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PARLIAMENT OF TASMANIA

# CONSTRUCTION OF BREAKWATER AND WHARF AT STANLEY HARBOUR:

REPORT BY C. NAPIER BELL, M. Inst. C.E.

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# STANLEY HARBOUR.—CONSTRUCTION OF BREAKWATER AND WHARF.

## REPORT, 18TH JANUARY, 1900.

SIR,

ACCORDING to your instructions, I have made an examination of Stanley, and have prepared plans and specifications for Breakwater and Wharf, to be constructed as shown.

Respecting the permanent safety of the breakwater from the shoaling of the sea in the bottom of the East Bay, I can perceive little change between now and my last visit in 1892. The active cause of shoaling of the bay is supposed to be from the carrying of sand by the channel of the east inlet. In 1892, this channel was advanced so that its opening was not far from the old jetty, and it had deposited a shoal nearly dry, at low-water, opposite the old jetty. Now, however, the opening of the channel is a long way farther off, and the shoals and spits formed round its 1892 opening have all been washed ashore on to the beach.

Putting all the observations I have made or received from others together, the conclusion is that the curved shore of the East Bay, as well as the shallow water in front of it, is advancing seaward, but so slowly, that nothing very definite is perceptible, nor could be, unless a great number of very accurate soundings were taken, and tested again after many years: at any rate, the line of low-water mark for forty years back is not so much changed as to give rise to anything noticeable by the old settlers.

The opening of the channel from the inlet, wherever it may be situated for the time being, protudes spits and shoals far out into the sea, which look alarming, as indicating rapid changes; but the position of the opening is constantly shifting, and the spits and shoals it has formed are soon washed ashore after the opening has shifted.

In addition to the above, I am told that the inlet itself is gradually shoaling up, and its great area of sandbanks are slowly getting covered with water-grass. Still the shoaling of East Bay goes on by the evasion of miles of sandbeach and sandhills at the back of it, which, as I noticed in my former Report, were formerly fixedly being covered with vegetation; but the vegetation now being disturbed, the sand is set loose, and blows into the sea, where the set of waves and currents work the sand round into the hollow of East Bay.

In my opinion, it would be beyond the means which are likely to be placed at the disposal of this district, to attempt to divert the channel of the east inlet, either into the west inlet, or elsewhere; and in any case, the question of doing so may stand over for another ten or twenty years.

As to the gradual shoaling of East Bay affecting the depth of water at the proposed breakwater, it seems to me that the question is sufficiently remote to be disregarded entirely.

A set of current does at times flow round the bay towards the breakwater, but flowing slowly against the wind and waves, it must have very little effect in carrying sand, and for the last fifty years the sand has not advanced to the eastward of the old jetty, the sea-bottom from there to the new jetty being covered with gravel and seaweed.

Accordingly, I have no hesitation as to the permanence of the depth of water at the breakwater, and I now submit plans and sections for this work, together with specifications, general conditions, and estimate.

I have not chosen the site formerly proposed by Mr. Sheard, C.E., because I consider the water too shallow to enable vessels to get the full benefit of the shelter of the breakwater, and, if built at Mr. Sheard's site, it would be awkward for vessels coming to or leaving the new jetty, as being so near to it.

It is possible that the breakwater, when finished, at the site here adopted, will afford but indifferent shelter in easterly gales at the present new jetty, but there is no way to avoid this inconvenience. As there will be then a much longer wharf alongside the breakwater, as shown herewith on plan, the present new jetty must be used as a fine-weather berth.

My general estimate, including such items as are stipulated to be provided by the Government, may be above the means at present allotted for this port, but I can see no way of cutting it down, except by shortening the breakwater, and this would spoil the shelter which it affords to steamers lying alongside the wharf.

The estimate given for comparison of tenders received is what I consider a fair price. The Government is to supply sufficient rails and fastening, points, and crossings, and give the use of the plant now on the ground, which consists of about 900 feet of double rails, 1 10-ton crane, 4 end and 4 side top-trucks, with weak axles and half-rotten woodwork, as well as sundry odds and ends of tools, &c.

There is also a tunnel with cross-drives and chambers, and a shaft on top of the hill about 60 feet deep, which have cost the Government much money. It is doubtful whether contractors would use this tunnel or shaft, but I have put in the specifications that if he does he shall pay 40*s.* a foot for them.

In building the wharf in the position shown, I have assumed that the stones will be so large and hard that piles cannot be driven through the slopes of the breakwater. But with the cast-steel, thimble-shaped pile-shoes shown on drawing, it is not unlikely that the piles could be satisfactorily driven through the stone of the slopes, as I have found by experience that with such shoes piles can be driven through ground where it was impossible to drive them with the ordinary shoes.

This, however, is a matter only to be decided by experiment, and I think it would be as well if the Government sent to England to get a dozen of cast-steel, thimble-shaped shoes, such as were sent out by the New Zealand Midland Railway Company for use of that Railway. The reason for doing this is, that it is much simpler and more expeditious to drive the piles through the stones of the slope of the breakwater than to erect them as shown in plan herewith, which this specification provides to do.

The Government must of course provide a weighbridge capable of weighing up to 25 tons, the cost of which erected, with little weigh-clerk's office, would be about £240.

I have the honour to be,
Your obedient Servant,
C. NAPIER BELL, *M. Inst. C.E.*

*To the Honourable the Minister of Lands.*

JOHN VAIL,
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