GEOLOGICAL SURVEY OFFICE,
LAUNCESTON,
14th November, 1919.

W.H. Wallace, Esq.,
Secretary for Mines,
HOBART.

PROPOSED WHARVES, BELL BAY

Dear Sir,

I beg to report that I accompanied the Master Warden and several Wardens of the Launceston Marine Board to the site of the proposed wharves at Bell Bay, as instructed by you. As the result of that visit I am able to report as follows:-

The general geological structure of the area in the immediate vicinity is that of a layer of basalt much jointed and consisting of a mass of more or less disconnected blocks, resting on beds of pipe-clay and clayey gravel. The existence of the clay under the basalt can be clearly seen to the west of the wharf site, and at the site itself towards a low-water mark; it is in addition clearly proved by the results of bores put down below low-water mark by the Marine Board some years ago. These bore results which have been placed at my disposal show a distinct dip of the clay beds towards the centre of the river. There thus exist structural and geological factors very favourable for the sliding of masses of the river-banks bodily towards the centre of the river. The heavy and fractures basalt may slip along the greasy surface of the clay owing to the lubrication and weakening of the basalt-clay contact by percolating water and as the result of the outward pressure of the rock masses constituting the shore behind. This tendency to slip would undoubtedly be accentuated by the disturbances due to engineering operations and the activities in connection with the berthing and unloading of ships. The clearing of the timber also would allow of greater percolation of the water to the clay bed and thus decrease the adhesion between it and the overlying basalt.

The surface features of the site consist of two steep rises backwards from high-water mark, with an intervening flat platform about 2 chains wide and an ultimate rise towards a plateau about 80 or 90 feet above the river. There are thus two escarpments with a flat plain between, which measures about 2 chains across. These escarpments have a slope of from 1 in 1 to 1 in 1½. These surface features are such as are typical of country affected by a succession of land slips. The two escarpments seen above high-tide mark are most probably both the result of land slips as is also that below high-tide mark - in fact the supposed suitability of the site as a deep water port is due to the existence of this third escarpment below low-water level, which escarpment represents roughly the plane of downward movement of a land-slip. The scour of the river at this point has partly removed and is still removing this block which slid towards the centre of the river. There is thus slowly but inevitably being repeated the development of the conditions of lack of support on the forward or river side to withstand the thrust from the land side, which caused the previous slide and which will ultimately result in further slides towards the centre of the river. Engineering operations as explained above must inevitably hasten such an occurrence.

It is my opinion, therefore, that no scheme be definitely decided upon without first very carefully considering the great engineering difficulties which such liability to land-slides or creeps must surely present.

In conclusion I wish to point out that these remarks apply exclusively to the site of that portion of the proposed wharves at Bell Bay, lying to the west of the White Beacon, as my examination did not extend beyond that point.

I beg to remain &c.

(Signed) LOFTUS HILLS M.B.E., M.Sc.
Assistant Government Geologist.