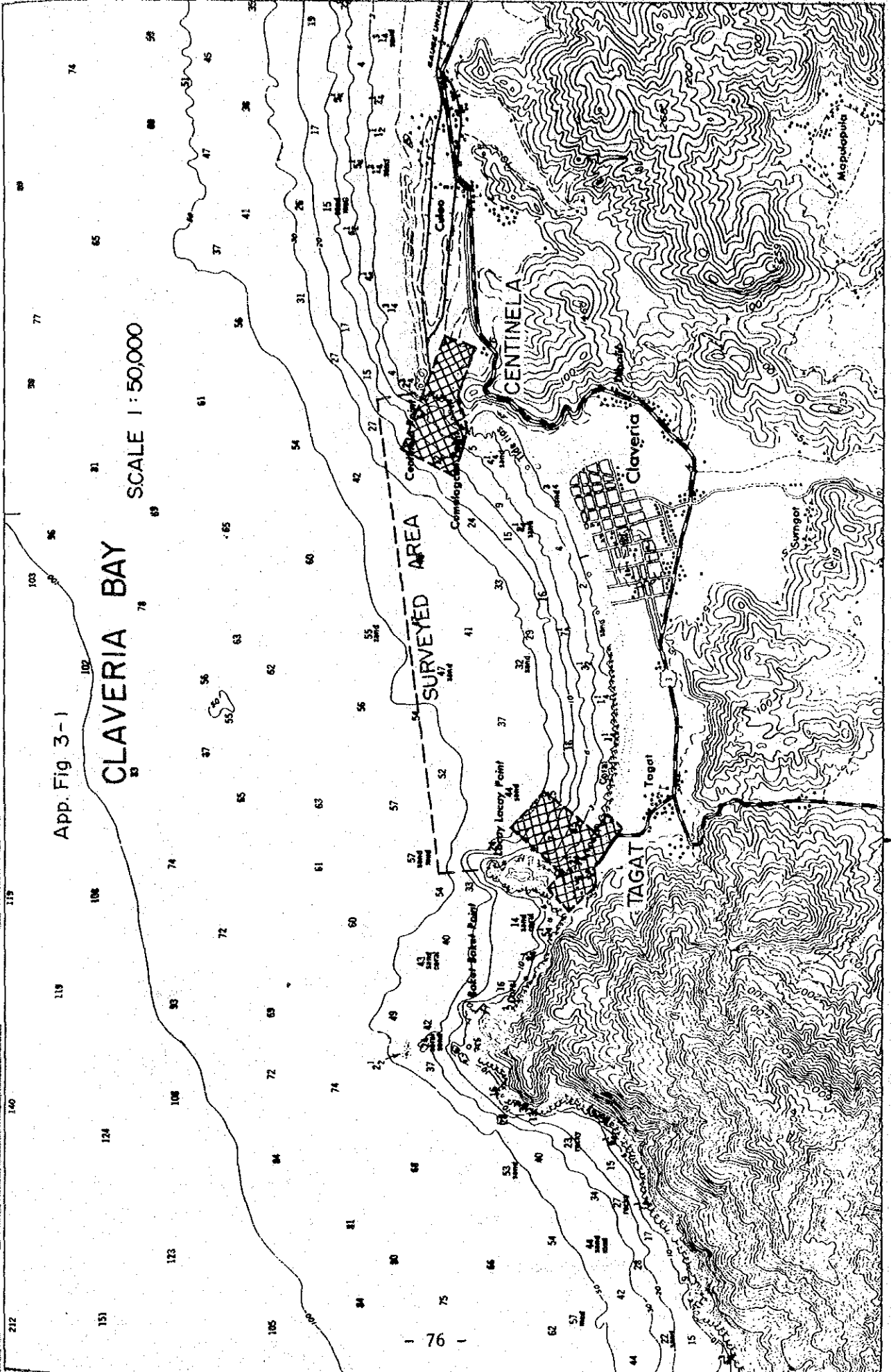


REFERENCE FIGURE

APPENDIX DATA



App. Fig 3-1

CLAVERIA BAY

SCALE 1:50,000

SURVEYED AREA

CENTINELA

TAGAT

Claveria

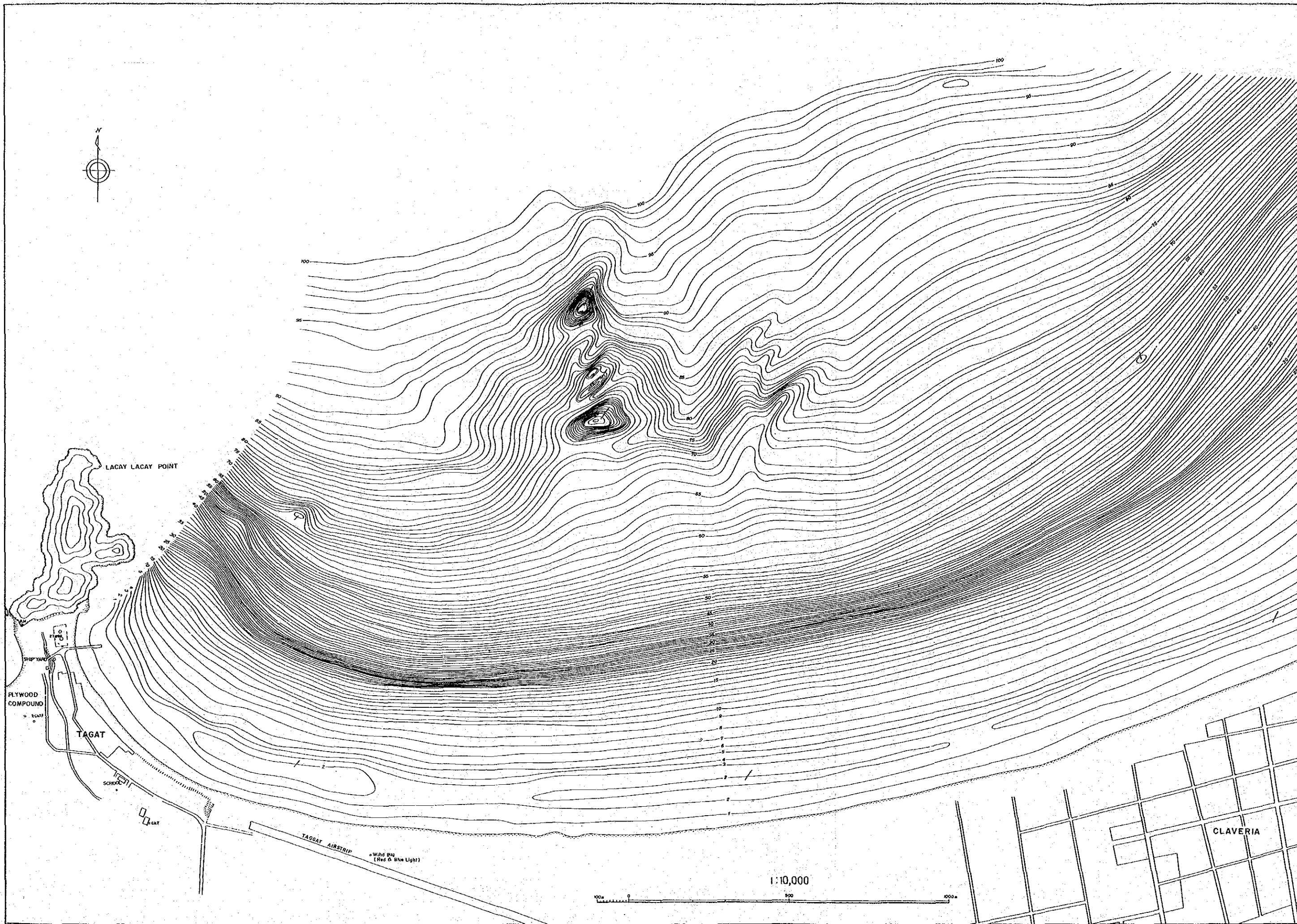
Lacey Point

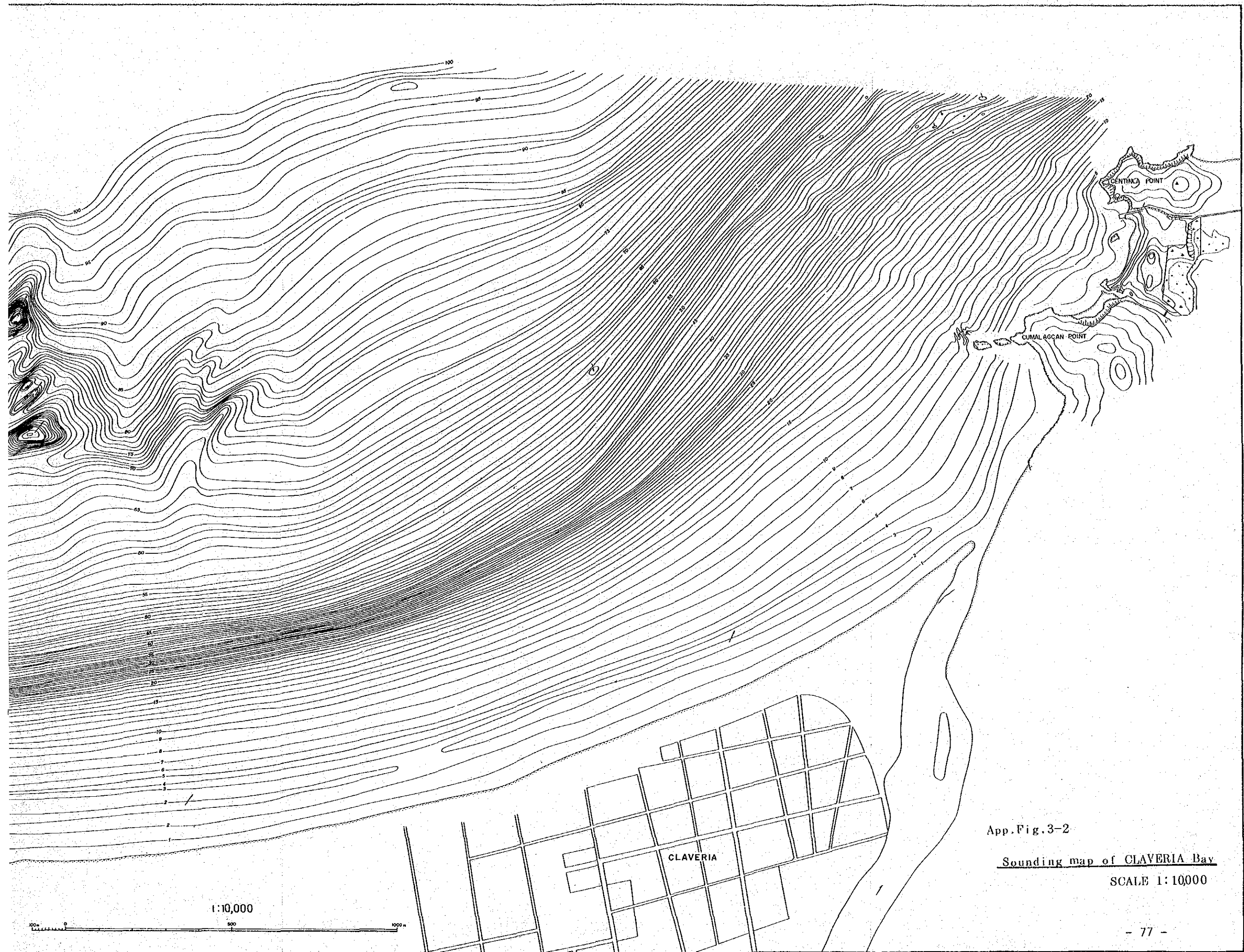
Water-Better-Road

Cubao

Mopokopua

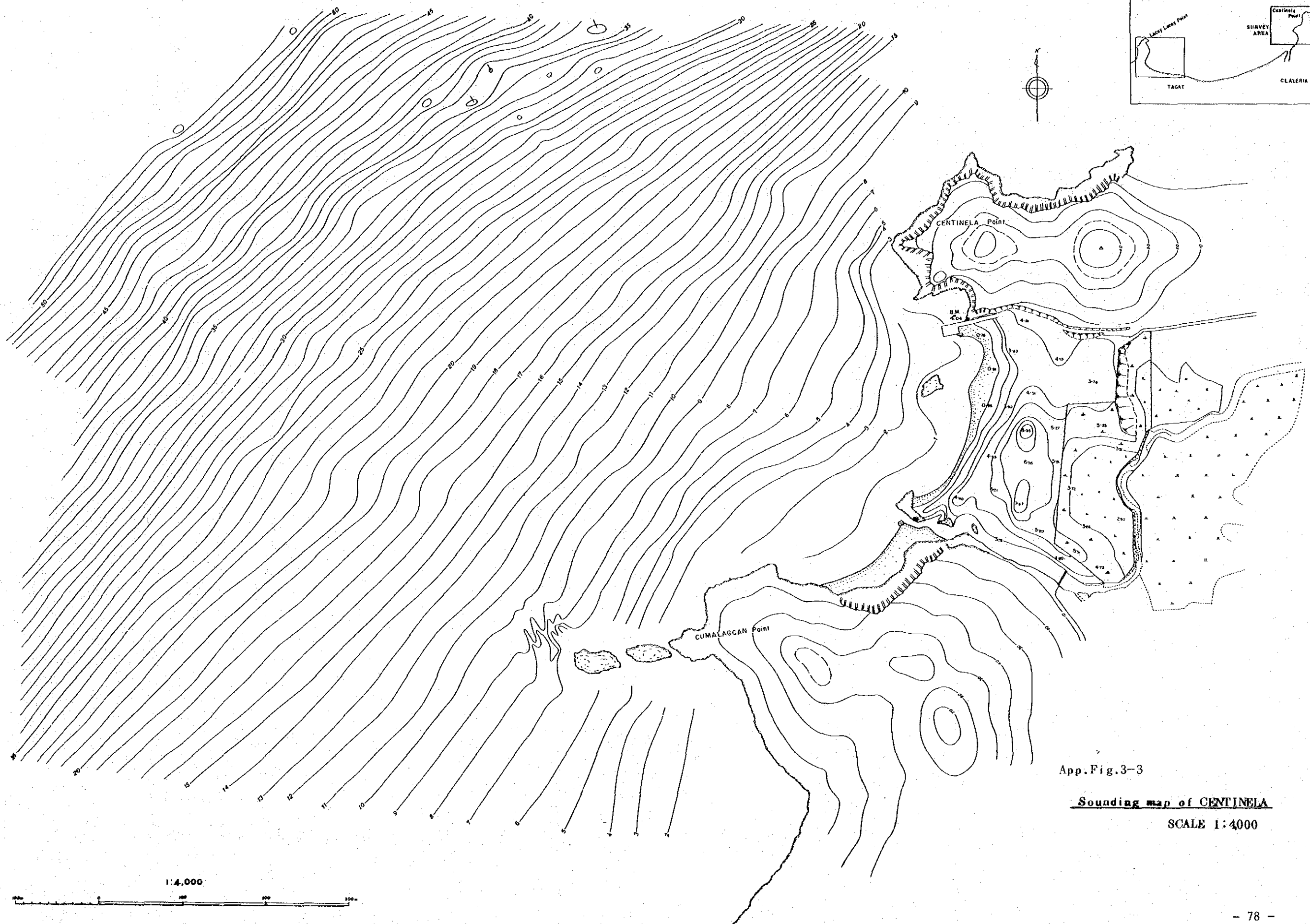
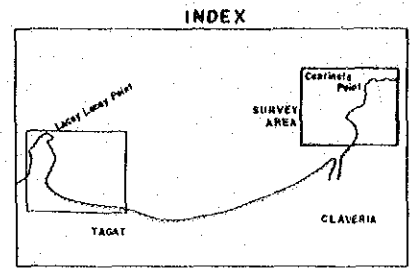
Sumogor





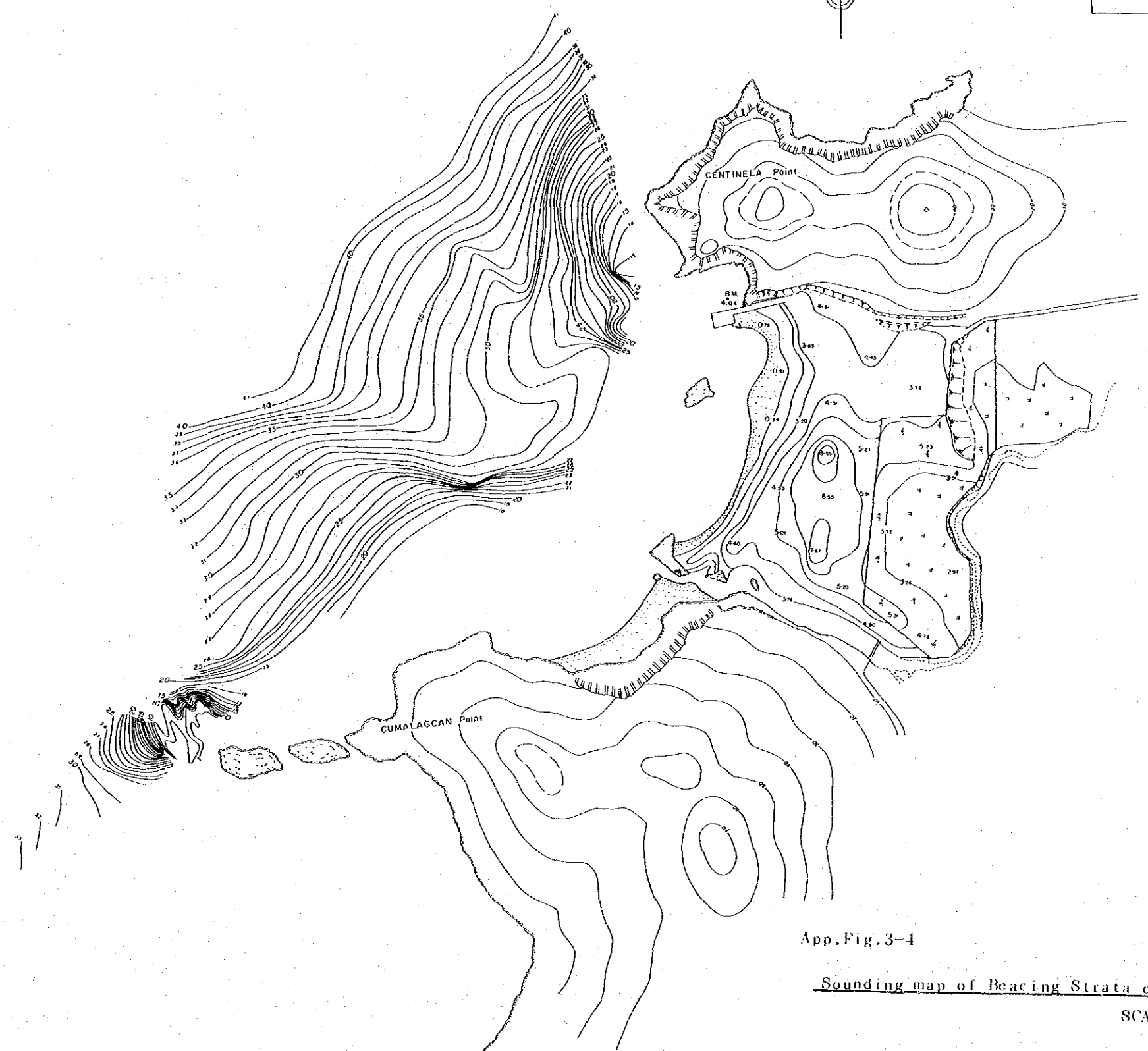
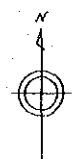
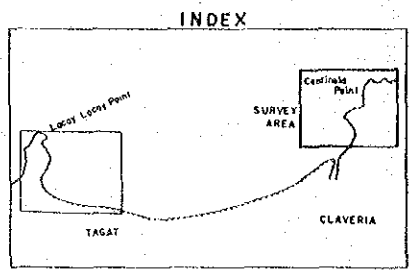
App. Fig. 3-2

Sounding map of CLAVERIA Bay
SCALE 1:10000



App. Fig. 3-3

Sounding map of CENTINELA
SCALE 1:4000

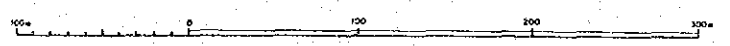


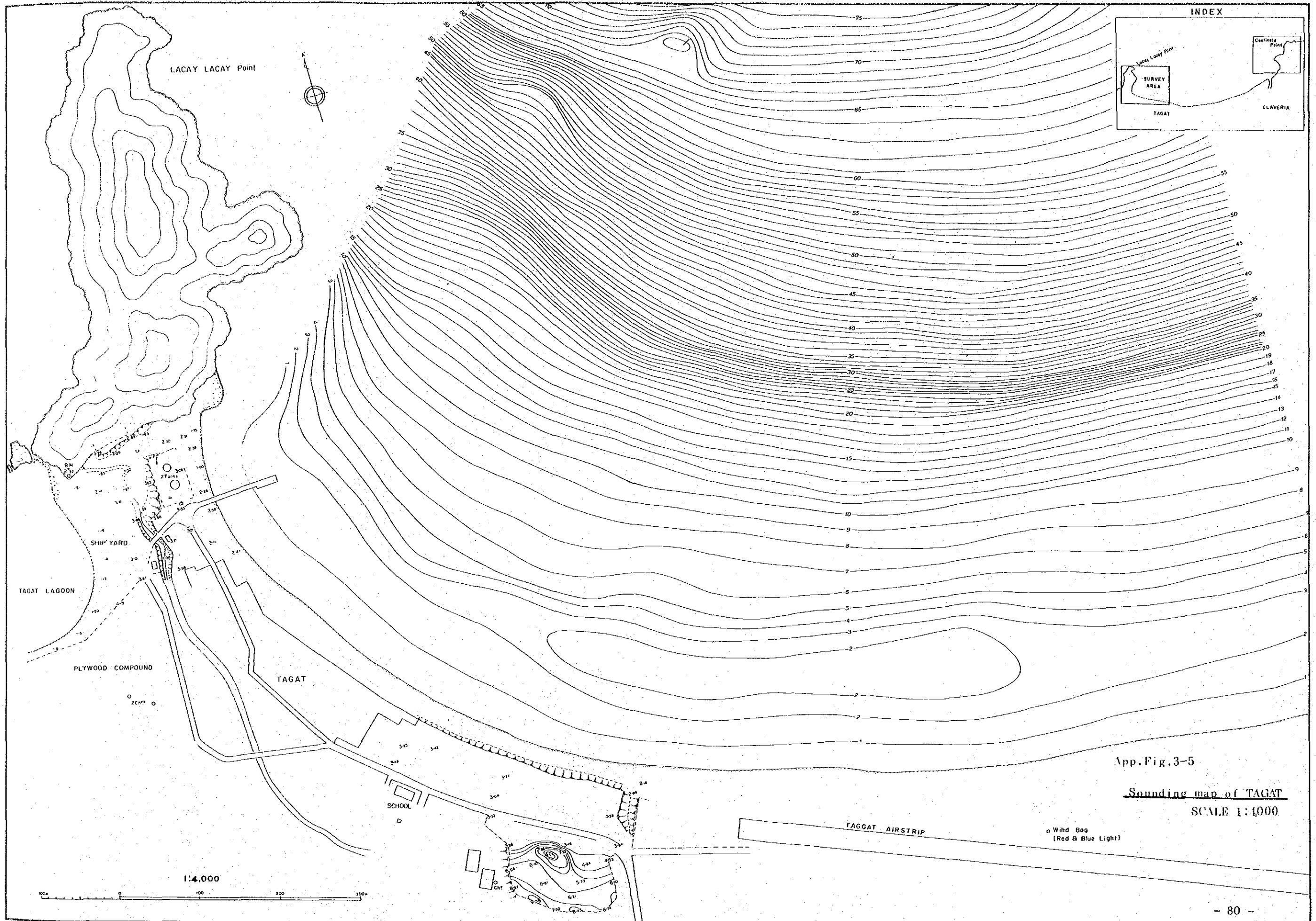
App. Fig. 3-4

Sounding map of Beacing Strata of CENTINELA

SCALE 1:4000

1:4,000





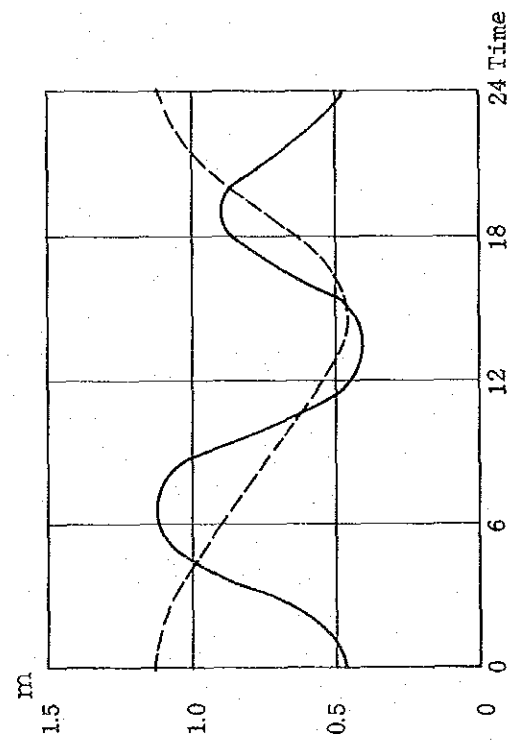
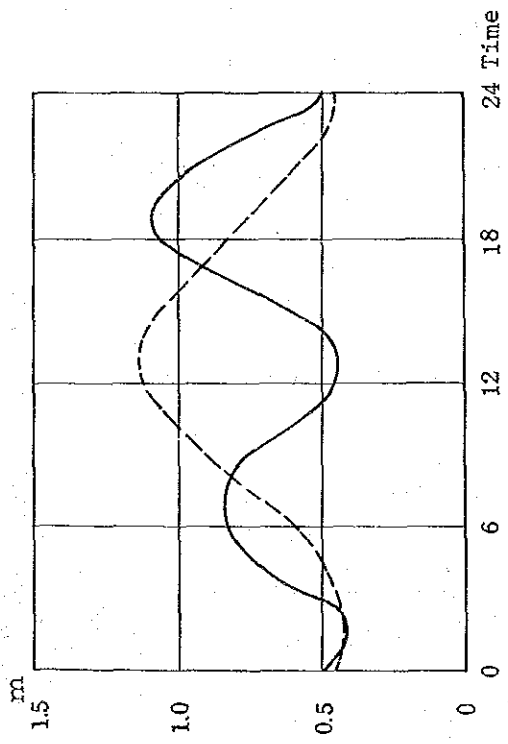
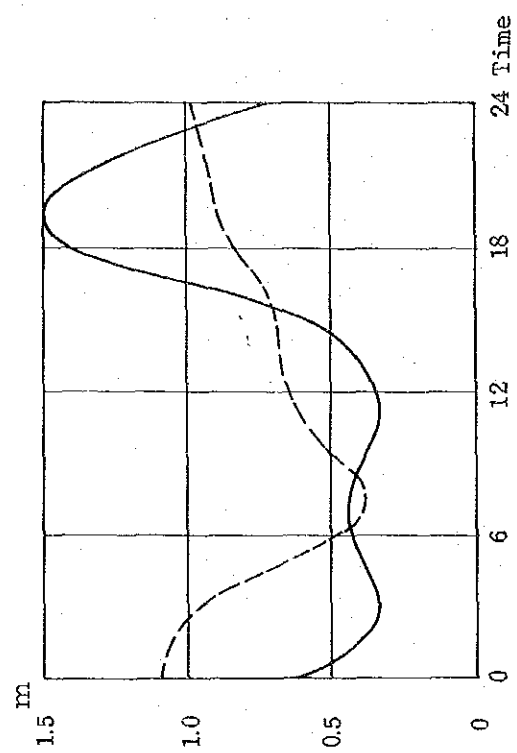
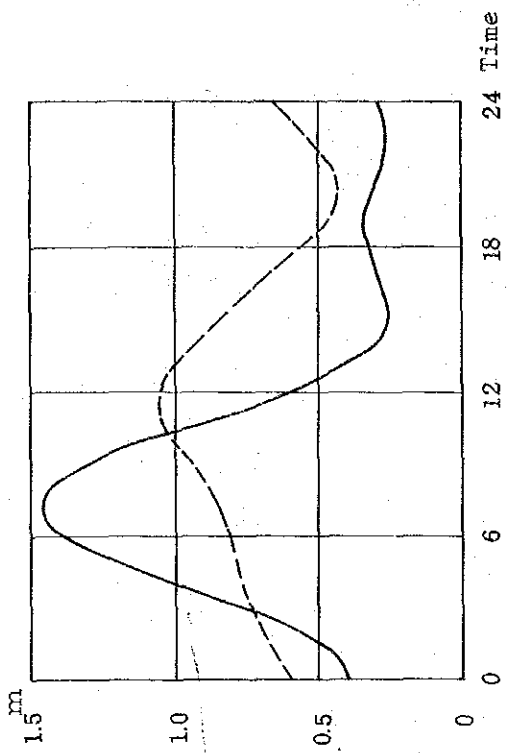
App. Fig. 3-5

Sounding map of TAGAT
SCALE 1:4000

App. Fig. 3-6

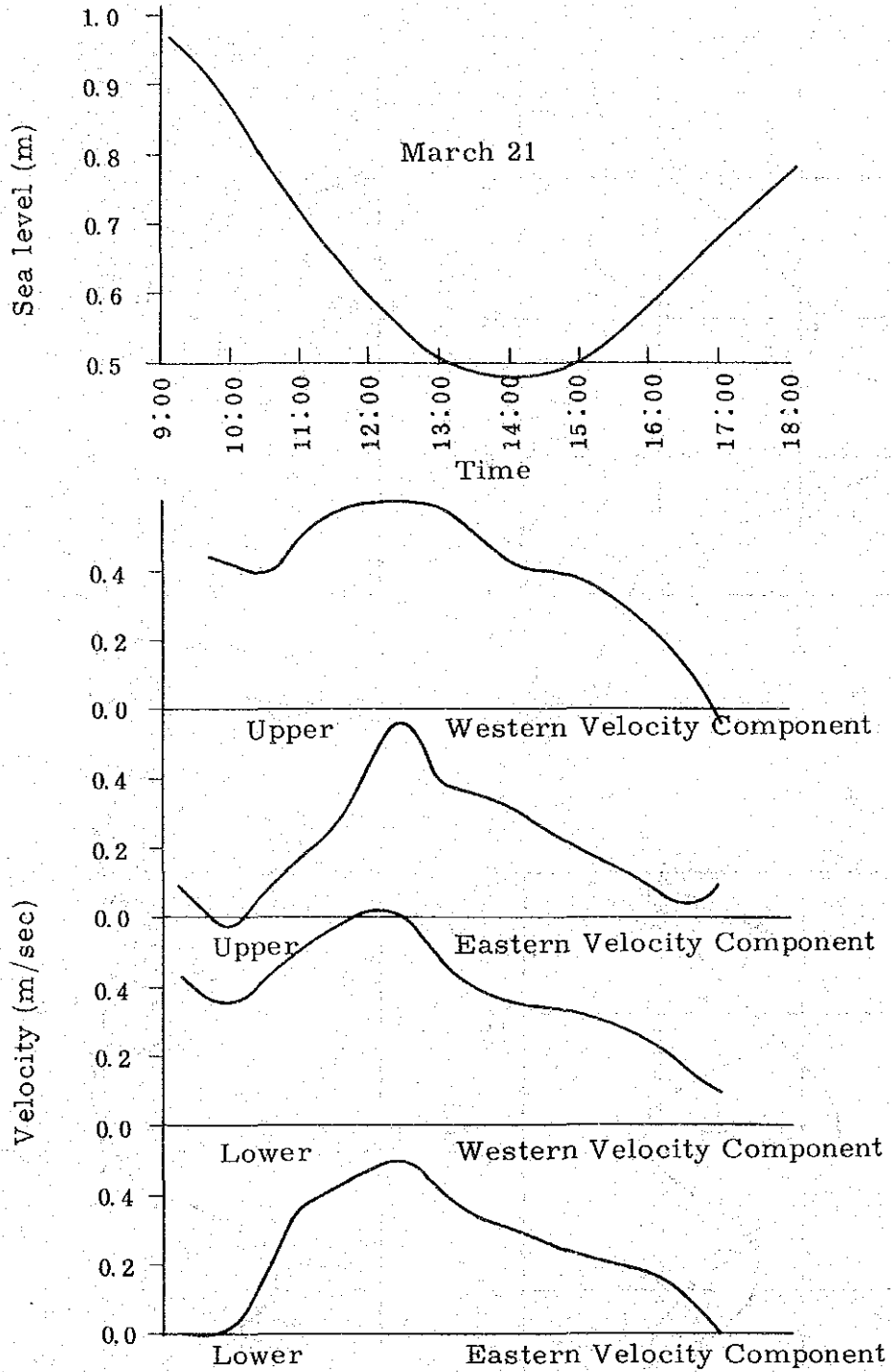
HEIGHT OF THE TIDE CURVE

Spring tide
Neap tide



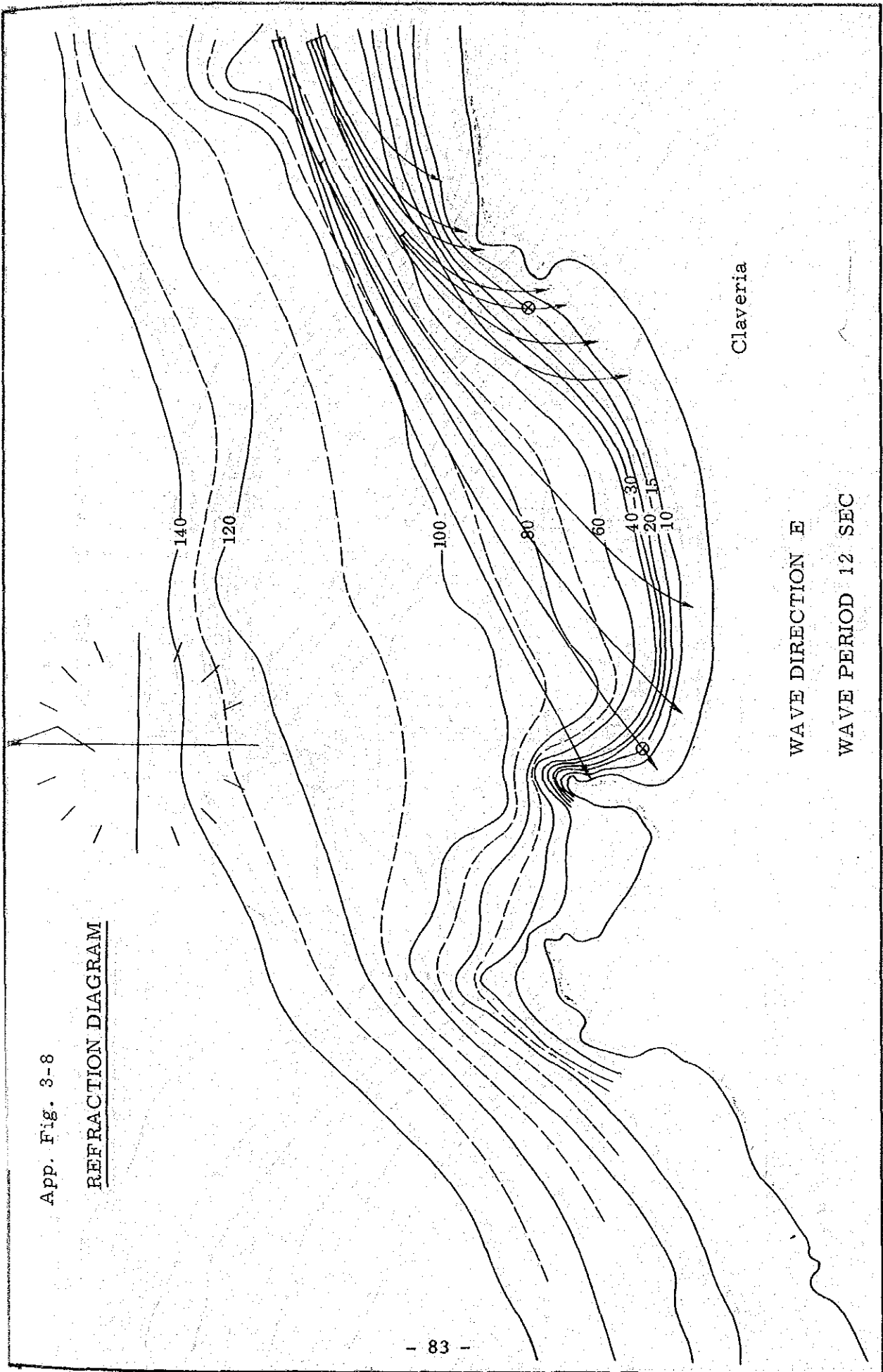
App. Fig. 3-7

RESULT OF TIDAL CURRENT OBSERVATION



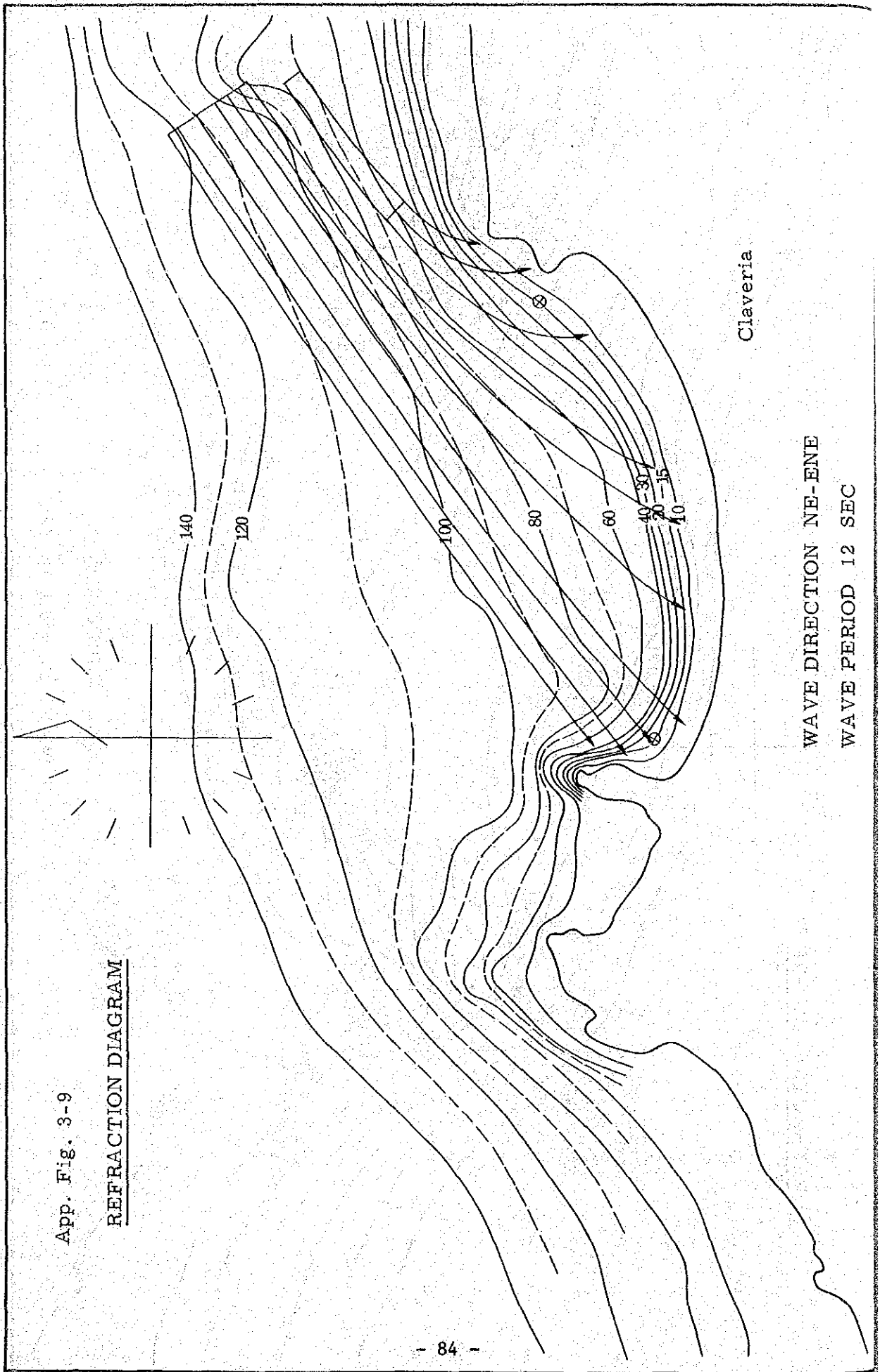
App. Fig. 3-8

REFRACTION DIAGRAM



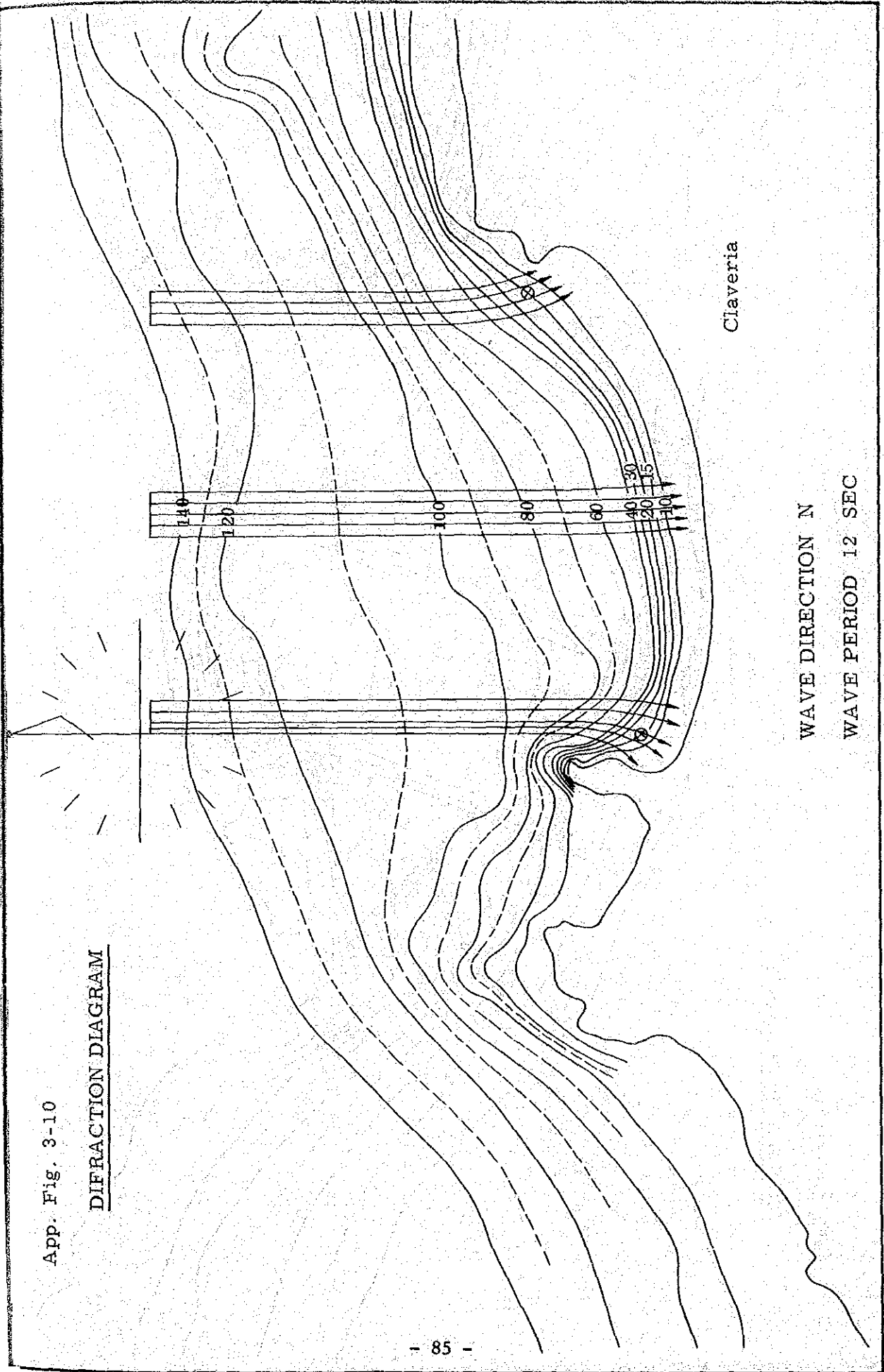
App. Fig. 3-9

REFRACTION DIAGRAM



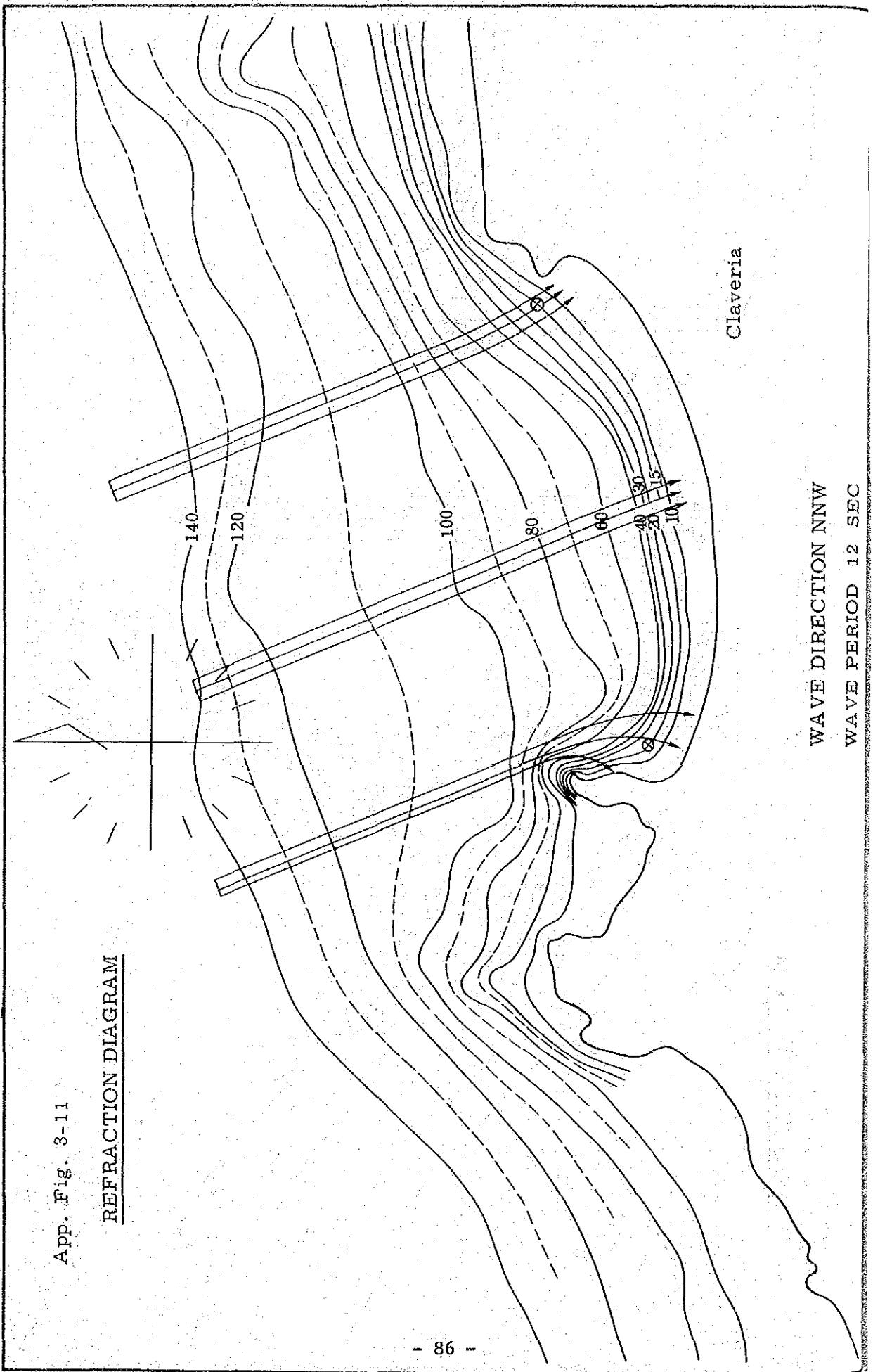
App. Fig. 3-10

DIFRACTION DIAGRAM



App. Fig. 3-11

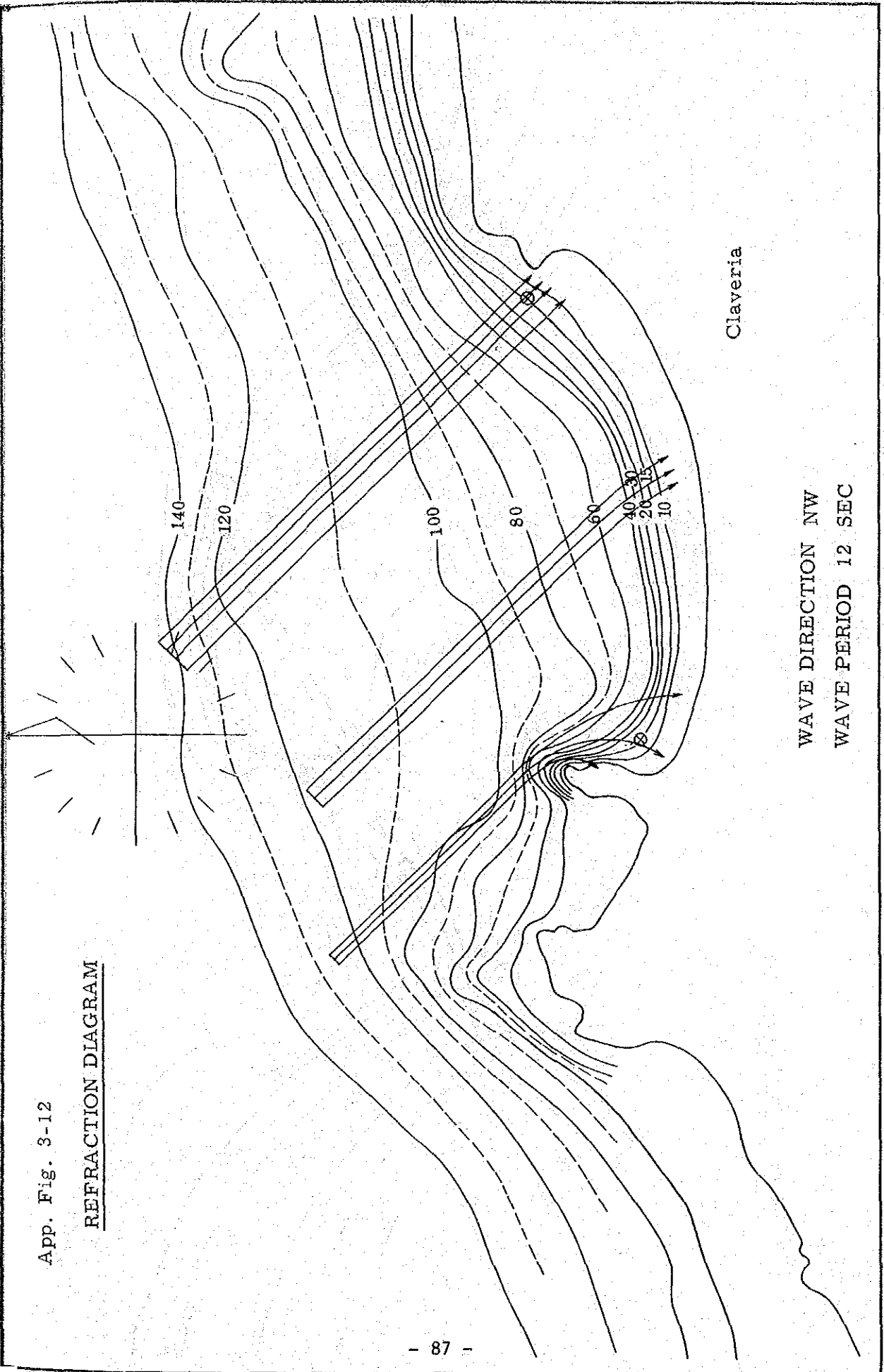
REFRACTION DIAGRAM



WAVE DIRECTION NNW
WAVE PERIOD 12 SEC

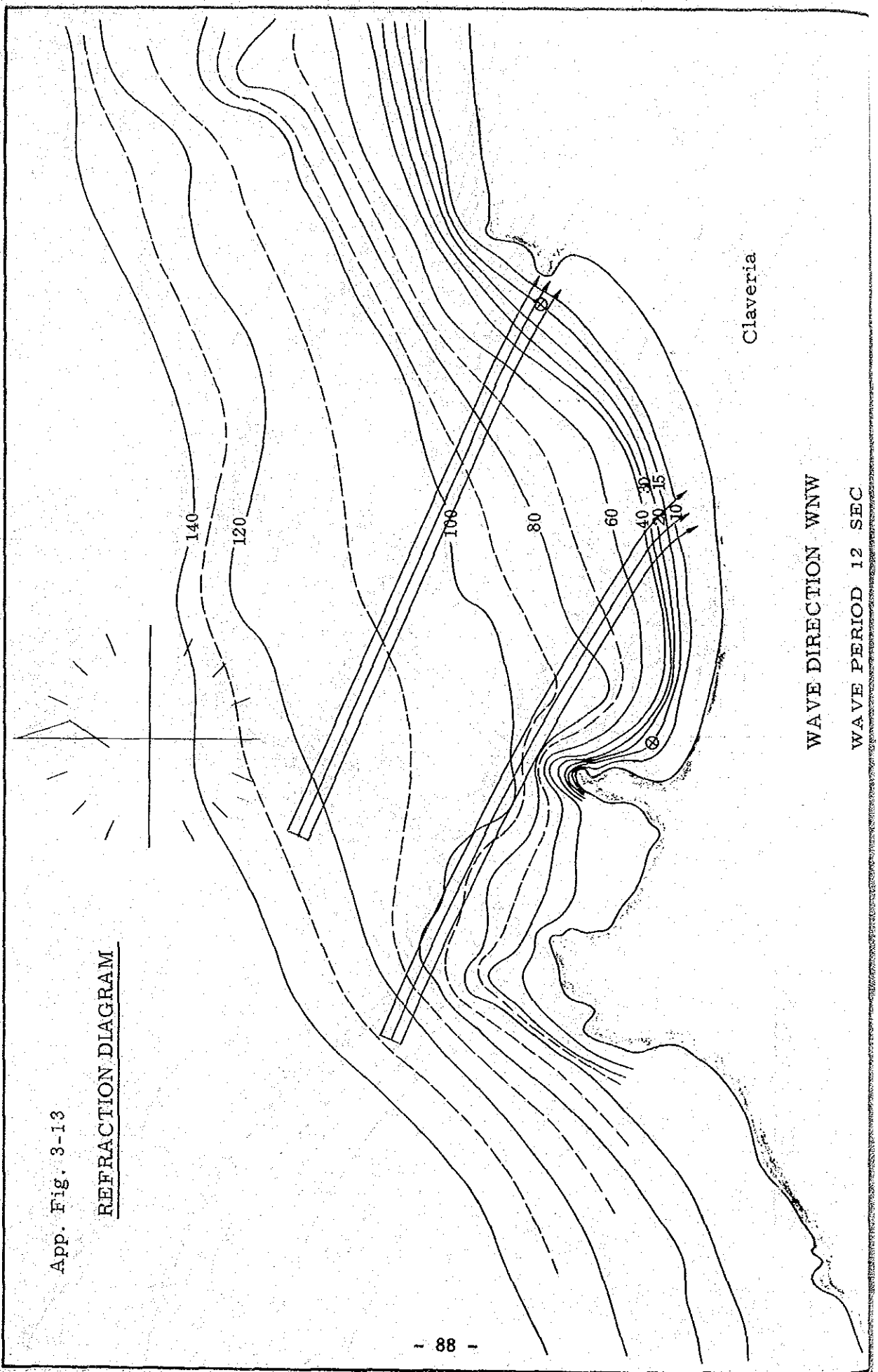
App. Fig. 3-12

REFRACTION DIAGRAM



App. Fig. 3-13

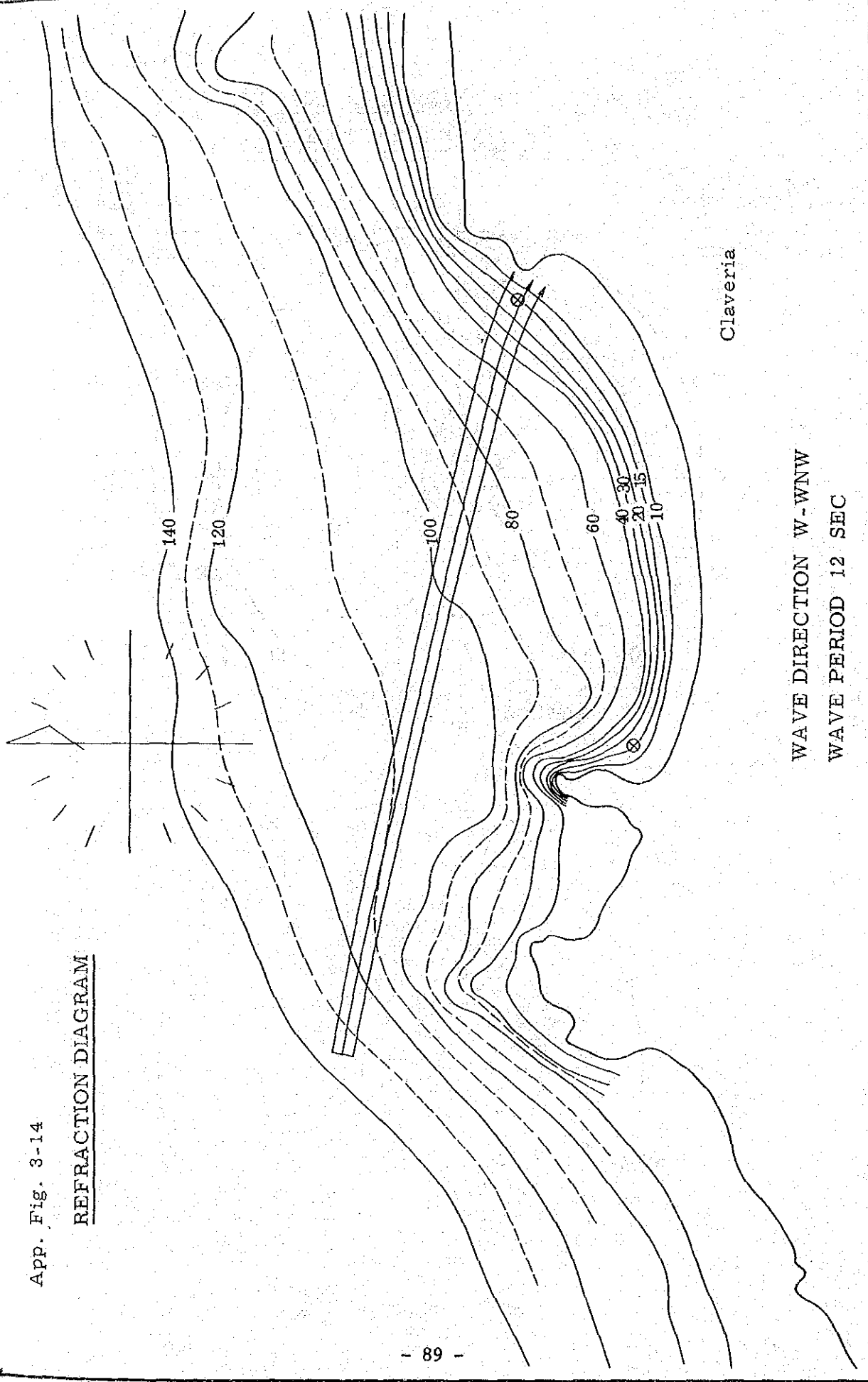
REFRACTION DIAGRAM



WAVE DIRECTION WNW
WAVE PERIOD 12 SEC

App. Fig. 3-14

REFRACTION DIAGRAM



App. Fig. 3-15

PERCENTAGE FREQUENCY OF OCCURRENCE

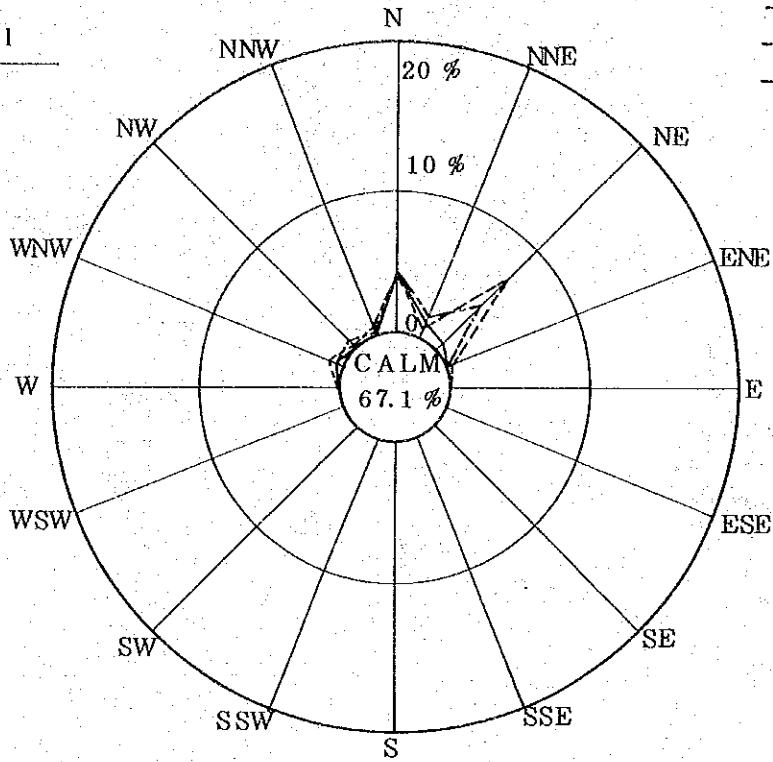
OF WAVE DIRECTION

CENTINELA

Annual

(Wave Height)

- 0.6 ~ 0.9 m
- 1.0 ~ 1.4 m
- more than 1.5 m



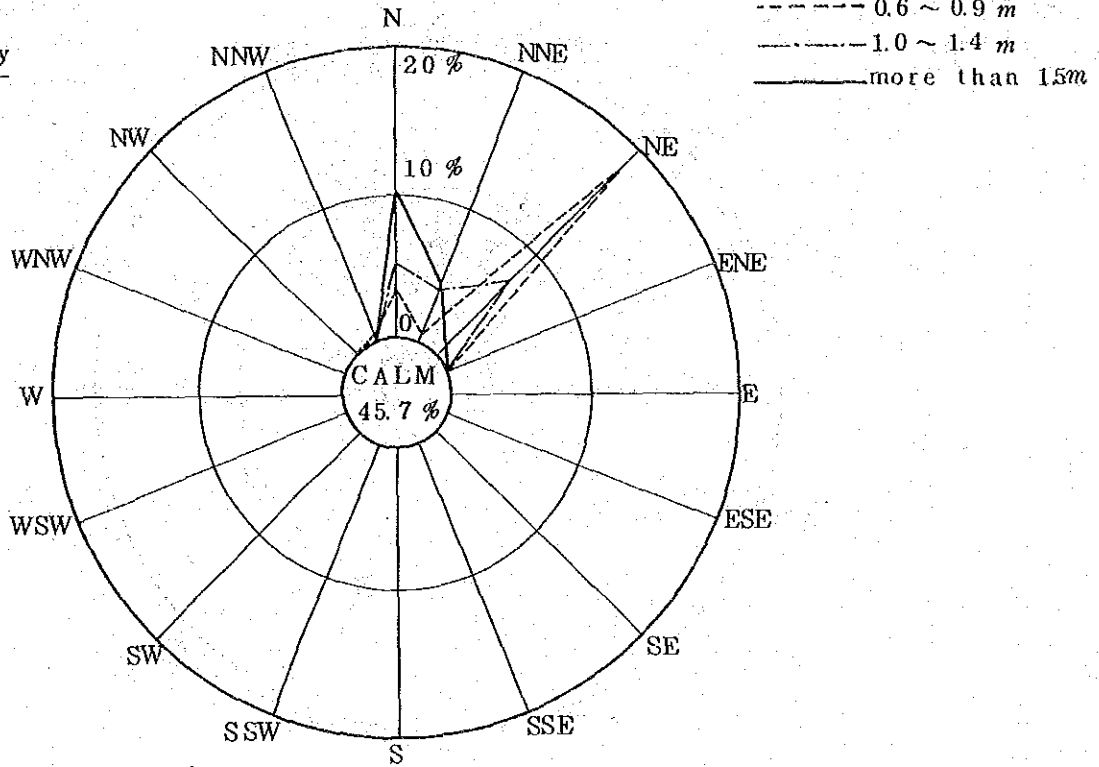
App. Fig. 3-16

PERCENTAGE FREQUENCY OF OCCURRENCE
OF WAVE DIRECTION BY MONTH

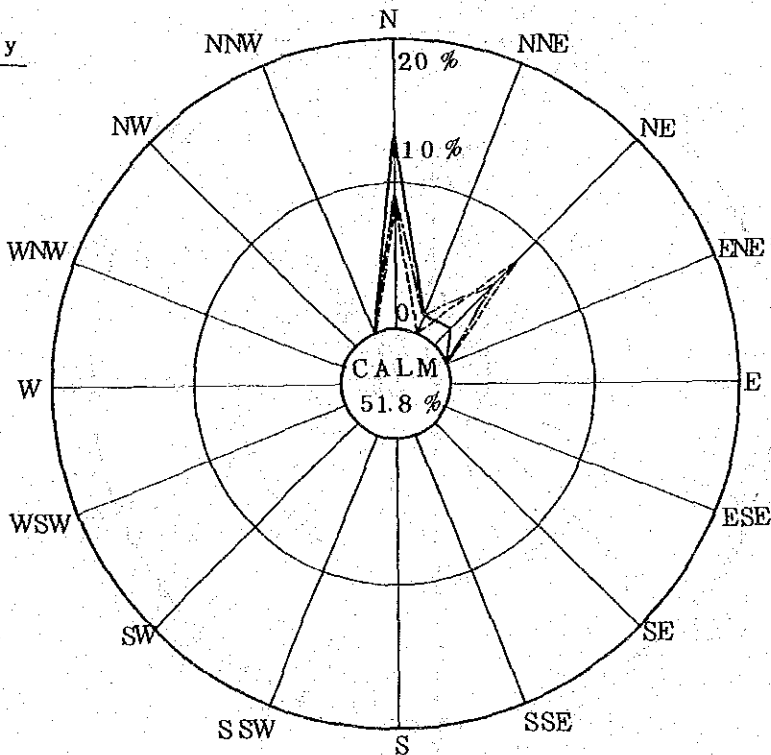
CENTINELA

(Wave Height)

January



February



App. Fig. 3-17

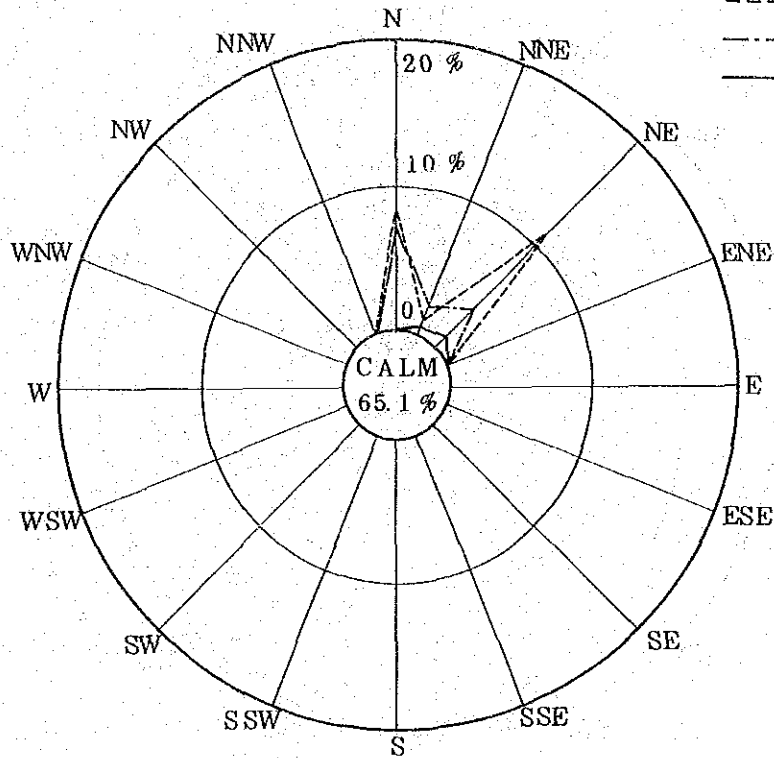
PERCENTAGE FREQUENCY OF OCCURRENCE
OF WAVE DIRECTION BY MONTH

CENTINERA

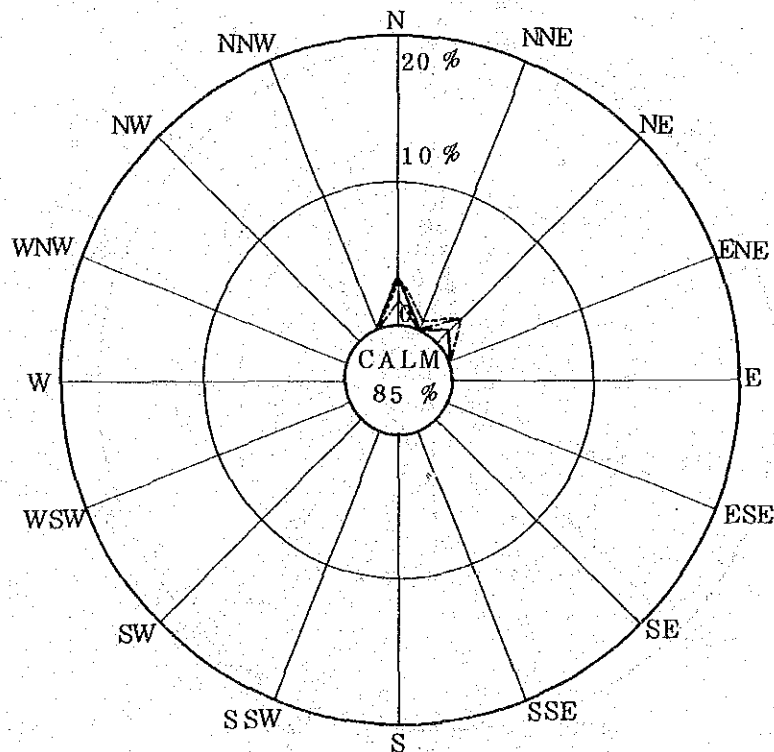
(Wave Height)

----- 0.6 ~ 0.9 m
- - - - - 1.0 ~ 1.4 m
————— more than 1.5

March



April

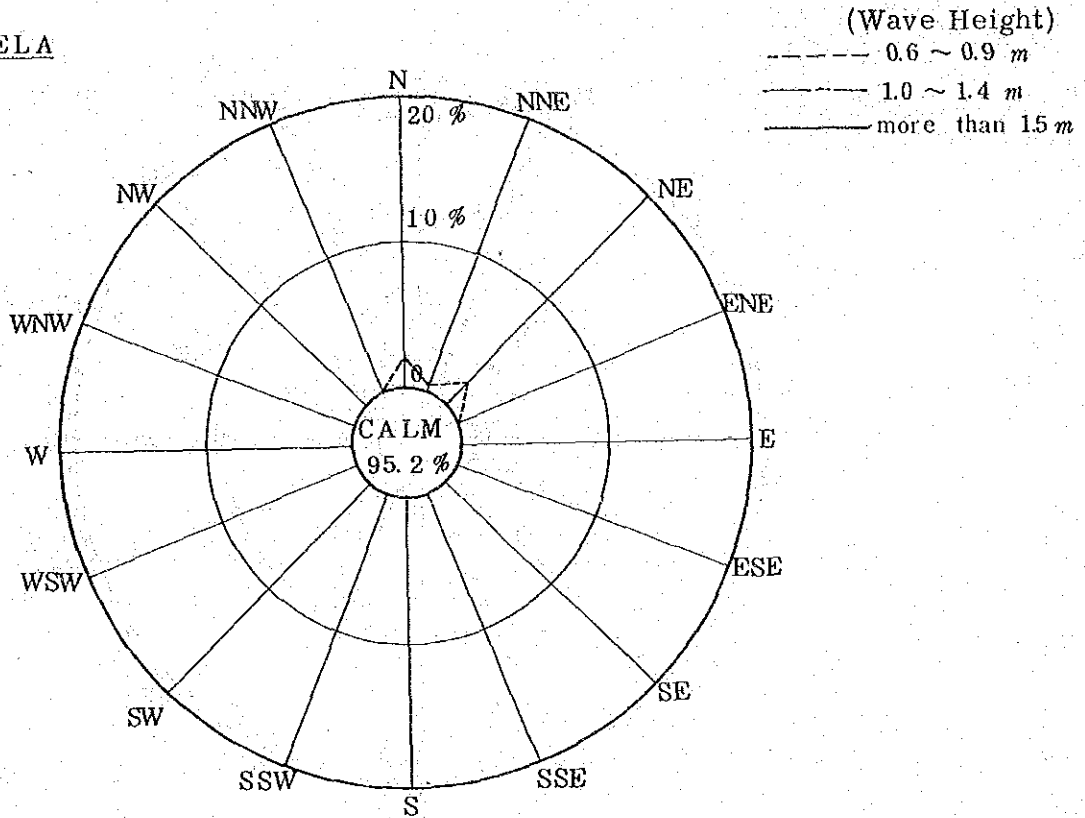


App. Fig. 3-18

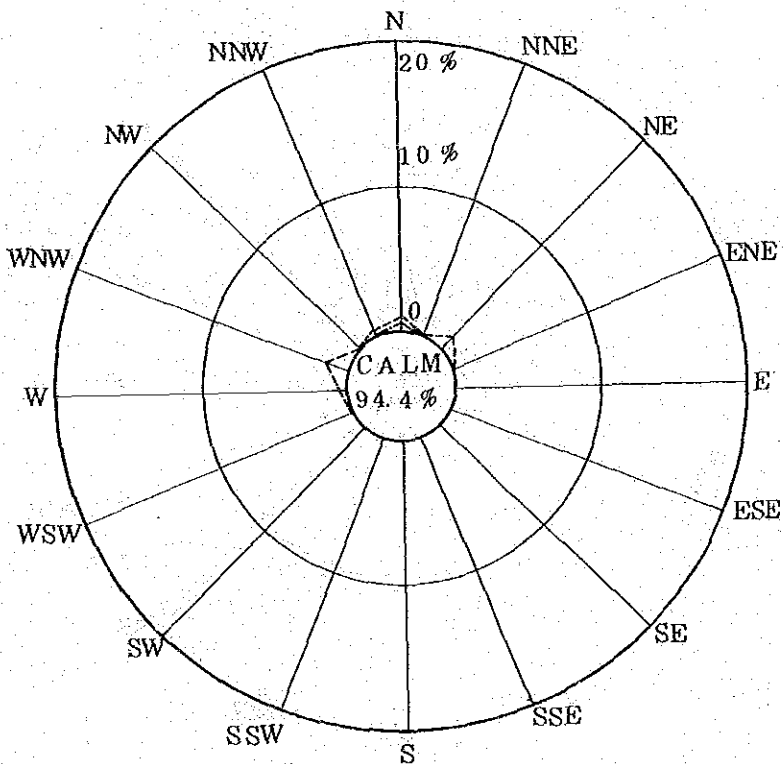
PERCENTAGE FREQUENCY OF OCCURRENCE
OF WAVE DIRECTION BY MONTH

CENTINELA

May



June

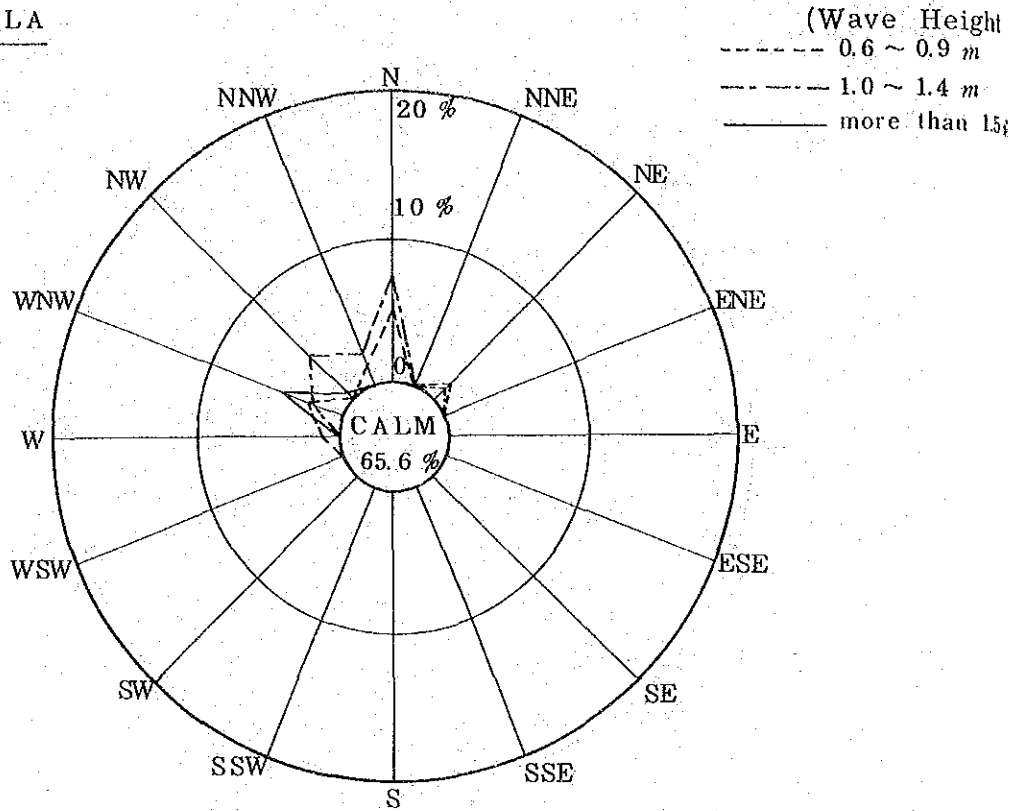


App. Fig. 3-19

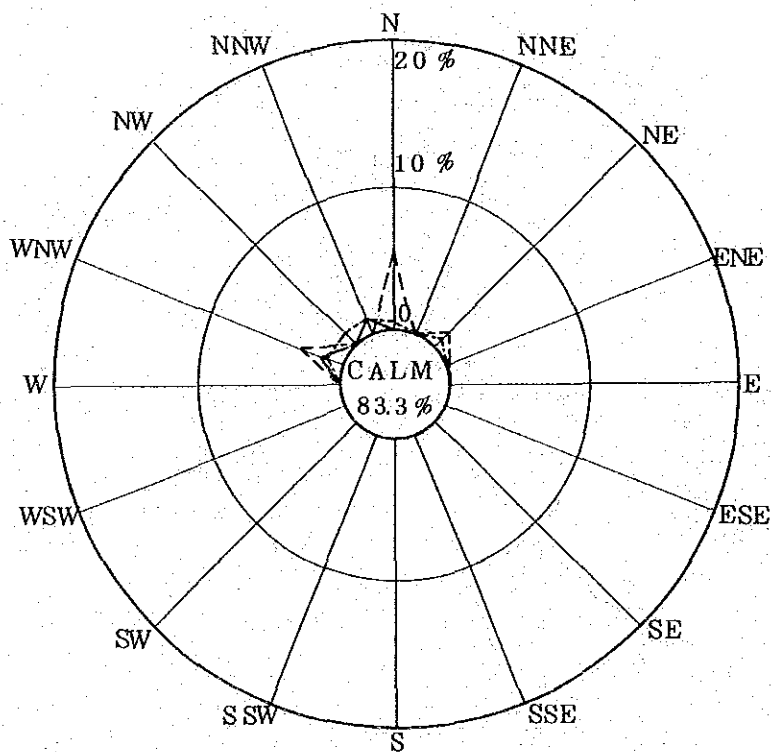
PERCENTAGE FREQUENCY OF OCCURRENCE
OF WAVE DIRECTION BY MONTH

CENTINELA

July



August

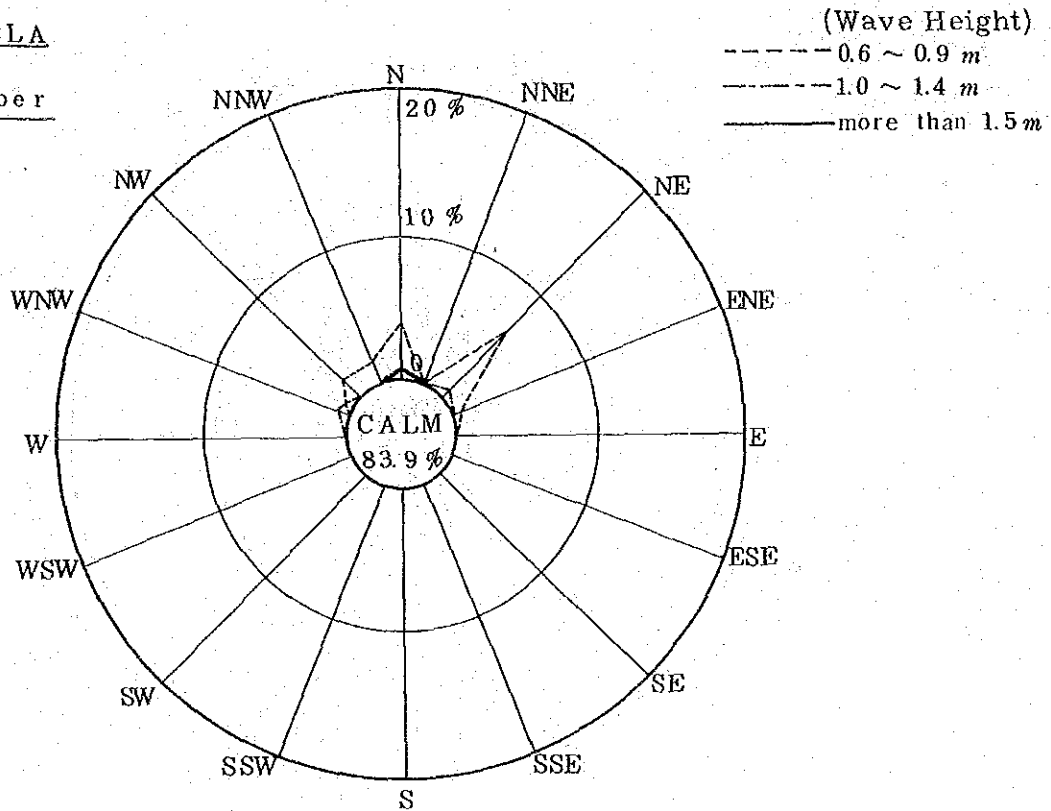


App. Fig. 3-20

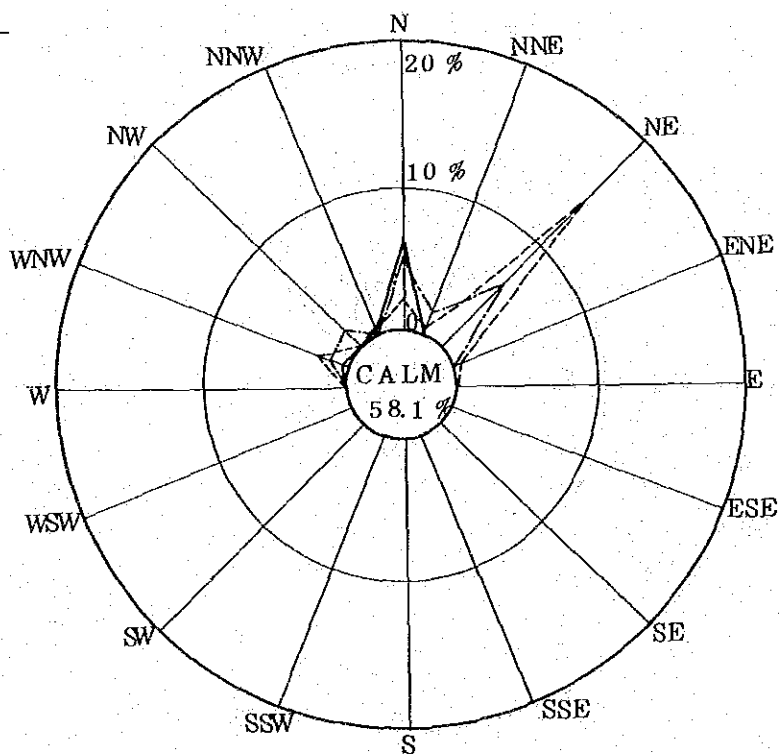
PERCENTAGE FREQUENCY OF OCCURRENCE
OF WAVE DIRECTION BY MONTH

CENTINELA

September



October

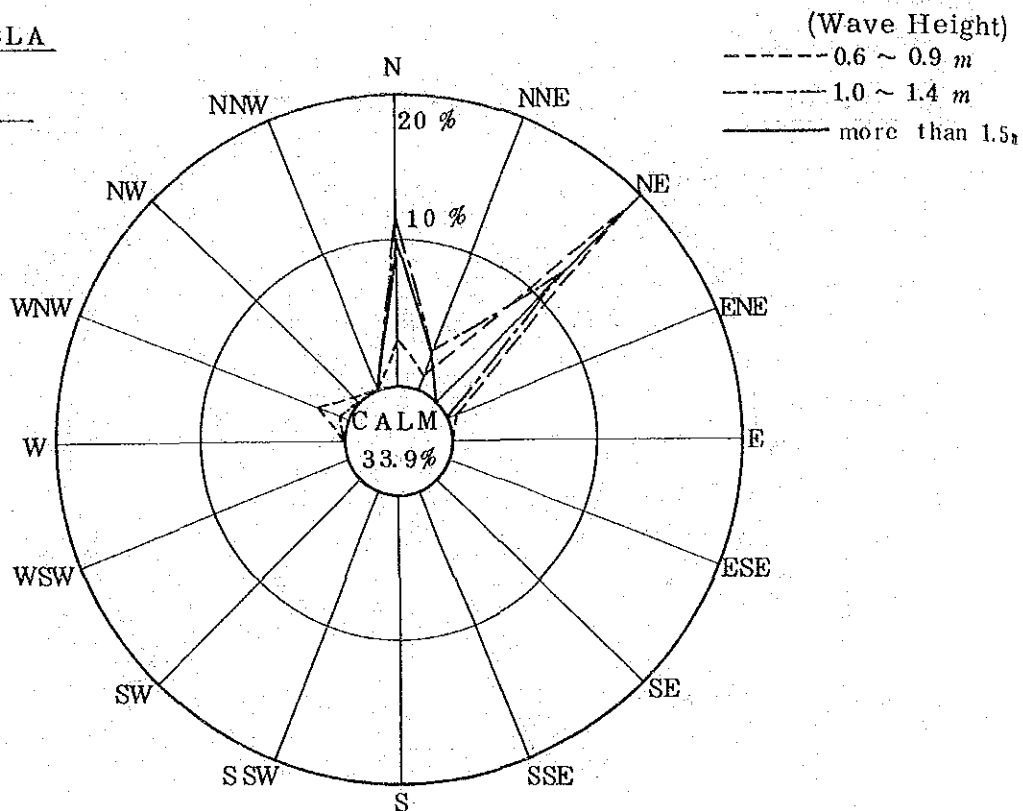


App. Fig. 3-21

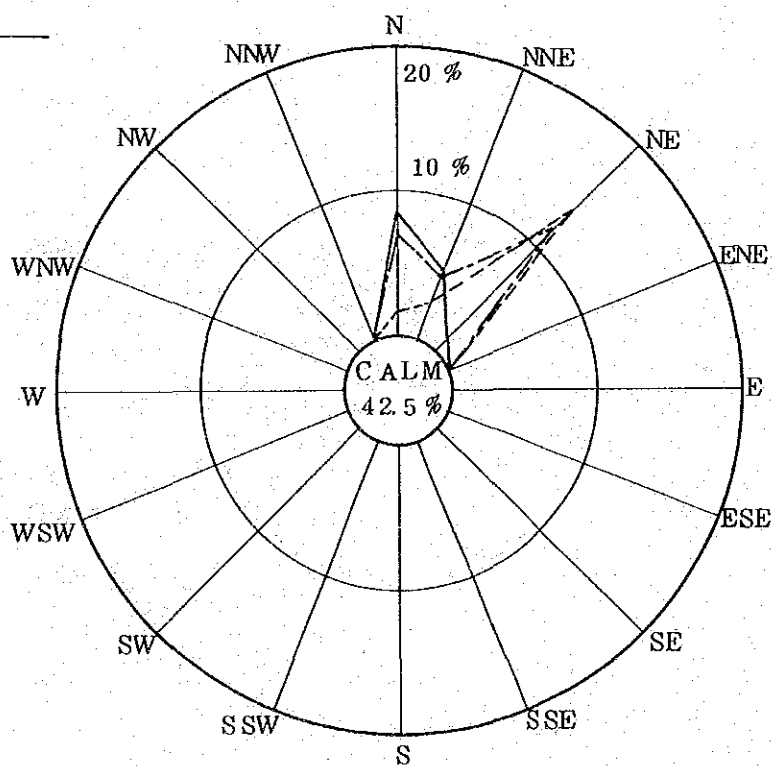
PERCENTAGE FREQUENCY OF OCCURRENCE
OF WAVE DIRECTION BY MONTH

CENTINELA

November

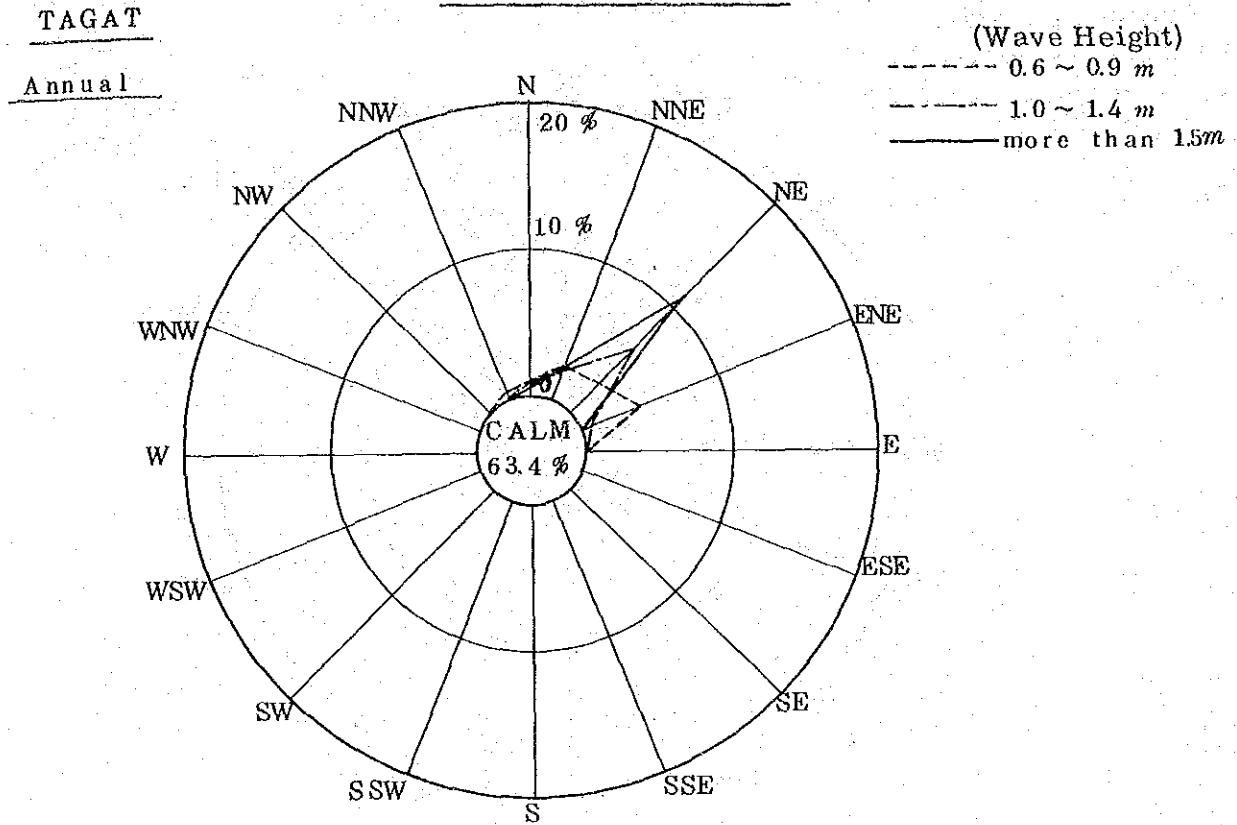


December



App. Fig. 3-22

PERCENTAGE FREQUENCY OF OCCURRENCE
OF WAVE DIRECTION

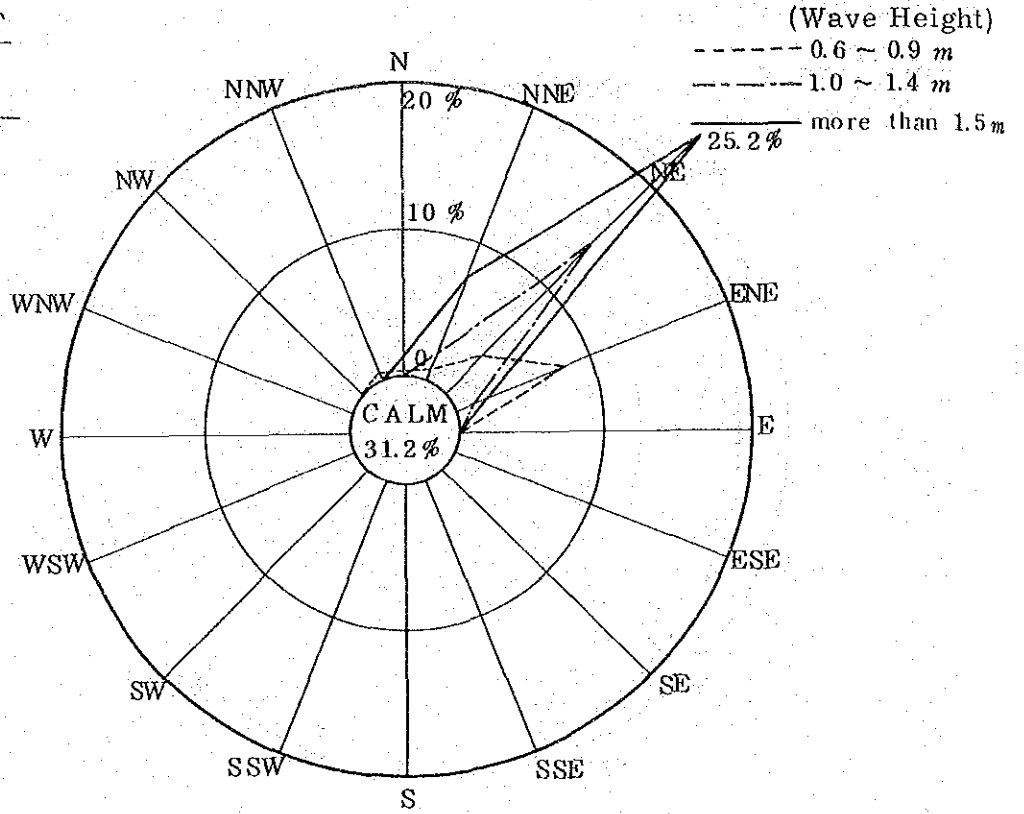


App. Fig. 3-23

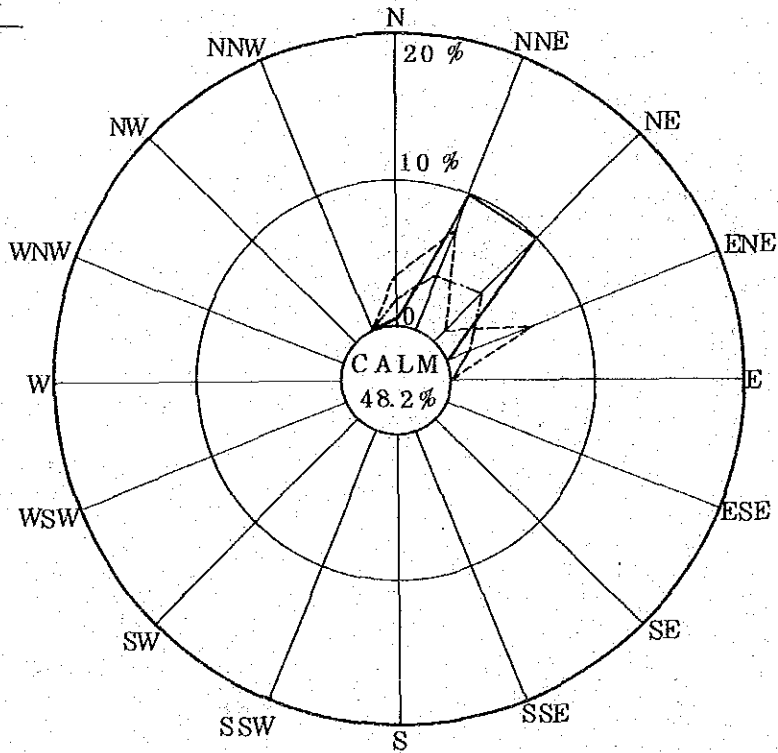
PERCENTAGE FREQUENCY OF OCCURRENCE
OF WAVE DIRECTION BY MONTH

TAGAT

January



February

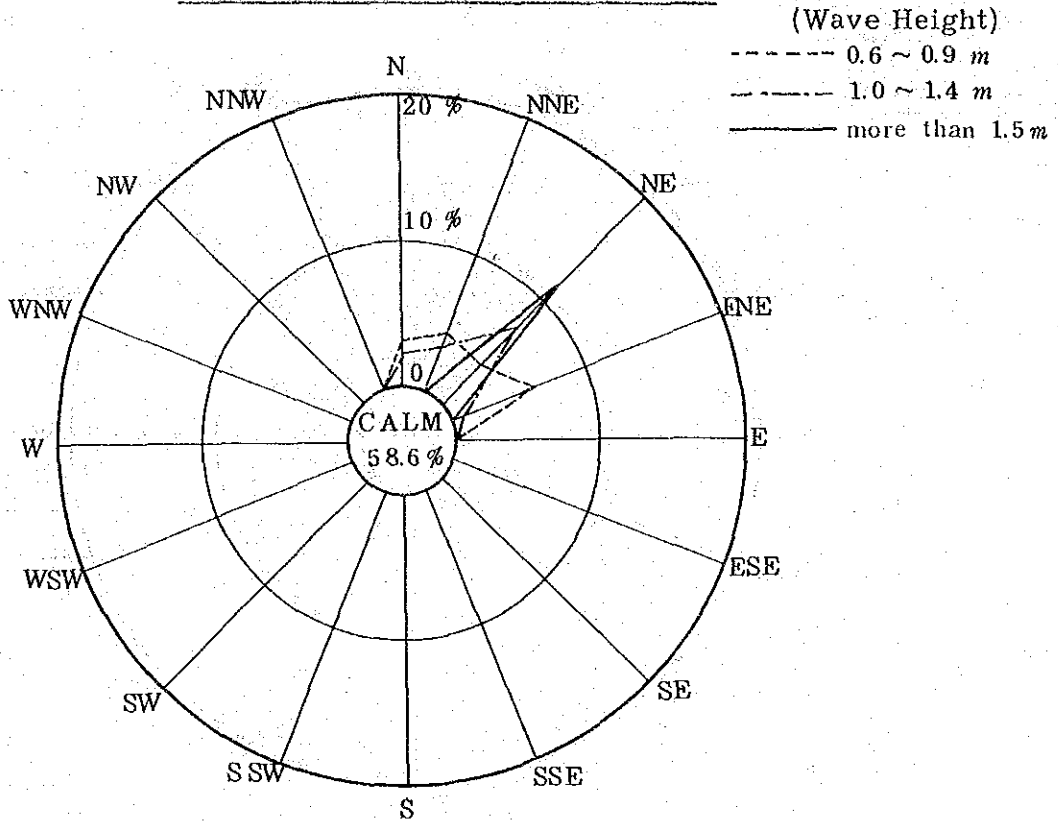


App. Fig. 3-24

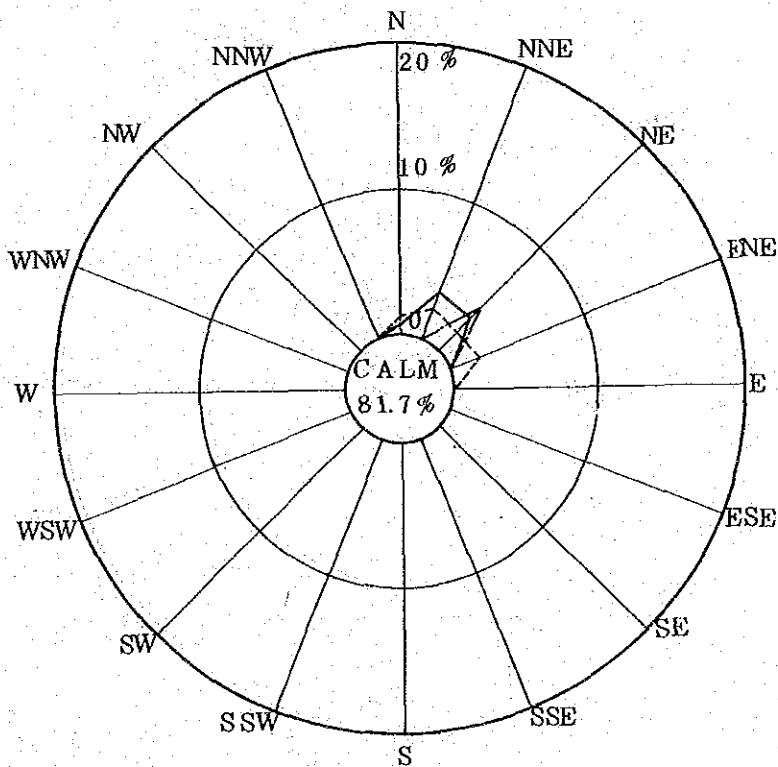
PERCENTAGE FREQUENCY OF OCCURRENCE
OF WAVE DIRECTION BY MONTH

TAGAT

March



April

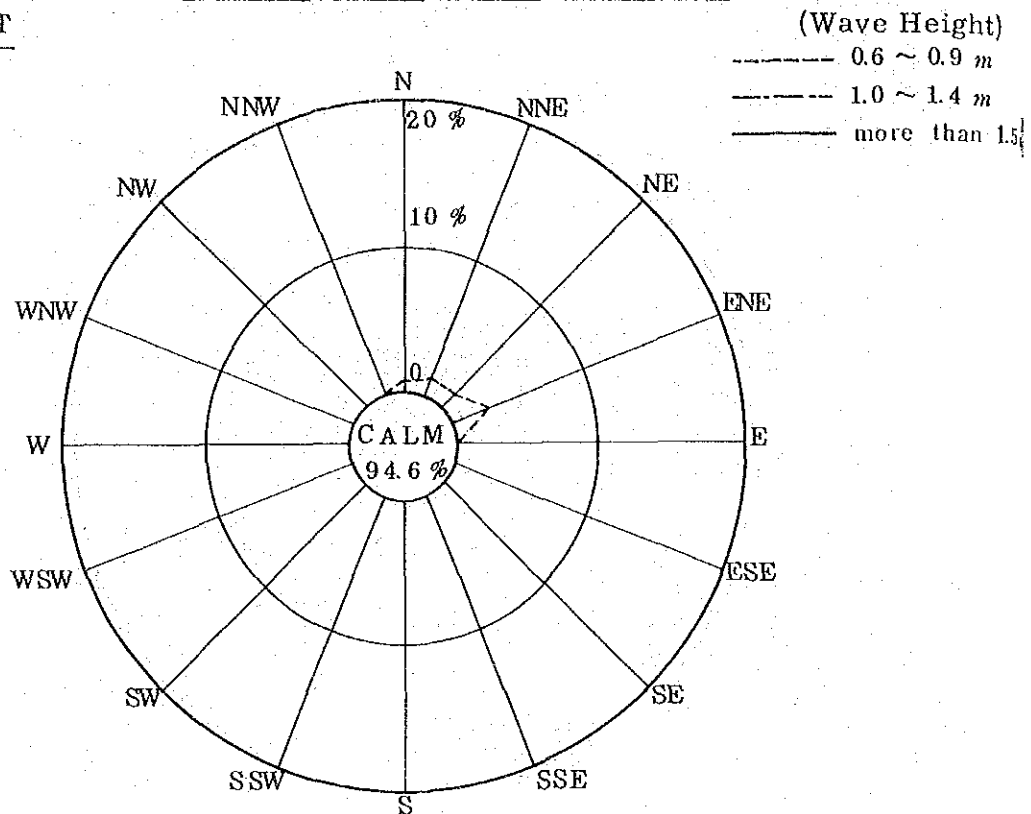


App. Fig. 3-25

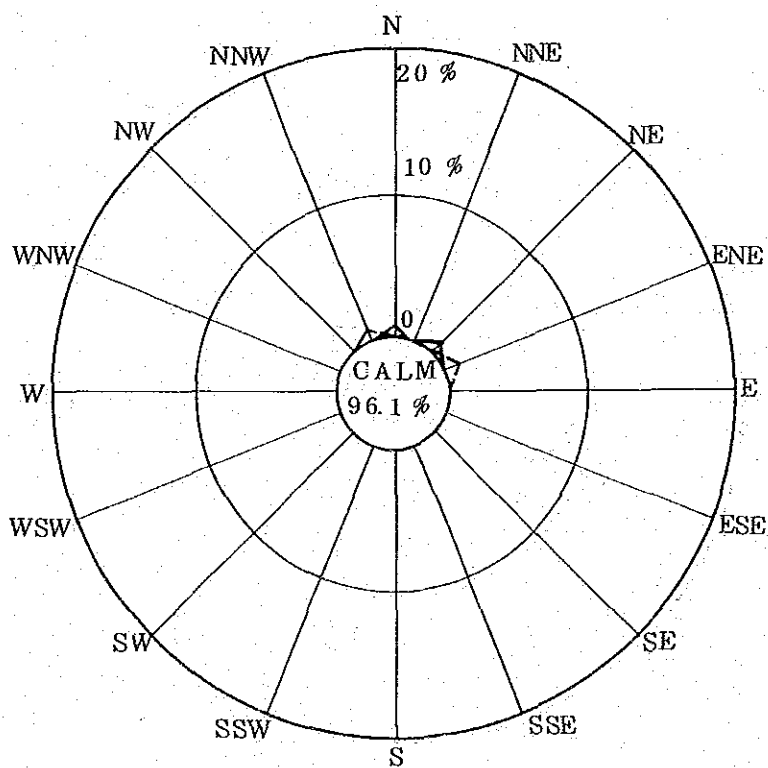
PERCENTAGE FREQUENCY OF OCCURRENCE
OF WAVE DIRECTION BY MONTH

TAGAT

May



June

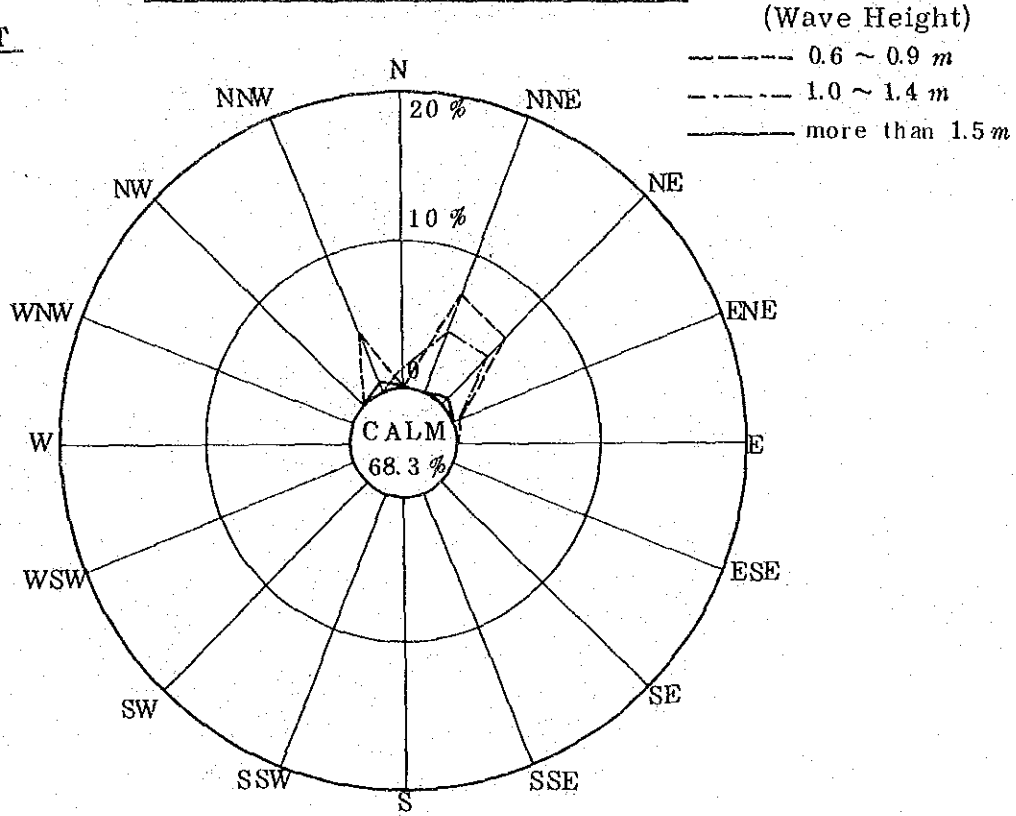


App. Fig. 3-26

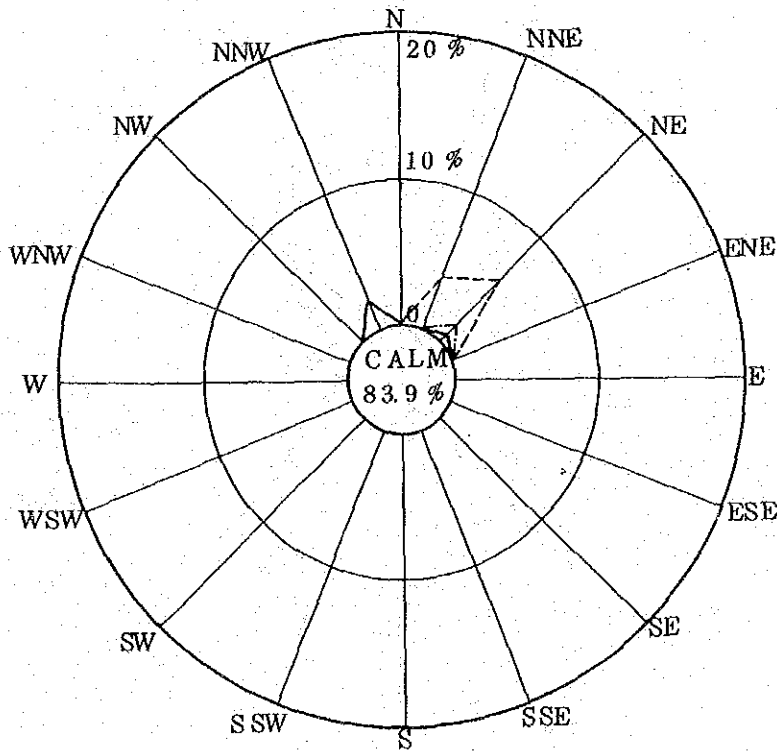
PERCENTAGE FREQUENCY OF OCCURRENCE
OF WAVE DIRECTION BY MONTH

TAGAT

July



August

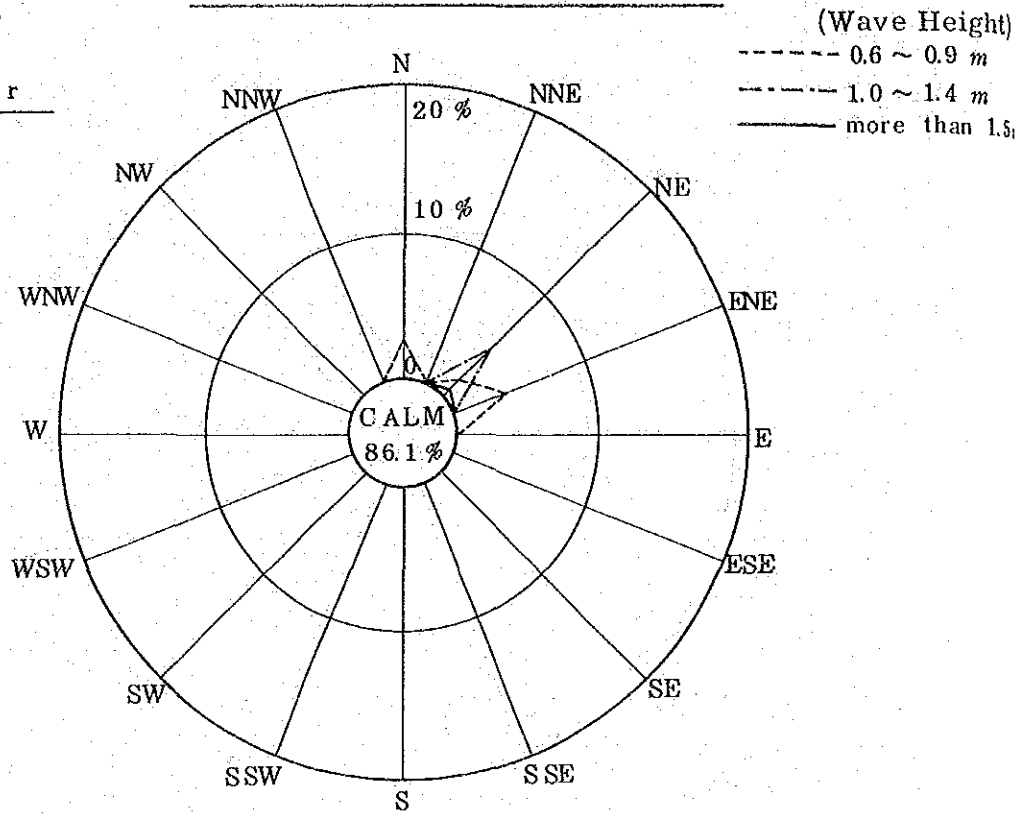


App. Fig. 3-27

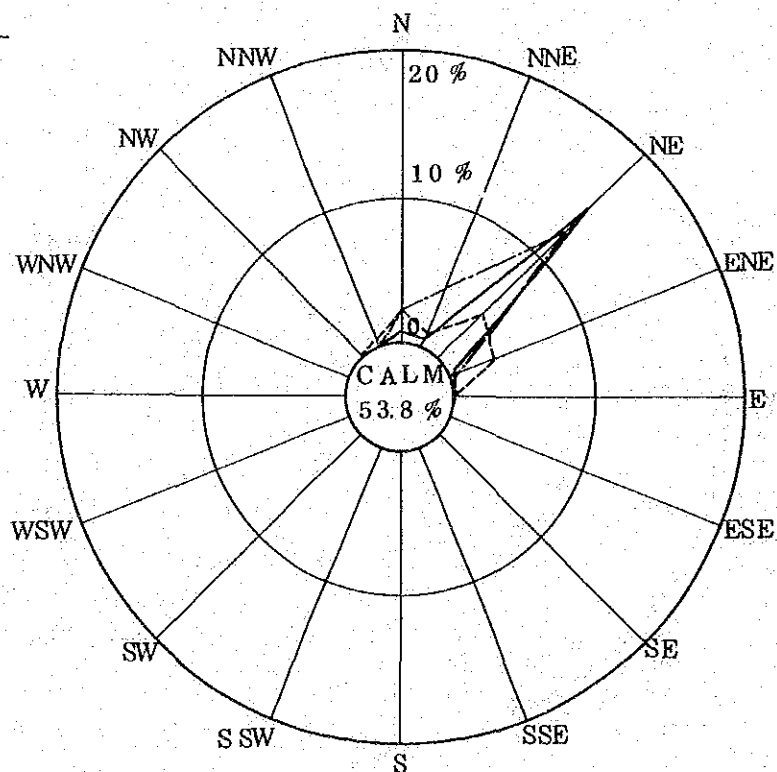
PERCENTAGE FREQUENCY OF OCCURRENCE
OF WAVE DIRECTION BY MONTH

TAGAT

September



October

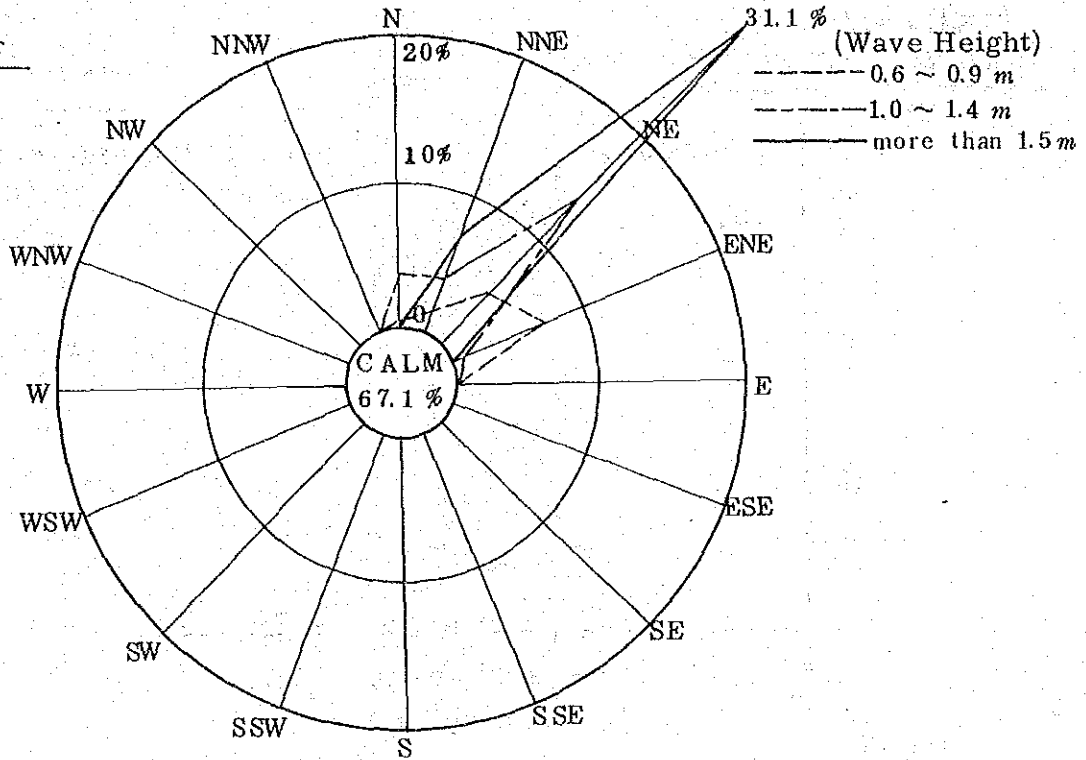


App. Fig. 3-28

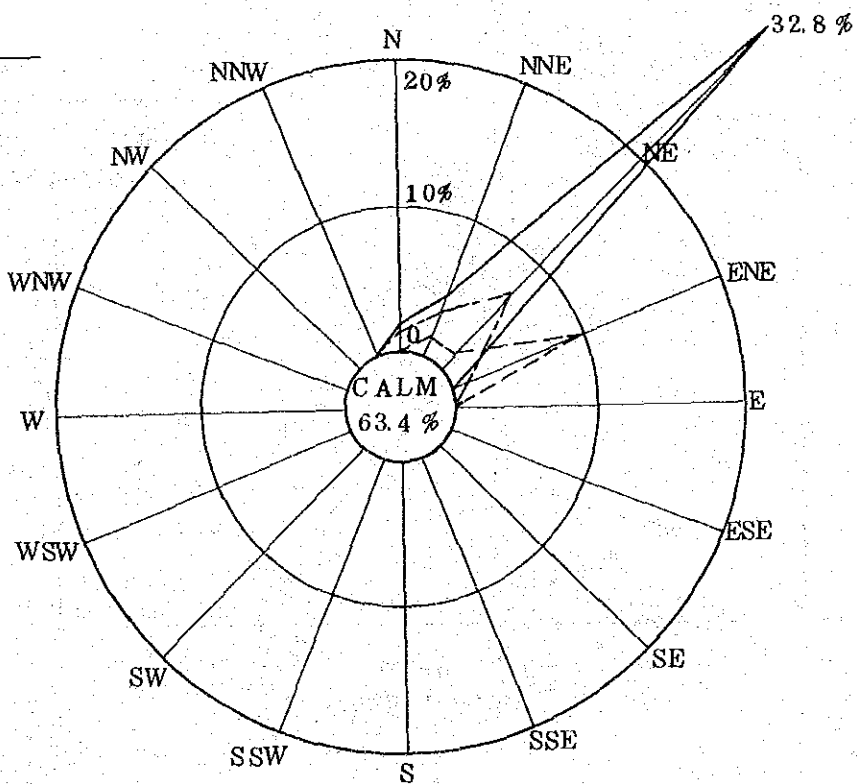
PERCENTAGE FREQUENCY OF OCCURRENCE
OF WAVE DIRECTION BY MONTH

TAGAT

November

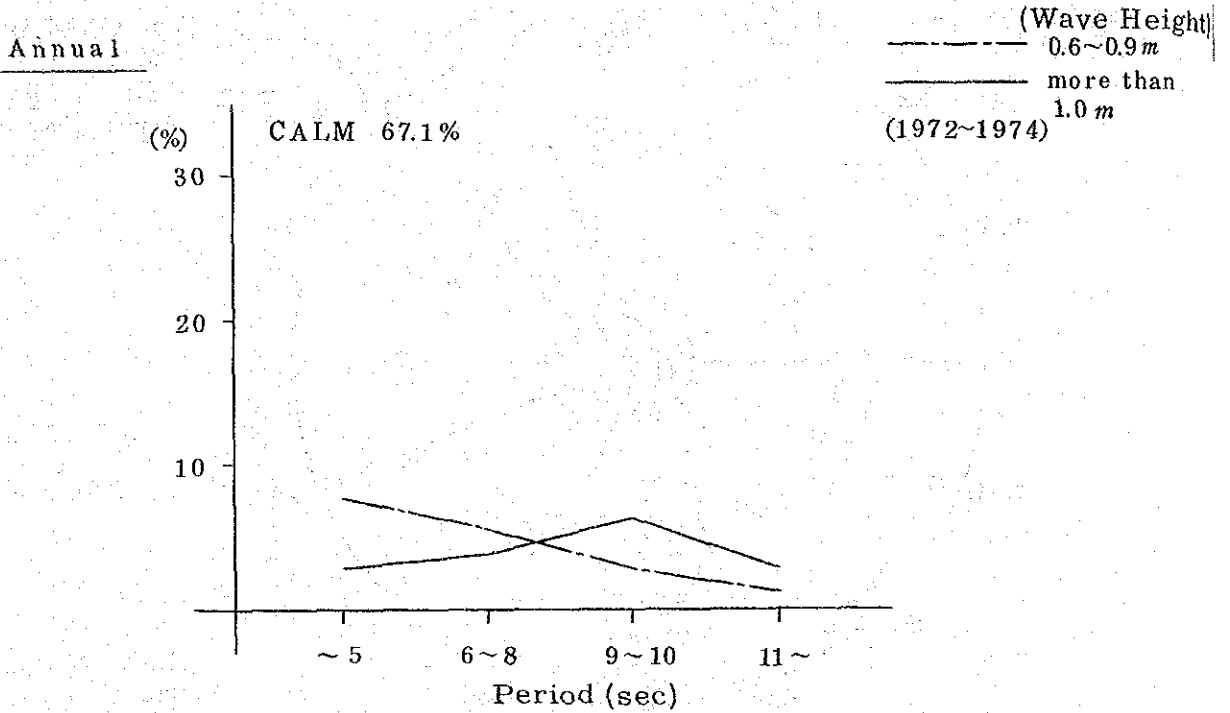


December

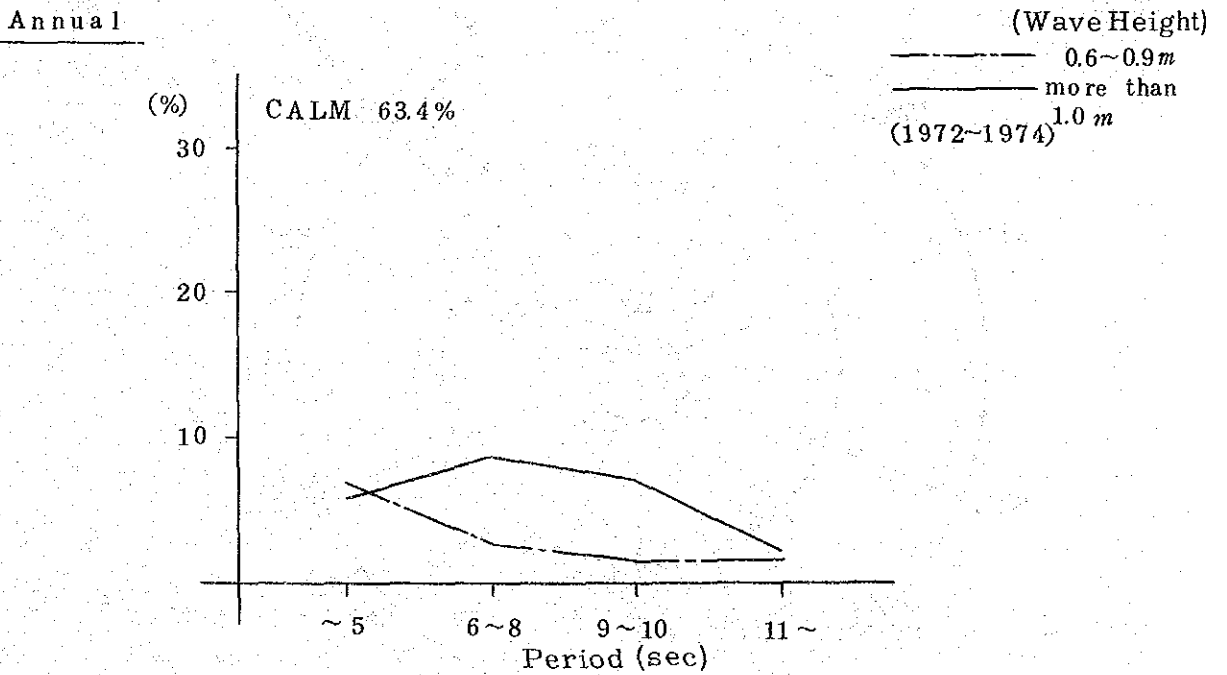


App. Fig. 3-29

CENTINELA PERCENTAGE FREQUENCY OF OCCURRENCE OF PERIOD



TAGAT

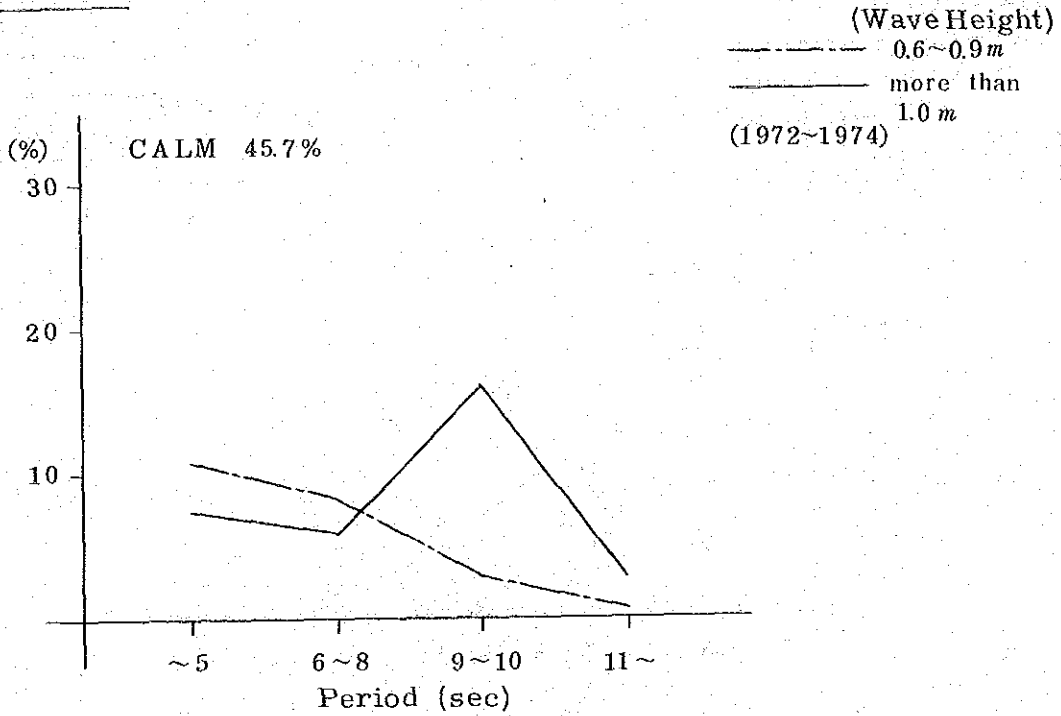


App. Fig. 3-30

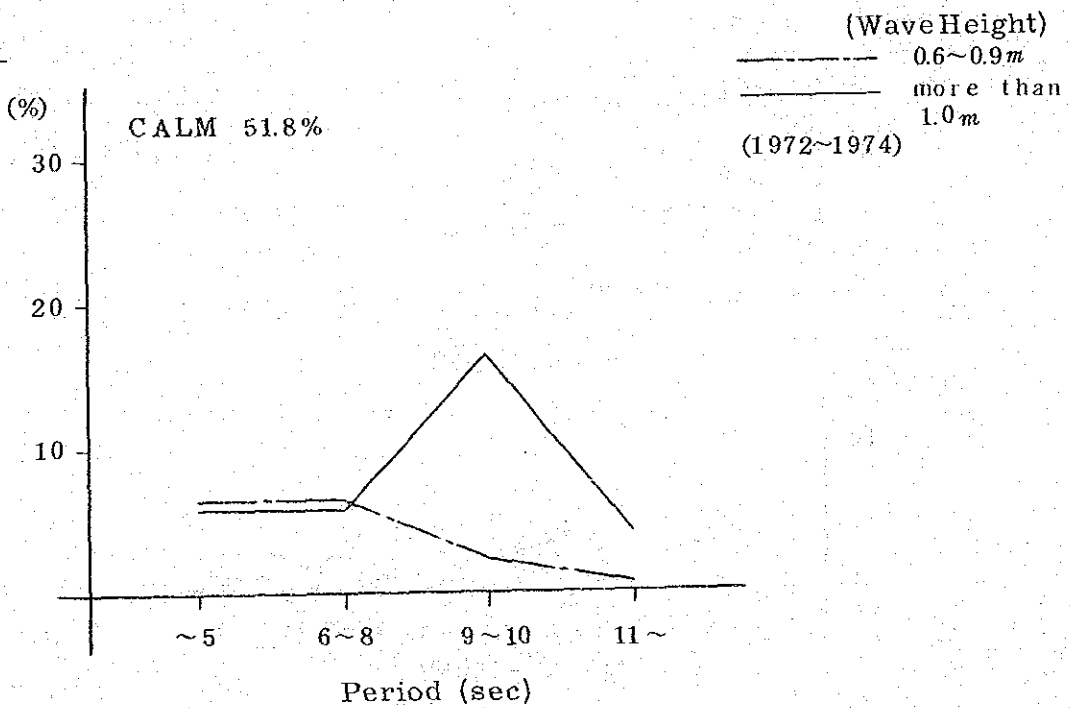
PERCENTAGE FREQUENCY OF OCCURRENCE
OF PERIOD BY MONTH

CENTINELA

January



February

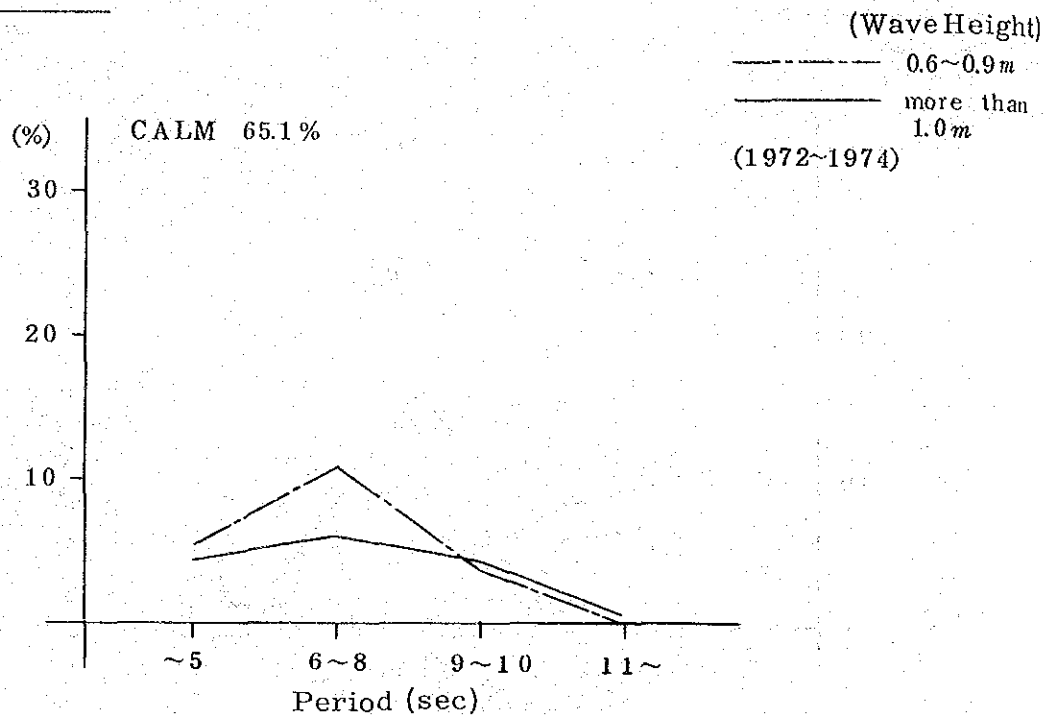


App. Fig. 3-31

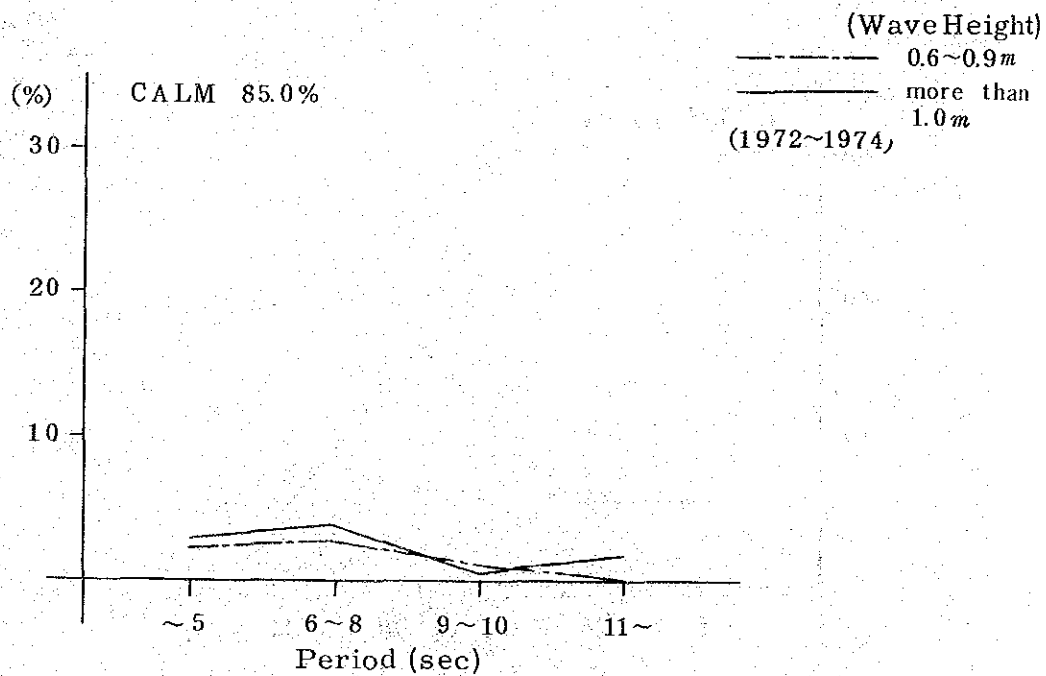
PERCENTAGE FREQUENCY OF OCCURRENCE
OF PERIOD BY MONTH

CENTINELA

March



April

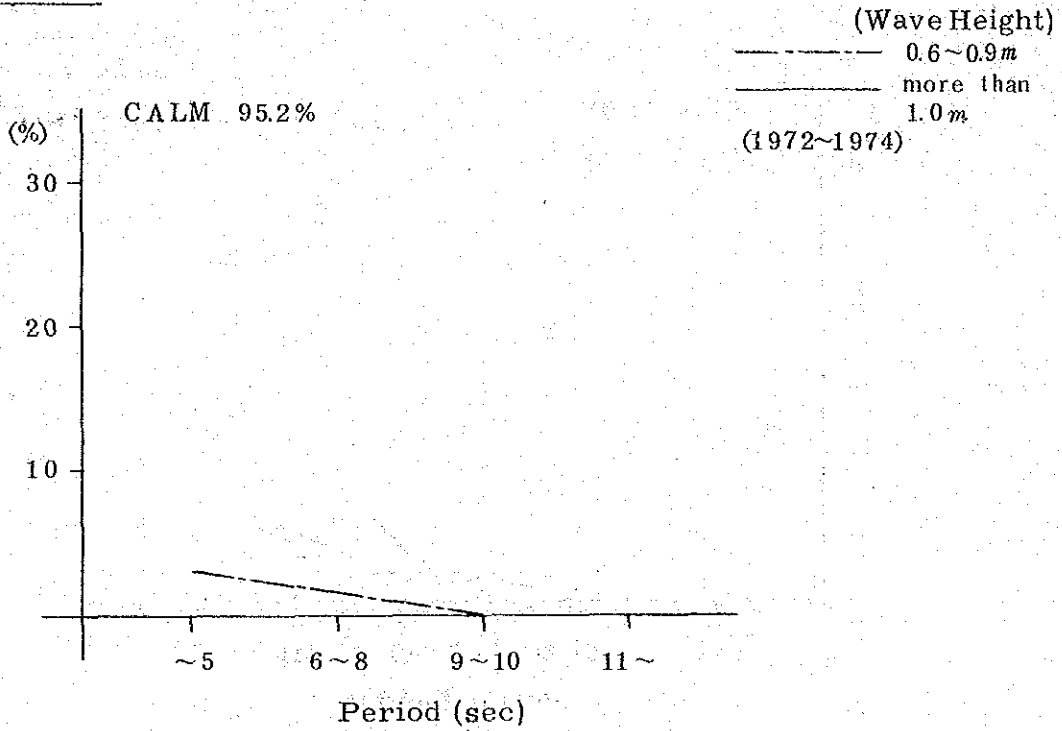


App. Fig. 3-32

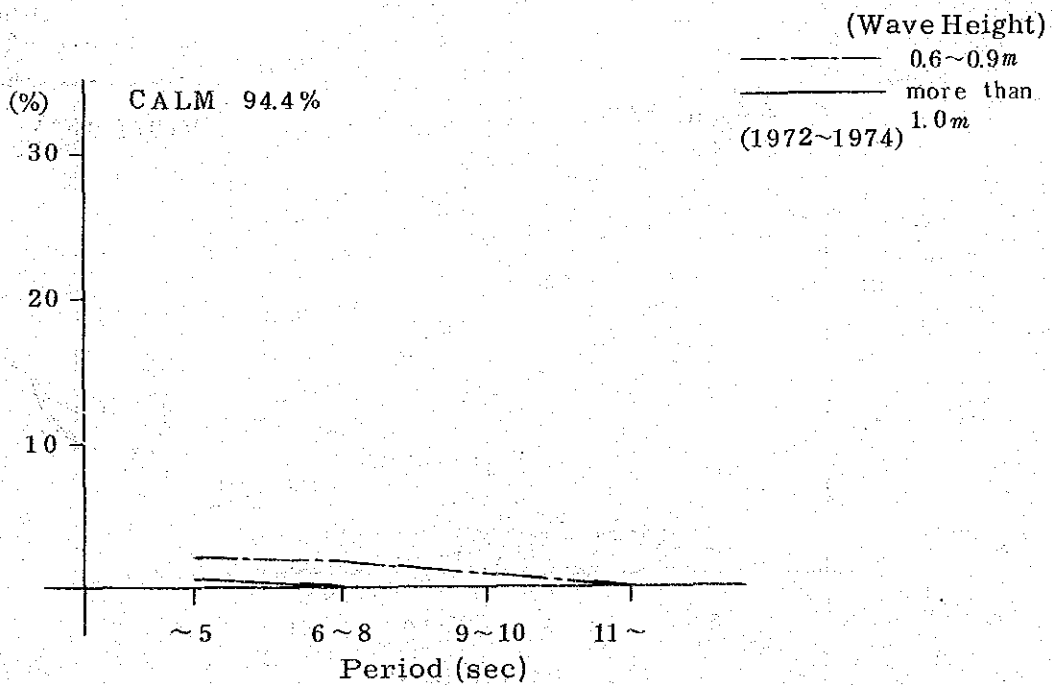
PERCENTAGE FREQUENCY OF OCCURRENCE
OF PERIOD BY MONTH

CENTINELA

May



June

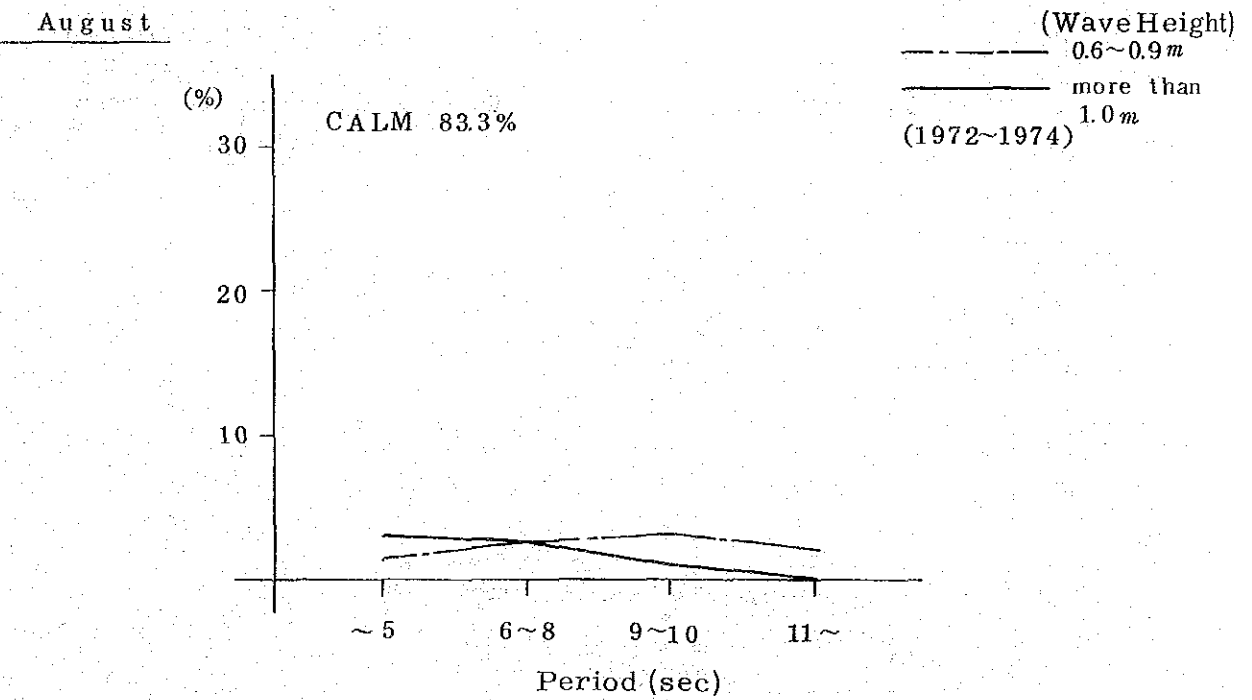
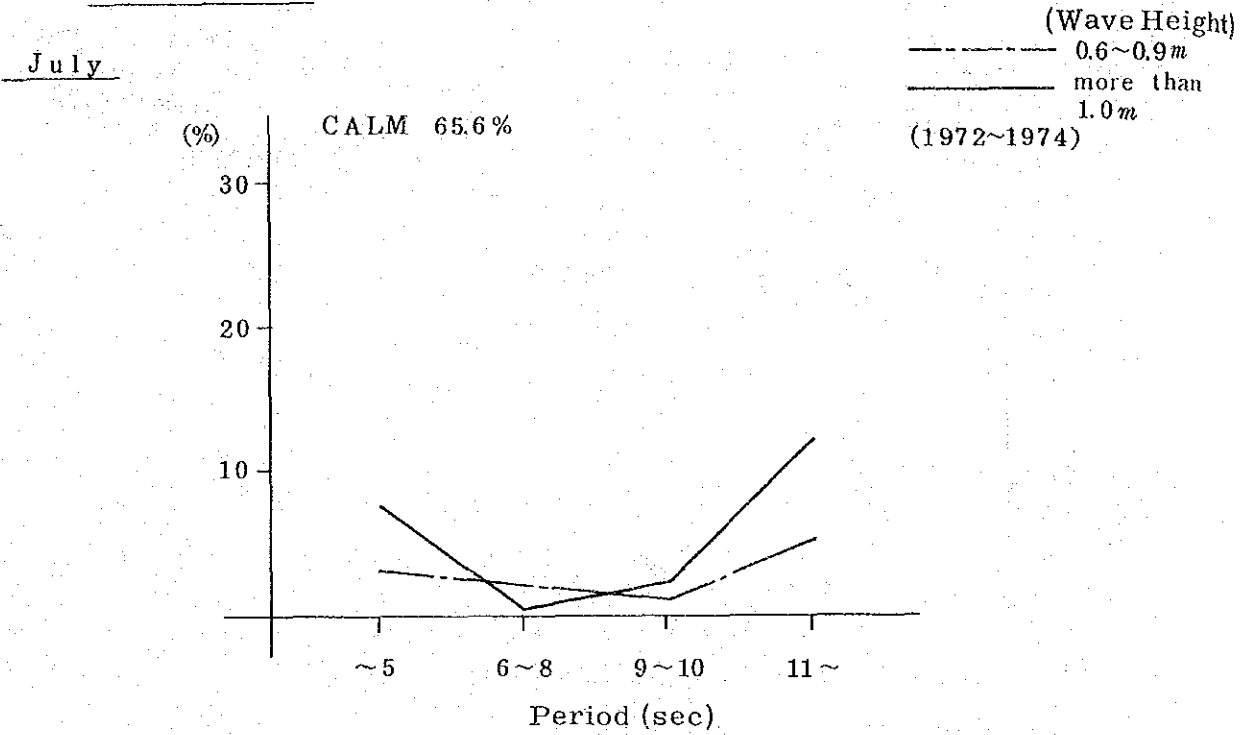


App. Fig. 3-33

PERCENTAGE FREQUENCY OF OCCURRENCE

CENTINELA

OF PERIOD BY MONTH



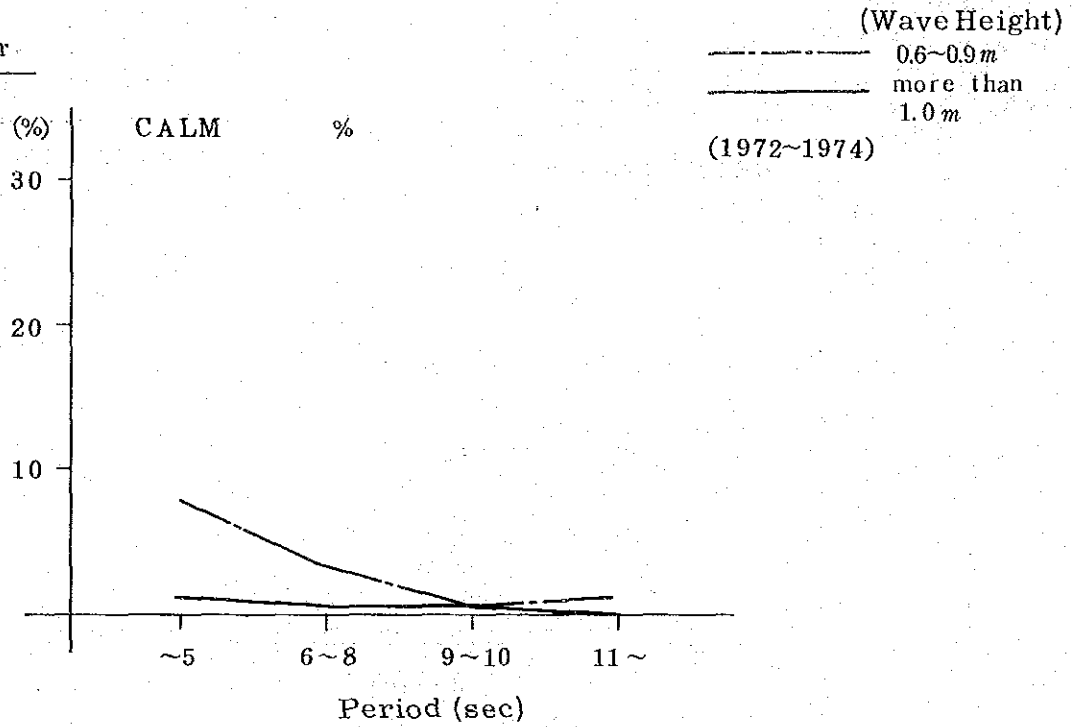
App. Fig. 3-34

PERCENTAGE FREQUENCY OF OCCURRENCE

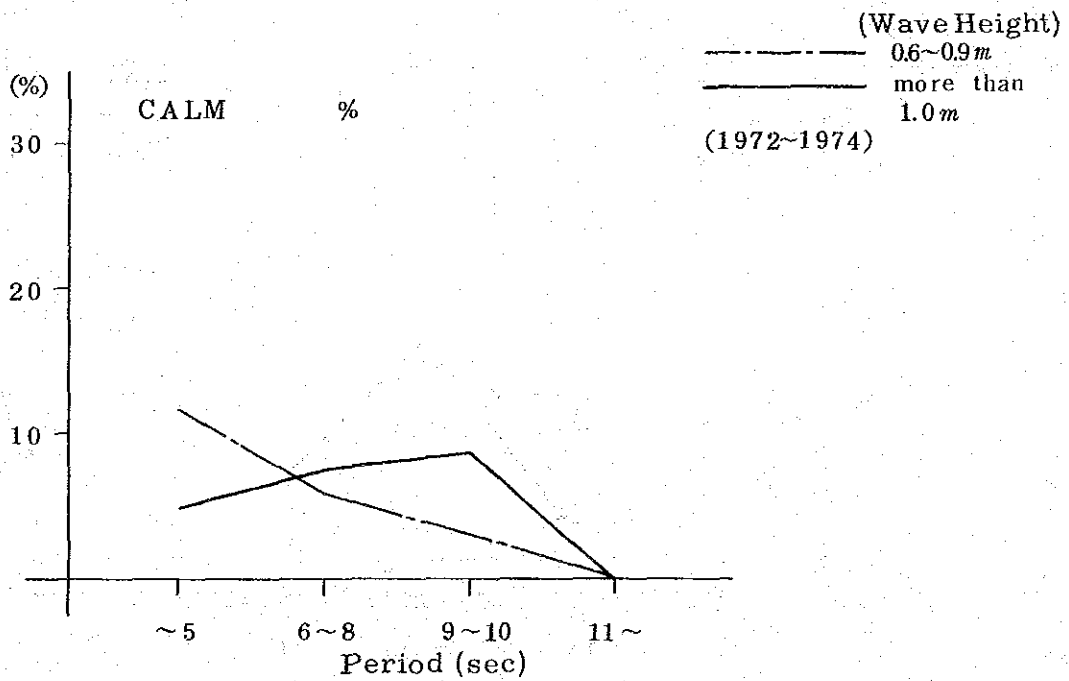
CENTINELA

OF PERIOD BY MONTH

September



October

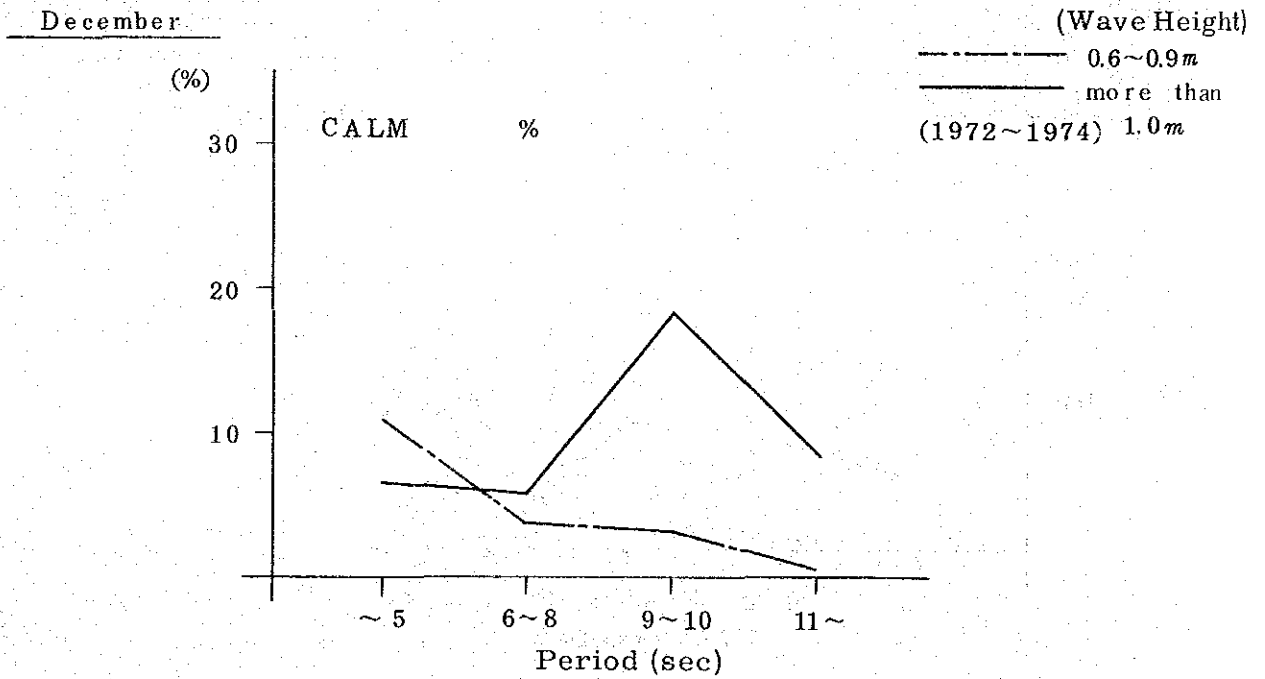
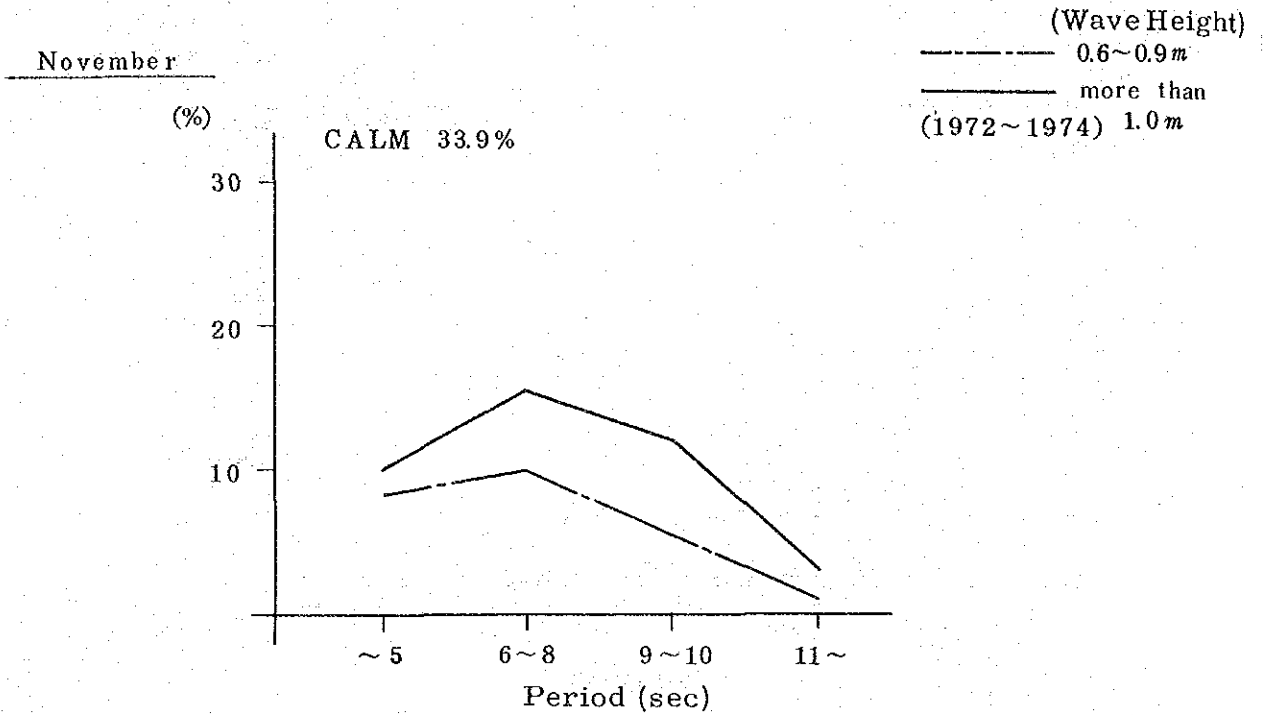


App. Fig. 3-35

PERCENTAGE FREQUENCY OF OCCURRENCE

OF PERIOD BY MONTH

CENTINELA



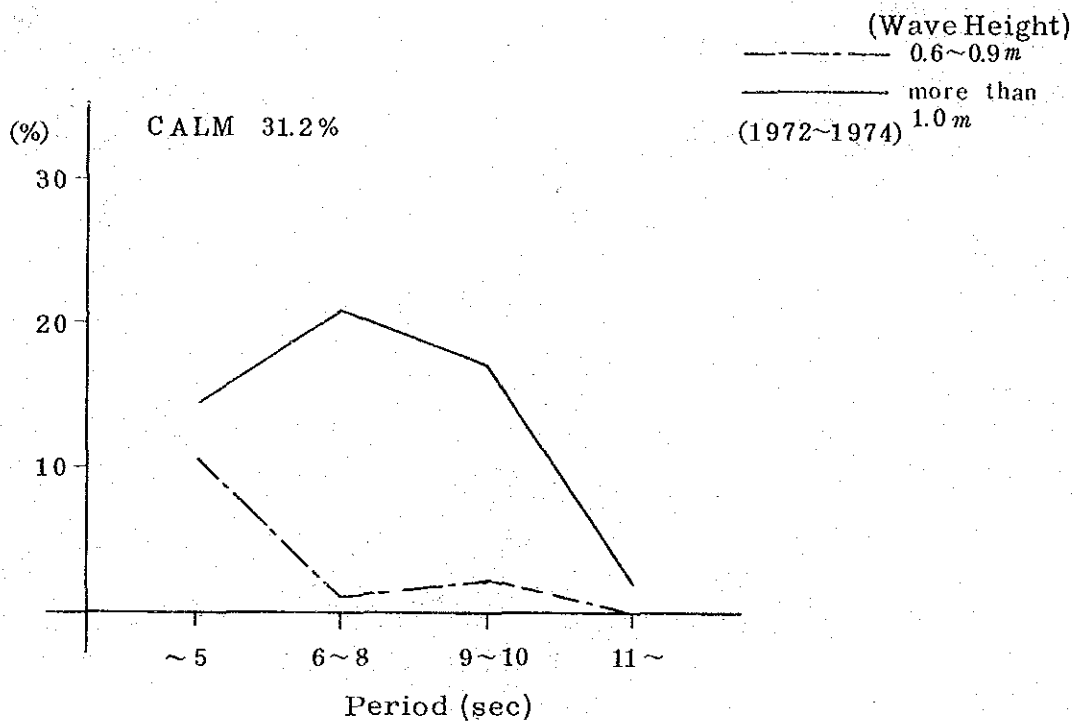
App. Fig. 3-36

PERCENTAGE FREQUENCY OF OCCURRENCE

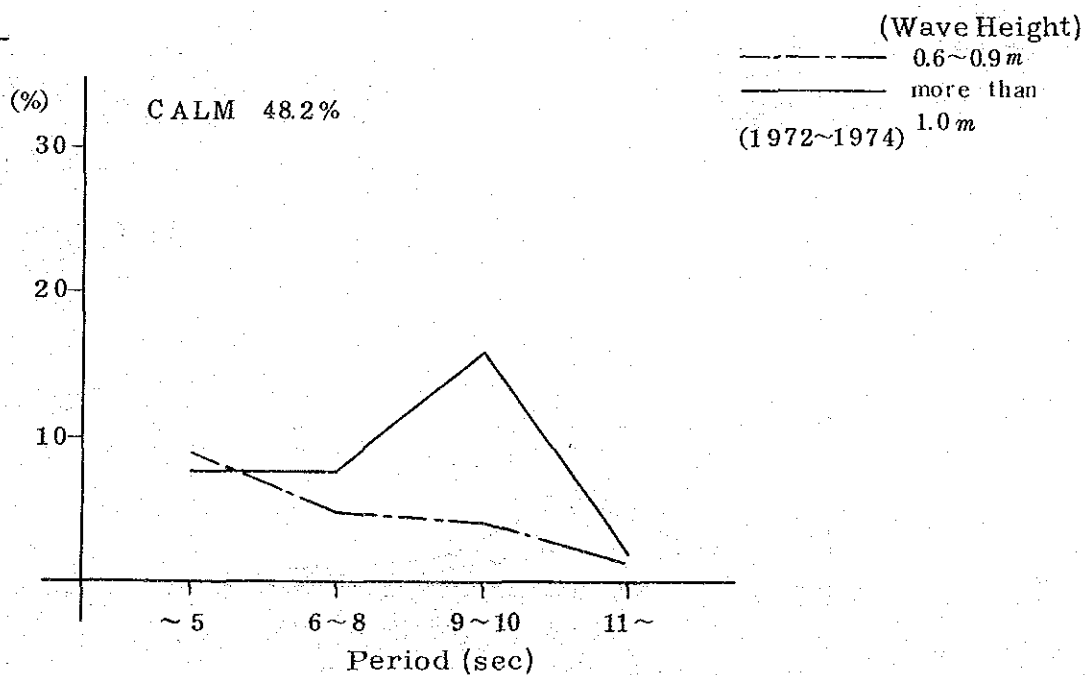
TAGAT

OF PERIOD BY MONTH

January



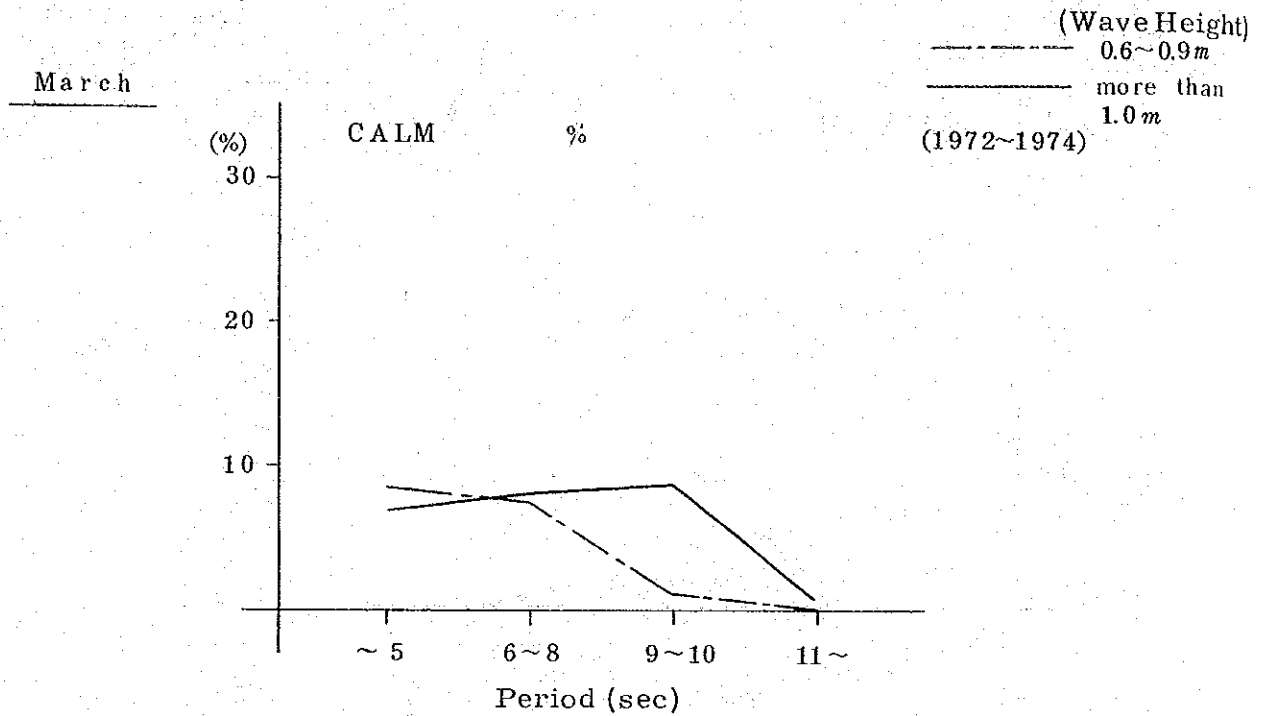
February



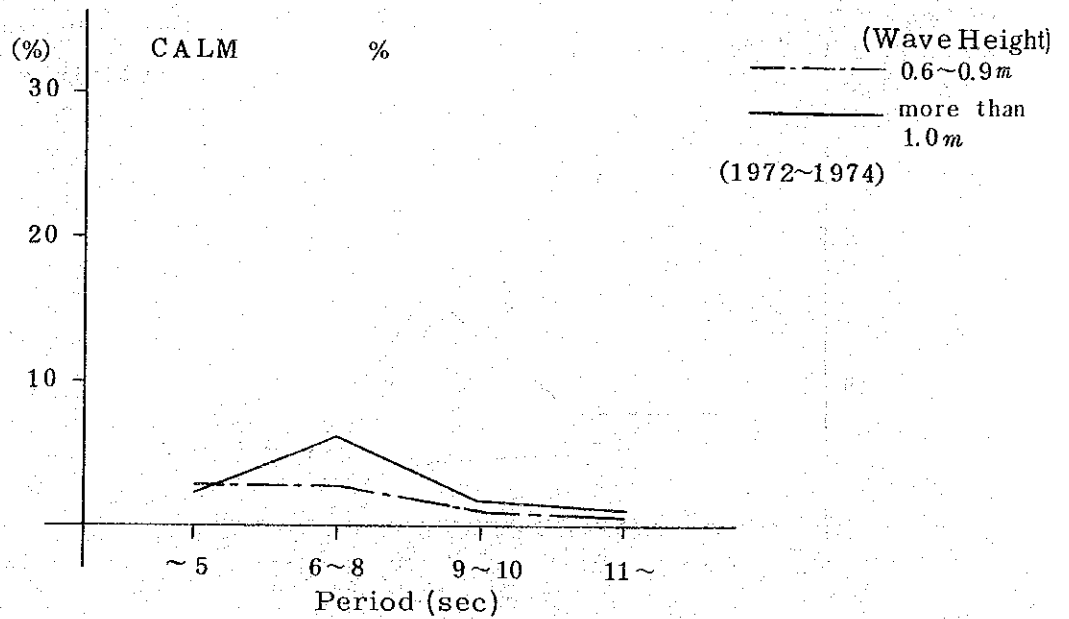
App. Fig. 3-37

PERCENTAGE FREQUENCY OF OCCURRENCE
OF PERIOD BY MONTH

TAGAT



April



App. Fig. 3-38

PERCENTAGE FREQUENCY OF OCCURRENCE
OF PERIOD BY MONTH

TAGAT

(Wave Height)

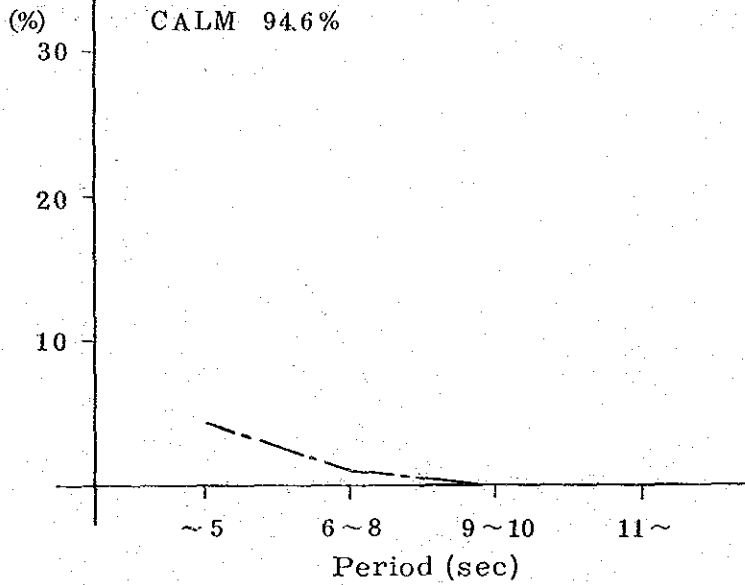
0.6~0.9m

more than

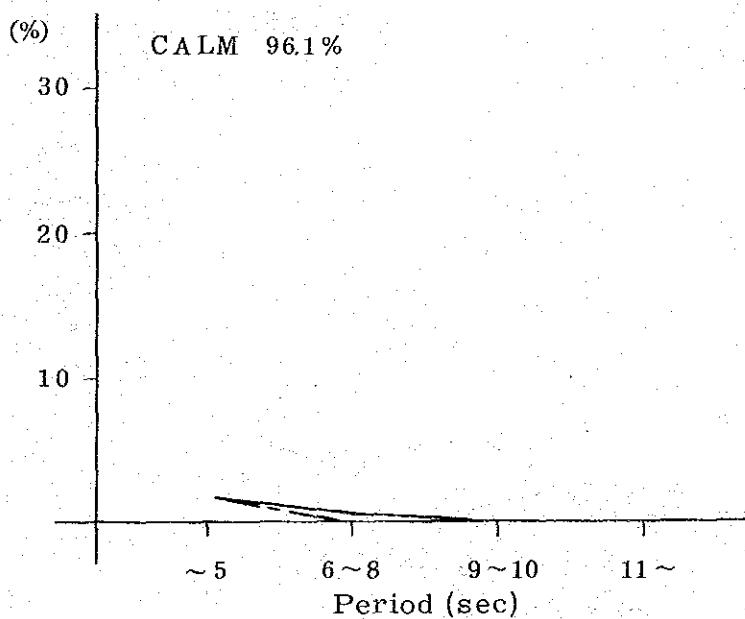
1.0m

(1972~1974)

May



June

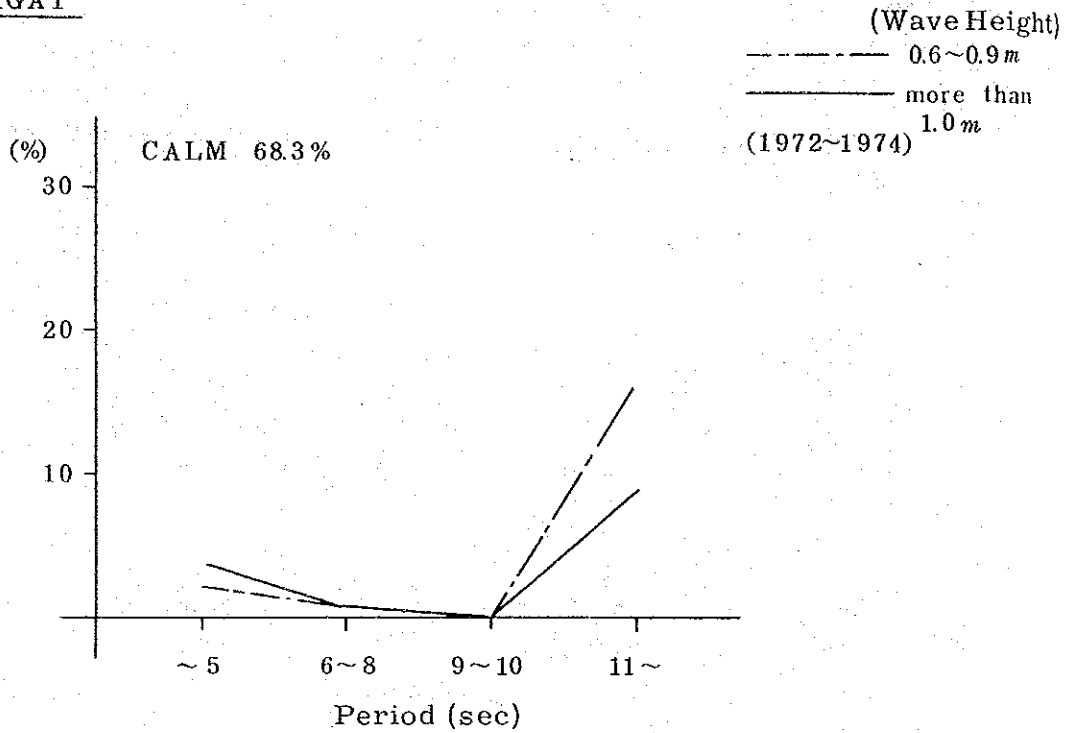


App. Fig. 3-39

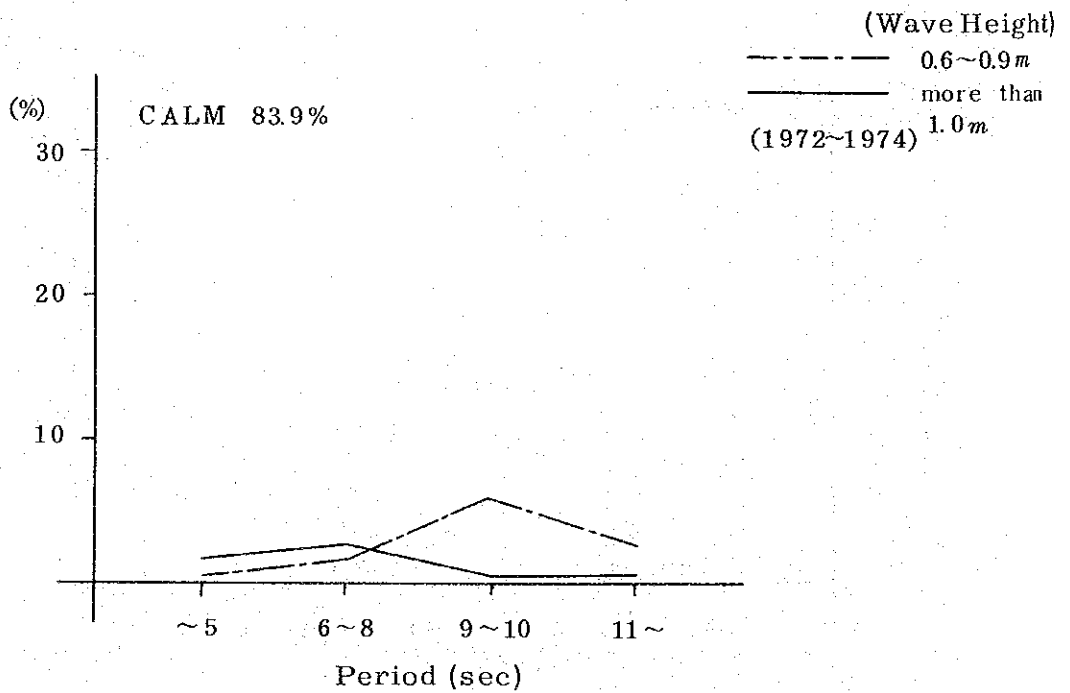
PERCENTAGE FREQUENCY OF OCCURRENCE
OF PERIOD BY MONTH

TAGAT

July



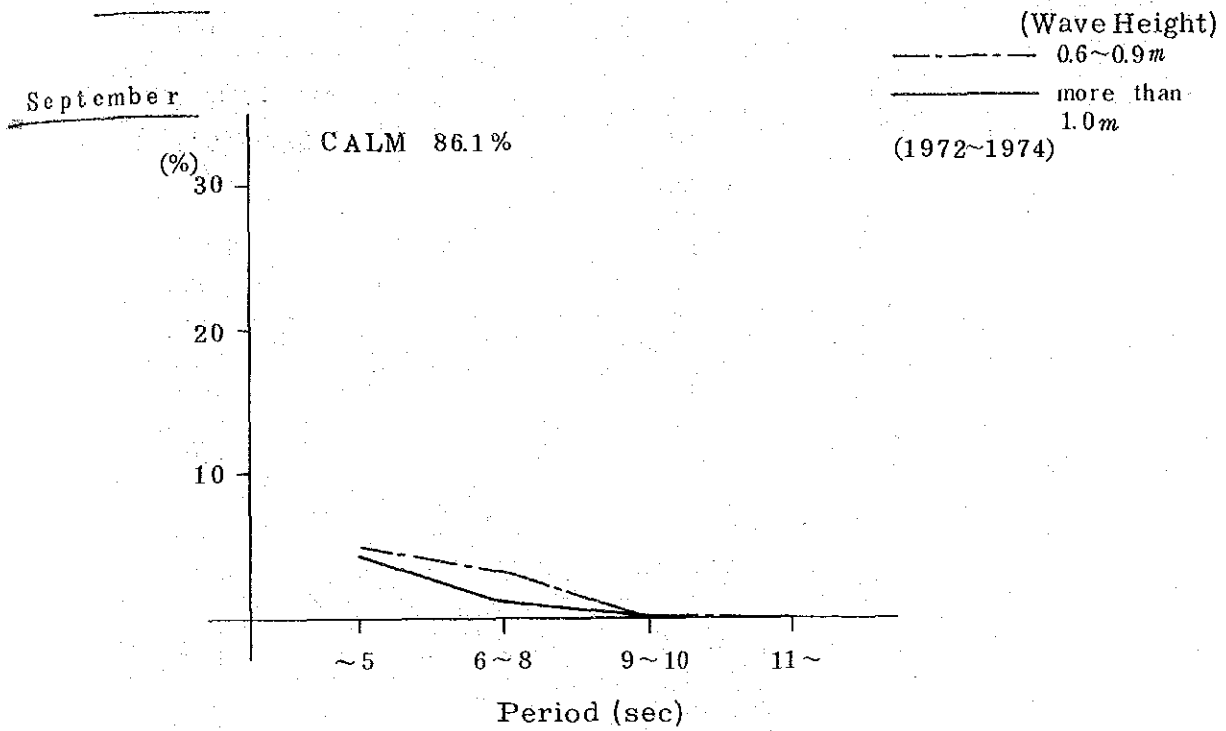
August



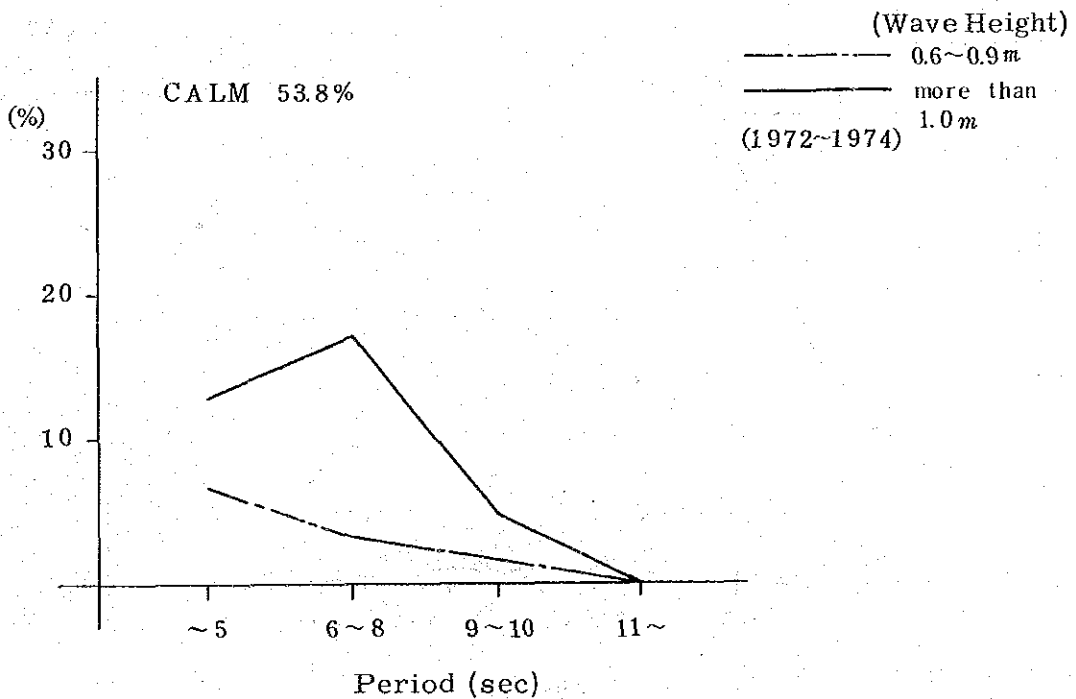
App. Fig. 3-40

PERCENTAGE FREQUENCY OF OCCURRENCE
OF PERIOD BY MONTH

TAGAT



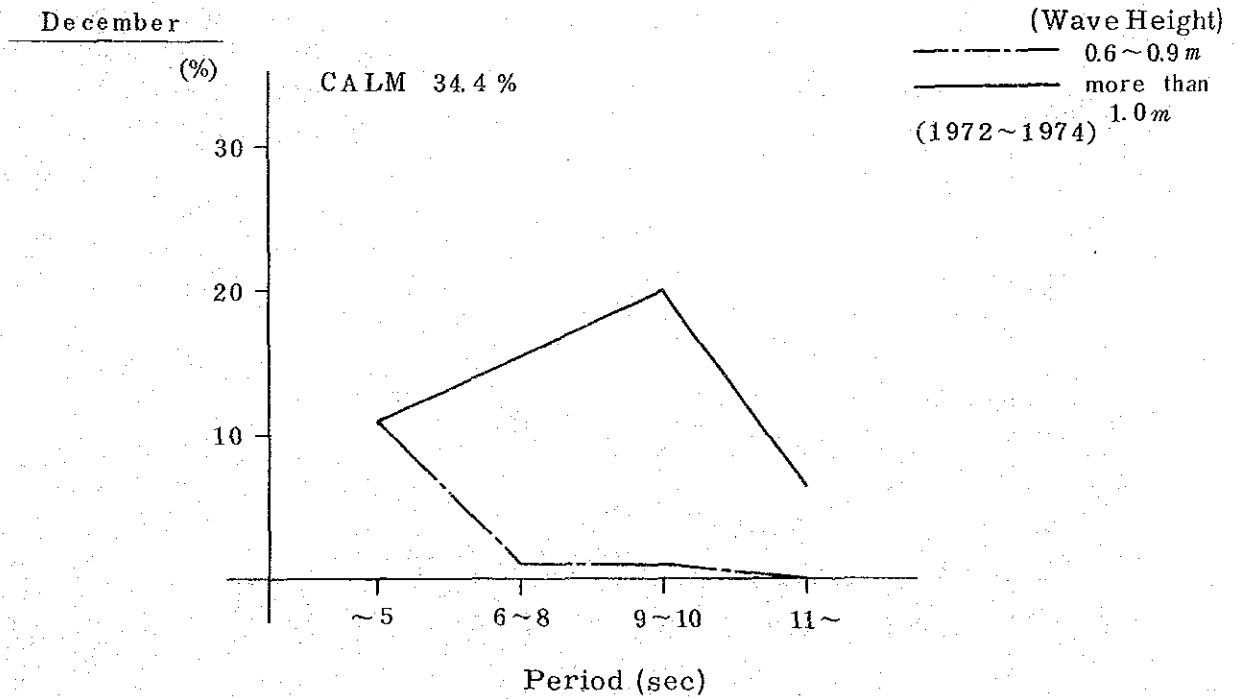
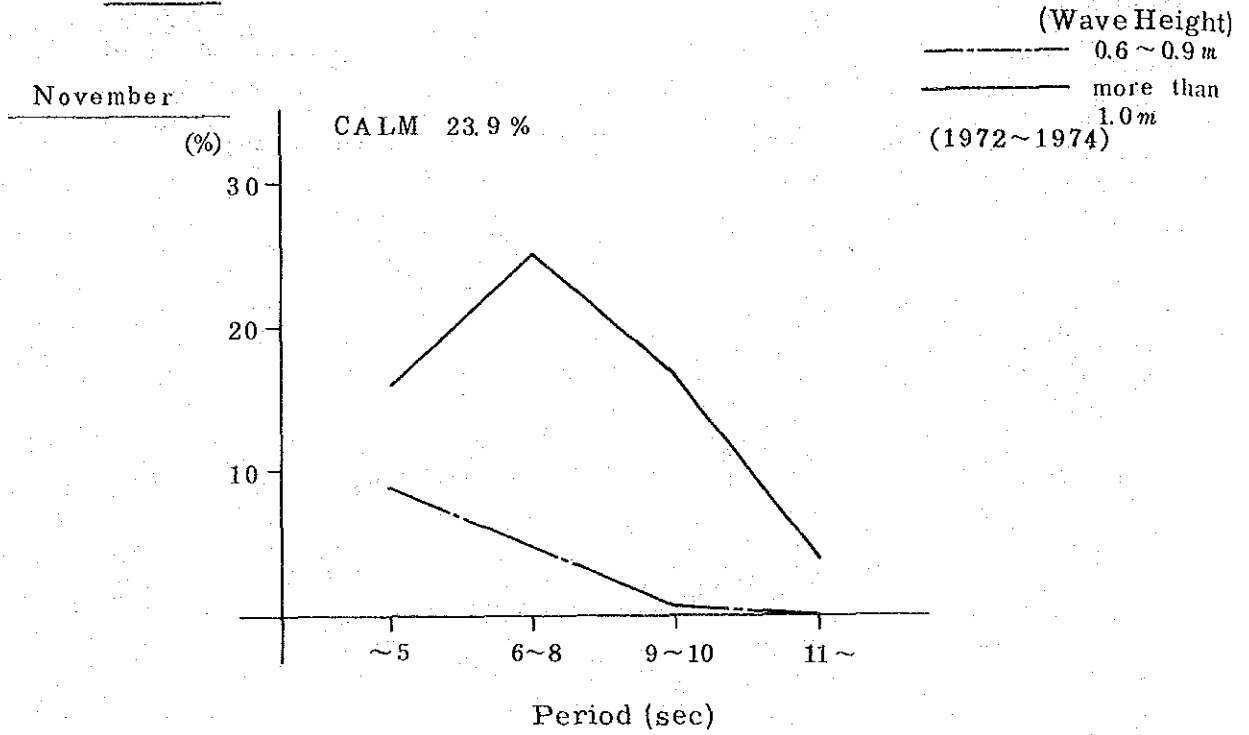
October



App. Fig. 3-41

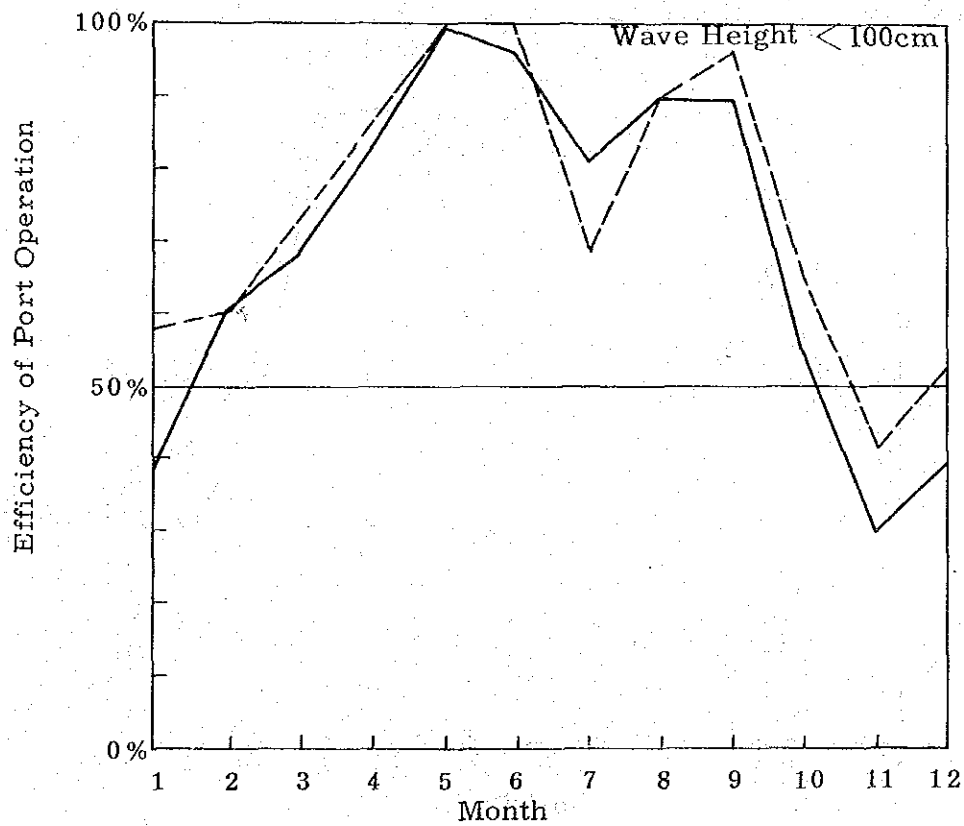
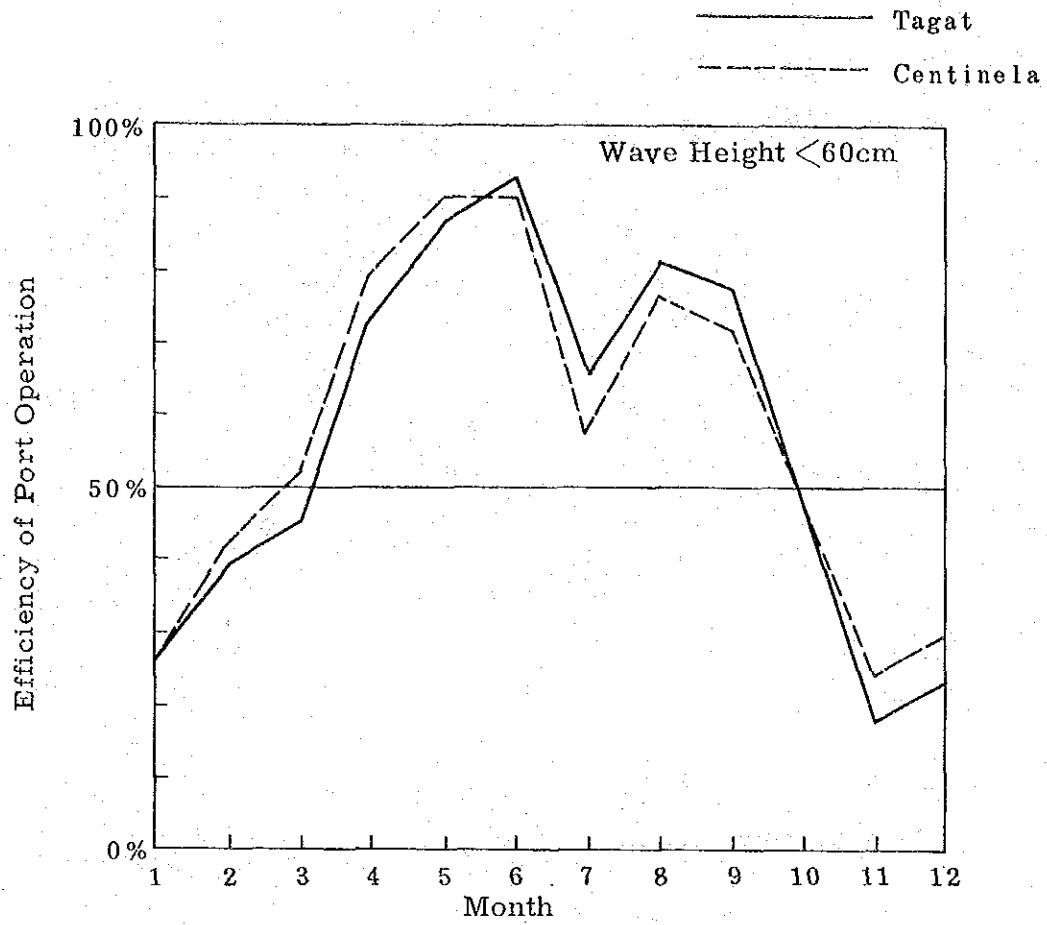
PERCENTAGE FREQUENCY OF OCCURRENCE
OF PERIOD BY MONTH

TAGAT



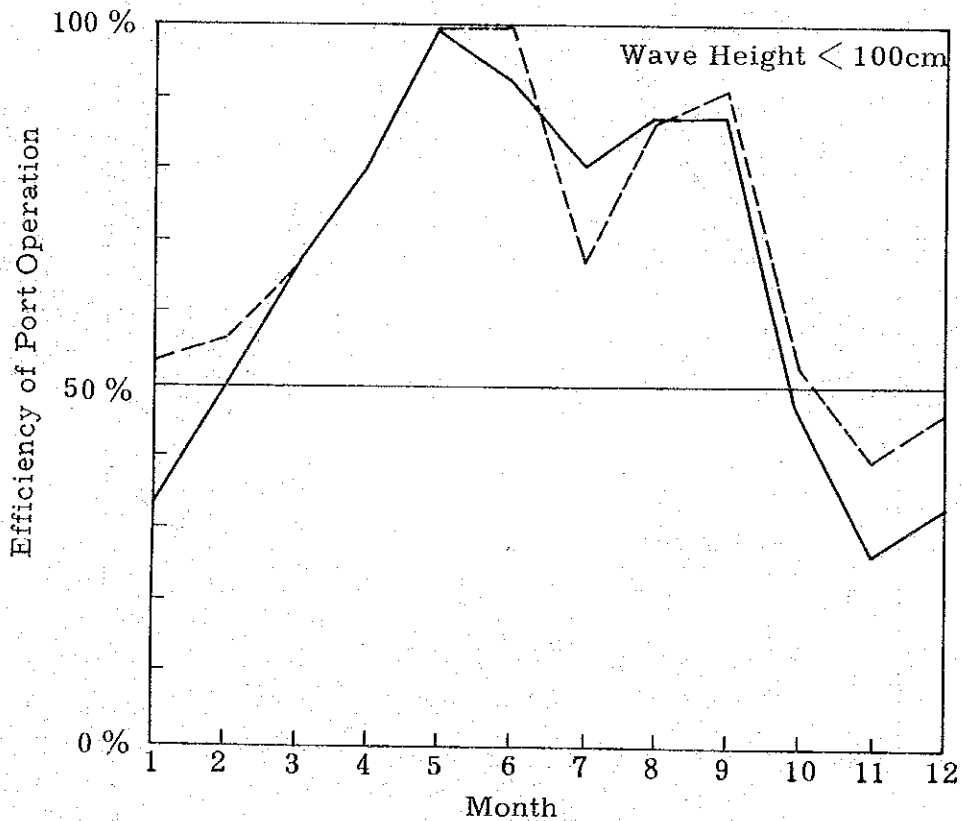
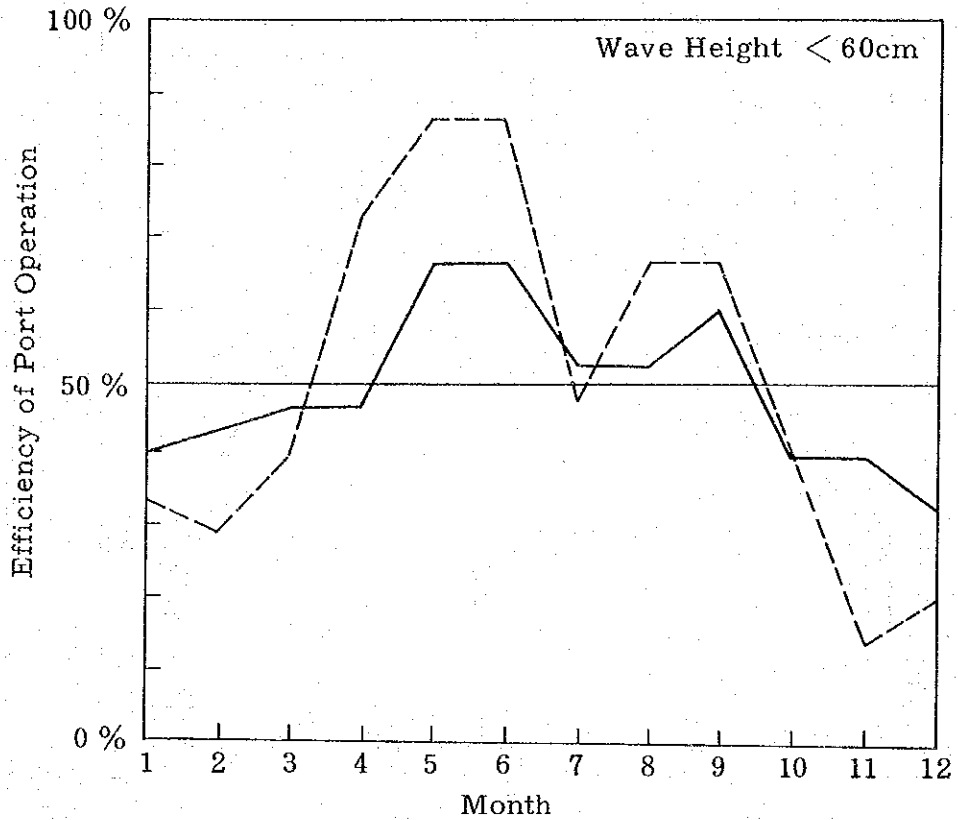
App. Fig. 3-42

EFFICIENCY OF PORT OPERATION
(for one successive day)



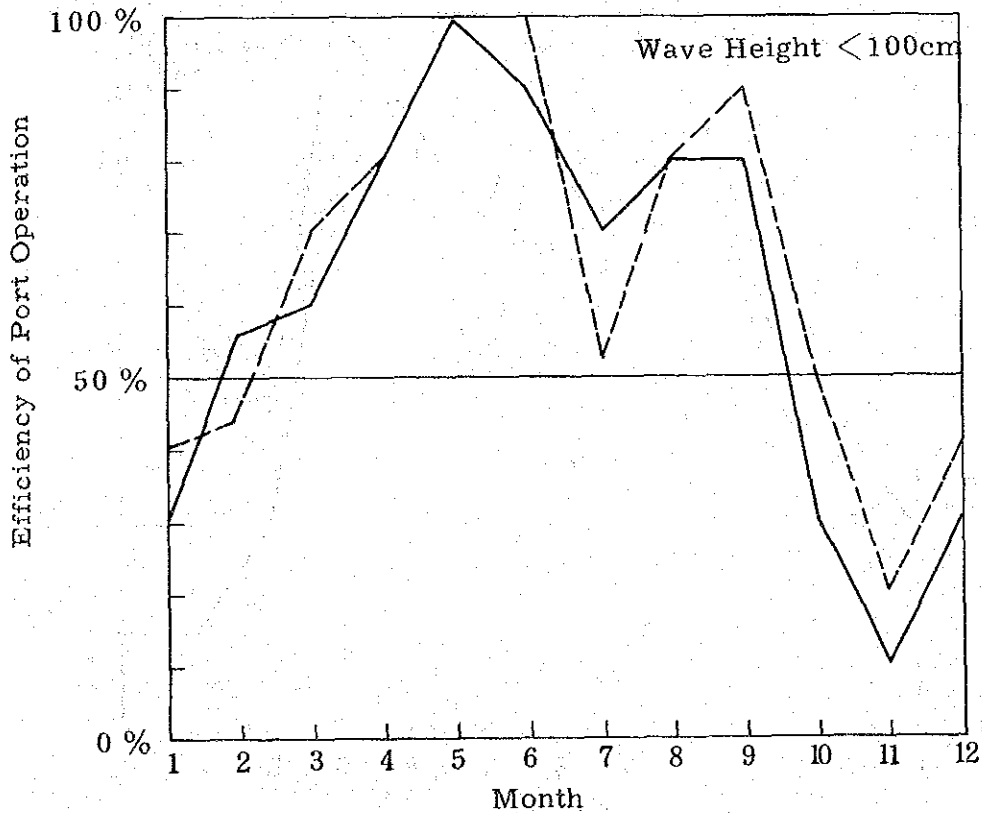
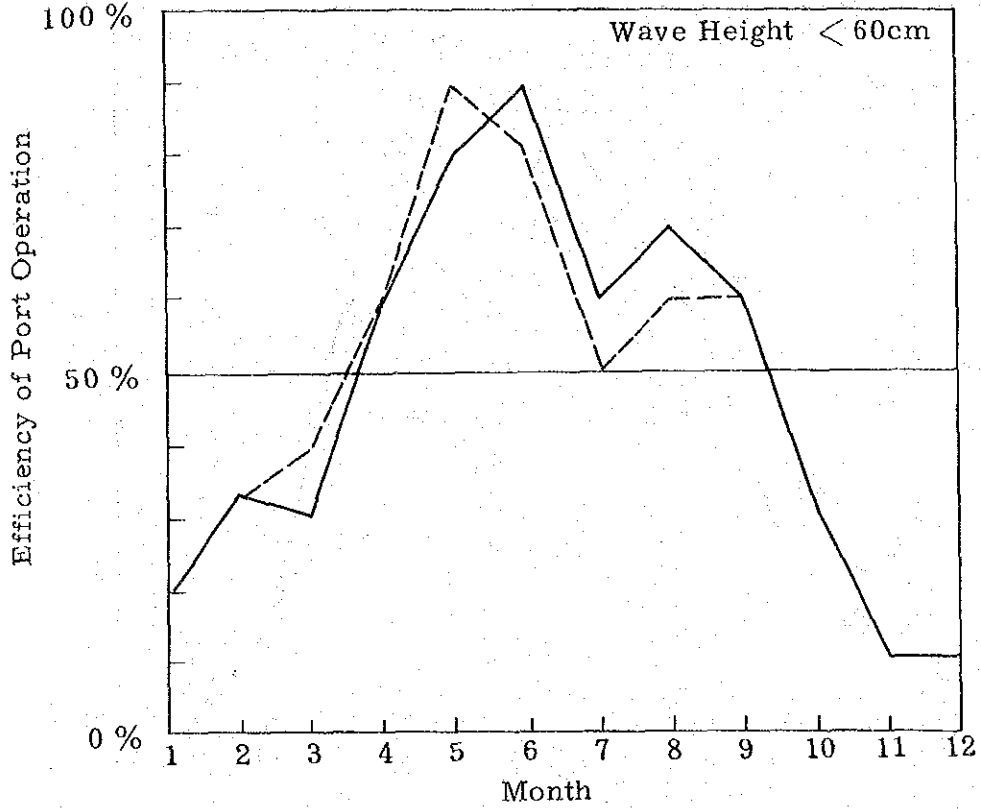
App. Fig. 3-43

EFFICIENCY OF PORT OPERATION
(for two successive days)



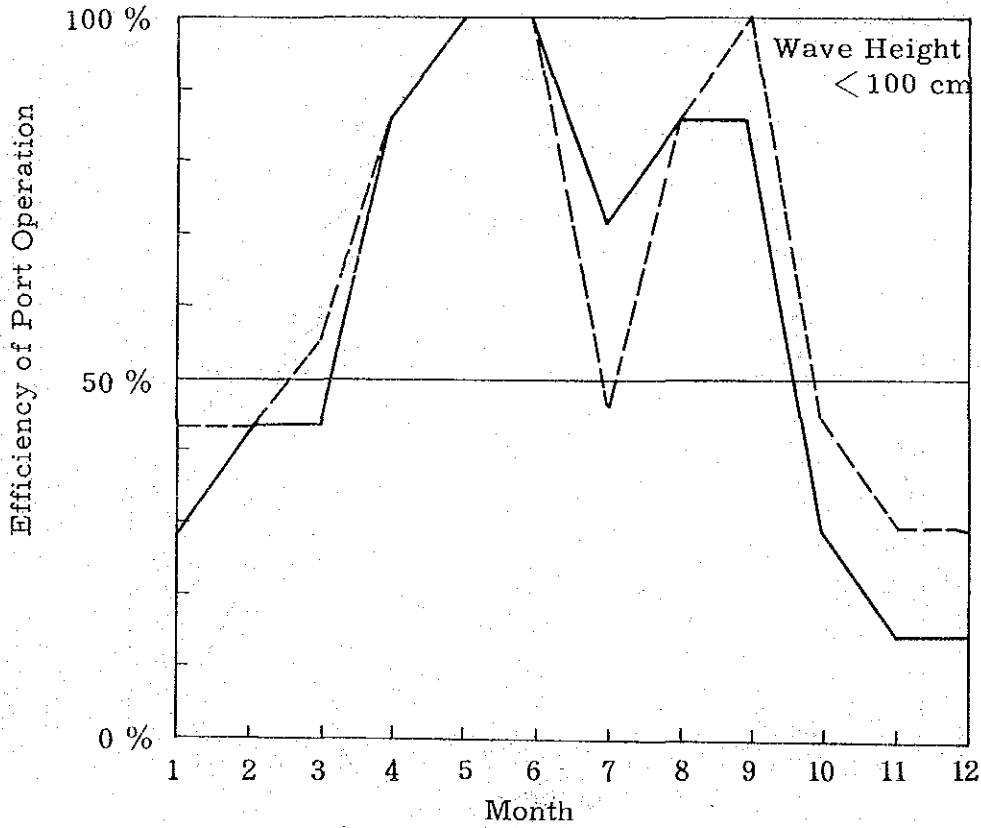
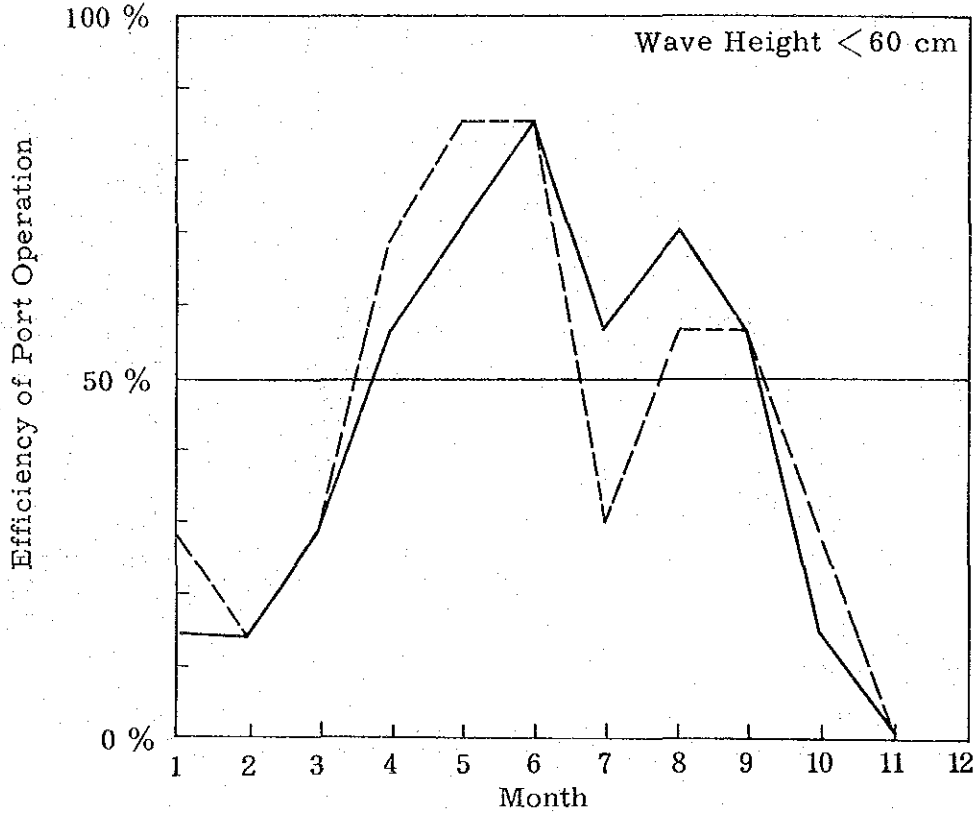
App. Fig. 3-44

EFFICIENCY OF PORT OPERATION
(for three successive days)



App. Fig. 3-45

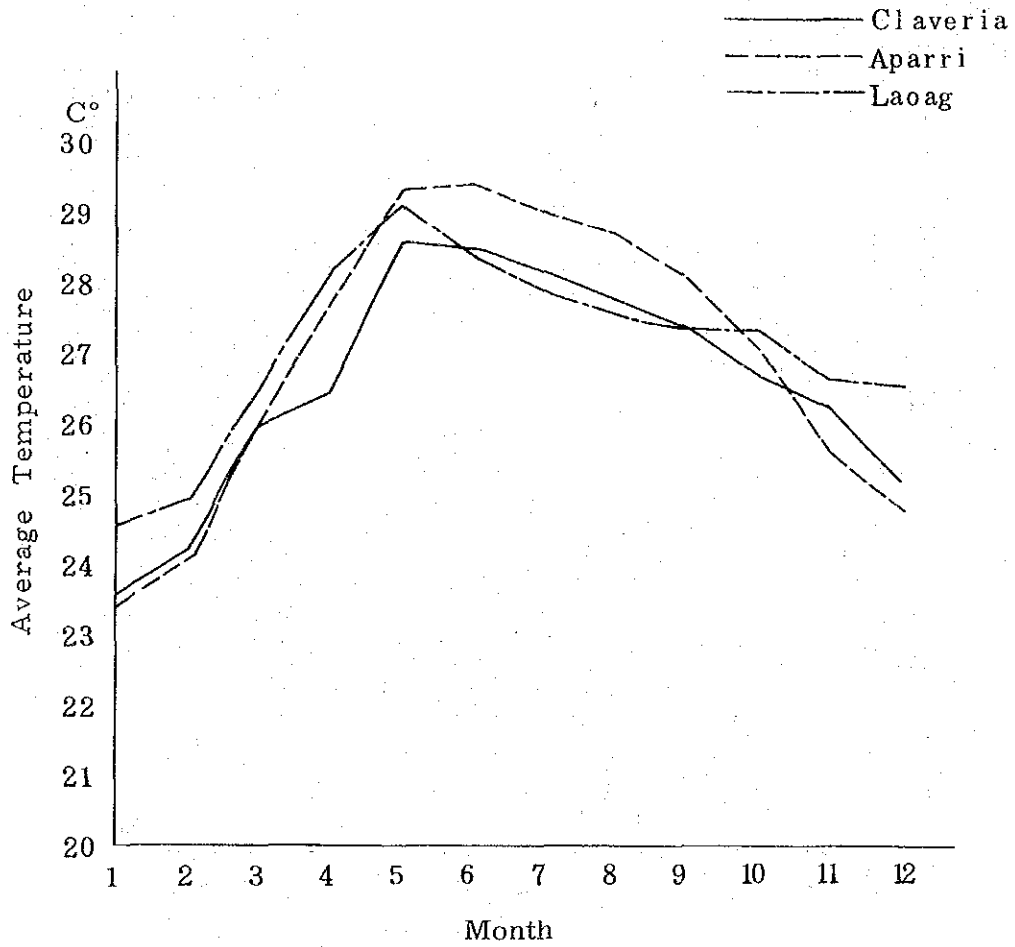
EFFICIENCY OF PORT OPERATION
(for four successive days)



App. Fig. 3-46

AVERAGE TEMPERATURE IN MONTH

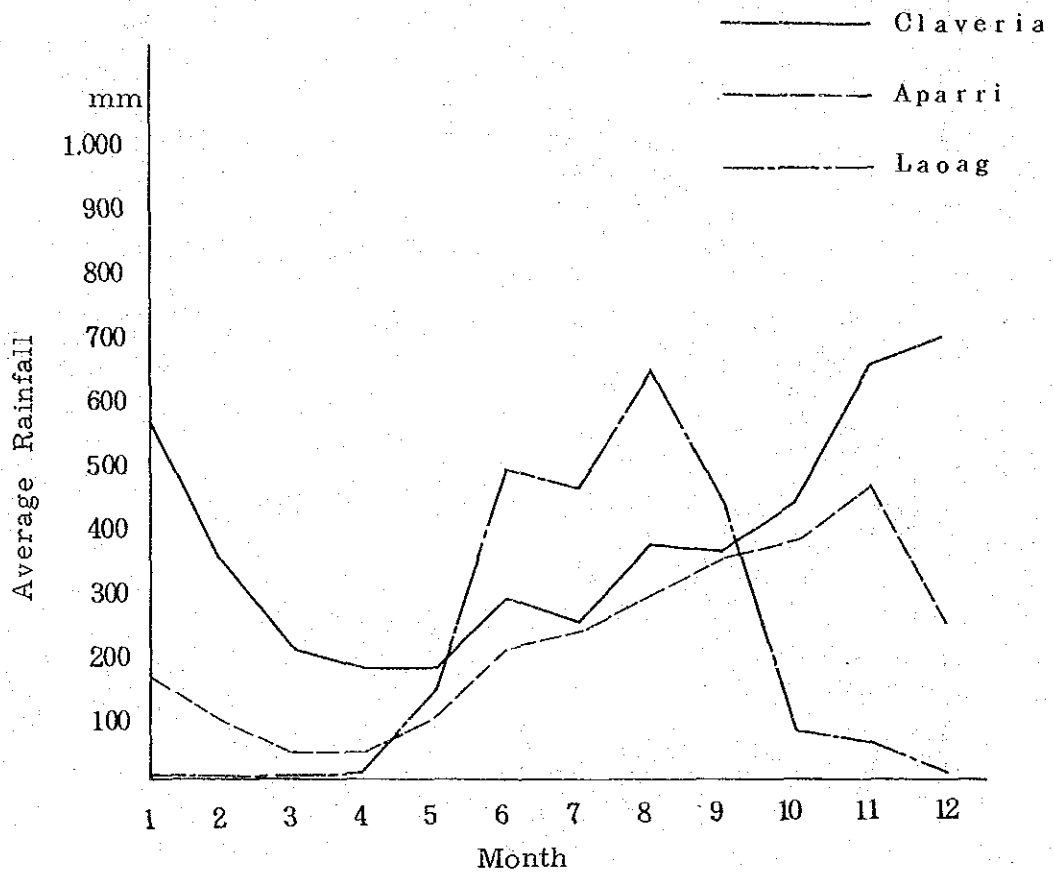
(1951 ~ 1970)



App. Fig. 3-47

AVERAGE RAINFALL IN MONTH

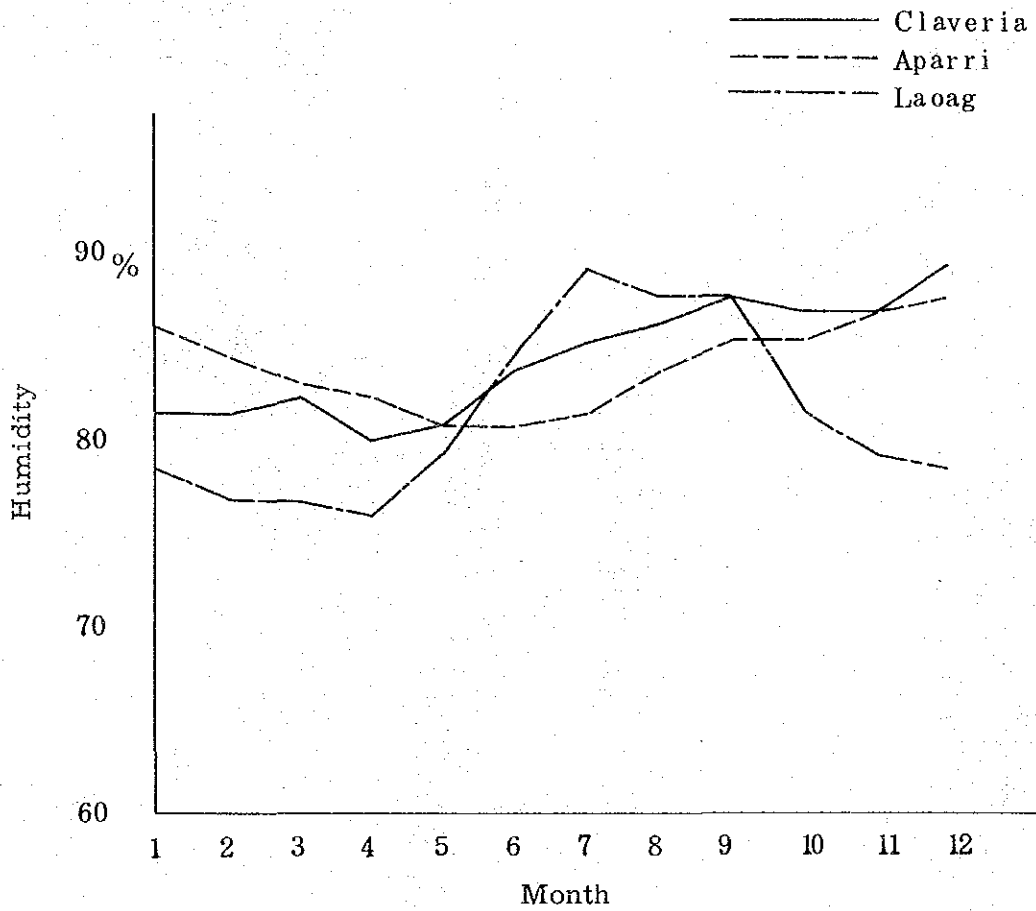
(1951 ~ 1970)



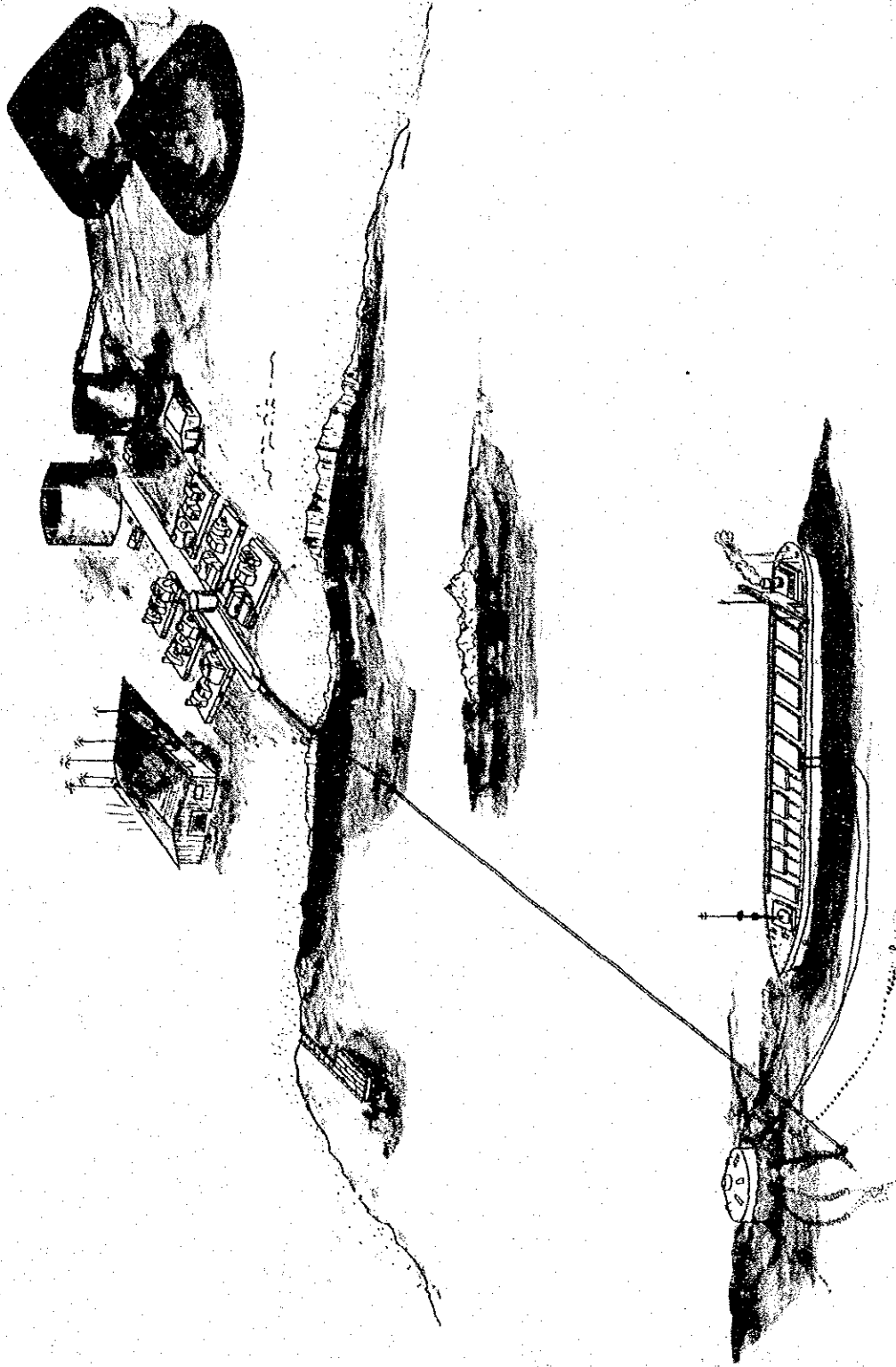
App. Fig. 3-48

HUMIDITY IN MONTH

(1951 ~ 1970)

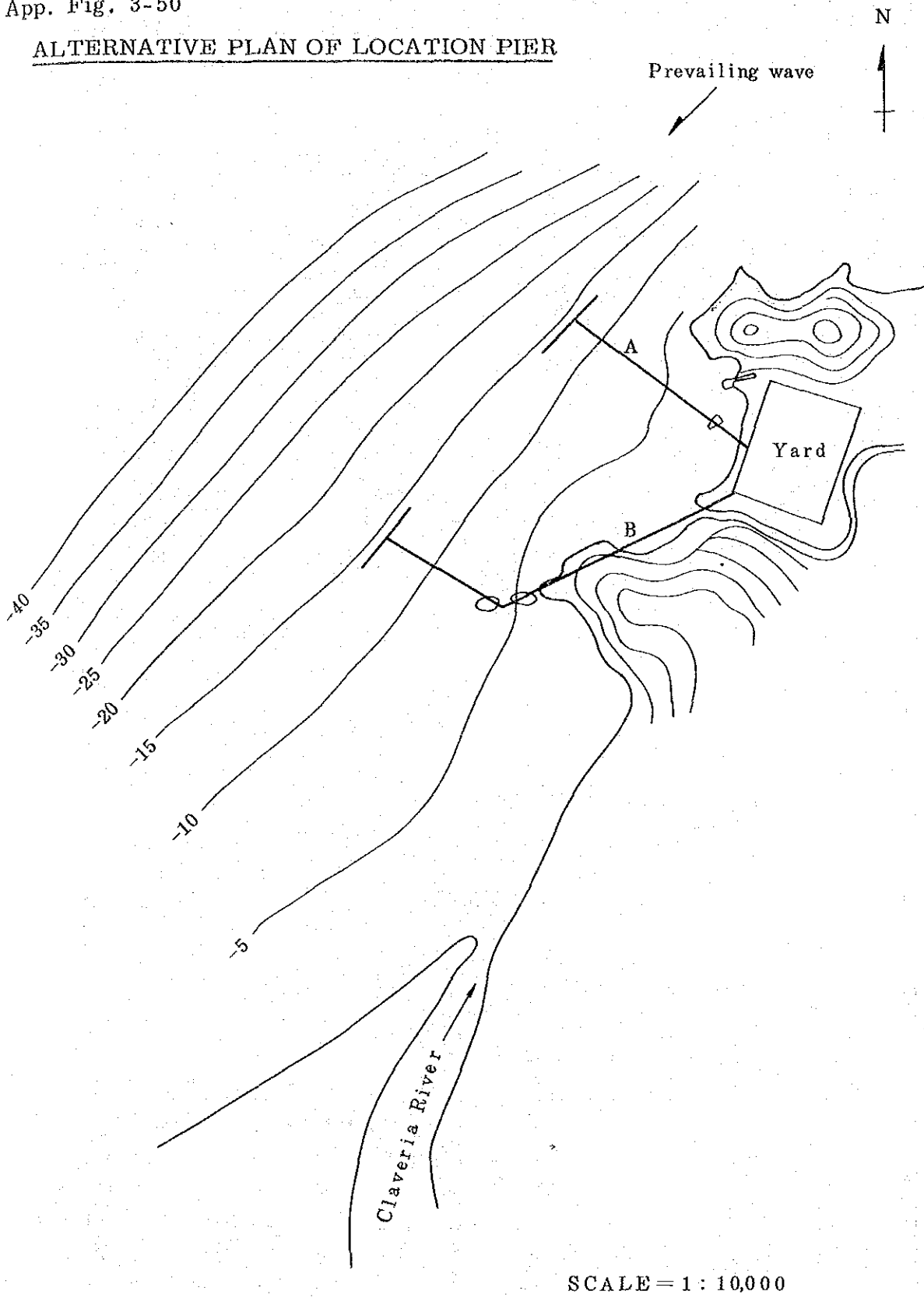


APP. FIG. 3-49
SLURRY PIPELINE AND OFFSHORE MOORING BUOY METHOD



App. Fig. 3-50

ALTERNATIVE PLAN OF LOCATION PIER



SCALE = 1 : 10,000

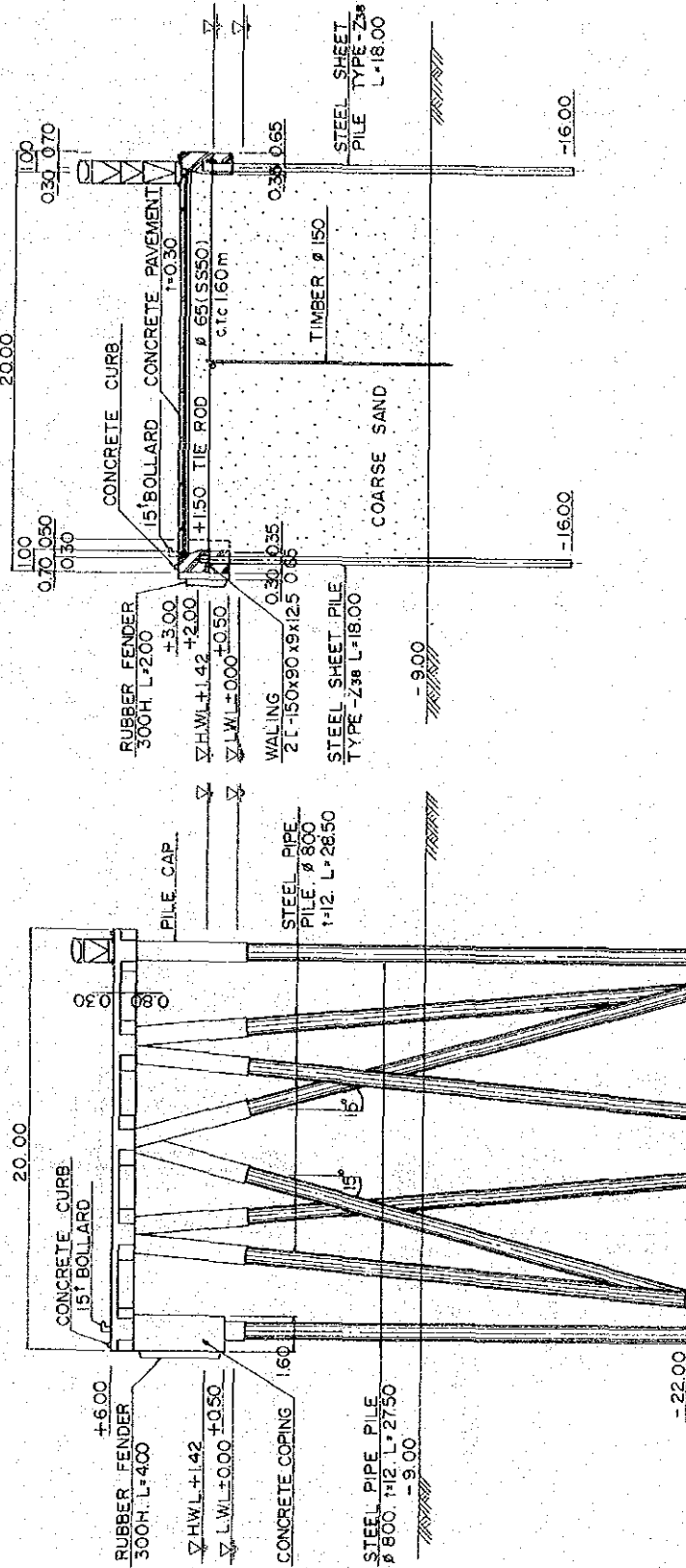
APP. FIG. 3-51

ALTERNATIVE PLAN FOR QUAY STRUCTURE (2000 DWT QUAY)

SCALE = 1 : 300
UNIT: METER

PIER TYPE

SHEET PILE TYPE



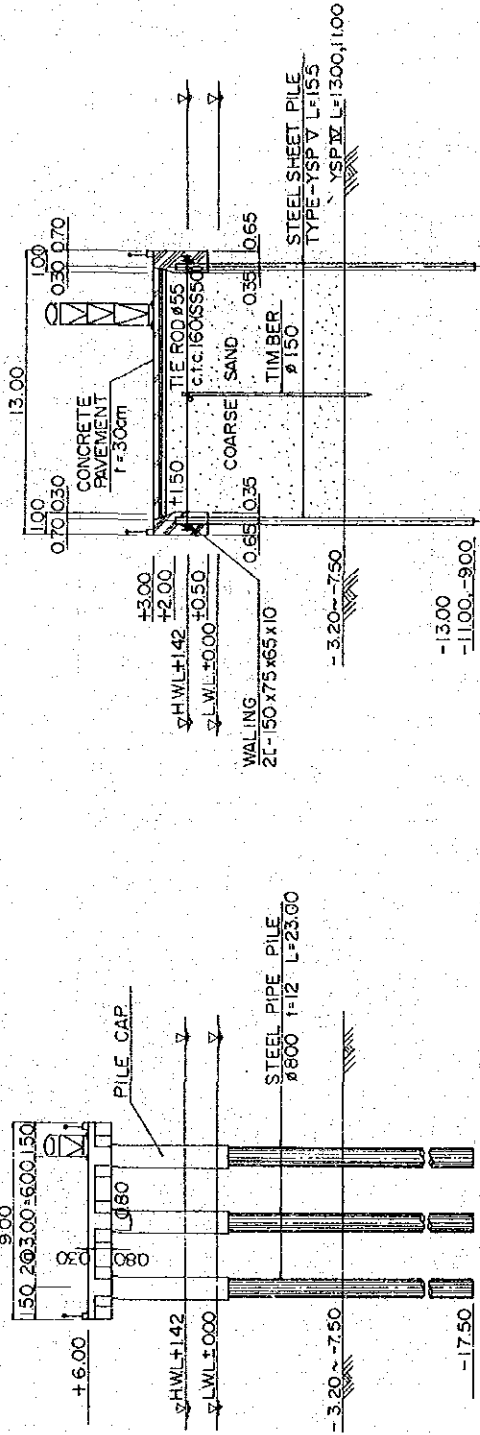
App. Fig. 3-52 ALTERNATIVE PLAN FOR APPROACH PASSAGE

SCALE = 1 : 300

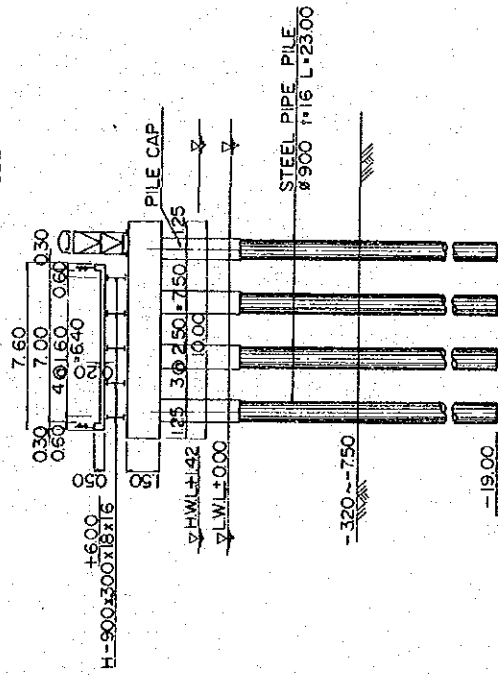
UNIT: METER

PIER TYPE (R.C.)

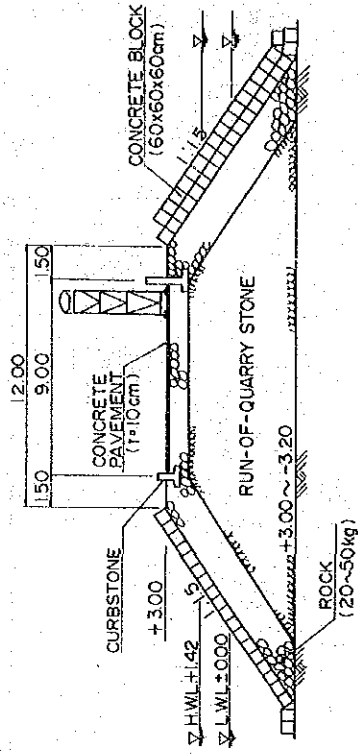
SHEET PILE TYPE



TRESTLE TYPE (STEEL)



ROCK MOUND TYPE



App. Table 3-1

HARMONIC CONSTANT

| Component Tide | | H | K | Remarks |
|------------------|---|-------|-------|---|
| Mark | Name | (m) | (o) | |
| M ₂ | Principal Lunar Semidiurnal Component | 0.180 | 206.7 | H = Height of Component tide K = Log |
| S ₂ | Principal Solar Semidiurnal Component | 0.083 | 22.23 | |
| K ₂ | Luni-solar Semidiurnal Component | 0.023 | 22.23 | |
| N ₂ | Principal Lunar Elliptic Component | 0.058 | 195.8 | |
| K ₁ | Luni-solar Diurnal Component | 0.276 | 310.3 | |
| O ₁ | Principal Lunar Diurnal Component | 0.175 | 262.4 | |
| P ₁ | Principal Solar Diurnal Component | 0.091 | 300.3 | |
| Q ₁ | Principal Solar Elliptic Component | 0.065 | 223.7 | |
| M ₄ | Principal Lunar Quarter-diurnal Component | 0.003 | 135.9 | |
| M S ₄ | Compound Quarter-diurnal Component | 0.006 | 237.4 | |

App. Table 3-2

RECORD OF TIDAL CURRENT OBSERVATION

| Upper (15m below the surface of water) | | | | | Lower (6.0m below the surface of water) | | | | | Tide | |
|--|-----------|----------|----------------------------|----------------------------|---|----------|----------------------------|----------------------------|-------|-----------|--|
| Time | Direction | Verocity | Western Verocity Component | Eastern Verocity Component | Direction | Verocity | Western Verocity Component | Eastern Verocity Component | Time | Sea level | |
| | ° | m/s | m/s | m/s | ° | m/s | m/s | m/s | | | |
| 9:30 | 354 | 0.44 | +0.44 | -0.05 | 2 | 0.52 | +0.52 | +0.02 | | | |
| 50 | 0 | 0.44 | +0.44 | 0 | 1 | 0.38 | +0.38 | +0.01 | | | |
| 10:05 | 351 | 0.41 | +0.40 | -0.06 | 5 | 0.36 | +0.36 | +0.03 | 10:00 | 087 | |
| 20 | 7 | 0.41 | +0.41 | +0.05 | 16 | 0.35 | +0.34 | +0.10 | | | |
| 40 | 18 | 0.44 | +0.42 | +0.14 | 36 | 0.50 | +0.40 | +0.29 | | | |
| 11:02 | 15 | 0.56 | +0.54 | +0.14 | 34 | 0.63 | +0.52 | +0.35 | 11:00 | 074 | |
| 20 | 18 | 0.67 | +0.64 | +0.21 | 35 | 0.57 | +0.55 | +0.38 | | | |
| 41 | 32 | 0.68 | +0.58 | +0.36 | 31 | 0.73 | +0.63 | +0.38 | | | |
| 12:00 | 33 | 0.80 | +0.67 | +0.44 | 32 | 0.74 | +0.63 | +0.39 | 12:00 | 061 | |
| 20 | 47 | 0.82 | +0.56 | +0.60 | 31 | 0.77 | +0.66 | +0.40 | | | |
| 40 | 42 | 0.81 | +0.60 | +0.54 | 39 | 0.73 | +0.57 | +0.46 | | | |
| 13:00 | 32 | 0.68 | +0.58 | +0.36 | 49 | 0.75 | +0.49 | +0.57 | 13:00 | 051 | |
| 20 | 39 | 0.63 | +0.49 | +0.40 | 42 | 0.63 | +0.47 | +0.42 | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| 16:05 | 24 | 0.29 | +0.26 | +0.12 | 23 | 0.33 | +0.30 | +0.13 | 14:00 | 047 | |
| 20 | 13 | 0.23 | +0.22 | +0.05 | 18 | 0.16 | +0.15 | +0.05 | 15:00 | 049 | |
| 39 | 275 | 0.24 | +0.02 | -0.24 | 21 | 0.10 | +0.09 | +0.04 | 16:00 | 057 | |
| 17:00 | 149 | 0.18 | -0.15 | -0.09 | 0 | 0.12 | +0.12 | 0 | 17:00 | 067 | |

App. Table 3-3

OBSERVATION DATA OF WIND DIRECTION & WIND SPEED

| | | 1977 March 8 ~ March 28 | | | | | | | | | | Upper TAGAT | | | | | | | |
|----|-----|-------------------------|-----|-------|-----|--------|-----|--------|-----|--------|-----|-------------|-----|--------|-----|-----------------|--|--|--|
| | | Unit m/sec | | | | | | | | | | | | | | Lower CENTINELA | | | |
| H. | Day | Mar 8 | | Mar 9 | | Mar 10 | | Mar 11 | | Mar 12 | | Mar 13 | | Mar 14 | | | | | |
| | | Vel | Dir | Vel | Dir | Vel | Dir | Vel | Dir | Vel | Dir | Vel | Dir | Vel | Dir | | | | |
| 4 | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | |
| 7 | | | | 4 | SE | 4 | SE | 5 | SE | 5 | SE | 4 | SE | 5 | SE | | | | |
| 8 | | 5 | SE | 5 | E | 5 | SE | 7 | SE | 6 | SE | 3 | SE | 4 | SE | | | | |
| 9 | | 5 | SE | 4 | SE | 5 | SE | 7 | SE | 6 | SE | 6 | SE | 4 | SE | | | | |
| 10 | | 7 | SE | 6 | SE | 7 | SE | 8 | SE | 10 | SE | 6 | SE | 7 | SE | | | | |
| 11 | | 8 | SE | 7 | SE | 7 | SE | 7 | SE | 8 | SE | 8 | SE | 7 | SE | | | | |
| 12 | | 8 | SE | 8 | SE | 8 | SE | 9 | SE | 11 | SE | 7 | SE | 8 | SE | | | | |
| 13 | | 7 | SE | 7 | SE | 8 | SE | 11 | SE | 10 | SE | 8 | SE | 10 | SE | | | | |
| 14 | | 6 | SE | 6 | SE | 7 | SE | 9 | SE | 11 | SE | 5 | SE | 7 | SE | | | | |
| 15 | | 7 | SE | 7 | SE | 7 | SE | 5 | SE | 7 | SE | 5 | SE | 8 | SE | | | | |
| 16 | | 5 | SE | 6 | SE | 9 | SE | 7 | SE | 6 | SE | 5 | SE | 7 | SE | | | | |
| 17 | | 7 | SE | 5 | SE | 7 | SE | 7 | SE | 8 | SE | 4 | SE | 7 | SE | | | | |
| 18 | | 4 | SE | 5 | SE | 7 | SE | 6 | SE | 6 | SE | 4 | SE | 4 | SE | | | | |
| 19 | | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | | | | | | |

Unit m/sec

Upper TAGAT
Lower CENTINELA

| Day H | Mar 15 | | Mar 16 | | Mar 17 | | Mar 18 | | Mar 19 | | Mar 20 | | Mar 21 | |
|----------|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|
| | Vel | Dir | Vel | Dir | Vel | Dir | Vel | Dir | Vel | Dir | Vel | Dir | Vel | Dir |
| 1 | | | | | | | 3 | SE | 2 | S | 8 | S | 0 | S |
| 2 | | | | | | | 3 | S | 4 | SE | 5 | S | 4 | S |
| 3 | | | | | | | 2 | SE | 5 | S | 5 | S | 3 | S |
| 4 | | | | | | | 1 | S | 3 | SE | 7 | S | 6 | S |
| 5 | | | | | | | 3 | S | 4 | SE | 5 | S | 4 | SE |
| 6 | | | | | | | 0 | | 4 | SE | 5 | SE | 6 | S |
| 7 | 2 | SE | 2 | SE | 5 | SE | 0 | | 4 | SE | 0 | | 6 | S |
| 8 | 5 | SE | 3 | SE | 5 | SE | 0 | | 3 | SE | 5 | SE | 7 | S |
| 9 | 9 | SE | 0 | | 4 | SE | 0 | | 6 | SE | 6 | SE | 9 | S |
| 10 | 7 | SE | 4 | SE | 6 | SE | 0 | | 3 | SE | 7 | SE | 8 | S |
| 11 | 9 | SE | 7 | SE | 8 | SE | 3 | SE | 4 | SE | 8 | SE | 6 | SE |
| 12 | 7 | SE | 8 | SE | 8 | SE | 4 | SE | 6 | SE | 3 | SE | 7 | SE |
| 13 | 9 | SE | 7 | SE | 8 | SE | 4 | SE | 7 | SE | 7 | SE | 7 | SE |
| 14 | 6 | SE | 5 | SE | 6 | SE | 4 | SE | 7 | SE | 6 | SE | 7 | SE |
| 15 | 4 | SE | 5 | SE | 7 | SE | 3 | SE | 6 | SE | 5 | SE | 6 | SE |
| 16 | 5 | SE | 5 | SE | 7 | SE | 3 | SE | 6 | SE | 5 | S | 8 | SE |
| 17 | 2 | SE | 4 | SE | 5 | SE | 3 | SE | 8 | SE | 3 | S | 6 | SE |
| 18 | 5 | SE | 4 | SE | 6 | SE | 2 | SE | 7 | SE | 4 | S | 6 | SE |
| 19 | | | | | 6 | SE | 0 | | 5 | SE | 5 | S | 5 | SE |
| 20 | | | | | | | 4 | SE | 5 | SE | 6 | S | 6 | S |
| 21 | | | | | | | 1 | SE | 6 | SE | 10 | S | 5 | S |
| 22 | | | | | | | 2 | SE | 2 | SE | 7 | S | 7 | S |
| 23 | | | | | | | 1 | SE | 1 | SE | 5 | S | 4 | SE |
| 24 | | | | | | | 4 | SE | 5 | SE | 9 | S | 6 | SE |

Unit m/sec

Upper TAGAT
Lower CENTINELA

| Day H | Mar 22 | | Mar 23 | | Mar 24 | | Mar 25 | | Mar 26 | | Mar 27 | | Mar 28 | |
|----------|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|
| | Vel | Dir | Vel | Dir | Vel | Dir | Vel | Dir | Vel | Dir | Vel | Dir | Vel | Dir |
| 1 | 5 | S | 2 | S | 8 | S | 4 | | 2 | | 3 | | | |
| 2 | 4 | S | 6 | S | 7 | S | 5 | | 3 | | 4 | | | |
| 3 | 5 | S | 2 | S | 6 | S | 6 | | 1 | | 2 | | | |
| 4 | 5 | S | 3 | S | 8 | S | 3 | | 3 | | 5 | | | |
| 5 | 6 | S | 4 | S | 6 | S | 2 | | 4 | | 6 | | | |
| 6 | 6 | SE | 5 | SE | 3 | S | 4 | | 3 | | 3 | | 5 | |
| | 3 | E | 4 | E | 3 | E | 3 | NE | 3 | E | | | | |
| 7 | 6 | SE | 5 | SE | 3 | S | 3 | | 1 | | 4 | | 5 | |
| | 5 | SE | 5 | SE | 5 | SE | 4 | N | 3 | SE | | | | |
| 8 | 7 | SE | 5 | SE | 5 | S | 3 | | 4 | | 1 | | 7 | |
| | 6 | E | 5 | E | 4 | E | 6 | NE | 4 | | | | | |
| 9 | 8 | SE | 7 | SE | 4 | S | 8 | | 5 | | 0 | | 7 | |
| | 7 | E | 7 | E | 6 | SE | 9 | E | 5 | | | | | |
| 10 | 8 | SE | 7 | SE | 7 | S | 8 | | 4 | | 5 | | 7 | |
| | 8 | E | 6 | SE | 8 | NE | 8 | NE | 5 | | | | | |
| 11 | 9 | SE | 8 | SE | 7 | S | 8 | | 3 | | 1 | | 6 | |
| | 8 | NE | 7 | NE | 10 | NE | 9 | NE | 8 | | | | | |
| 12 | 8 | SE | 8 | SE | 6 | S | 8 | | 5 | | 6 | | 9 | |
| | 9 | NE | 9 | NE | 9 | NE | 8 | N | 7 | | | | | |
| 13 | 9 | SE | 8 | SE | 7 | S | 8 | | 7 | | 5 | | 8 | |
| | 8 | NE | 7 | N | 8 | NE | 8 | NE | 7 | | | | | |
| 14 | 9 | SE | 8 | SE | 8 | S | 6 | | 7 | | 5 | | 8 | |
| | 10 | NE | 7 | SE | 7 | NW | 7 | N | 9 | | | | | |
| 15 | 8 | SE | 6 | SE | 7 | S | 7 | | 5 | | 5 | | 6 | |
| | 8 | E | 6 | SE | 8 | NE | 8 | NE | 8 | | | | | |
| 16 | 9 | SE | 6 | SE | 8 | S | 7 | | 4 | | 5 | | 7 | |
| | 7 | SE | 7 | SE | 9 | NE | 7 | NW | 6 | | | | | |
| 17 | 9 | SE | 7 | SE | 8 | S | 7 | | 4 | | 5 | | 5 | |
| | 8 | E | 8 | E | 8 | NE | 8 | NE | 7 | | | | | |
| 18 | 7 | SE | 5 | SE | 9 | S | 9 | | 3 | | 4 | | | |
| | 8 | SE | 6 | E | 10 | NE | 7 | NE | 4 | | | | | |
| 19 | 7 | SE | 5 | S | 8 | S | 8 | | 3 | | 2 | | | |
| 20 | 6 | SE | 3 | S | 9 | S | 5 | | 1 | | 3 | | | |
| 21 | 5 | SE | 4 | S | 8 | S | 4 | | 1 | | 2 | | | |
| 22 | 6 | SE | 4 | S | 7 | S | 6 | | 3 | | 3 | | | |
| 23 | 5 | SE | 4 | S | 8 | S | 3 | | 0 | | 3 | | | |
| 24 | 4 | S | 4 | S | 8 | S | 3 | | 3 | | 4 | | | |

App. Table 3-4

MAXIMUM WIND SPEED & WIND DIRECTION BY MONTH Unit: Knot

| Year \ Month | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|--------------|----------|----------|----------|----------|----------------|----------|-----------|-----------|-----------|-----------|-----------|----------|
| 1970 | NW 30 | NE 25 | | NE 21 | NE 16 | SW 20 | NNE 25 | ENE 21 | ENE 35 | ENE 29 | NE 30 | NE 29 |
| 1971 | NE 29 | NE 23 | NE 21 | NW 20 | NE 17 | NE 27 | - | N 30 | E 31 | NE 55 | NE 35 | NE 37 |
| 1972 | NE 39 | NE 28 | NE 40 | NE 32 | NW NE 15 | W 23 | SE 20 | NNW 35 | NE 23 | NE 22 | NE 32 | NE 40 |
| 1973 | NE 29 | NE 23 | NE 25 | NE 25 | NE 24 | NE 19 | SW 20 | N 17 | N 20 | S 100 | NE 102 | NE 49 |
| 1974 | NE 33 | NE 42 | NE 45 | NE 52 | NE 20 | NW 58 | NW 56 | SW 41 | SW 76 | - | NE 81 | |

App. Table 3-5

WIND DIRECTION (Wind Speed \geq 40 knot) for five years

| Wind Direction | N | NNE | NE | ENE | E | ESE | SE | SSE | S | SSW | SW | WSW | W | WNW | NW | NNW | Total |
|-------------------|---|-----|----|-----|---|-----|----|-----|---|-----|----|-----|---|-----|----|-----|-------|
| The Number of Day | - | - | 39 | - | 1 | - | - | - | 2 | - | 2 | - | - | - | 3 | 2 | 49 |

App. Table 3-6

THE NUMBER OF DAY OF MAXIMUM WIND SPEED BY MONTH

| Month \ Wind Speed | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Total |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|-------|
| more than 60 knot | - | - | - | - | - | - | - | - | 0.2 | 1.0 | 0.6 | - | 1.8 |
| 60 ~ 40 | - | 0.2 | 0.7 | 1.6 | - | 0.4 | 0.2 | 0.2 | - | 0.5 | 2.6 | 2.0 | 8.4 |
| 40 ~ 20 | 9.8 | 7.2 | 5.8 | 4.6 | 1.0 | 2.4 | 4.3 | 3.0 | 2.8 | 6.0 | 11.4 | 11.8 | 70.1 |
| Total | 9.8 | 7.4 | 6.5 | 6.2 | 1.0 | 2.8 | 4.5 | 3.2 | 2.8 | 7.5 | 14.6 | 13.8 | 80.3 |

App. Table 3-7

THE NUMBER OF DAYS (Wind Speed \geq 20 knot)

| Year \ Month | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Total |
|--------------|----|----|----|----|---|---|---|---|---|----|----|----|--------------------|
| 1970 | 7 | 7 | - | 3 | 0 | 1 | 6 | 2 | 2 | 6 | 9 | 6 | more than 49 days |
| 1971 | 11 | 5 | 1 | 1 | 0 | 2 | - | 2 | 2 | 8 | 21 | 17 | for 70 days |
| 1972 | 12 | 10 | 13 | 9 | 0 | 4 | 2 | 6 | 4 | 3 | 11 | 12 | for 86 days |
| 1973 | 11 | 3 | 5 | 2 | 4 | 0 | 1 | 0 | 1 | 13 | 17 | 20 | for 77 days |
| 1974 | 8 | 12 | 7 | 16 | 1 | 7 | 9 | 6 | 6 | 10 | 15 | 15 | more than 112 days |

App. Table 3-8

AVERAGE WIND SPEED & WIND DIRECTION BY MONTH

Unit : Knot

| Month Year | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Average |
|---------------|---------|---------|---------|---------|-----------|---------|--------|---------|---------|---------|----------|---------|---------|
| 1970 | NE 7 | NE 6 | NE 7 | S 4 | S 5 | NE 5 | S 4 | NE 4 | NE 5 | NE 6 | NE 5 | NE 7 | 5.4 |
| 1971 | NE 7 | NE 5 | — | NE 5 | NE 4 | NE 3 | S 3 | NE 3 | S 3 | NE 6 | NE 10 | NE 9 | 5.3 |
| 1972 | NE 8 | NE 5 | NE 7 | NE 6 | S 3 | NE 4 | S 3 | S 4 | NE 4 | NE 4 | NE 6 | NE 6 | 5.0 |
| 1973 | NE 6 | NE 3 | NE 5 | NE 4 | NE-S 4 | S 3 | S 2 | S 2 | NE 4 | NE 8 | NE 10 | NE 9 | 5.0 |
| 1974 | NE 4 | NE 6 | NE 5 | NE 7 | S 3 | S 5 | S 4 | SW 3 | SW 4 | — | NE 9 | — | 5.0 |
| Average | 6.4 | 5.0 | 6.0 | 5.2 | 3.8 | 4.0 | 3.2 | 3.2 | 4.0 | 6.0 | 7.8 | 7.8 | 5.2 |

App. Table 3-9

THE NUMBER OF DAYS (Average Wind Speed \geq 7 knot)

| Month Year | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Total |
|---------------|----|----|----|----|---|---|---|---|---|----|----|----|-------|
| 1970 | 15 | 13 | — | 14 | 1 | 3 | 7 | 5 | 2 | 6 | 13 | 9 | 93(+) |
| 1971 | 12 | 6 | 8 | 2 | 2 | 2 | — | 2 | 2 | 10 | 21 | 18 | 85(+) |
| 1972 | 13 | 7 | 13 | 8 | 1 | 1 | 2 | 4 | 1 | 3 | 9 | 10 | 72 |
| 1973 | 11 | 2 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 12 | 14 | 18 | 65 |
| 1974 | 9 | 11 | 5 | 11 | 0 | 4 | 5 | 2 | 2 | — | 12 | — | 61(+) |
| Average | 12 | 8 | 8 | 8 | 1 | 2 | 3 | 3 | 2 | 8 | 14 | 14 | 83 |

App. Table 3-10

WIND DIRECTION (Average Wind Speed \geq 7 knot)

| Wide Direction | N | NNE | NE | ENE | E | ESE | SE | SSE | S | SSW | SW | WSW | W | WNW | NW | NNW |
|----------------|----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|---|-----|-----|-----|
| Percentage | 12 | 0.5 | 87.0 | 0.5 | 0.5 | 0 | 0.1 | 0 | 5.1 | 0.5 | 1.7 | 0 | 0 | 0 | 2.6 | 0.3 |

App. Table 3-11

RATIO OF WAVE HEIGHT COEFFICIENT
(Refraction, Shoaling, Spreading)

CENTINELA

| DIR \ T | | T | | | | | | | | |
|----------------|----------------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| | | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| W λ WNW | K _r | 0.929 | 1.067 | 1.033 | 0.998 | 0.986 | 0.973 | 0.906 | 0.838 | |
| | K _s | 0.973 | 0.938 | 0.917 | 0.913 | 0.921 | 0.936 | 0.955 | 0.979 | |
| | K | 0.904 | 1.001 | 0.947 | 0.911 | 0.908 | 0.911 | 0.865 | 0.820 | |
| | θ | WNW | WNW | WNW | WNW | WNW | WNW | WNW | WNW | |
| WNW | K _r | 0.932 | 1.003 | 1.002 | 1.000 | 0.990 | 0.980 | 0.968 | 0.955 | |
| | K _s | 0.973 | 0.938 | 0.917 | 0.913 | 0.921 | 0.936 | 0.955 | 0.979 | |
| | K | 0.907 | 0.941 | 0.919 | 0.913 | 0.912 | 0.917 | 0.924 | 0.935 | |
| | θ | WNW | WNW | WNW | WNW | WNW | WNW | WNW | WNW | |
| NW | K _r | 0.937 | 0.923 | 0.973 | 1.022 | 1.059 | 1.095 | 1.104 | 1.112 | |
| | K _s | 0.973 | 0.938 | 0.917 | 0.913 | 0.921 | 0.936 | 0.955 | 0.979 | |
| | K | 0.912 | 0.866 | 0.892 | 0.933 | 0.975 | 1.025 | 1.054 | 1.089 | |
| | θ | NW | NW | NW | NW | NW | NW | NW | NW | |
| NNW | K _r | 0.980 | 0.970 | 0.977 | 0.983 | 0.977 | 0.969 | 1.005 | 1.040 | |
| | K _s | 0.973 | 0.938 | 0.917 | 0.913 | 0.921 | 0.936 | 0.955 | 0.979 | |
| | K | 0.954 | 0.910 | 0.896 | 0.897 | 0.900 | 0.907 | 0.960 | 1.018 | |
| | θ | NNW | NNW | NNW | NNW | NNW | NNW | NNW | NNW | |
| N λ NNE | K _r | 0.971 | 0.971 | 0.947 | 0.923 | 0.942 | 0.960 | 0.953 | 0.945 | |
| | K _s | 0.973 | 0.938 | 0.917 | 0.913 | 0.921 | 0.936 | 0.955 | 0.979 | |
| | K | 0.945 | 0.911 | 0.868 | 0.843 | 0.868 | 0.899 | 0.910 | 0.925 | |
| | θ | N | N | N | N | N | N | N | N | |
| NE λ ENE | K _r | 0.455 | 0.24 | 0.305 | 0.370 | 0.433 | 0.495 | 0.400 | 0.304 | |
| | K _s | 0.973 | 0.938 | 0.917 | 0.913 | 0.921 | 0.936 | 0.955 | 0.979 | |
| | K | 0.443 | 0.225 | 0.280 | 0.338 | 0.399 | 0.463 | 0.382 | 0.298 | |
| | θ | NE | NE | NE | NE | NE | NNE | NNE | NNE | |
| E | K _r | 0.206 | 0.041 | 0.059 | 0.077 | 0.109 | 0.140 | 0.150 | 0.160 | |
| | K _s | 0.973 | 0.938 | 0.917 | 0.913 | 0.921 | 0.936 | 0.955 | 0.979 | |
| | K | 0.200 | 0.039 | 0.054 | 0.070 | 0.100 | 0.131 | 0.143 | 0.157 | |
| | θ | NNE | NNE | NNE | N | N | N | NNE | NNE | |

App. Table 3-12

RATIO OF WAVE HEIGHT COEFFICIENT
(Refraction, Shoaling, Spreading)

| DIR \ T | | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|----------------|----------------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | | | | | | | | |
| W WNW | K _r | | | | | | | | |
| | K _s | | | | | | | | |
| | K | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 |
| | θ | NNW | NNW | NNW | NNW | NNW | NNW | NNW | NNW |
| WNW | K _r | | | | | | | | |
| | K _s | | | | | | | | |
| | K | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 |
| | θ | NNW | NNW | NNW | NNW | NNW | NNW | NNW | NNW |
| NW | K _r | | | | 0.607 | 0.506 | 0.405 | 0.387 | 0.368 |
| | K _s | | | | 0.913 | 0.921 | 0.936 | 0.955 | 0.979 |
| | K | 0.51 | 0.51 | 0.51 | 0.554 | 0.466 | 0.379 | 0.370 | 0.360 |
| | θ | NNW | NNW | NNW | N | N | N | N | NNE |
| NNW | K _r | 0.697 | 0.683 | 0.615 | 0.547 | 0.502 | 0.456 | 0.504 | 0.551 |
| | K _s | 0.973 | 0.938 | 0.917 | 0.913 | 0.921 | 0.936 | 0.955 | 0.979 |
| | K | 0.678 | 0.641 | 0.564 | 0.499 | 0.462 | 0.427 | 0.481 | 0.539 |
| | θ | N | N | N | N | N | NNE | NNE | NNE |
| N NNE | K _r | 0.878 | 0.905 | 0.870 | 0.834 | 0.812 | 0.789 | 0.781 | 0.773 |
| | K _s | 0.973 | 0.938 | 0.917 | 0.913 | 0.921 | 0.936 | 0.955 | 0.979 |
| | K | 0.854 | 0.849 | 0.798 | 0.761 | 0.748 | 0.739 | 0.746 | 0.757 |
| | θ | N | N | N | NNE | NNE | NNE | NNE | NNE |
| NE ENE | K _r | 0.900 | 1.0 | 1.015 | 1.03 | 0.970 | 0.910 | 0.880 | 0.850 |
| | K _s | 0.973 | 0.938 | 0.917 | 0.913 | 0.921 | 0.936 | 0.955 | 0.979 |
| | K | 0.876 | 0.938 | 0.931 | 0.940 | 0.893 | 0.852 | 0.840 | 0.832 |
| | θ | NE | NE | NE | NE | NE | NE | NE | NE |
| E | K _r | 0.333 | 0.106 | 0.079 | 0.052 | 0.105 | 0.157 | 0.158 | 0.159 |
| | K _s | 0.973 | 0.938 | 0.917 | 0.913 | 0.921 | 0.936 | 0.955 | 0.979 |
| | K | 0.324 | 0.099 | 0.072 | 0.048 | 0.097 | 0.147 | 0.151 | 0.156 |
| | θ | ENE | ENE | ENE | ENE | ENE | NE | NE | NE |

App. Table 3-13

PERCENTAGE FREQUENCY OF OCCURRENCE
OF WAVE DIRECTION BY MONTH

(WAVE HEIGHT : more than 0.6m)

WAVE DIRECTION

CENTINELA

1972-1974

| MONTH | N | NNE | NE | ENE | E | W | WNW | NW | NNW | TOTAL |
|--------|-------|-------|-------|-----|---|-------|-------|-------|-------|---------|
| Jan. | 3 4.6 | 1 5.8 | 4 7.5 | | | | | | 2.0 | 1 0 0.0 |
| Feb. | 6 3.4 | 5.0 | 3 1.7 | | | | | | | 1 0 0.0 |
| Mar. | 4 4.6 | 1 0.9 | 4 4.6 | | | | | | | 1 0 0.0 |
| Apr. | 5 5.3 | 4.0 | 4 0.7 | | | | | | | 1 0 0.0 |
| May. | 4 4.9 | 1 0.2 | 4 4.9 | | | | | | | 1 0 0.0 |
| Jun. | 2 9.8 | | 1 9.3 | | | 1 0.5 | 2 9.8 | | 1 0.5 | 1 0 0.0 |
| Jul. | 3 7.5 | | 7.8 | | | 3.2 | 2 8.2 | 1 4.0 | 9.3 | 1 0 0.0 |
| Aug. | 3 5.3 | | 9.6 | | | | 3 5.3 | 6.6 | 1 3.2 | 1 0 0.0 |
| Sep. | 3 0.7 | | 4 1.1 | 3.7 | | | 3.7 | 1 0.4 | 1 0.4 | 1 0 0.0 |
| Oct. | 3 0.7 | 5.2 | 4 6.2 | 1.2 | | | 1 0.2 | 3.8 | 2.6 | 1 0 0.0 |
| Nov. | 3 8.6 | 1 0.1 | 4 5.2 | 0.9 | | | 4.2 | 0.9 | | 1 0 0.0 |
| Dec. | 3 0.8 | 2 2.4 | 4 6.8 | | | | | | | 1 0 0.0 |
| ANNUAL | 3 9.5 | 9.7 | 3 8.9 | 0.3 | | 0.3 | 6.4 | 2.4 | 2.4 | 1 0 0.0 |

App. Table 3-14

PERCENTAGE FREQUENCY OF OCCURRENCE
OF WAVE DIRECTION BY MONTH

(WAVE HEIGHT : more than 0.6m)

WAVE DIRECTION

TAGAT

1972-1974

| MONTH | N | NNE | NE | ENE | E | W | WNW | NW | NNW | TOTAL |
|--------|------|------|------|------|---|---|-----|----|------|-------|
| Jan. | 3.2 | 15.7 | 63.2 | 17.2 | | | | | 0.7 | 100.0 |
| Feb. | 11.4 | 42.1 | 30.7 | 15.8 | | | | | | 100.0 |
| Mar. | 13.0 | 18.1 | 53.1 | 15.7 | | | | | | 100.0 |
| Apr. | 9.2 | 30.4 | 48.4 | 12.0 | | | | | | 100.0 |
| May. | 9.3 | 20.4 | 20.4 | 50.0 | | | | | | 100.0 |
| Jun. | 15.4 | | 28.2 | 28.2 | | | | | 28.2 | 100.0 |
| Jul. | 5.1 | 40.5 | 35.8 | 3.5 | | | | | 15.2 | 100.0 |
| Aug. | 3.1 | 26.7 | 50.3 | 3.1 | | | | | | 100.0 |
| Sep. | 23.7 | | 48.2 | 28.1 | | | | | | 100.0 |
| Oct. | 10.4 | 12.8 | 67.5 | 8.2 | | | | | 1.1 | 100.0 |
| Nov. | 5.8 | 16.8 | 66.5 | 10.9 | | | | | | 100.0 |
| Dec. | 5.8 | 13.9 | 63.9 | 16.5 | | | | | | 100.0 |
| ANNUAL | 7.9 | 20.7 | 55.3 | 13.9 | | | | | 2.2 | 100.0 |

App. Table 15 BREAKDOWN OF COST ESTIMATE

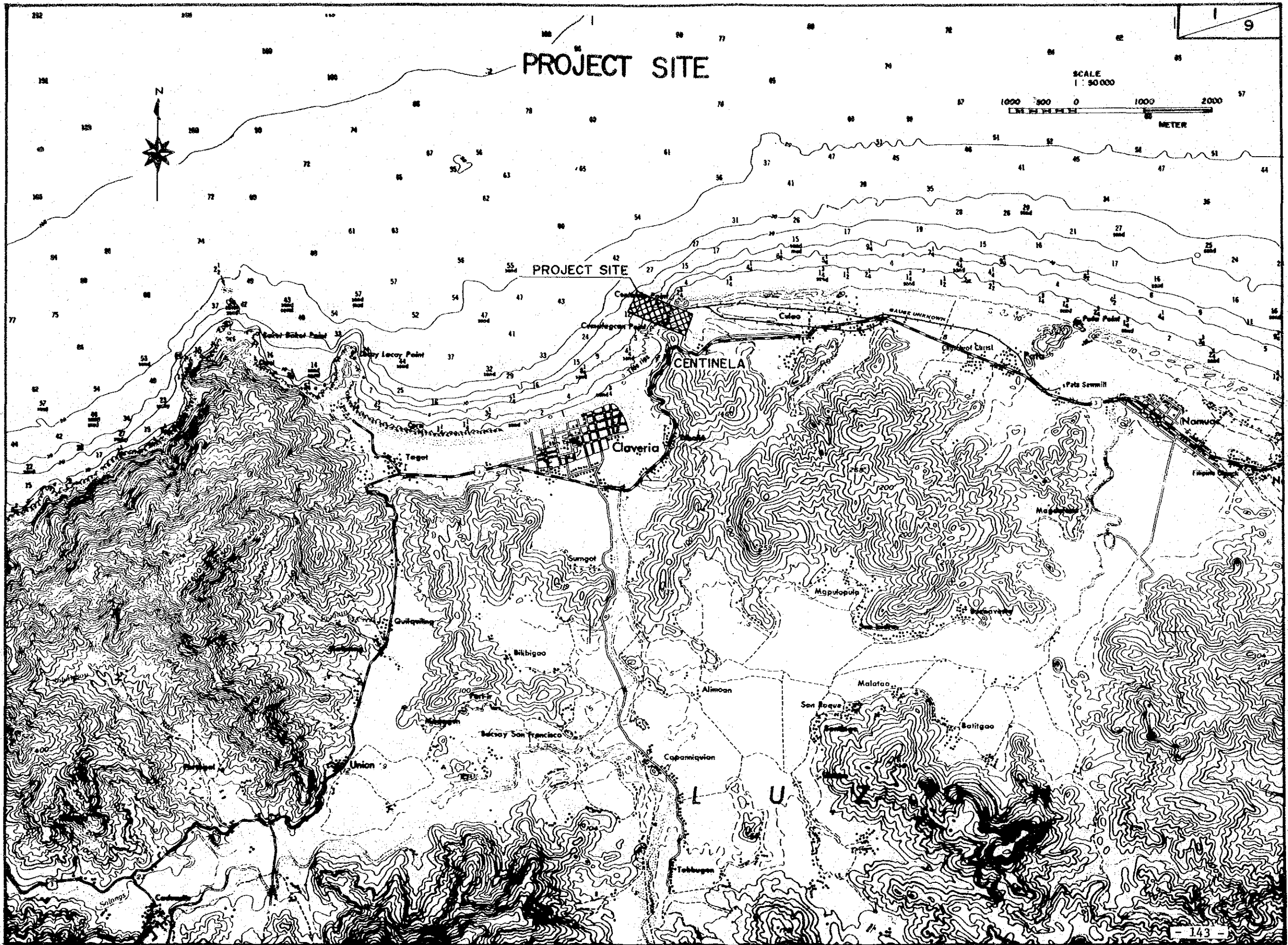
| Item No. | Item | Unit | Quantities | Unit Price (₱) | Cost (₱) |
|----------|--------------------------------------|-------|------------|----------------|------------------|
| 1. | MOBILIZATION AND DEMOBILIZATION WORK | L.Sum | 1 | | <u>2,244,000</u> |
| 2. | PREPARATION AND TEMPORARY WORK | L.Sum | 1 | | <u>2,460,000</u> |
| 3. | BREASTING DOLPHIN | | | | |
| 3-1 | Steel Pipe Pile | Tons | 95 | 3,500 | 332,500 |
| 3-2 | Pile Driving | Tons | 95 | 4,600 | 437,000 |
| 3-3 | Reinforced Concrete Work | Cu.m. | 185 | 2,200 | 407,000 |
| 3-4 | Fender System | L.Sum | 1 | | 266,000 |
| 3-5 | Mooring Facilities | L.Sum | 1 | | 24,000 |
| 3-6 | Miscellaneous | L.Sum | 1 | | 25,000 |
| | Cost per each | | | | 1,491,500 |
| | Sub-Total | Each | 4 | | <u>5,966,000</u> |
| 4. | 150 TONS MOORING DOLPHIN | | | | |
| 4-1 | Steel Pipe Pile | Tons | 94 | 3,500 | 329,000 |
| 4-2 | Pile Driving | Tons | 94 | 4,600 | 432,400 |
| 4-3 | Reinforced Concrete Work | Cu.m. | 98 | 2,200 | 215,600 |
| 4-4 | Mooring Facilities | L.Sum | 1 | | 21,000 |
| 4-5 | Miscellaneous | L.Sum | 1 | | 13,000 |
| | Cost per each | | | | 1,011,000 |
| | Sub-Total | Each | 2 | | <u>2,022,000</u> |

| Item No. | Item | Unit | Quantities | Unit Price (₱) | Cost (₱) |
|----------|--------------------------|-------|------------|----------------|------------------|
| 5. | LOADING PLATFORM | | | | |
| 5-1 | Steel Pipe Pile | Tons | 298 | 3,500 | 1,043,000 |
| 5-2 | Pile Driving | Tons | 298 | 4,600 | 1,370,800 |
| 5-3 | Reinforced Concrete Work | Cu.m. | 315 | 2,200 | 693,000 |
| 5-4 | Miscellaneous | L.Sum | 1 | | 150,000 |
| | Sub-Total | | | | <u>3,256,800</u> |
| 6. | PIER FOR BELT CONVEYOR | | | | |
| 6-1 | Steel Pipe Pile | Tons | 28 | 3,500 | 98,000 |
| 6-2 | Pile Driving | Tons | 28 | 4,600 | 128,800 |
| 6-3 | Reinforced Concrete Work | Cu.m. | 26 | 2,200 | 57,200 |
| 6-4 | Miscellaneous | L.Sum | 1 | | 7,000 |
| | Cost per each | | | | 291,000 |
| | Sub-Total | Each | 3 | | <u>873,000</u> |
| 7. | QUAY STRUCTURE | | | | |
| 7-1 | Steel Pipe Pile | Tons | 429 | 3,500 | 1,501,500 |
| 7-2 | Pile Driving | Tons | 429 | 4,000 | 1,716,000 |
| 7-3 | Reinforced Concrete Work | Cu.m. | 709 | 2,200 | 1,559,800 |
| 7-4 | Mooring Facilities | L.Sum | 1 | | 29,200 |
| 7-5 | Fender System | L.Sum | 1 | | 280,000 |
| 7-6 | Miscellaneous | L.Sum | 1 | | 140,000 |
| | Sub-Total | | | | <u>5,226,500</u> |

| Item No. | Item | Unit | Quantities | Unit Price (₪) | Cost (₪) |
|----------|------------------------------------|-------|------------|----------------|------------------|
| 8. | APPROACH PASSAGE (PILE TYPE) | | | | |
| 8-1 | Steel Pipe Pile | Tons | 402 | 3,500 | 1,407,000 |
| 8-2 | Pile Driving | Tons | 402 | 3,500 | 1,407,000 |
| 8-3 | Reinforced Concrete Work | Cu.m. | 683 | 2,200 | 1,502,600 |
| 8-4 | Mooring Facilities | L.Sum | 1 | | 18,400 |
| 8-5 | Miscellaneous | L.Sum | 1 | | 158,000 |
| | Sub-Total | | | | <u>4,493,000</u> |
| 9. | APPROACH PASSAGE (ROCK MOUND TYPE) | | | | |
| 9-1 | Run-of-quarry Stone | Cu.m. | 12,140 | 40 | 485,600 |
| 9-2 | Concrete Block | Cu.m. | 1,440 | 1,510 | 2,174,400 |
| 9-3 | Pavement | Sq.m | 1,350 | 190 | 256,500 |
| 9-4 | Rock | Cu.m. | 2,130 | 150 | 319,500 |
| 9-5 | Reinforced Concrete Work | Cu.m. | 210 | 1,890 | 396,900 |
| 9-6 | Miscellaneous | L.Sum | 1 | | 300,000 |
| | Sub-Total | | | | <u>3,932,900</u> |
| 10. | 35 TONS MOORING DOLPHIN | | | | |
| 10-1 | Steel Pipe Pile | Tons | 26 | 3,500 | 91,000 |
| 10-2 | Pile Driving | Tons | 26 | 4,600 | 119,600 |
| 10-3 | Reinforced Concrete Work | Cu.m. | 88 | 2,200 | 193,600 |
| 10-4 | Mooring Facilities | L.Sum | 1 | | 4,500 |
| 10-5 | Miscellaneous | L.Sum | 1 | | 5,300 |
| | Sub-Total | | | | <u>414,000</u> |

| Item No. | Item | Unit | Quantities | Unit Price (₺) | Cost (₺) |
|----------|--------------------------|-------|------------|----------------|-------------------|
| 11. | GREADING FOR YARDS | Cu.m. | 57,000 | 8 | <u>456,000</u> |
| 12. | TUNNEL FOR BELT CONVEYOR | | | | |
| 12-1 | Excavating | Cu.m. | 7,200 | 14 | 100,800 |
| 12-2 | Reinforced Concrete Work | Cu.m. | 1,050 | 1,900 | 1,995,000 |
| | Sub-Total | | | | <u>2,095,800</u> |
| 13. | LOADER AND BELT CONVEYOR | L.Sum | 1 | | <u>13,500,000</u> |
| | TOTAL | | | | <u>46,940,000</u> |

DRAWINGS



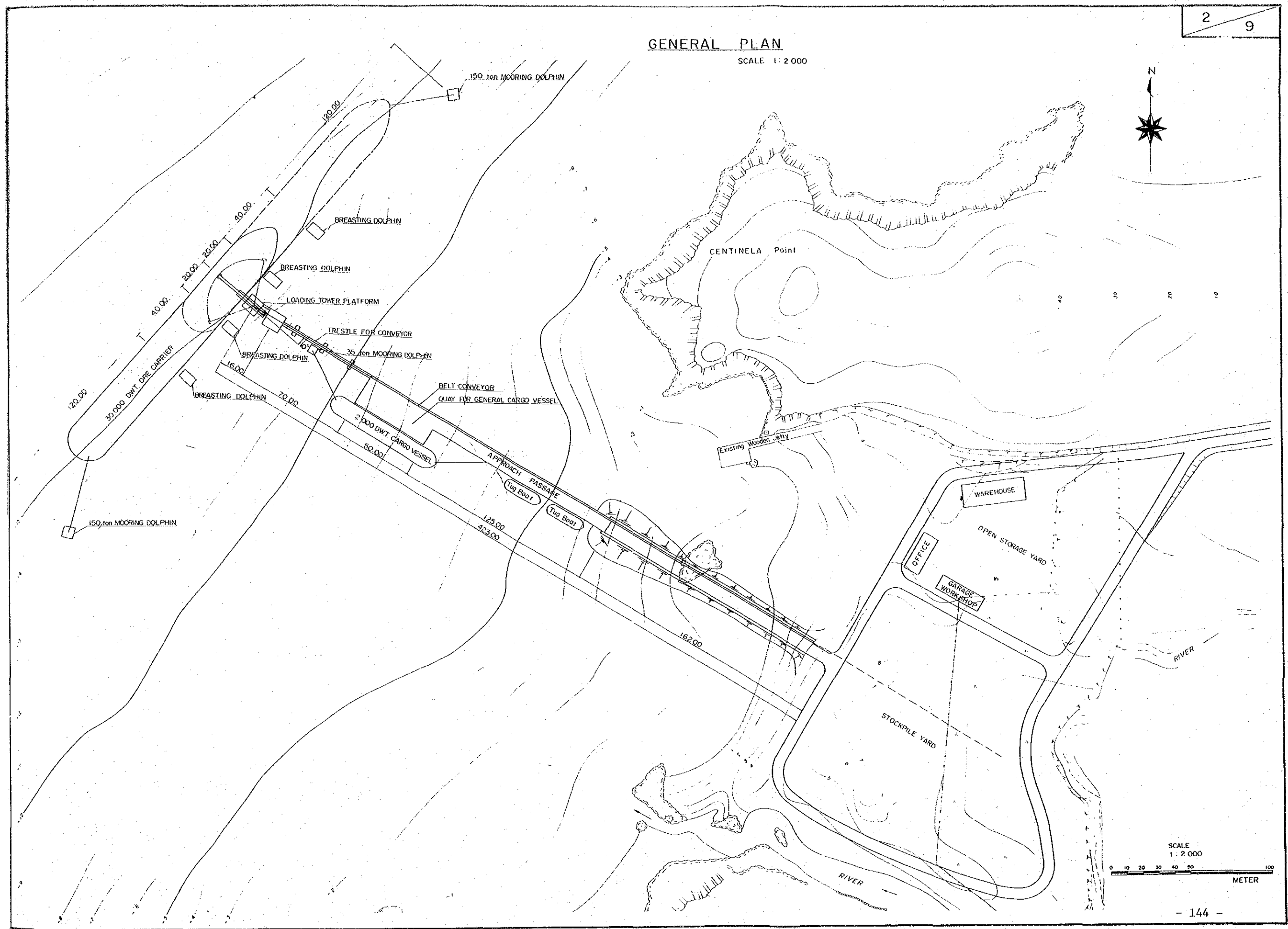
PROJECT SITE

SCALE
1 : 50 000



GENERAL PLAN

SCALE 1 : 2 000

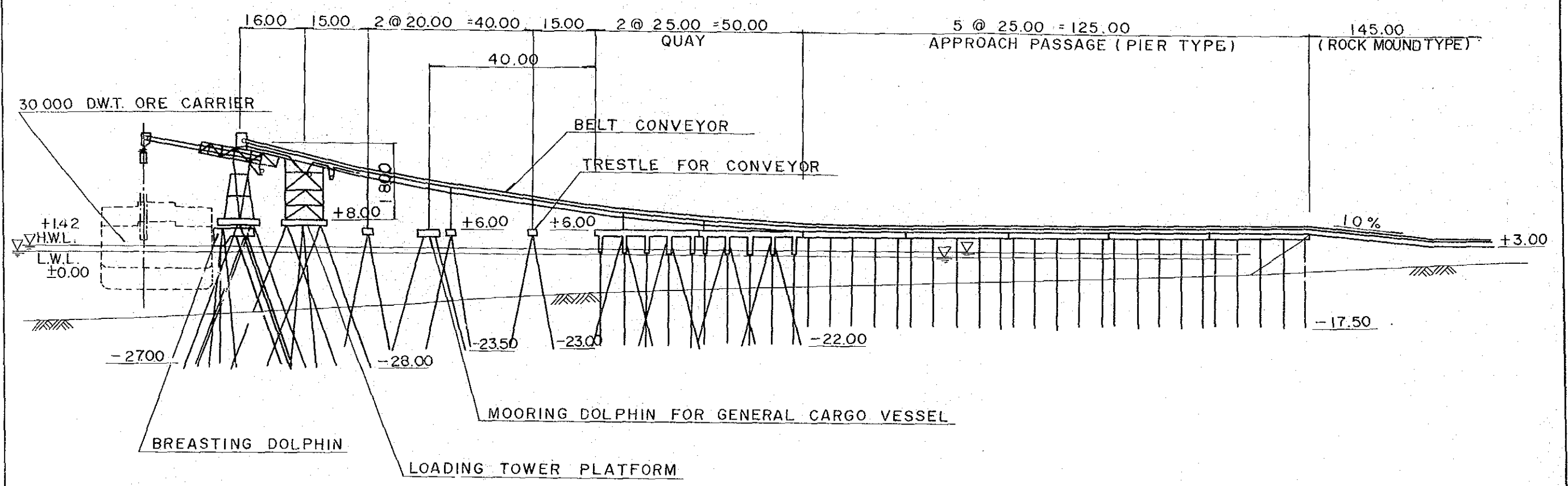


SCALE
1 : 2 000

METER

GENERAL ELEVATION

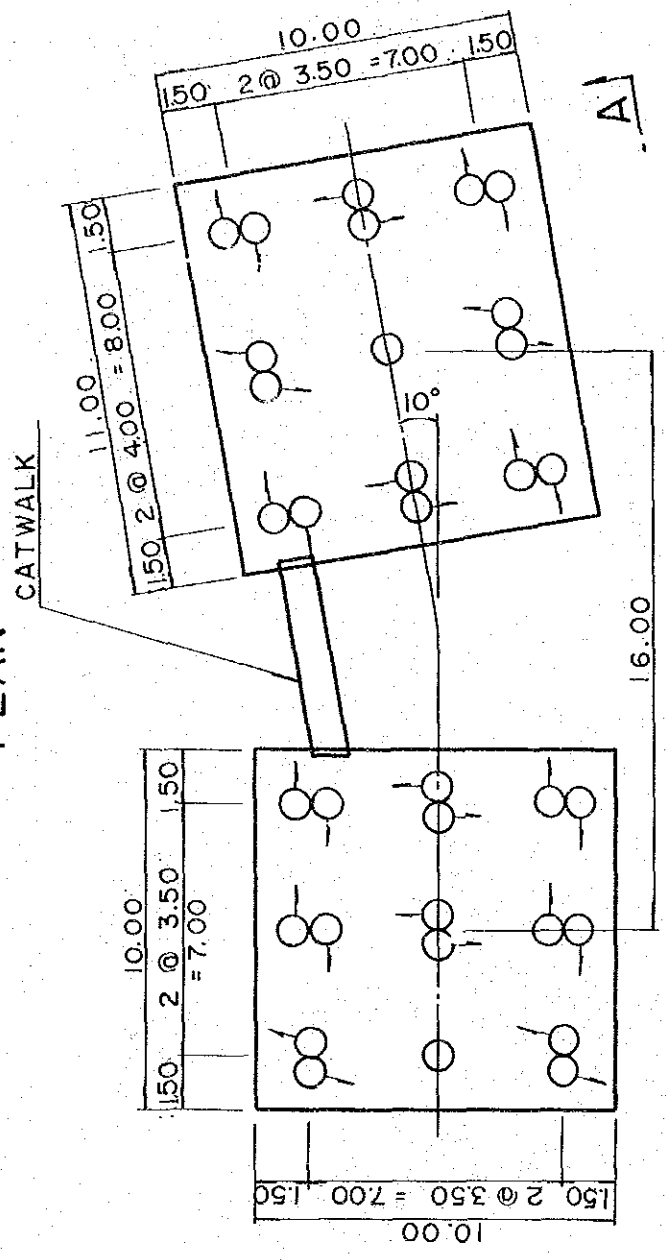
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UNIT: METER



LOADING PLATFORM

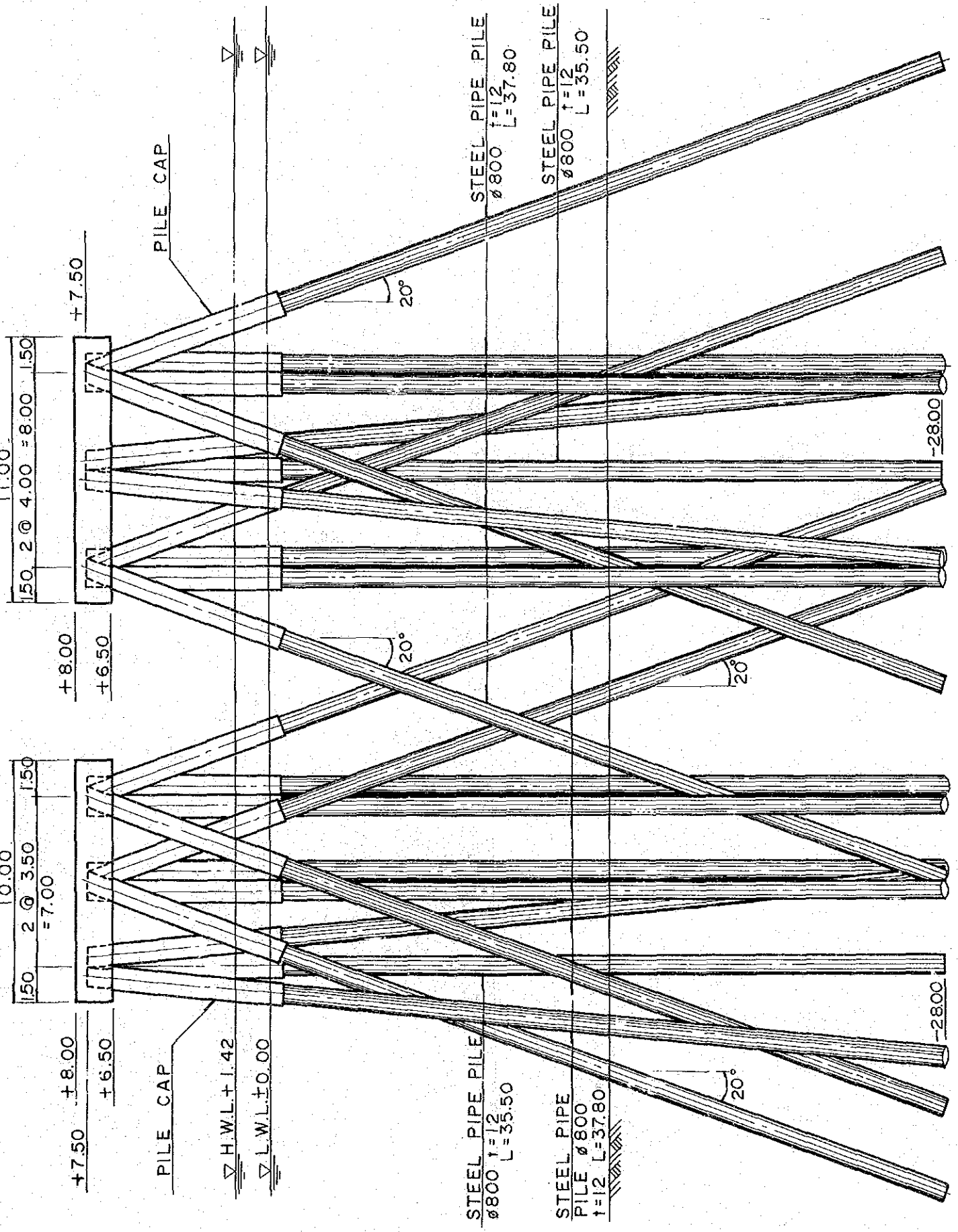
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UNIT: METER

PLAN

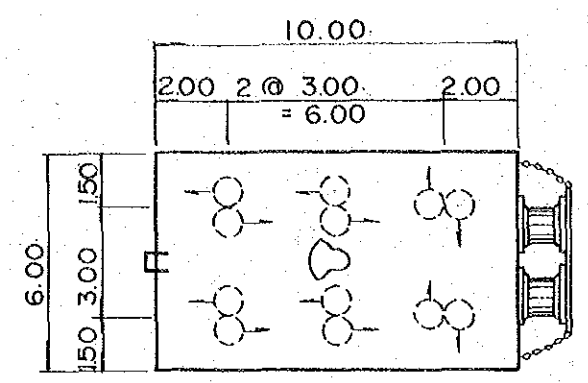


A

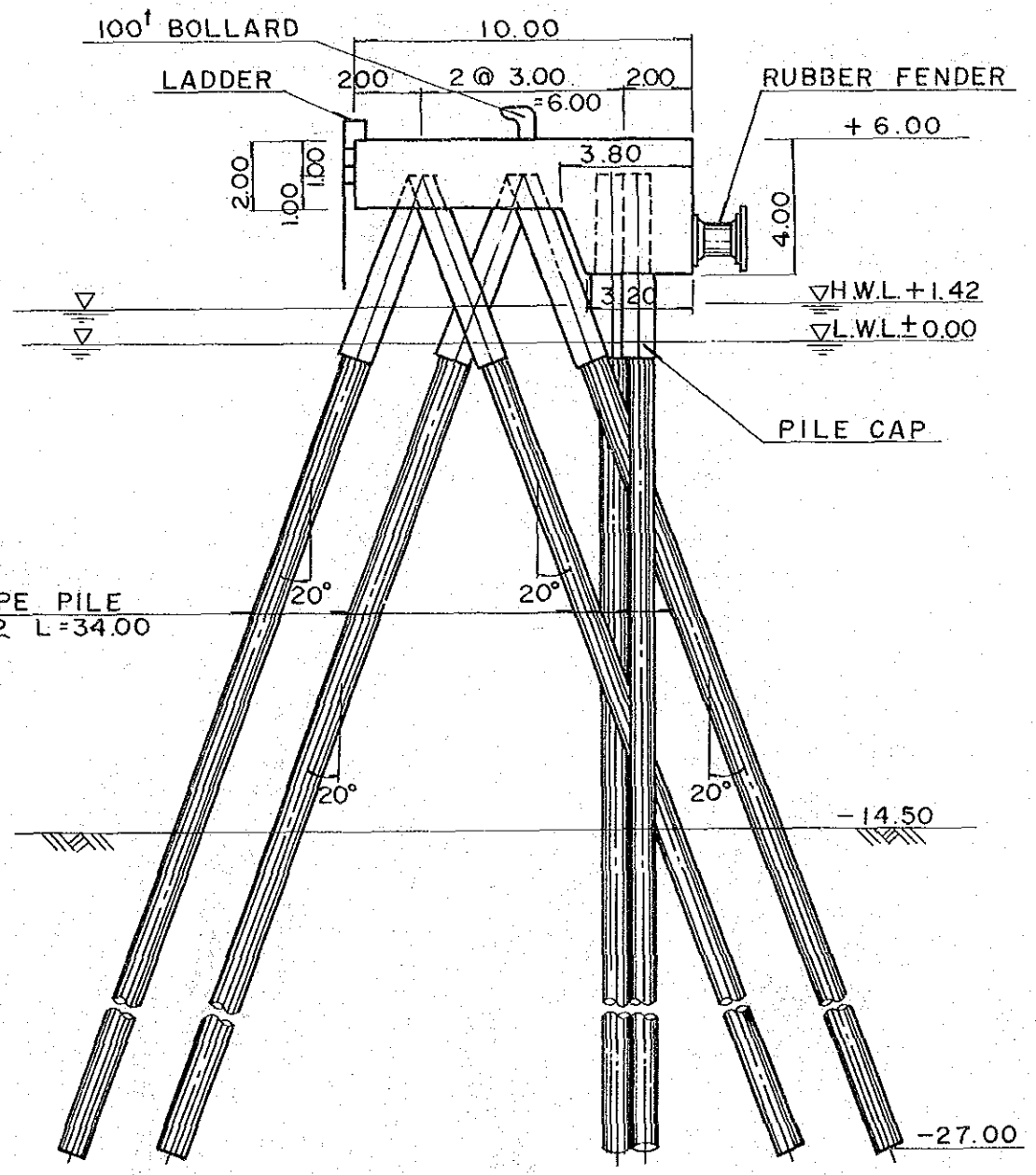
ELEVATION A-A



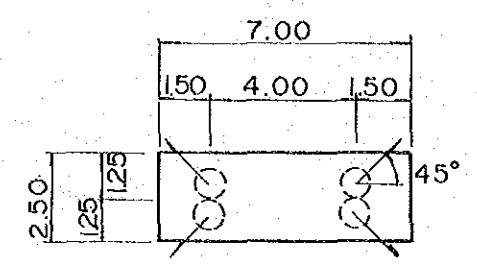
BREASTING DOLPHIN
PLAN SCALE 1:200
 UNIT: METER



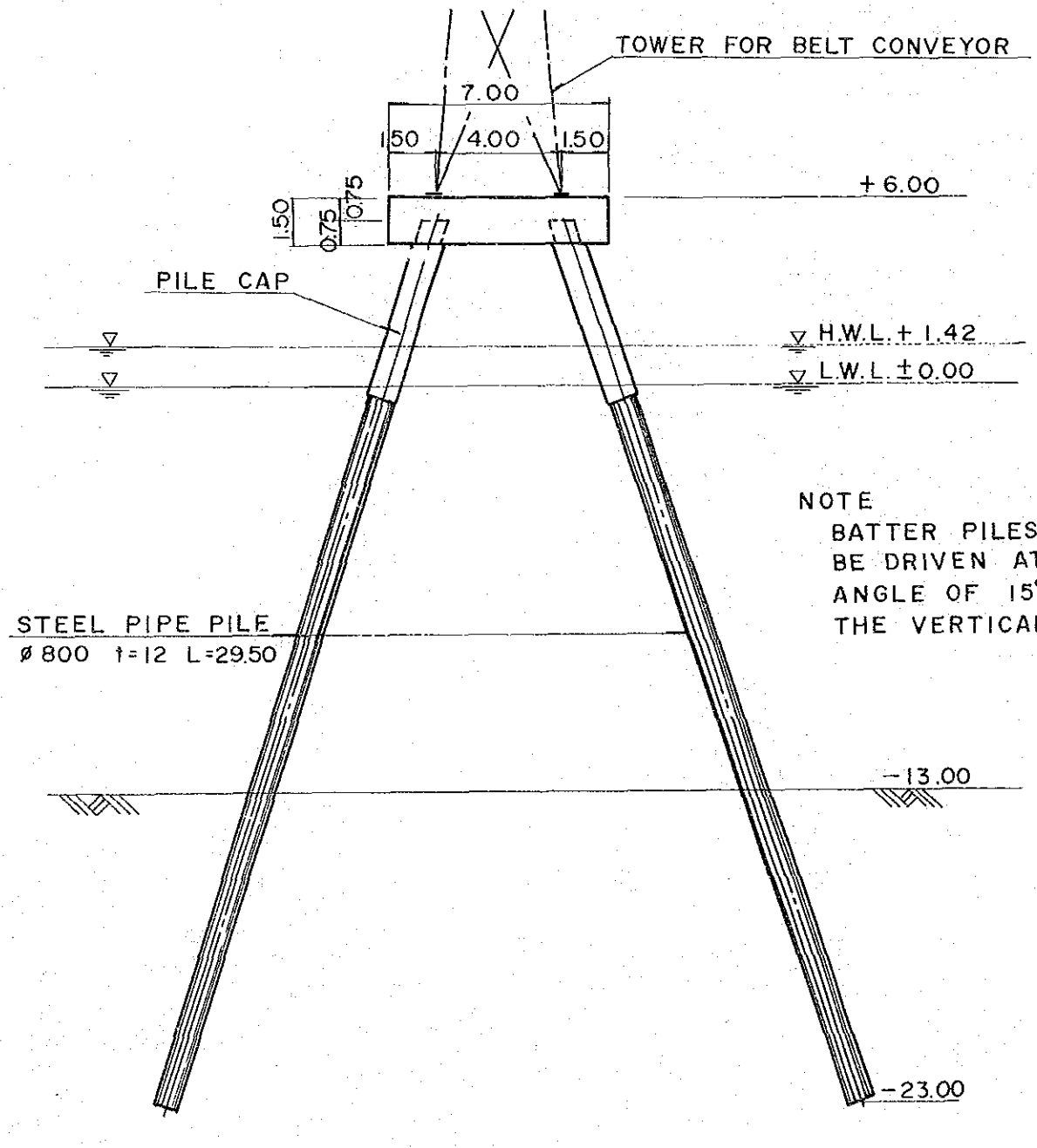
SIDE VIEW



PIER FOR TRESTLE
PLAN SCALE 1:200
 UNIT: METER



SIDE VIEW

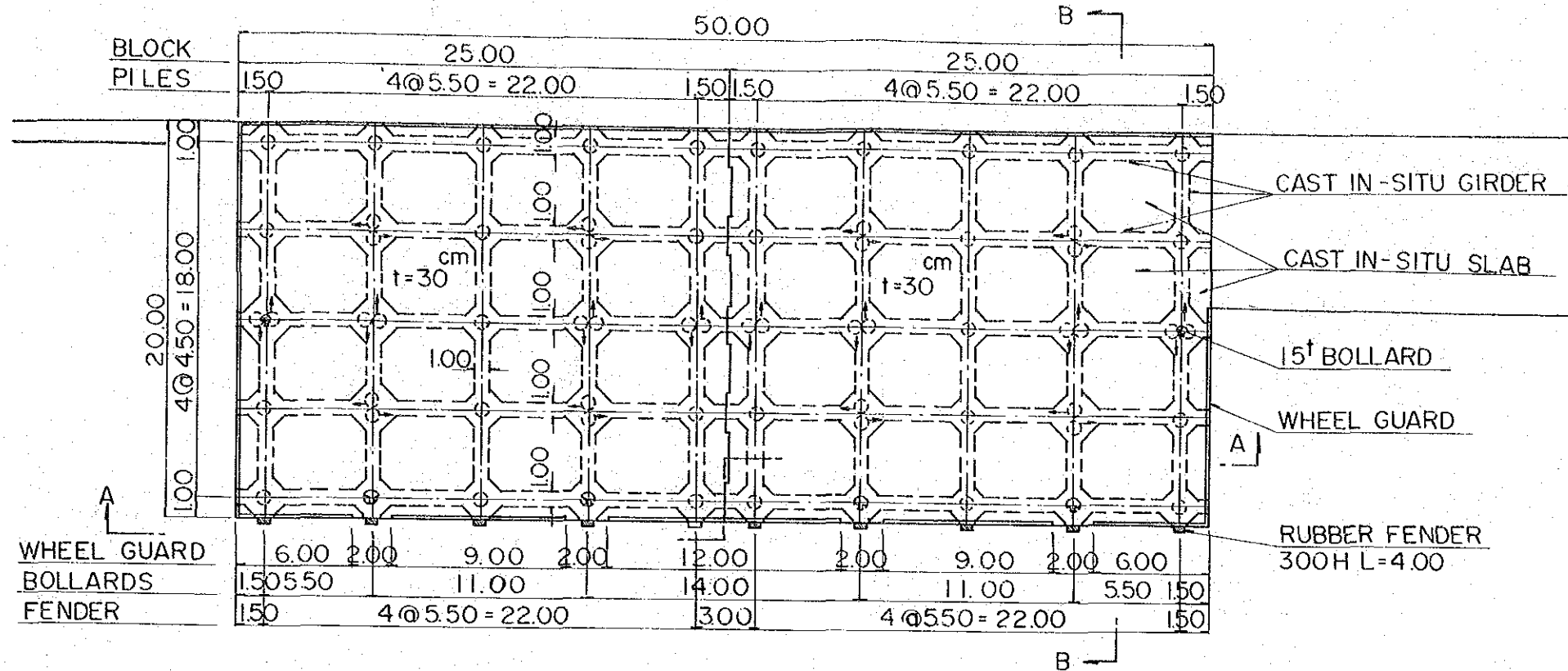


NOTE
 BATTER PILES SHALL
 BE DRIVEN AT AN
 ANGLE OF 15° TO
 THE VERTICAL.

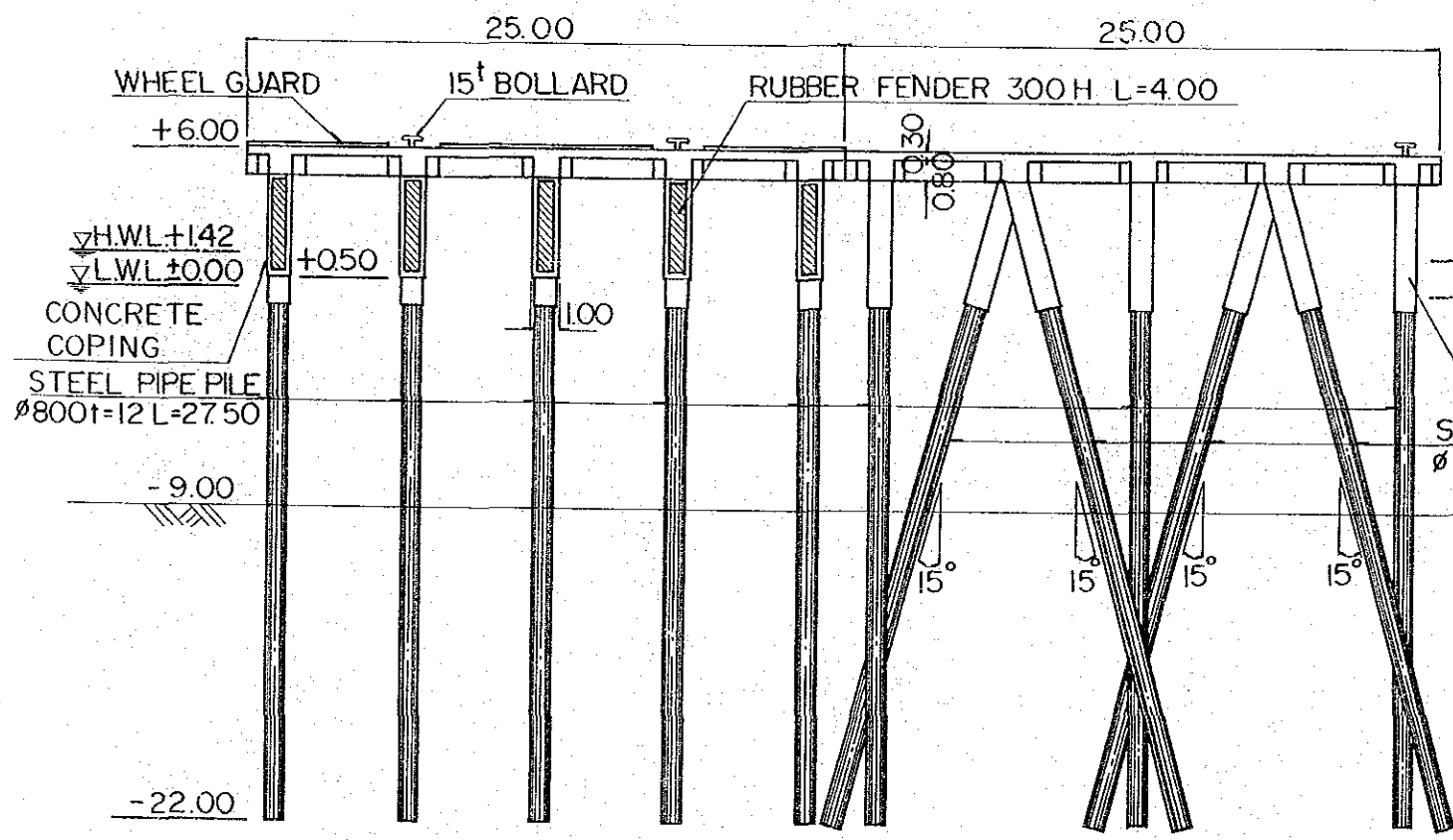
QUAY FOR GENERAL CARGO VESSEL

SCALE 1:300
UNIT: METER

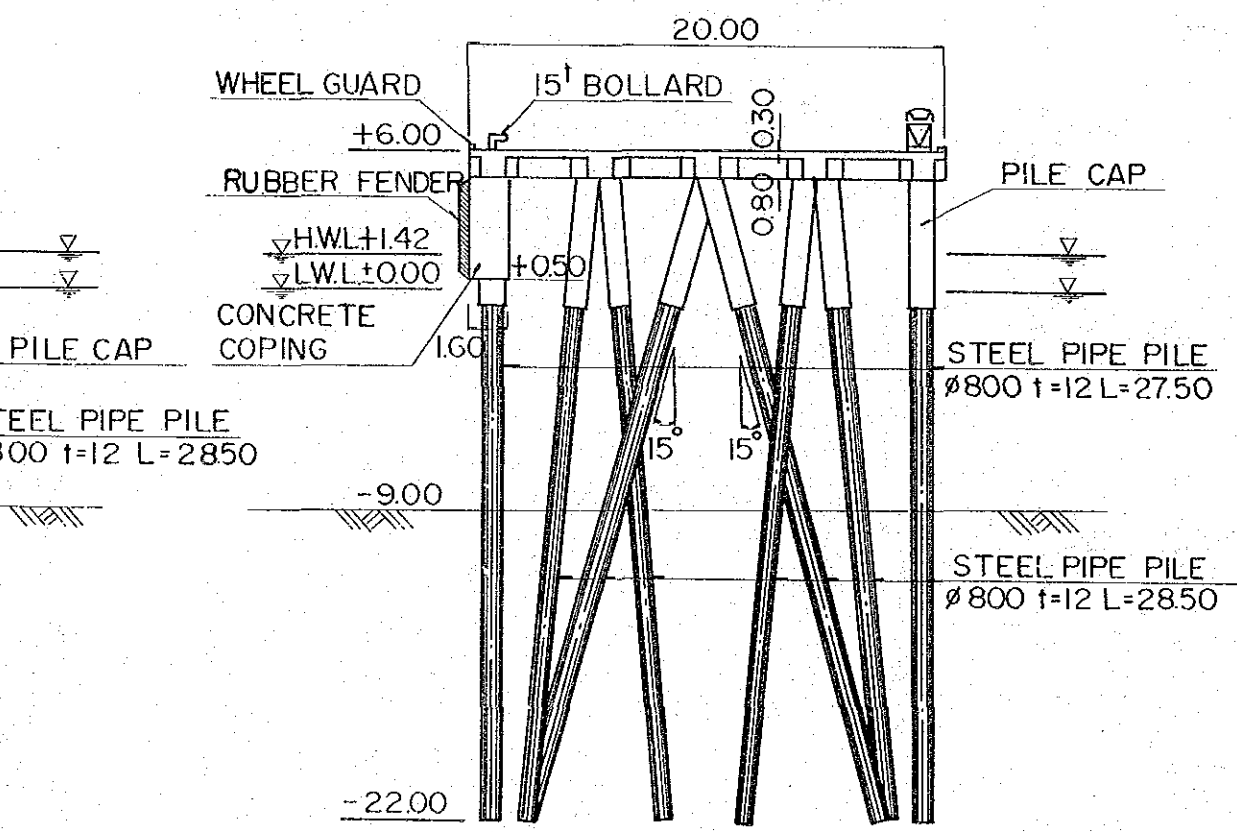
PLAN



SECTION A - A



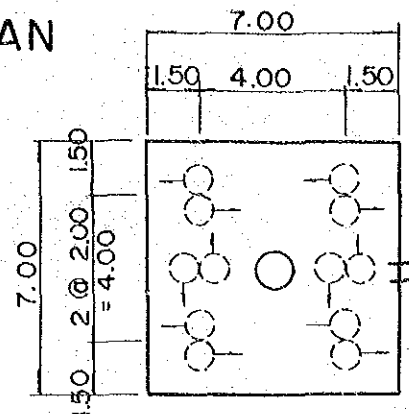
SECTION B - B



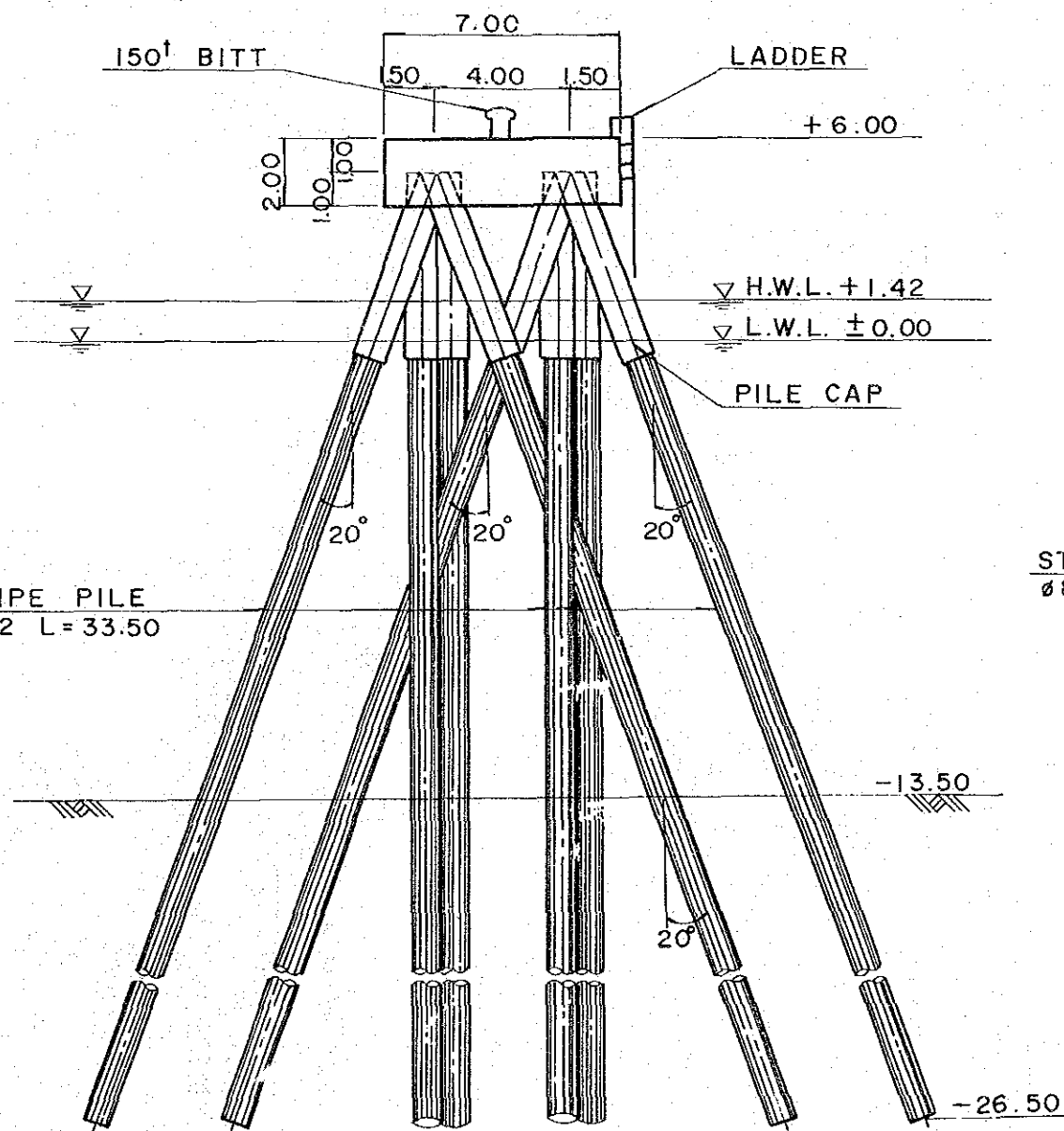
MOORING DOLPHIN FOR ORE CARRIER VESSEL

SCALE 1:200
UNIT: METER

PLAN



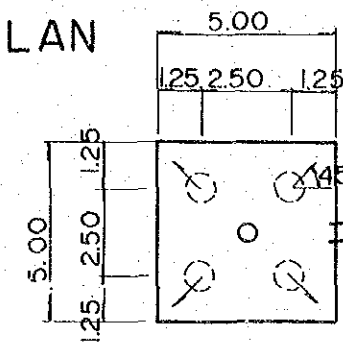
SIDE VIEW



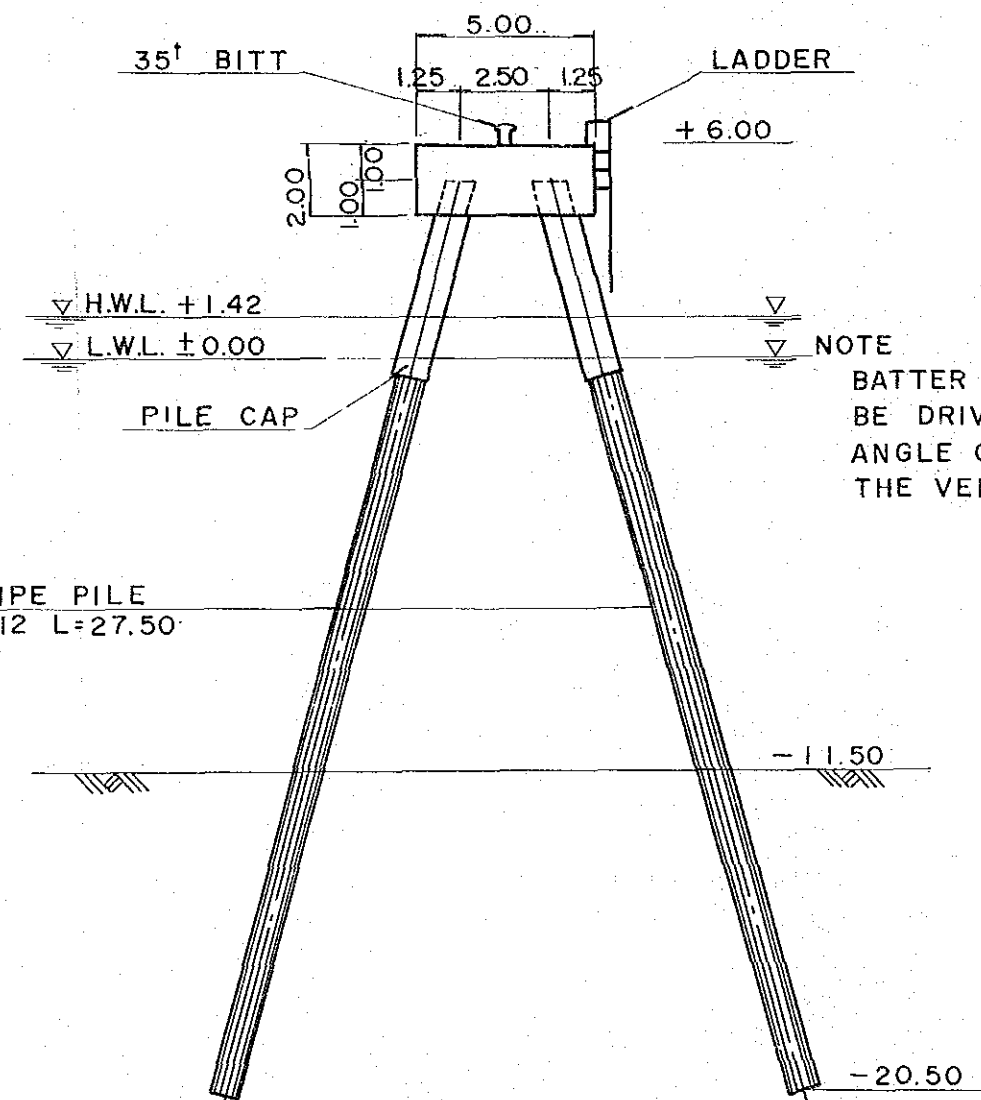
MOORING DOLPHIN FOR GENERAL CARGO VESSEL

SCALE 1:200
UNIT: METER

PLAN



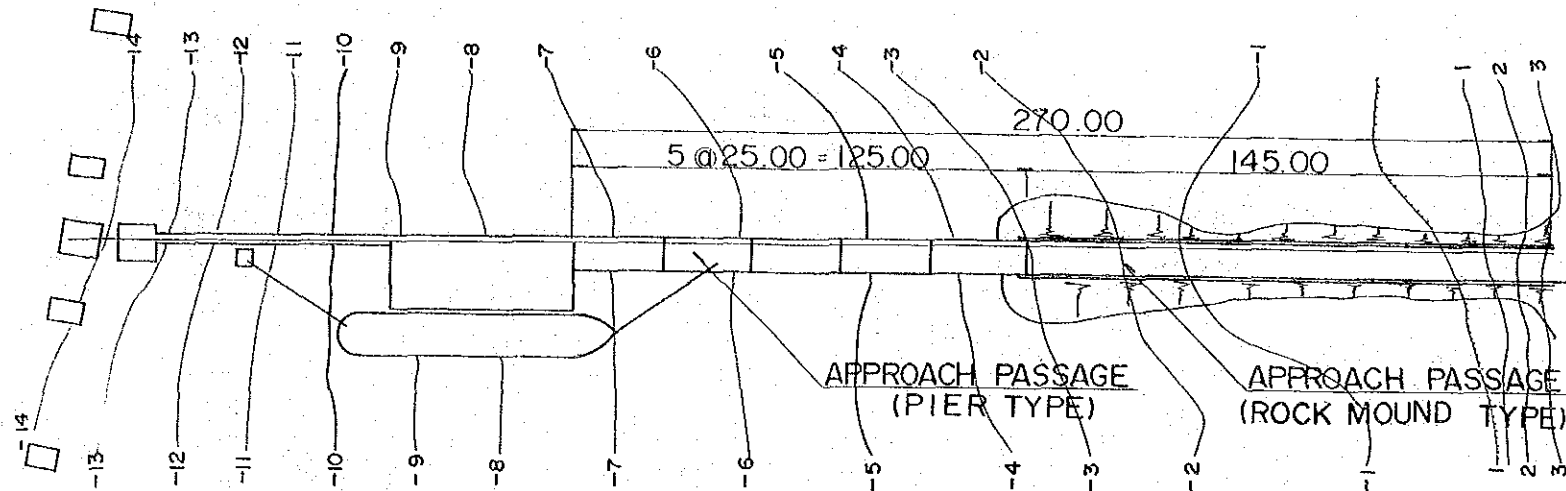
SIDE VIEW



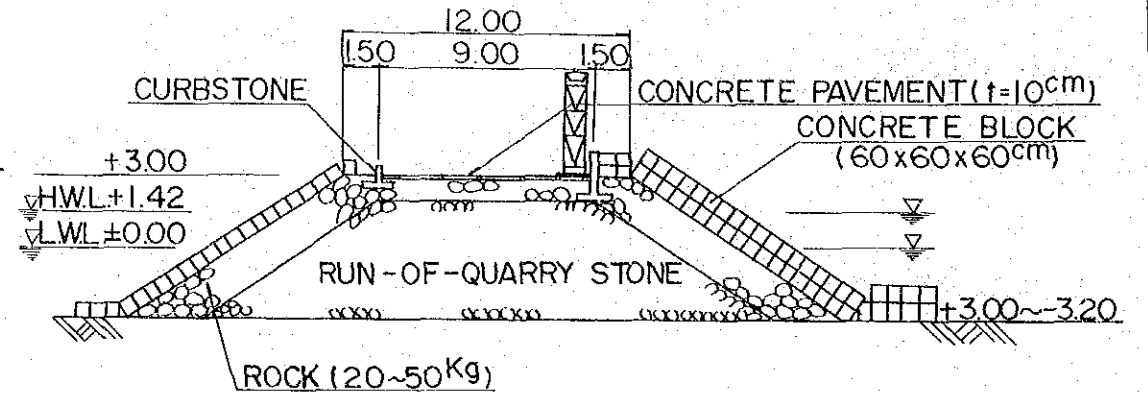
NOTE
BATTER PILES SHALL
BE DRIVEN AT AN
ANGLE OF 20° TO
THE VERTICAL.

APPROACH PASSAGE UNIT: METER

GENERAL PLAN SCALE: 1:2 000

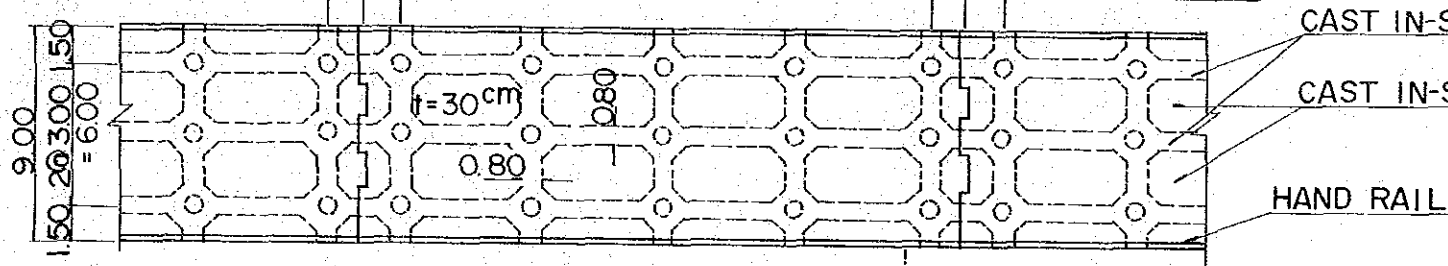


TYPICAL SECTION OF ROCK MOUND TYPE SCALE: 1:300



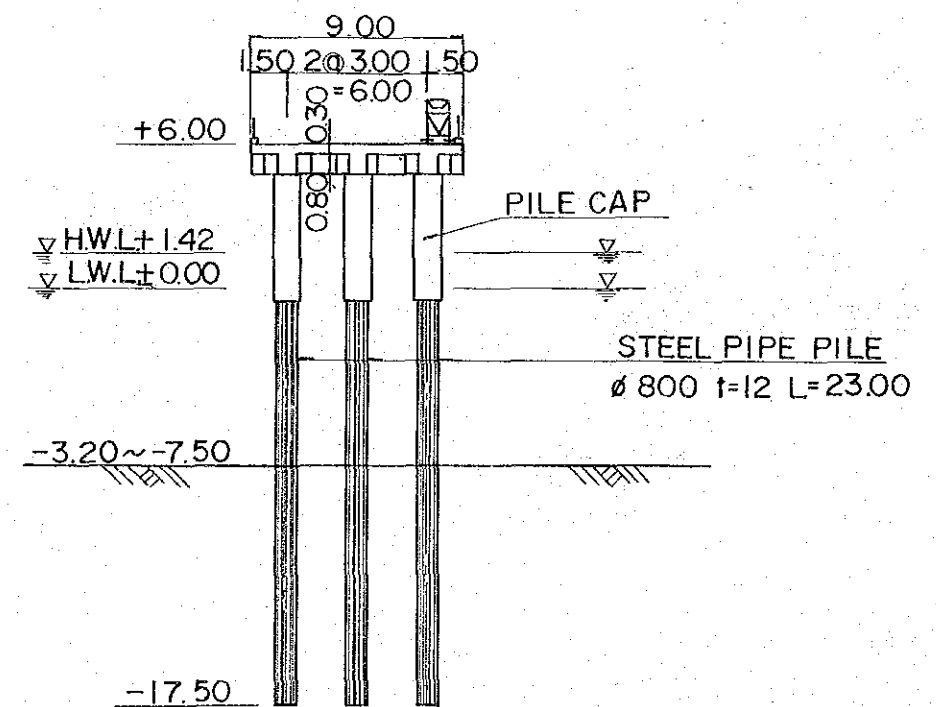
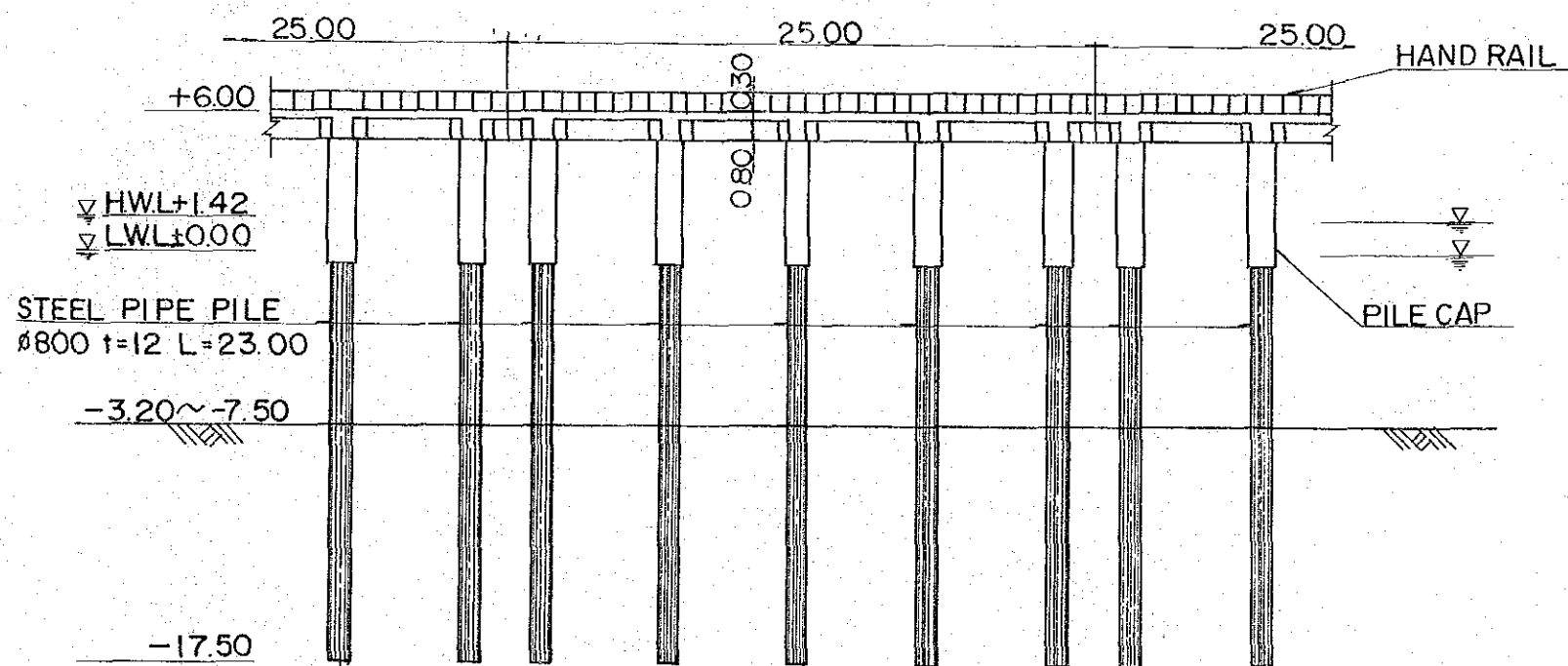
TYPICAL SECTION OF PIER TYPE SCALE: 1:300

PLAN 4 @ 4.50 = 22.00 1.50 1.50 4 @ 5.50 = 22.00 1.50 1.50 4 @ 5.50 = 22.00



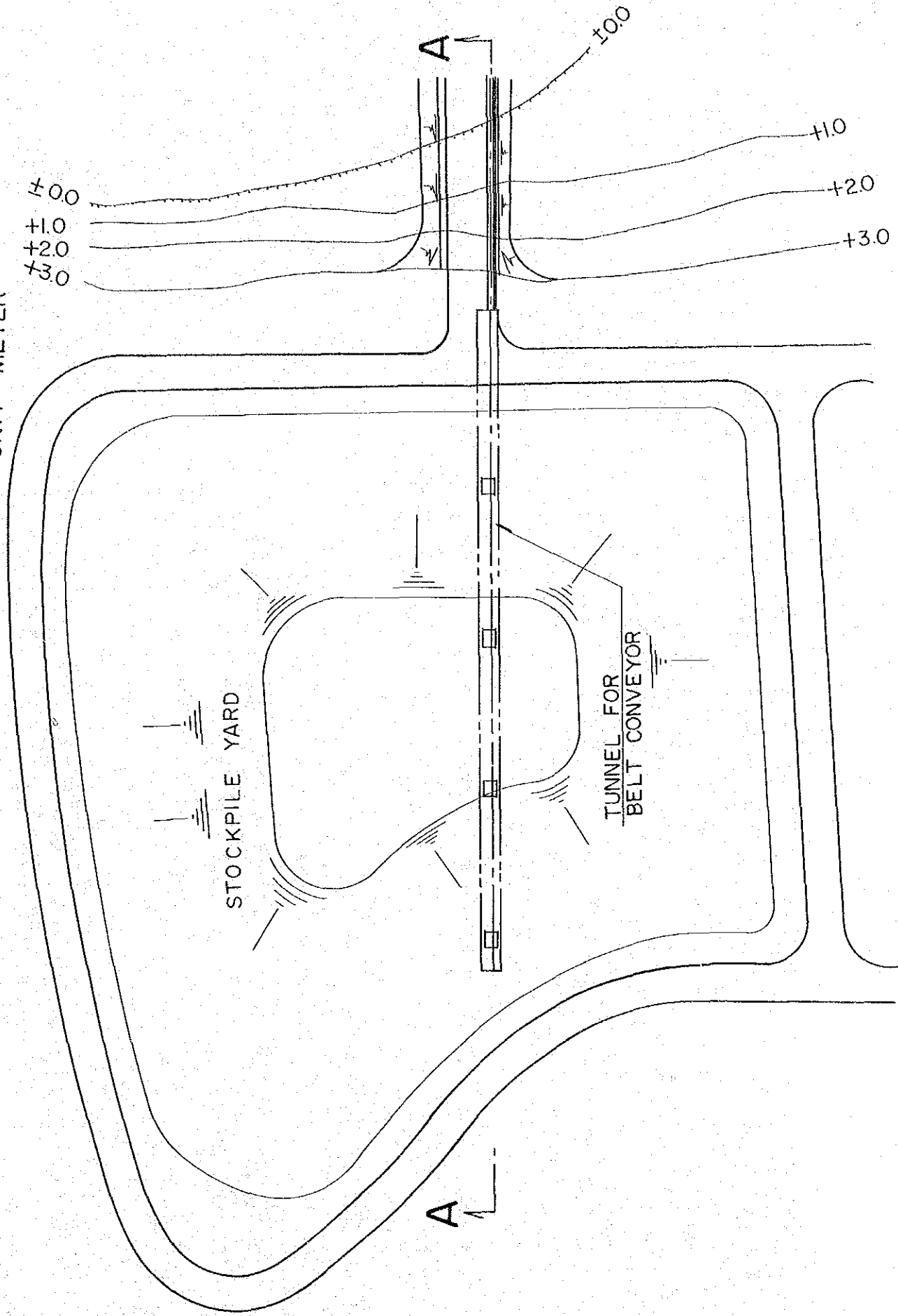
SIDE VIEW A-A

SECTION A-A

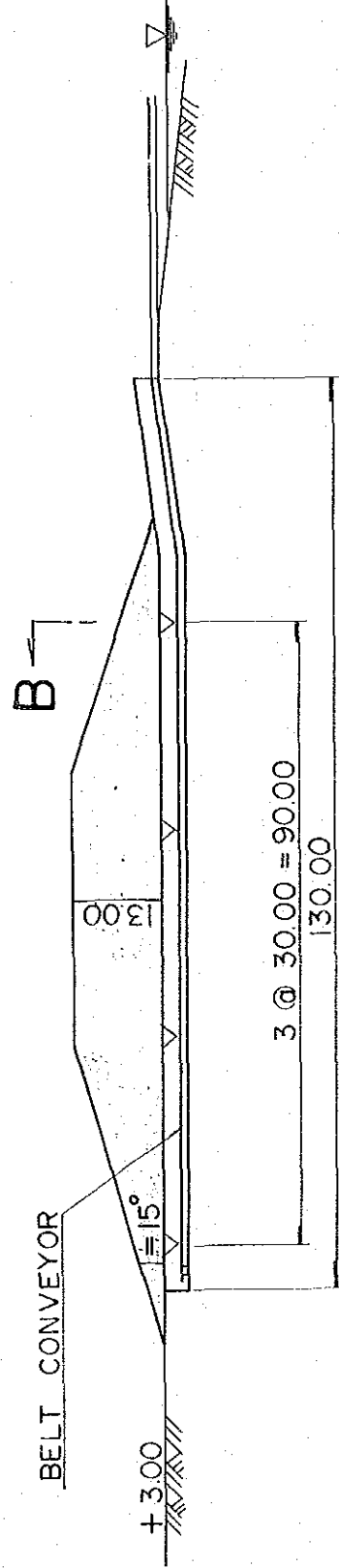


PLAN OF STOCKPILE YARD

SCALE 1:1000
UNIT: METER



SECTION A-A



SECTION B-B

