KAWASAKI STEEL TECHNICAL REPORT

No.11 (March 1985)

Development of Leyte Industrial Port in the Philippines

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Synopsis :

An industrial port complex was constructe

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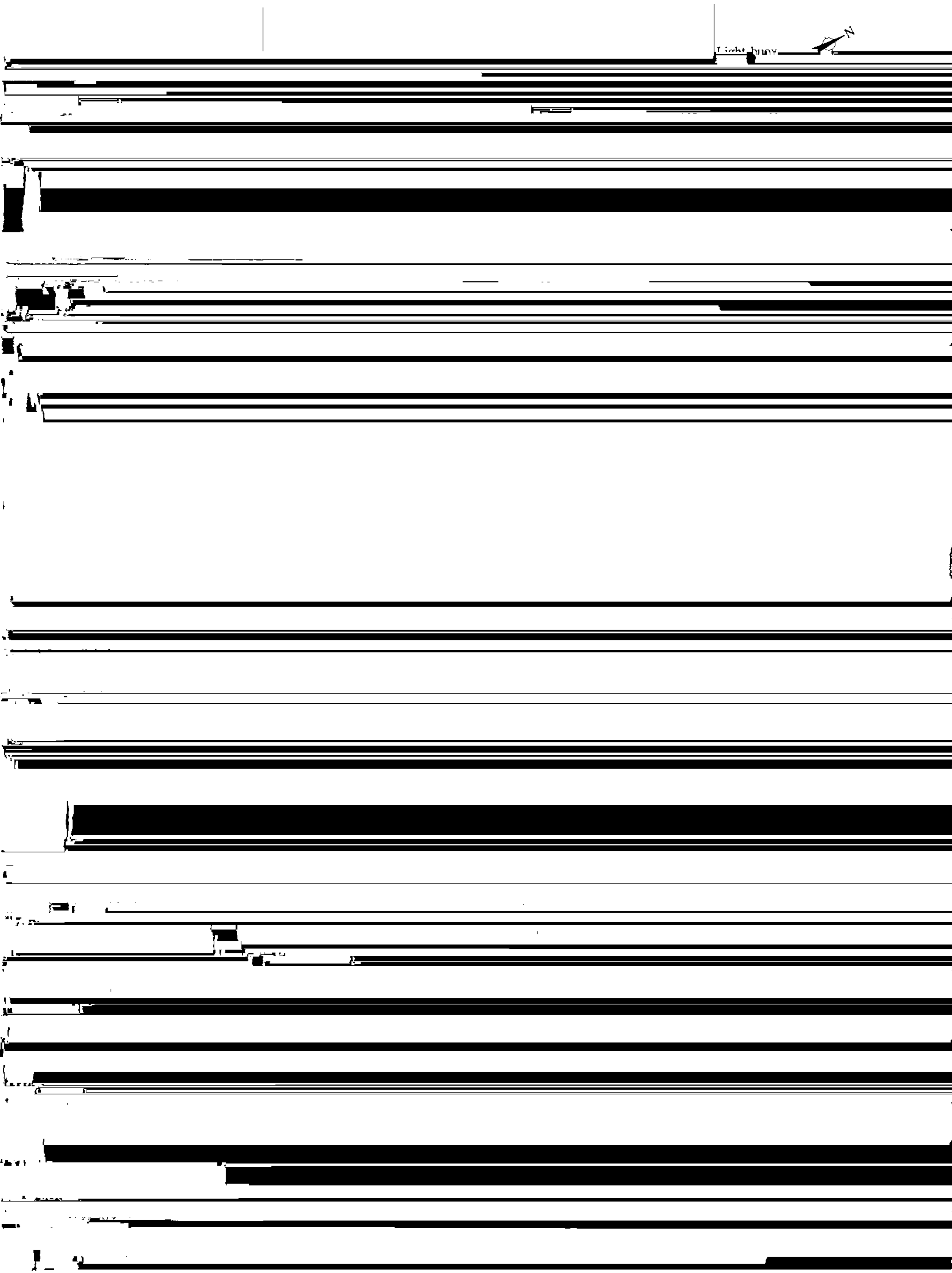
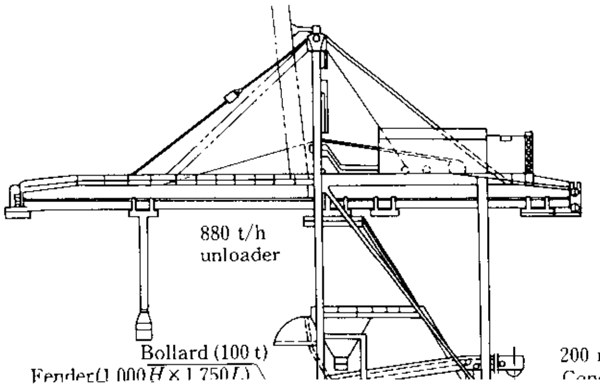
Development of Leyte Industrial Port in the Philippines*

An industrial port complex was constructed on the west coast of Leyte Island by Kawasaki Steel Corporation under a turn key contract. The work was started in December 1981 and [illegible]


Light buoy
N


880 t/h
unloader
Bollard (100 t)
200 mm

High quality sandy soil required for backfill behind the wharf was not available at the construction site

January to March[2], however the construction site is located on the west coast of the island which is protected struction site as accurately as possible during the early stages of planning and design is one of the most important factors for executing this project as planned, offshore borings were made at 29 locations (total length 625 m) and land borings were made at 5 locations (total

on the results of the soil borings. At the site of the wharf construction, a Tertiary layer deposit was encountered at

rials to be imported from Japan commenced in February 1982. The construction of temporary facilities including field offices and living quarters was begun in March 1982, together with the dredging. Since there was no wharf available to accommodate a cargo ship near the

from Japan were transshipped using flat barges from Mindanao Island before being transported to the con-

Year	1981	1982	1983	1984

Table 2 Quantities of major items of wharf construction

Location	Description	Quantity	Remarks
Berth No. 1	Interlocked steel pipe pile	210 pcs	ϕ1 200, t14, L=23.0-33.0 m
	Steel pipe pile	116 pcs	ϕ318.5, ϕ500, ϕ800; L=23.5-30.0 m
	Steel sheet pile	893 pcs	KSP II, KSP VA, KSP VL; L=5.0-19.0 m
	Concrete	6 470 m^3	
[illegible]	[illegible]	[illegible]	[illegible]

	Interlocked steel pipe piles	Steel pipe piles	[illegible]

6.1 Steel Sheet Pile Double Wall Structure

Berth Nos. 4 and 5 were constructed using a steel sheet pile double structure, as shown in Fig. 4. While this is a self standing wharf structure having a numb- [illegible]

of advantages as an earth-steel composite structure, it is necessary to provide adequately for stability during construction, because it is flexible structure[3] compared with others. The balance of soil pressure acting upon the two steel sheet pile walls, tensioning of Tibles (a trade- [illegible]

vey stage, to determine the displacement of the steel sheet pile head.

The steel sheet pile double wall structure executed here has the following characteristics compared with [illegible]

(1) The sea bed has a gradient of about 1/8, and hence the sectional rigidity and length of sheet piles are different between the front and rear sides of the structure.

(2) Wall breadth is much greater than wall height, the [illegible]

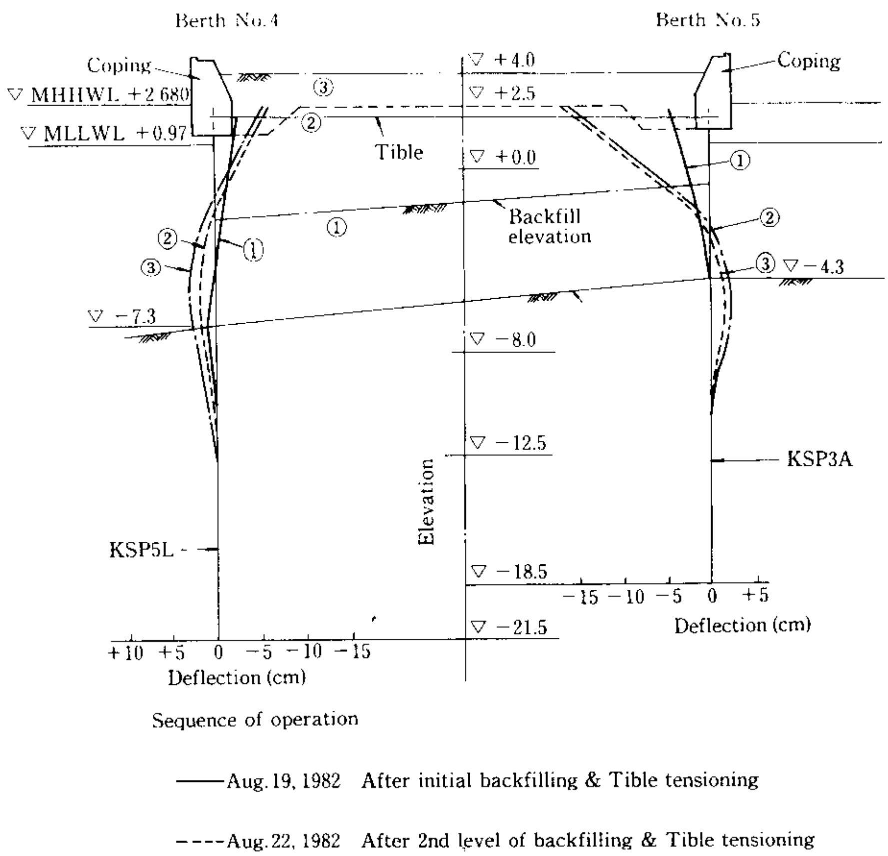


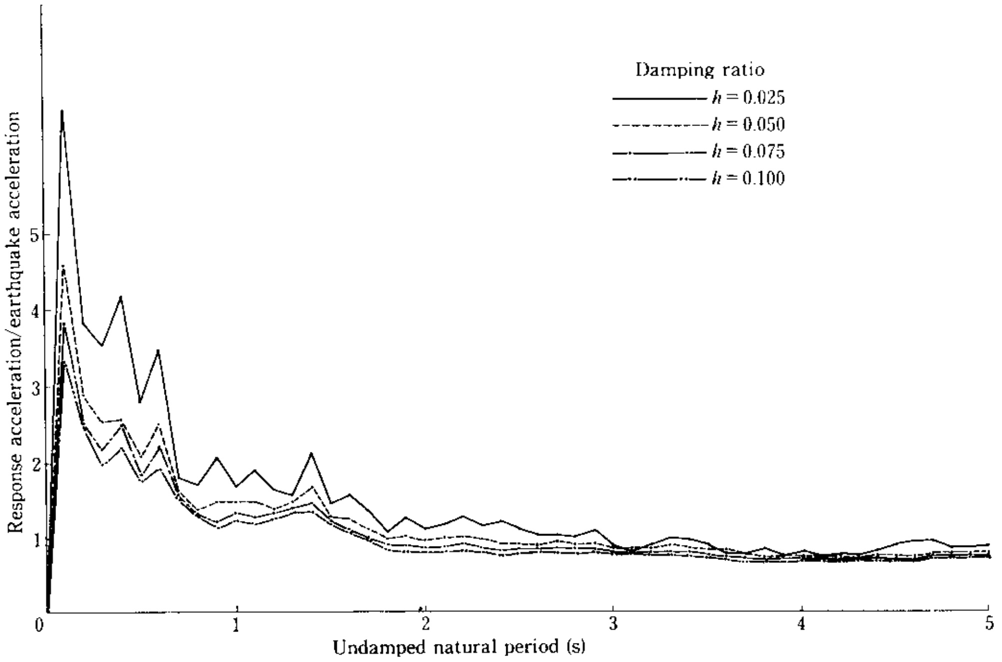
Fig. 11 Deflection of sheet piles of sheet pile double wall structure

very little by the elastic deformation of the Tible itself.

6.2 Vibration Characteristics of Wharf Structure

Comparing measured data on the vibration charac-

frequency (natural period) of microtremors for each component. "Component" in Table 4 refers to the direc-



tion in which the vibration was measured: H... axial

direction of berth; H_{E-W}, direction normal to berth; and V, vertical direction.

characteristics given by the following formula were adopted as simulated seismic wave forms.

$$F_0 = t \cdot e^{-\beta t} \quad \cdots\cdots (1)$$

Damping ratio