1891.—Sess. II.

NEW ZEALAND.

GISBORNE HARBOUR-WORKS

(REPORT ON, BY MARINE ENGINEER, TOGETHER WITH COPIES OF DRAWINGS).

Presented to both Houses of the General Assembly by Command of His Excellency.

The Marine Engineer, to the Hon. the Minister having charge of the Marine Department.

Sir,— Marine Engineer's Office, Wellington, December, 1890.

In pursuance of your instructions, I have the honour to report on proposed harbour at Gisborne.

I inspected the works as now existing in August last, but the more immediate urgency of works actually in progress in other parts of the colony has prevented, until now, my devoting the amount of time and consideration to the Gisborne question that the difficulty and importance of the case required, before I could report upon it.

Sir John Coode's Design.

The works proposed by Sir John Coode, in December 1880, for a harbour at Gisborne, as indicated on map herewith in brown, consisted of a sea-mole with sheltering jetties, connected to a solid root on shore by an open iron viaduct; and were designed to commence about 50 yards to the east of Maori Point, and to run out from thence in a (magnetic) south-west direction for 2,460ft., thence curving into a direction west by south for a further length of 400ft. Total length of sea-mole, viaduct, and root, 2,860ft. The jetties were to project from either end of the sea-mole, and were each to be 430ft. in length.

Of the 2,860ft., a length, at shore end, of 550ft., reaching to low-water line, on the bare "papa" rock, and constituting the root of the structure, was to be solid work, composed of rubble and *débris* with masonry facing; the sea-mole, 900ft. in length, was also to be solid work, composed of concrete blocks; and the intervening viaduct was to have a length of 1,410ft., consisting of forty-seven spans of 30ft. each. The jetties were to be solid work, consisting of rubble and *débris* with timber-facing. The length of sheltered quay which this design provided for would have been 1,600ft., having a depth of 21ft. to 30ft. at low water of spring-tides. The estimated cost was as follows:—

			£	£
Root, of rubble and *débris*—Length,	550ft.	... ...	10,750	
Iron viaduct, "	1,410ft.	... ...	48,980	
Sea-mole, "	900ft.	... ...	135,180	
	2,860 ft.			194,910
Jetties (2) "	430ft. (each)	... ...	...	51,490
Total	... ...	...	...	246,400

As regards the undesirability of a continuously solid mole, Sir John Coode says:—

"Having regard to the great extent of sandy beach within the bay, extending, in fact, for several miles to the southward of the town and river-entrance, and also to aspect and exposure of the bay itself, *I am unable to recommend any solid structure between the shore and the line of 3 fathoms at low water*, feeling assured, as I do, that a serious amount of sanding-up, *on the inner or western side*, would inevitably follow, and to an extent that, to say the least, would be highly prejudicial to the present river entrance, and to the utilisation of the new work."

The reason for thus going into detail as regards Sir John Coode's design will be apparent further on.

Design as authorised.

The works authorised to be constructed in lieu of Sir John Coode's proposals, as indicated on map herewith in green, consist of—

(1.) A timber wharf and viaduct extending along river-side in a south-west direction from the blockyard to low-water line, length 1,580ft.

(2.) A solid concrete mole, in line of wharf and viaduct produced, from low-water line for a length of 1,900ft., and thence curving into a direction west by south for a further length of 250ft. Total length of concrete mole, 2,150ft.