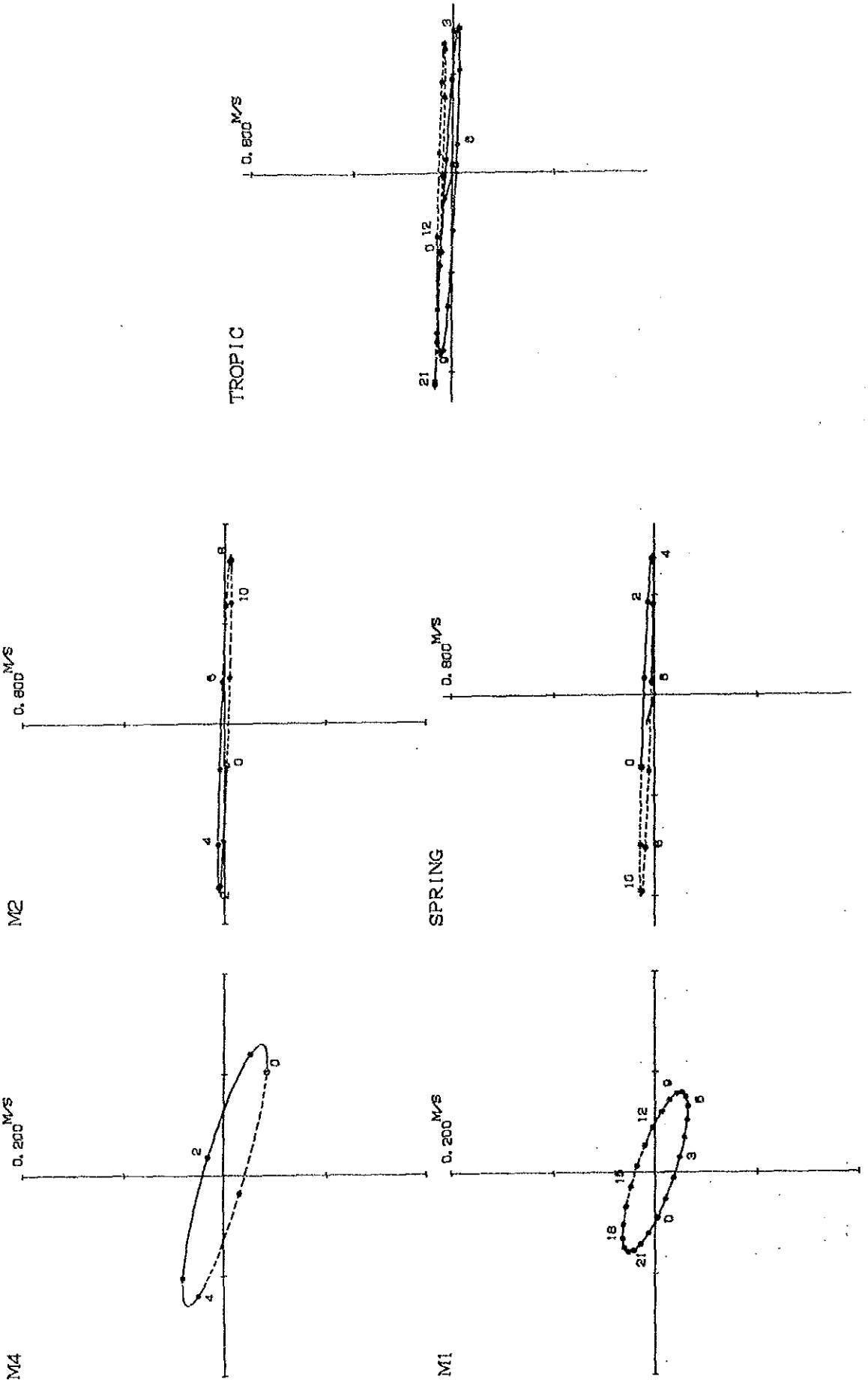
Quelimane

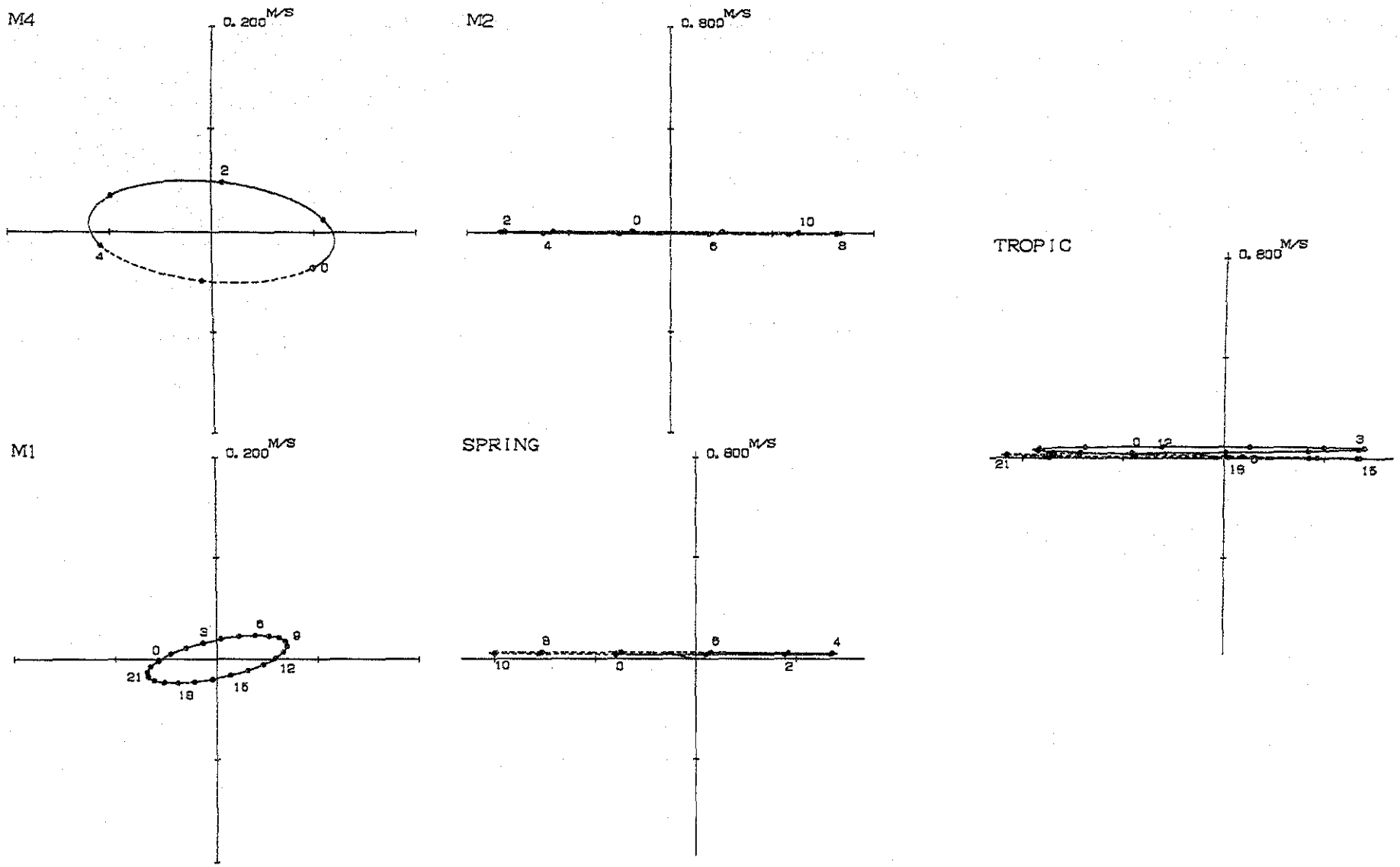


V-7 Gráfico das curvas das 4 estções das marés

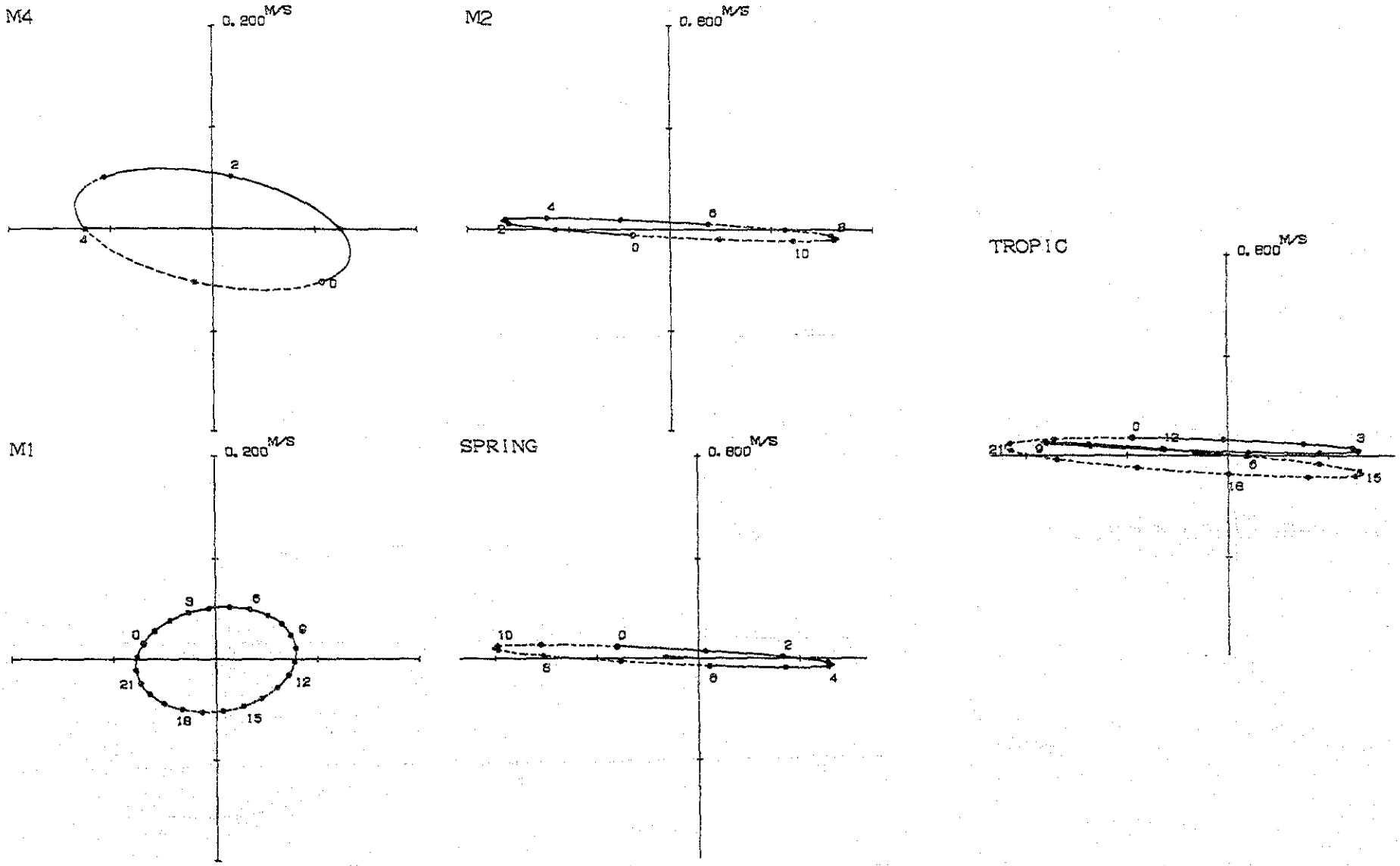


V-8 Figura da elipse



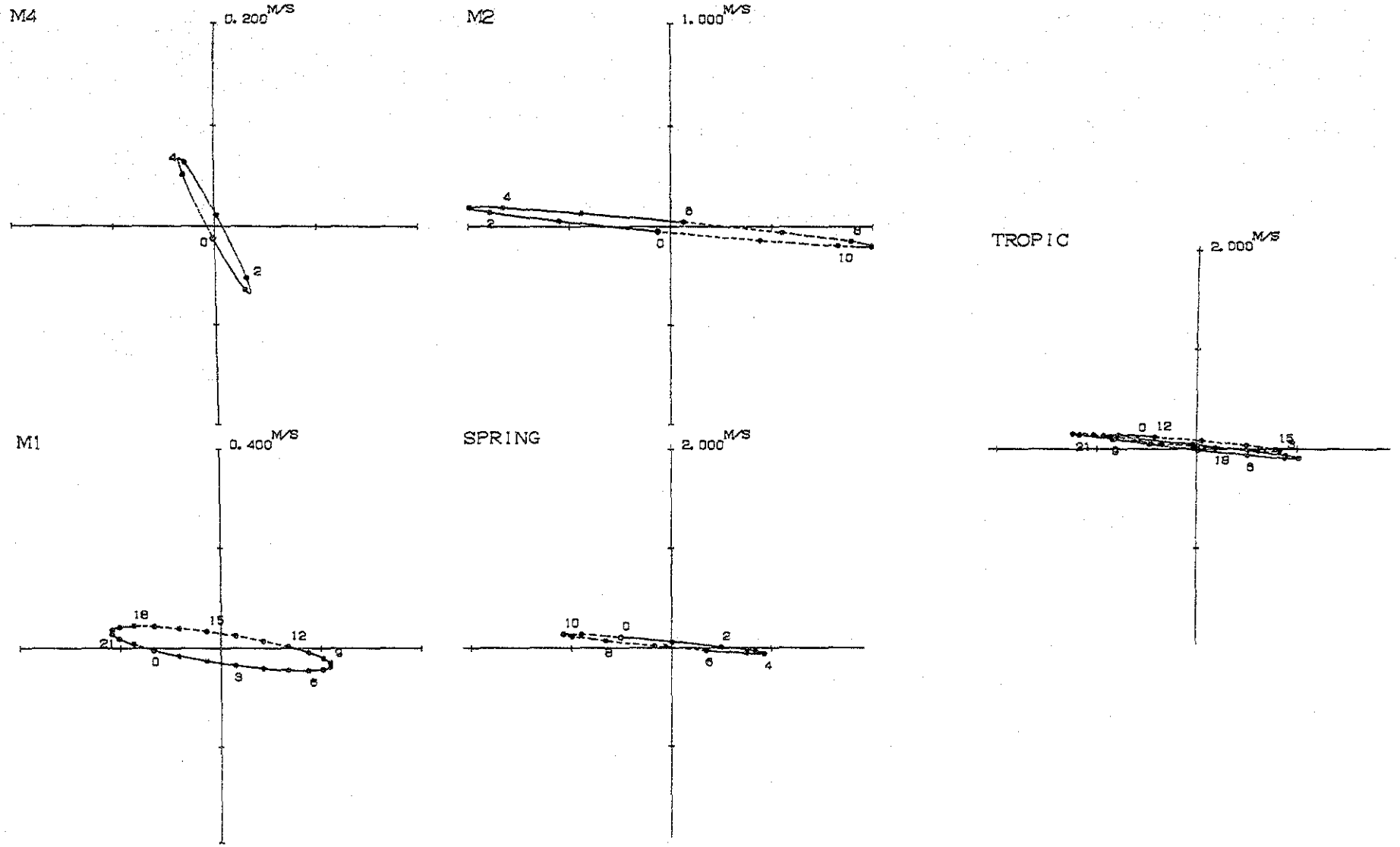


QUELIMANE 1 2.0M Observed on Sept. 12 - 13, 1992



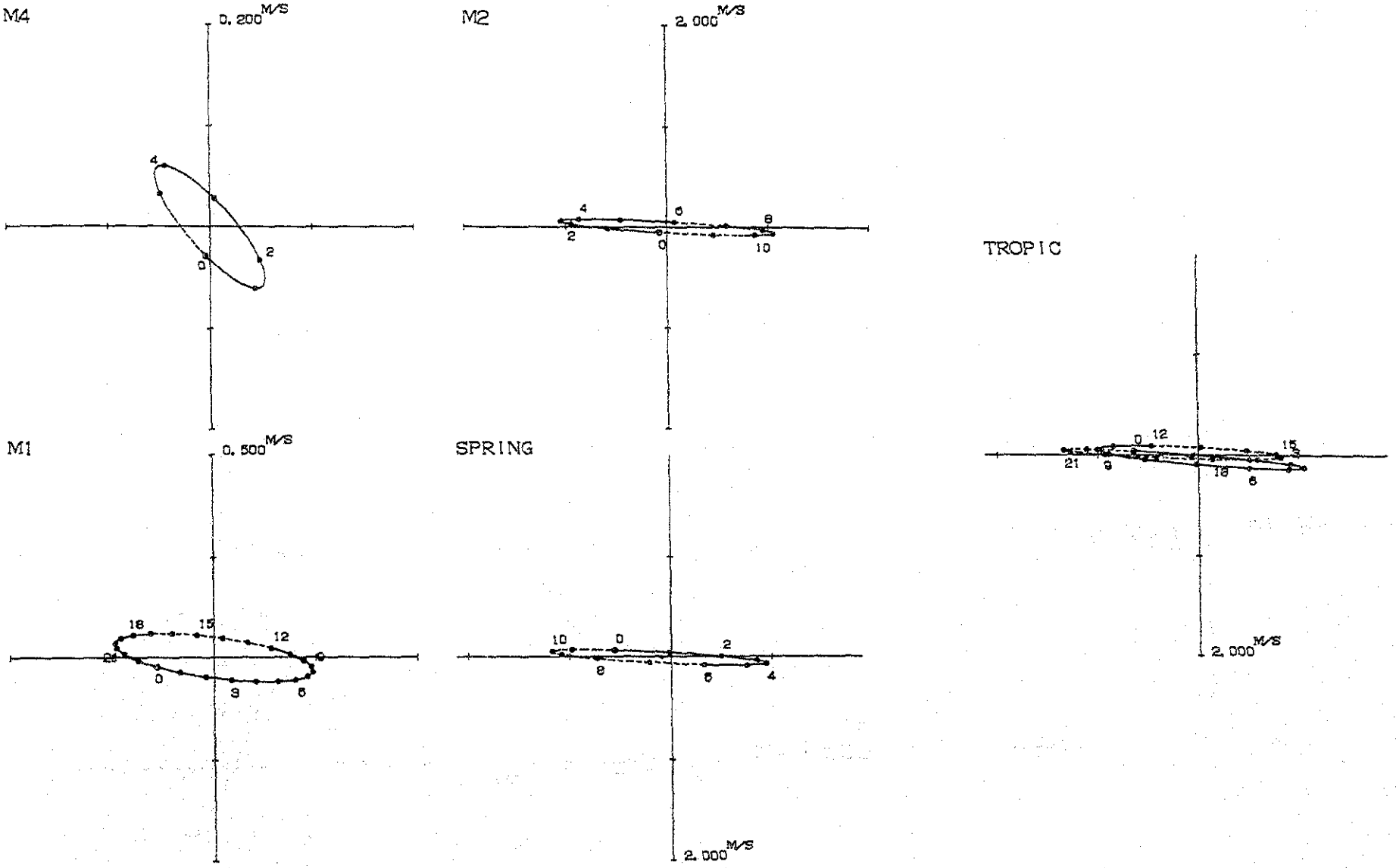
QUELIMANE 1 4.0M

Observed on Sept. 12 - 13, 1992



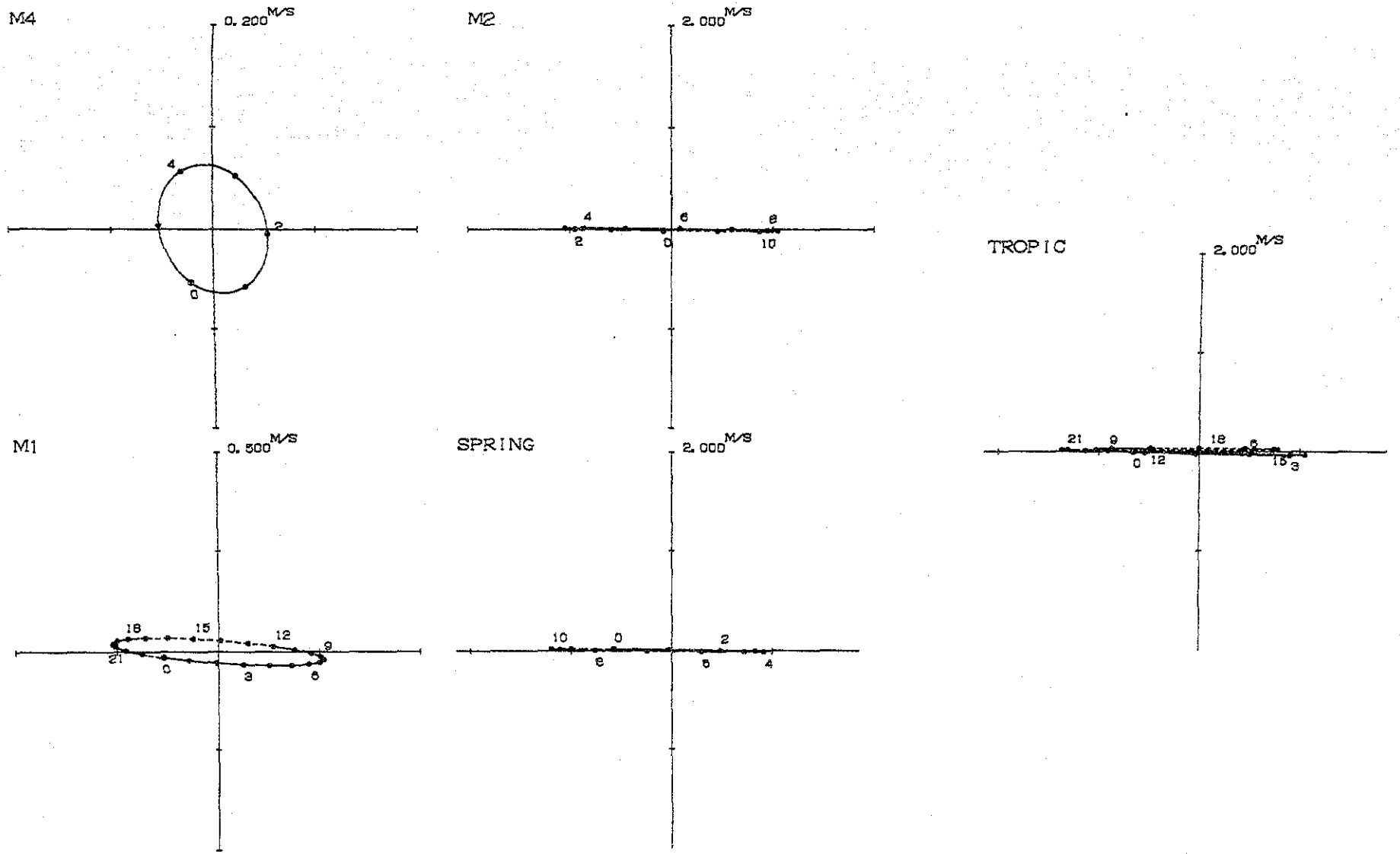
QUELIMANE ST. 2 0.0M

Observed on Sept. 12 - 13, 1992



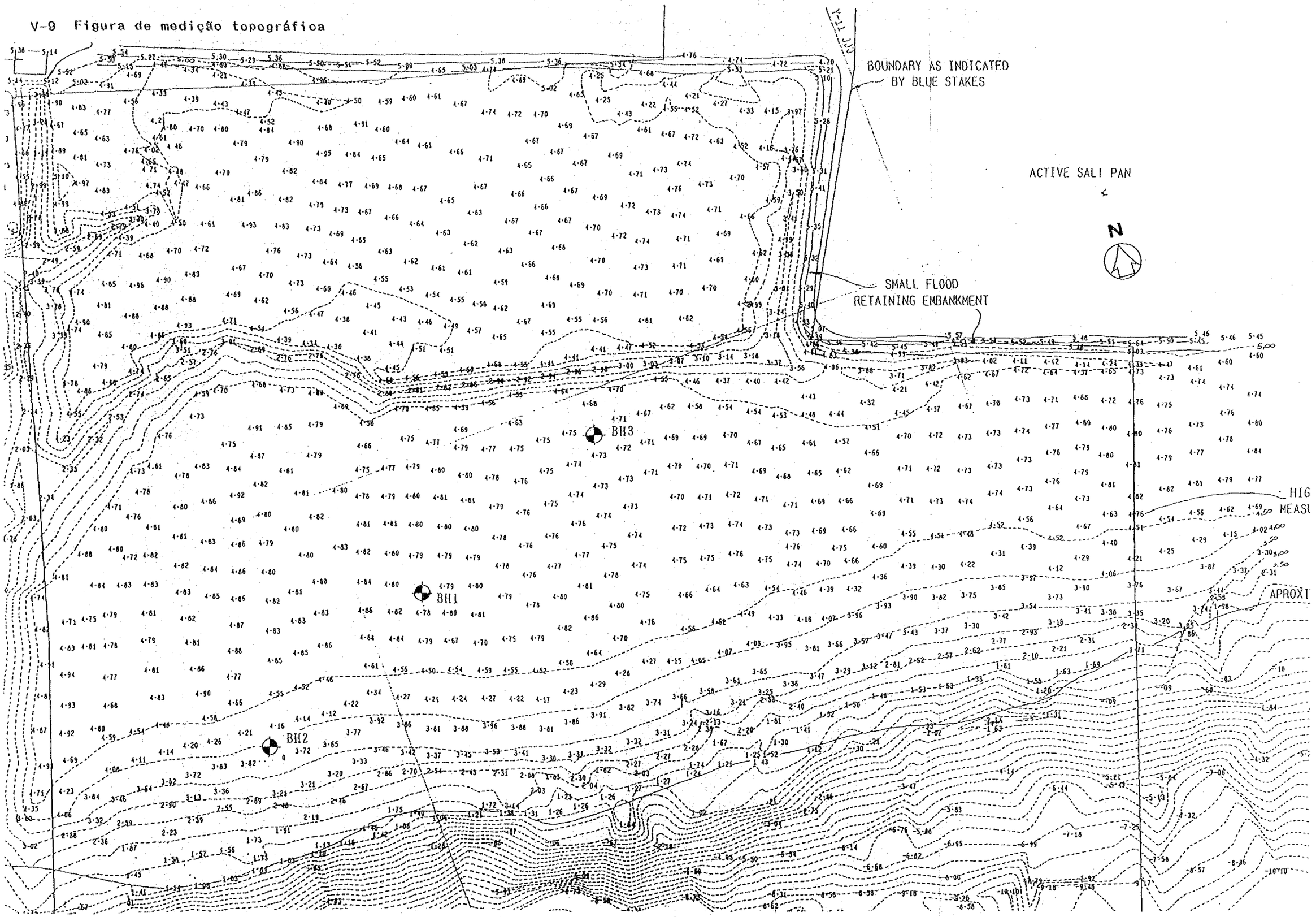
QUELIMANE 2 2.0M

Observed on Sept. 12 - 13, 1992

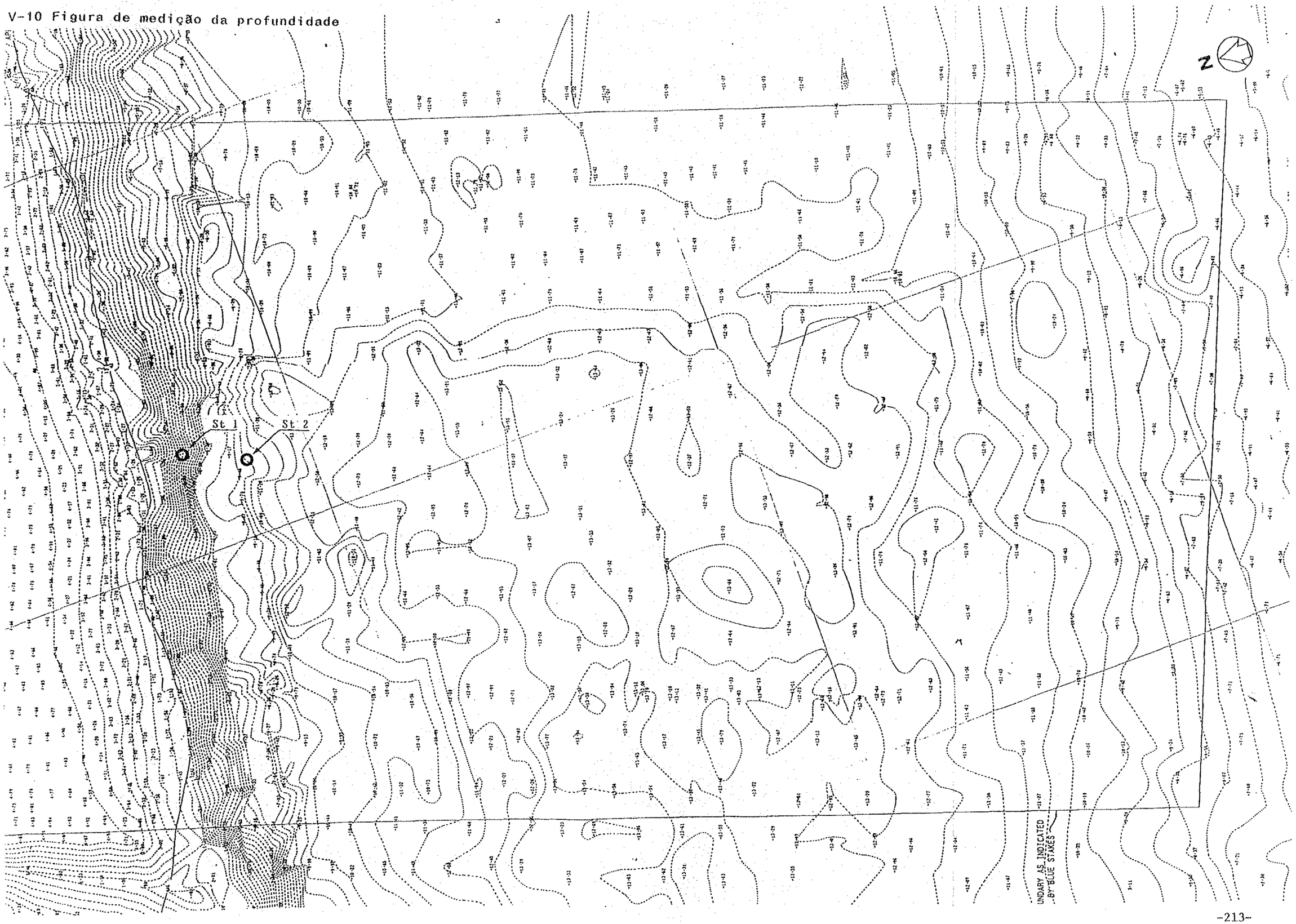


QUELIMANE 2 4.0M

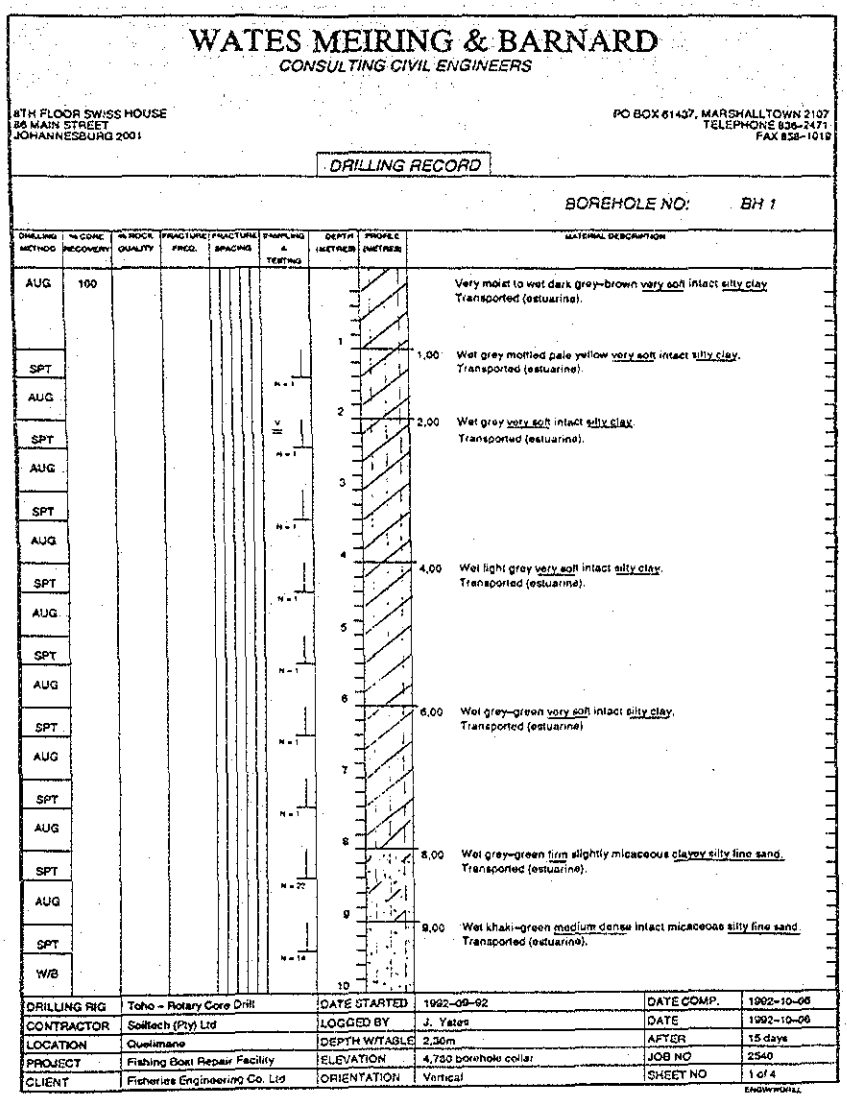
V-9 Figura de medição topográfica



V-10 Figura de medição da profundidade



V-11 Figura da coluna cilíndrica de camadas do solo



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CONSULTING CIVIL ENGINEERS

6TH FLOOR SWISS HOUSE
86 MAIN STREET
JOHANNESBURG 2001

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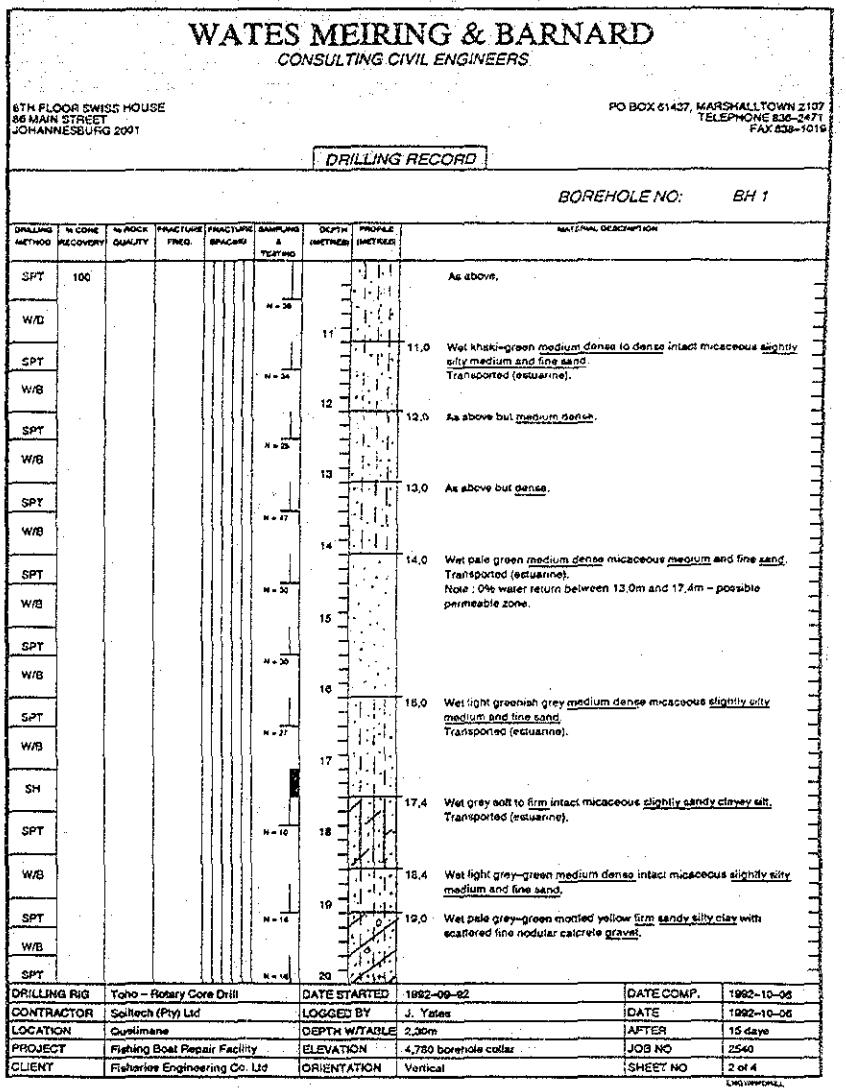
DRILLING RECORD

BOREHOLE NO: BH 1

DRILLING METHOD	% CORE RECOVERY	% ROCK QUALITY	FRACTURE FREQ.	FRACTURE SPACING	SAMPLING & TESTING	DEPTH (METRES)	PROFILE (METRES)	MATERIAL DESCRIPTION
AUG	100					0		Very moist to wet dark grey–brown very soft intact silty clay. Transported (estuarine).
SPT					N = 1	1,00		Wet grey mottled pale yellow very soft intact silty clay. Transported (estuarine).
AUG						2		
SPT					N = 1	2,00		Wet grey very soft intact silty clay. Transported (estuarine).
AUG						3		
SPT					N = 1	4,00		Wet light grey very soft intact silty clay. Transported (estuarine).
AUG						5		
SPT					N = 1	6,00		Wet grey–green very soft intact silty clay. Transported (estuarine)
AUG						7		
SPT					N = 1	8,00		Wet grey–green firm slightly micaceous clayey silty fine sand. Transported (estuarine).
AUG						9		
SPT					N = 22	9,00		Wet khaki–green medium dense intact micaceous silty fine sand. Transported (estuarine).
W/B					N = 14	10		

DRILLING RIG	Toho – Rotary Core Drill	DATE STARTED	1992–09–92	DATE COMP.	1992–10–06
CONTRACTOR	Soiltech (Pty) Ltd	LOGGED BY	J. Yates	DATE	1992–10–06
LOCATION	Quelimane	DEPTH W/TABLE	2,30m	AFTER	15 days
PROJECT	Fishing Boat Repair Facility	ELEVATION	4,730 borehole collar	JOB NO	2540
CLIENT	Fisheries Engineering Co. Ltd	ORIENTATION	Vertical	SHEET NO	1 of 4



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DRILLING RECORD

BOREHOLE NO: BH 1

DRILLING METHOD	% CORE RECOVERY	% ROCK QUALITY	FRACTURE FREQ.	FRACTURE SPACING	SAMPLING & TESTING	DEPTH (METRES)	PROFILE (METRES)	MATERIAL DESCRIPTION
SPT	100				N = 39	11		As above.
W/B						11,0		Wet khaki–green medium dense to dense intact micaceous slightly silty medium and fine sand. Transported (estuarine).
SPT					N = 34	12		
W/B						12,0		As above but medium dense.
SPT					N = 25	13		
W/B						13,0		As above but dense.
SPT					N = 47	14		
W/B						14,0		Wet pale green medium dense micaceous medium and fine sand. Transported (estuarine). Note : 0% water return between 13,0m and 17,4m – possible permeable zone.
SPT					N = 32	15		
W/B								
SPT					N = 30	16		
W/B						15,0		Wet light greenish grey medium dense micaceous slightly silty medium and fine sand. Transported (estuarine).
SPT					N = 27	17		
W/B								
SH						17,4		Wet grey soft to firm intact micaceous slightly sandy clayey silt. Transported (estuarine).
SPT					N = 10	18		
W/B						18,4		Wet light grey–green medium dense intact micaceous slightly silty medium and fine sand.
SPT					N = 14	19		
W/B						19,0		Wet pale grey–green mottled yellow firm sandy silty clay with scattered fine nodular calcrete gravel.
SPT					N = 16	20		

DRILLING RIG	Toho – Rotary Core Drill	DATE STARTED	1992–09–92	DATE COMP.	1992–10–06
CONTRACTOR	Soiltech (Pty) Ltd	LOGGED BY	J. Yates	DATE	1992–10–06
LOCATION	Quelimane	DEPTH W/TABLE	2,30m	AFTER	15 days
PROJECT	Fishing Boat Repair Facility	ELEVATION	4,730 borehole collar	JOB NO	2540
CLIENT	Fisheries Engineering Co. Ltd	ORIENTATION	Vertical	SHEET NO	2 of 4

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DRILLING RECORD

BOREHOLE NO: BH 1

DRILLING METHOD	% CORE RECOVERY	% ROCK QUALITY	FRACTURE FREQ.	FRACTURE SPACING	SAMPLING & TESTING	DEPTH (METRES)	PROFILE (METRES)	MATERIAL DESCRIPTION
W/B	100							As above.
SPT					N = 32	21		
W/B								
SPT					N = 37	22		
W/B								
SPT					N = 27	23		21,0 Wet mottled yellow and grey stiff shattered silty clay. Transported (estuarine).
W/B								
SPT					N = 8	24		22,9 Wet light grey mottled yellow firm intact clayey sand. Transported (estuarine).
W/B								
SH						25		(No sample recovered in Shelby tube).
W/B								
SPT					N = 17	26		
W/B								
SH								
SPT					N = 31	27		26,5 Wet yellow dense intact slightly silty medium and fine sand. Transported (estuarine). * Zones of clayey sand in places.
W/B								
SPT					N = 38	28		
W/B								
SPT					N = 41	29		28,5 Wet mottled grey and yellow stiff intact sandy clayey silt. Transported (estuarine).
W/B					N = 27	30		

DRILLING RIG	Toho – Rotary Core Drill	DATE STARTED	1992-09-02	DATE COMP.	1992-10-06
CONTRACTOR	Soiltech (Pty) Ltd	LOGGED BY	J. Yates	DATE	1992-10-06
LOCATION	Queilmane	DEPTH W/TABLE	2,30m	AFTER	15 days
PROJECT	Fishing Boat Repair Facility	ELEVATION	4,780 borehole collar	JOB NO	2540
CLIENT	Fisheries Engineering Co. Ltd	ORIENTATION	Vertical	SHEET NO	3 of 4

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DRILLING RECORD

BOREHOLE NO: BH 1

DRILLING METHOD	% CORE RECOVERY	% ROCK QUALITY	FRACTURE FREQ.	FRACTURE SPACING	SAMPLING & TESTING	DEPTH (METRES)	PROFILE (METRES)	MATERIAL DESCRIPTION
SPT	100				N = 66	31		Wet pale yellow mottled orange and black very dense intact medium and fine sand. Transported (estuarine).
W/B								
SPT					N = 66	32		* SPT refusal in all tests below 32,0m.
W/B								
SPT					N > 100	33		
W/B								
SPT					N = 100	34		
W/B								
CAS								
SPT					N > 100	35		
W/B								
SPT					N > 100			35,15 End of borehole ate 35,15m.
						36		
						37		
						38		
						39		
						40		

Key :

SPT	Standard Penetration Test
SH	Shelby Tube sample (undisturbed)
AUG	Auger Drilling
W/B	Washbore Drilling
CAS	Final Casing Depth
V	Water Table

DRILLING RIG	Toho – Rotary Core Drill	DATE STARTED	1992-09-02	DATE COMP.	1992-10-06
CONTRACTOR	Soiltech (Pty) Ltd	LOGGED BY	J. Yates	DATE	1992-10-06
LOCATION	Queilmane	DEPTH W/TABLE	2,30m	AFTER	15 days
PROJECT	Fishing Boat Repair Facility	ELEVATION	4,780 borehole collar	JOB NO	2540
CLIENT	Fisheries Engineering Co. Ltd	ORIENTATION	Vertical	SHEET NO	4 of 4

ENGINEERING

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DRILLING RECORD

BOREHOLE NO: BH 2

DRILLING METHOD	% CORE RECOVERY	% ROCK QUALITY	FRACTURE FREQ.	FRACTURE SPACING	SAMPLING & TESTING	DEPTH (METRES)	PROFILE (METRES)	MATERIAL DESCRIPTION
AUG	100					0		Wet grey mottled brown very soft intact silty clay. Transported (estuarine).
SH								
SPT					N = 1			
AUG						1,00		Wet dark grey very soft intact silty clay. Transported (estuarine).
SPT					N = 1	2		
AUG								
SPT					N = 1	3		
W/B								
SPT					N = 1	4		
W/B								
SPT					N = 1	5		
W/B								
SPT					N = 1	6		
W/B								
SPT					N = 4	7		
W/B								
SH						8		
SPT					N = 9			8,00 Wet light grey medium dense (firm) intact micaceous slightly clayey silty fine sand. Transported (estuarine).
W/B						9		
SH					N = 12	10		

DRILLING RIG	Toho – Rotary Core Drill	DATE STARTED	1992-10-07	DATE COMP.	1992-10-09
CONTRACTOR	Soiltech (Pty) Ltd	LOGGED BY	J. Yates	DATE	1992-11-02
LOCATION	Quelimane	DEPTH W/TABLE	Not recordable	AFTER	-
PROJECT	Fishing Boat Repair Facility	ELEVATION	3,800 borehole collar	JOB NO	2540
CLIENT	Fisheries Engineering Co. Ltd	ORIENTATION	Vertical	SHEET NO	1 of 3

ENGINWORKS

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DRILLING RECORD

BOREHOLE NO: BH 2

DRILLING METHOD	% CORE RECOVERY	% ROCK QUALITY	FRACTURE FREQ.	FRACTURE SPACING	SAMPLING & TESTING	DEPTH (METRES)	PROFILE (METRES)	MATERIAL DESCRIPTION
W/B	100					10		As above.
SPT					N = 27	11		10,5 Wet light yellow-grey medium dense to dense intact micaceous slightly silty medium and fine sand. Transported (estuarine).
W/B								
SPT					N = 29	12		
W/B								
SH						13		
SPT					N = 33			
W/B						14		
SPT					N = 40			
W/B						15		
SPT					N = 71			
W/B						16		
SPT					N = 16			16,4 Wet light grey firm to stiff intact micaceous sandy clayey silt. Transported (estuarine).
W/B						17		
SPT					N = 10			
W/B						18		
SH								
SPT					N = 31	19		19,0 Wet grey mottled yellow stiff in places shattered silty clay. Transported (estuarine).
W/B								
SPT					N = 36	20		

DRILLING RIG	Toho – Rotary Core Drill	DATE STARTED	1992-10-07	DATE COMP.	1992-10-09
CONTRACTOR	Soiltech (Pty) Ltd	LOGGED BY	J. Yates	DATE	1992-11-02
LOCATION	Quelimane	DEPTH W/TABLE	Not recordable	AFTER	-
PROJECT	Fishing Boat Repair Facility	ELEVATION	3,800 borehole collar	JOB NO	2540
CLIENT	Fisheries Engineering Co. Ltd	ORIENTATION	Vertical	SHEET NO	2 of 3

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DRILLING RECORD

BOREHOLE NO: BH 2

DRILLING METHOD	% CORE RECOVERY	% ROCK QUALITY	FRACTURE FREQ.	FRACTURE SPACING	SAMPLING & TESTING	DEPTH (METRES)	PROFILE (METRES)	MATERIAL DESCRIPTION
W/B	100							20,0 Wet mottled light grey and yellow stiff intact silty clay. Transported (estuarine). * Scattered fine nodular calcrete gravel
SPT					N = 31	21		
W/B								
SPT					N = 29	22		
W/B								
SH						23		(No sample recovered in Shelby Tube)
SPT					N = 35			
W/B						24		
SPT					N = 32			
W/B						25		24,5 Wet yellow mottled grey stiff intact clayey medium and fine sand. Transported (estuarine).
SPT					N = 22			
CAS						26		
SPT					N = 28			
W/B						27		
SPT					N = 36			27,45 End of borehole at 27,45m.
						28		
						29		
						30		

DRILLING RIG	Toho – Rotary Core Drill	DATE STARTED	1992-10-07	DATE COMP.	1992-10-09
CONTRACTOR	Soiltech (Pty) Ltd	LOGGED BY	J. Yates	DATE	1992-11-02
LOCATION	Queilmane	DEPTH W/TABLE	Not recordable	AFTER	–
PROJECT	Fishing Boat Repair Facility	ELEVATION	3,800 borehole collar	JOB NO	2540
CLIENT	Fisheries Engineering Co. Ltd	ORIENTATION	Vertical	SHEET NO	3 of 3

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DRILLING RECORD

BOREHOLE NO: BH 3

DRILLING METHOD	% CORE RECOVERY	% ROCK QUALITY	FRACTURE FREQ.	FRACTURE SPACING	SAMPLING & TESTING	DEPTH (METRES)	PROFILE (METRES)	MATERIAL DESCRIPTION
AUG	100							Wet dark grey mottled brown very soft intact silty clay. Transported (estuarine).
SPT					N = 1	1		
AUG								1,40 Wet dark grey very soft intact silty clay. Transported (estuarine).
SPT					N = 1	2		
AUG								
SPT					N = 1	3		
AUG								
SH						4		
SPT					N = 1			
W/B						5		
SPT					N = 1			
W/B						6		
SPT					N = 1			
W/B						7		
SPT					N = 3			
W/B						8		8,00 Wet grey loose to medium dense intact micaceous silty medium and fine sand. Transported (estuarine).
SPT					N = 10	9		
W/B								9,00 See below. Shelby Tube refusal – no sample.
SH						10		
SPT					N = 35			

DRILLING RIG	Toho – Rotary Core Drill	DATE STARTED	1992-10-12	DATE COMP.	1992-10-14
CONTRACTOR	Soiltech (Pty) Ltd	LOGGED BY	J. Yates	DATE	1992-10-14
LOCATION	Quelimane	DEPTH W/TABLE	0,8m (not rest level)	AFTER	12 hours
PROJECT	Fishing Boat Repair Facility	ELEVATION	4,75m borehole collar	JOB NO	2540
CLIENT	Fisheries Engineering Co. Ltd	ORIENTATION	Vertical	SHEET NO	1 of 3

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DRILLING RECORD

BOREHOLE NO: BH 3

DRILLING METHOD	% CORE RECOVERY	% ROCK QUALITY	FRACTURE FREQ.	FRACTURE SPACING	SAMPLING & TESTING	DEPTH (METRES)	PROFILE (METRES)	MATERIAL DESCRIPTION
W/B	100					11		Wet pale yellow grey medium dense to dense intact micaceous slightly silty medium and fine sand. * Zones of clayey silt 10.5 – 12.0m.
SH								
SPT					N = 34			
W/B						12		
SPT					N = 43			
W/B						13		
SPT					N = 33			
W/B						14		
SPT					N = 53			
W/B								
SH						15		
SPT					N = 14			
W/B						16		
SPT					N = 13			
W/B						17		
SPT					N = 75			
W/B						18		
SPT					N = 20			
W/B						19		
SPT					N = 24	20		

13,0 Wet yellow-grey very stiff intact micaceous slightly clayey and silty medium and fine sand.
Transported (estuarine).

15,4 Wet grey-yellow medium dense intact slightly silty medium and fine sand.
Transported (estuarine).

18,0 Wet yellow mottled grey and white stiff in places shattered silty clay.
Transported (estuarine).
* Scattered nodular calcrete gravel up to 20mm.

DRILLING RIG	Toho – Rotary Core Drill	DATE STARTED	1992-10-12	DATE COMP.	1992-10-14
CONTRACTOR	Soiltech (Pty) Ltd	LOGGED BY	J. Yates	DATE	1992-10-14
LOCATION	Quelimane	DEPTH W/TABLE	0,8m (not rest level)	AFTER	12 hours
PROJECT	Fishing Boat Repair Facility	ELEVATION	4,75m borehole collar	JOB NO	2540
CLIENT	Fisheries Engineering Co. Ltd	ORIENTATION	Vertical	SHEET NO	2 of 3

ENGIWORKS

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DRILLING RECORD

BOREHOLE NO: BH 3

DRILLING METHOD	% CORE RECOVERY	% ROCK QUALITY	FRACTURE FREQ.	FRACTURE SPACING	SAMPLING & TESTING	DEPTH (METRES)	PROFILE (METRES)	MATERIAL DESCRIPTION
W/B	100					21		As above but very stiff in places.
SH								
SPT					N = 44			
W/B						22		
SPT					N = 35			
W/B						23		
SPT					N = 14			
W/B						24		
SPT					N = 13			
W/B						25		
SH								
SPT					N = 30	26		
CAS								
SPT					N = 72	27		
						28		
						29		
						30		

23,0 Wet light yellow grey firm intact sandy silty clay.
Transported (estuarine).
* Scattered fine nodular calcrete gravel up to 20mm.

26,0 Wet yellow speckled white dense to very dense intact slightly calcareous coarse medium and fine sand.
Transported (estuarine).

26,67 End of borehole at 26,67m.

DRILLING RIG	Toho – Rotary Core Drill	DATE STARTED	1992-10-12	DATE COMP.	1992-10-14
CONTRACTOR	Soiltech (Pty) Ltd	LOGGED BY	J. Yates	DATE	1992-10-14
LOCATION	Quelimane	DEPTH W/TABLE	0,8m (not rest level)	AFTER	12 hours
PROJECT	Fishing Boat Repair Facility	ELEVATION	4,75m borehole collar	JOB NO	2540
CLIENT	Fisheries Engineering Co. Ltd	ORIENTATION	Vertical	SHEET NO	3 of 3

ENGIWORKS

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V-12 Lista dos materiais e equipamentos

1. Equipment for Dock

No	Equipment and Specifications Outline	Quantity
1.	Painting facilities (1) Pneumatic hand sander, disk, paper (2) Air hoses for the above (3) Airless spray painting facilities - Painting unit - Airless gun - Airless hose - Goggle, respirator (4) Accessories for Jet cleaning system - Nozzle with stand and valve - Discharge hose	1 lot
2.	Sand blasting facilities (1) Air blast machine, air dryer (2) Hopper with stand (3) Blast nozzle, hose, valve (4) Hood, respirator, glove	1 lot
3.	Scaffold 6400H, 1800W, 600Dmm	4 sets
4.	Hydraulick oil jack, 10 ton ~ 50 ton	1 lot
5.	Walf ladder 7,500mm L 5,000mm L	1 pce. 1 pce.
6.	Portable bilge pump, 1.5 kw	2 pcs.
7.	Wire reel	2 pcs.
8.	Electric fan with ducts	4 sets
9.	Battery charger (15A~10A)	1 pce.
10.	Concrete breaker	1 pce.
11.	Scrap and trash box with sling wire	1 lot
12.	Submersible pump	2 sets
13.	Crawler crane, max. working radius 25m rated load 2 ton at 14m radius	1 set
14.	Truck crane, max. working radius 15m rated load 0.5 ton at 14m radius	1 set
15.	Forlift, load capacity 2 ton	1 set
16.	Cargo truck, load capacity 2 ton	1 set
17.	4 pods hoisting crane, load capacity 2 ton	1 set
18.	Hand cart, load capacity 500 kg	4 pcs.
19.	Carrier for gas bottle	2 pcs.

2. Workshop Equipment

No	Equipment and Specifications Outline	Quantity
1.	Lathe	1 lot
	(1) Distance between centers 4,600mm Max. diameter of piece 350mm	
	(2) Cutting tools and accessories	
2.	Electric welder	
	(1) AC ARC welder	8 sets
	(2) Cable, rod holder, welder's outfits	1 lot
	(3) Welding rod	1 lot
3.	Gas welder and cutter	
	(1) Gas cutting torch	4 pcs.
	(2) Gas welding torch	4 pcs.
	(3) Hose, regulator, nozzles, empty gas bottles	1 lot
4.	Drilling machine	
	(1) Upright type Max. drilling diameter, 50mm	1 set
	(2) Bench type , 25mm	1 set
	(3) Portable type , 13mm	3 pcs.
	(4) Drill	1 lot
5.	Electric grinder 205mm dia.	2 sets
6.	Electric hacksawing machine 350mm L	1 set
7.	High speed cut-off machine for pipe (150mm dia. max)	1 set
8.	Disc sander 100mm dia.	5 pcs.
9.	Hand grinder	5 pcs.
10.	Hydraulic pipe bender 4" ~ 3/4" dia.	1 set
11.	Washing can	1 lot
12.	Anvil block, swage block	1 set
13.	Portable fan	2 pcs.
14.	Welding surface plate	1 lot
15.	Dryer for welding rod	1 set
16.	Dust proof glasses, common use for gas cutting	10 pcs.
17.	Working table, wooden and steel	1 lot
19	Steel rack	1 lot

3. Tools and Others

No	Equipment and Specifications Outline	Quantity
1.	Tools for Machinery Works, Hull Works Materials Spanner, wrench, file, chisel, hacksaw, scraper, hammer, sling, shackle, chain block, rope, etc.	1 lot
2.	Tools for Electrical Works Screw driver, nipper, knife, etc.	1 lot
3.	Measurement Tools Vernier caliper, micrometer, gauge, scale, etc.	1 lot
4.	Furniture Locke, table, office furniture	1 lot

V-13 Estudo do sistema de construção normal da rampa e da doca seca

* Pontos que deverão ser observados, principalmente no presente projecto

	Rampa	Doca seca
(1) Barcos a serem atendidos		
1) Tamanho	Existe um limite para a quantidade de drenagem d'água do barco. Máximo: Cerca de 1.000 toneladas	E possível a entrada para reparação, independente do tamanho do barco.
*2) Formato do fundo do barco	No caso de barcos grandes com inclinação do fundo do barco (rise of floor) é necessário experiência na preparação do içamento e no içamento propriamente dito. (Esse tipo é comum nos barcos europeus) E necessário experiência, pois o trabalho de colocação na placa deslisante é feito submerso.	Como a manipulação é feita observando-se o "encaixe" na condição seca, normalmente é um trabalho simple.
3) Largura do barco	A entrada dos barcos é limitada pela largura dos trilhos.	A entrada dos barcos é limitada pela largura da doca.
(2) Condições de localização		
1) Topografia do local	O comprimento do local deverá ser maior que 1,5 vezes o comprimento do barco.	Deve ser maior que 1,1 vezes o comprimento do barco.
*2) Influência na superfície aquática frente ao porto	As instalações emergirão numa faixa de 2 L.	Sem influência
3) Dureza do solo	Não terá muita influência.	Há a necessidade de tomar cuidado com o levantamento do solo.
*4) Condição da linha costeira	.inclinação suave: apropriado .inclinação forte: não-apropriado	.inclinação suave: não-apropriado .inclinação forte: apropriado

	Rampa	Doca seca
(3) Condições naturais		
*1) Nível da maré	Devido à necessidade de se executar o trabalho de preparação para o içamento, deve-se projetar o nível da maré em um montante mais ou menos baixo. Por isso, as instalações emergirão bastante.	Não há necessidade.
*2) Correnteza	A influência é grande.	A influência é pequena.
*3) Ventos	A influência é grande.	A influência é pequena.
4) Humidade	Não há necessidade de preocupação especial.	Quando a humidade é alta, o tempo de secagem da pintura aumenta, havendo por vezes, a necessidade de se reconsiderar o tempo de serviço.
5) Terremoto	Não há necessidade de preocupação especial.	Há necessidade de se dimensionar a força do terremoto nas instalações.
*6) Acúmulos	Impróprio	Impróprio
7) Erosão	Impróprio (Pode-se evitar conforme as especificações das instalações.)	Impróprio (Pode-se evitar conforme as especificações das instalações.)
(4) Condições de trabalho		
*1) Trabalhos de entrada para reparação	E necessário experiência devido às condições naturais (correnteza, vento, etc.)	As condições naturais não exercem muita influência.
	E necessário experiência, pois é preciso conhecer profundamente a relação entre a posição na água do barco a entrar para o reparação e a inclinação da rampa.	Os barcos que tem a posição n'água grande, é possível retirar antecipadamente o bloco localizado na parte posterior do barco.
2) Rendimento do trabalho	Como o espaço abaixo do fundo do barco é limitado conforme a altura da placa deslizante, o trabalho no fundo do barco não é eficiente.	Pode-se dizer que o rendimento do trabalho no fundo do barco é muito bom.

	Rampa	Doca seca
3) Reformulações em relação aos ressaltos do fundo do barco	Dependendo das condições da entrada (posição do corpo do barco, etc.), a posição do calço estabelecida pode deslocar-se. Há a necessidade do trabalho dos homens-rãs.	Bom
(5) Controlo de manutenção		
1) Serviço de manutenção diária	E necessária a manutenção das instalações que estão no nível d'água ou as que estão submersas.	Não há necessidade em especial.
2) Custos do controlo de manutenção	Custo de energia eléctrica, custos de pessoal da administração, necessidade de troca periódica (1 a 1,5 anos) dos cabos de aço de puxamento e instalações submersas.	Custos de energia eléctrica, custo do pessoal de administração.

V-14 Tabela de cálculo de análise econômica

UNIT : MIL.MT

	A	B	C	D=(A+B+C)	E	F	G=(E+F)	H=(G-D)
Year	Investment	Maintenace Cost	Equipment Renewal	Total Cost	Time Saving	Productivity Increas	Total Benefit	Net Benefit
1993	11,560.00			11,560.00			0.00	-11,560.00
1994	18,580.00			18,580.00			0.00	-18,580.00
1995		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
1996		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
1997		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
1998		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
1999		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2000		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2001		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2002		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2003		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2004		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2005		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2006		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2007		100.90	4,160.00	4,260.90	1,580.00	500.10	2,080.10	-2,180.80
2008		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2009		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2010		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2011		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2012		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2013		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2014		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2015		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2016		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2017		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2018		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2019		100.90	4,160.00	4,260.90	1,580.00	500.10	2,080.10	-2,180.80
2020		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2021		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2022		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2023		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2024		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2025		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2026		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2027		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2028		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2029		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2030		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2031		100.90	4,160.00	4,260.90	1,580.00	500.10	2,080.10	-2,180.80
2032		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2033		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2034		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2035		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2036		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2037		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2038		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2039		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
2040		100.90		100.90	1,580.00	500.10	2,080.10	1,979.20
Total	30,140.00	4,641.40	12,480.00	47,261.40	72,680.00	23,004.60	95,684.60	48,423.20
							IRR=	5.12%

V-15 Tabela de cálculo de análise financeira

Unit : Million MT

Year	Expenditure					Revenue	Balance
	Personnel Cost	Operation Cost	Maintenance Cost	Equipment Renewal	Depreciation Cost	Repair Service	
1993							0.00
1994							0.00
1995	426.01	18.30	100.90		524.88	941.00	-129.09
1996	426.01	18.30	100.90		524.88	941.00	-129.09
1997	426.01	18.30	100.90		524.88	941.00	-129.09
1998	426.01	18.30	100.90		524.88	941.00	-129.09
1999	426.01	18.30	100.90		524.88	941.00	-129.09
2000	426.01	18.30	100.90		524.88	941.00	-129.09
2001	426.01	18.30	100.90		524.88	941.00	-129.09
2002	426.01	18.30	100.90		524.88	941.00	-129.09
2003	426.01	18.30	100.90		524.88	941.00	-129.09
2004	426.01	18.30	100.90		524.88	941.00	-129.09
2005	426.01	18.30	100.90		524.88	941.00	-129.09
2006	426.01	18.30	100.90		524.88	941.00	-129.09
2007	426.01	18.30	100.90	4,160.00	524.88	941.00	-4,289.09
2008	426.01	18.30	100.90		524.88	941.00	-129.09
2009	426.01	18.30	100.90		524.88	941.00	-129.09
2010	426.01	18.30	100.90		524.88	941.00	-129.09
2011	426.01	18.30	100.90		524.88	941.00	-129.09
2012	426.01	18.30	100.90		524.88	941.00	-129.09
2013	426.01	18.30	100.90		524.88	941.00	-129.09
2014	426.01	18.30	100.90		524.88	941.00	-129.09
2015	426.01	18.30	100.90		524.88	941.00	-129.09
2016	426.01	18.30	100.90		524.88	941.00	-129.09
2017	426.01	18.30	100.90		524.88	941.00	-129.09
2018	426.01	18.30	100.90		524.88	941.00	-129.09
2019	426.01	18.30	100.90	4,160.00	524.88	941.00	-4,289.09
2020	426.01	18.30	100.90		524.88	941.00	-129.09
2021	426.01	18.30	100.90		524.88	941.00	-129.09
2022	426.01	18.30	100.90		524.88	941.00	-129.09
2023	426.01	18.30	100.90		524.88	941.00	-129.09
2024	426.01	18.30	100.90		524.88	941.00	-129.09
2025	426.01	18.30	100.90		524.88	941.00	-129.09
2026	426.01	18.30	100.90		524.88	941.00	-129.09
2027	426.01	18.30	100.90		524.88	941.00	-129.09
2028	426.01	18.30	100.90		524.88	941.00	-129.09
2029	426.01	18.30	100.90		524.88	941.00	-129.09
2030	426.01	18.30	100.90		524.88	941.00	-129.09
2031	426.01	18.30	100.90	4,160.00	524.88	941.00	-4,289.09
2032	426.01	18.30	100.90		524.88	941.00	-129.09
2033	426.01	18.30	100.90		524.88	941.00	-129.09
2034	426.01	18.30	100.90		524.88	941.00	-129.09
2035	426.01	18.30	100.90		524.88	941.00	-129.09
2036	426.01	18.30	100.90		524.88	941.00	-129.09
2037	426.01	18.30	100.90		524.88	941.00	-129.09
2038	426.01	18.30	100.90		524.88	941.00	-129.09
2039	426.01	18.30	100.90		524.88	941.00	-129.09
2040	426.01	18.30	100.90		524.88	941.00	-129.09
Total	19,596.46	841.80	4,641.40	12,480.00	24,144.48	43,286.00	-18,418.14

Unit : Million MT

Year	Expenditure					Revenue	Balance
	Personnel Cost	Operation Cost	Maintenance Cost	Equipment Renewal	Depreciation Cost	Repair Service	
1993							0.00
1994							0.00
1995	426.01	18.30	100.90		0.00	941.00	395.79
1996	426.01	18.30	100.90		0.00	941.00	395.79
1997	426.01	18.30	100.90		0.00	941.00	395.79
1998	426.01	18.30	100.90		0.00	941.00	395.79
1999	426.01	18.30	100.90		0.00	941.00	395.79
2000	426.01	18.30	100.90		0.00	941.00	395.79
2001	426.01	18.30	100.90		0.00	941.00	395.79
2002	426.01	18.30	100.90		0.00	941.00	395.79
2003	426.01	18.30	100.90		0.00	941.00	395.79
2004	426.01	18.30	100.90		0.00	941.00	395.79
2005	426.01	18.30	100.90		0.00	941.00	395.79
2006	426.01	18.30	100.90		0.00	941.00	395.79
2007	426.01	18.30	100.90	4,160.00	0.00	941.00	-3,764.21
2008	426.01	18.30	100.90		0.00	941.00	395.79
2009	426.01	18.30	100.90		0.00	941.00	395.79
2010	426.01	18.30	100.90		0.00	941.00	395.79
2011	426.01	18.30	100.90		0.00	941.00	395.79
2012	426.01	18.30	100.90		0.00	941.00	395.79
2013	426.01	18.30	100.90		0.00	941.00	395.79
2014	426.01	18.30	100.90		0.00	941.00	395.79
2015	426.01	18.30	100.90		0.00	941.00	395.79
2016	426.01	18.30	100.90		0.00	941.00	395.79
2017	426.01	18.30	100.90		0.00	941.00	395.79
2018	426.01	18.30	100.90		0.00	941.00	395.79
2019	426.01	18.30	100.90	4,160.00	0.00	941.00	-3,764.21
2020	426.01	18.30	100.90		0.00	941.00	395.79
2021	426.01	18.30	100.90		0.00	941.00	395.79
2022	426.01	18.30	100.90		0.00	941.00	395.79
2023	426.01	18.30	100.90		0.00	941.00	395.79
2024	426.01	18.30	100.90		0.00	941.00	395.79
2025	426.01	18.30	100.90		0.00	941.00	395.79
2026	426.01	18.30	100.90		0.00	941.00	395.79
2027	426.01	18.30	100.90		0.00	941.00	395.79
2028	426.01	18.30	100.90		0.00	941.00	395.79
2029	426.01	18.30	100.90		0.00	941.00	395.79
2030	426.01	18.30	100.90		0.00	941.00	395.79
2031	426.01	18.30	100.90	4,160.00	0.00	941.00	-3,764.21
2032	426.01	18.30	100.90		0.00	941.00	395.79
2033	426.01	18.30	100.90		0.00	941.00	395.79
2034	426.01	18.30	100.90		0.00	941.00	395.79
2035	426.01	18.30	100.90		0.00	941.00	395.79
2036	426.01	18.30	100.90		0.00	941.00	395.79
2037	426.01	18.30	100.90		0.00	941.00	395.79
2038	426.01	18.30	100.90		0.00	941.00	395.79
2039	426.01	18.30	100.90		0.00	941.00	395.79
2040	426.01	18.30	100.90		0.00	941.00	395.79
Total	19,596.46	841.80	4,641.40	12,480.00	0.00	43,286.00	5,726.34