

As the Resident Engineer has intimated the importance of obtaining the approval of the modified design by the Colonial Government and Commissioners before taking any steps in the ordering of this special plant, it has been decided that the Consulting Engineer shall proceed with the preparation of such detail drawings and specifications for this plant as will enable competitive tenders to be obtained for the supply of the same, the said documents being proceeded with during the return to New Plymouth of the Resident Engineer with the drawings, &c., of the permanent works herein referred to. Acting upon this arrangement, the Consulting Engineer is preparing designs for the following articles, so that upon the receipt of a telegram from the Commissioners they may be placed before contractors, from whom tenders would be obtained in the manner described in the accompanying report.

1. One 30-ton portable steam overhanging setting-machine, or Hercules, travelling on a railway of 15ft. gauge, centre to centre of rails, and adapted for placing in position in the pier the bags and blocks of concrete. The framing of this machine, as well as of the radiating truss, would consist largely of timber firmly tied and braced together and it would be specially adapted for dealing with the requirements of this work in a ready and economic manner.

2. One 30-ton travelling steam Goliath, adapted for lifting blocks of concrete off the making-floor in the yard, and either stacking the same in the manner shown on drawing No. 5 or of loading them on to trucks for conveyance to the setting-machine at the end of the work.

3. Two steam portable concrete-mixers, each of 1 cubic yard capacity, with hopper, derrick-crane, service and supply water-tanks, and all necessary conveniences for readily mixing the concrete and discharging the same when mixed directly into moulds of the character shown on drawing No. 6.

4. Three Blake's patent stone-breakers with movable faces to the jaws.

5. One hank locomotive-engine, having four coupled wheels, adapted for dealing with the heavy blocks and for conveying stone, sand, and cement upon incline of 1 in 35 at the back of the shops and sheds, as shown on drawing No. 5.

6. One semi-portable engine for driving stone-breakers, with shafting, couplings, plummer-blocks, and riggers complete, also belting and lacing for same.

7. Ten wrought-iron skips for conveying the dry material from the cement-shed and from the sand and broken stone floors to the concrete-mixers (see drawing No. 5) each skip to contain 1 cubic yard.

8. Three sets of double and one single diving apparatus, with pumps and all proper outfit for each set complete.

9. Six wrought-iron tipping-boxes for loading wagons in the quarry.

10. One Michell's cement-testing machine and two gun-metal split moulds.

The block and skip-trucks would, it is assumed, be prepared by the Resident Engineer in the colony.

Materials.

Portland Cement.—The Portland cement throughout is to be of the best quality, uniformly burnt, and finely and evenly ground. It must be packed in strong barrels, lined with waterproof paper. Contracts for a supply of this cement, to extend over a period of twelve months, would be let towards the end of each year, tenders being invited upon a detailed specification. Acceptance and delivery of the cement would be subject to the approval of an Inspector acting under instructions from the Consulting Engineer.

Standard Shingle.—The whole of the sand to be clean, sharp grit, gathered during favourable opportunities when it may be thrown up by the sea. The shingle must also be perfectly clean, both to be conveyed in wagons to the sandfloors shown on drawing No. 5, and there tipped for subsequent filling into the skips referred to in item No. 7 in the foregoing list of plant.

Rubble-stone.—The stone to be broken for concrete material is to be specially selected as being the hardest and cleanest that can be procured in the quarries, and on no account must soft or friable pieces be sent to the breakers that for forming macadam is also to be broken by the machines, and should likewise be selected for hardness. The hearting of the root between the sea and harbour-walls to consist of the general yield of the quarry, care being taken that it does not contain a preponderance of soluble material.

Timber.—The timber for fenders and sleepers to be of colonial growth, of the respective descriptions referred to on the drawings, all to be sound, well seasoned, free from sap, shakes, and other defects.

Iron.—The iron for straps, bolts, &c., to be of B.B.H. or other approved iron, and galvansied where hereinafter described.

Workyard.

Upon the arrival of the Resident Engineer in the colony, he will proceed with the preparation of the workyard, in accordance with drawing No. 5. The site of this yard has been determined—first, as being most convenient to the proposed pier, and, second, as being removed as far as practicable from the influences of the sand-travel across the point south east of Paretutu. Where the sand is bare to the north-west of a line stretching from the southern end of the workyard, it must be coated at the earliest practicable moment with quarry *débris* for a thickness of 6in., so as to prevent blown sand passing across the line of the workyard. South and south-east of the area so covered the bare sands are to be planted with bent grass, &c., as recommended in the report of February, 1879.

The respective levels of the workyard are shown on drawing No. 5. The surface of that portion of it which is described to be metalled must be coated with broken stone to a depth of 6in., spread over a base of rubble of 9in. thick, the macadam to be broken to pass through a 2in. ring, and evenly spread to the levels and gradients indicated on drawing No. 5. The area of the block-making floor—700ft. in length, 17ft. 8in. in width between the longitudinal sleepers—to be coated with