

Copy.

Dear Sir,

Plan No. 1

We now beg to hand you a detailed drawing of an iron pier for the harbour of Yokohama. We have shown it of the same dimensions, as the timber one, referred to in your letter, but as the height, from low water line, the line & strata of beach, and many other necessary details are unknown to us, we can only give the cost approximately.

The Design now given shows the Pier to be 402 feet long by 60 feet wide with an uniform height of 12 feet above the low water line, and it consists of five rows of wrought iron piles for the first 400 feet, they are 5" diam: and the remaining 300 feet 6" diam: each with a screw cast on the lower end, and a cap piece on the top for securing them to the cross girders - The clusters of piles are all braced together horizontally, and diagonally with ties formed of H Girder, Tee, Angle, and round iron bars, joined to the piles by clips & bolts - Across each cluster of 5 piles, there is a "lattice girder" tying them all together, and supporting the longitudinal beams of timber which run through the entire length, - these timbers are very strong (15" x 14") and are intended to be placed at distances to suit 5 lines of rails and a foot path - these timbers are bolted to the cross girders, and planked over by transverse planks 4" thick laid with a space of 1" between, these planks are all spiked down with long spikes to the beams, along the one side there will be a railing of wrought iron standards, & wrought iron tube rails. The cost of this work, including the timber but without, the tram rails, delivered and

erected at Yokohama will be about Seventy eight thousand eight hundred and fifty Mex. Dollars (\$ 78850. —) This is much higher than the estimate for a timber wharf, but of course it will be infinitely stronger and more durable. The price could also be considerably modified if a less width than 60 feet would do, and if it was not found necessary to have beams strong enough for carrying loaded waggons. The Timber for it might also be got in the country, as the cost of freight for it from here is very high. We have assumed the freight to be not more than \$ 8.80 per ton overhead, and that there will be no duties payable at the port. The total weight of Iron work will be about 480 tons and the Timber about 550 tons. —

P.S. Should you consider the rate of freight too low, please add accordingly —

Copy.

Plan No 2.

Dear Sir,

We now beg to hand you a supplementary drawing & estimate for a pier of the same area & dimensions as before, but of lighter construction. The first estimate was based upon the expectation that the ordinary Railway Waggon would be used, but in the event of no carriages or waggons being over 5 or 6 tons, the plan No 2 will be amply strong enough. It consists as shown on the drawing of four rows of wrought iron piles 4" diameter at the shore end, 5" at the centre & 6" at the head, all braced and completed in a similar manner to that described in our former offer. The timber beams will be 14" x 7" and the cross planking 4" thick, there will be no railing along the side in this plan, but there will be an iron stair at the head for getting access to the small Boats etc. Our price for the pier, erected as this plan, will be Fifty eight thousand five hundred Mex. Dollars, say \$ 58500. — including the necessary timber, but if the timber is to be provided in Japan, the price will be \$ 9400. — less. — The Gross weight of the Timber in plan No 2 is about 320 tons —

Our price for a portable steam Crane, erected complete, to lift 5 tons will be \$ 2000. —, and for a portable hand power Crane of the same power \$ 760. —

It is to be understood that these prices are given in the expectation that the soil will be sand or clay, if it should turn out to be rock, of course

By

The price for erection will be increased.

These prices are as in former estimate
net, and exclusive of any duties that may
be payable at Yokohama.

Dear Sir,

Herewith we have the pleasure of handing you estimates No 1 & 2 of Iron Wharf or Muelle as requested and by Book post we send you the relative Drawings, which we trust will arrive in good time. You will observe that in the absence of certain information a fixed amount can scarcely be arrived at, and the tenders now offered are based on certain conditions, for instance: we assume the bed of the harbour where the wharf is to be erected to be sand or clay, the rise & fall of the Tide to be about 6 feet, giving the wharf an elevation of 12 feet above low water, which we presume is fully sufficient. Then in regard to the timber required, if it can be provided in Japan at the same cost as in this country there is the difference of freight, to be deducted from the quantity mentioned in either estimate.

We should say estimate No 2 to be quite strong enough for all the requirements of your port, while it costs less than the sum estimated for the wooden erection, and would be infinitely superior and more durable. Wooden piles no matter how coated, when under water, in the course of a few years become destroyed by worms, and our engineers are surprised that the Japanese government would think of such an erection, moreover if the position is not well protected by a breakwater, the surface exposed to the action of the water is ten times greater than of Iron and consequently would require to be in the same proportion of strength.

We think if the former has not been already fixed upon, you will have little difficulty in convincing your Authorities of the superiority of Iron.

Again the cost might be very materially reduced if a less breadth would suit the same purpose, say 30 or 40 feet instead of 60 feet, with an extension at the end of the projection in the form of  which would give ample room for the discharging of cargo, two lines of rails and a foot way. - Please bear in mind that the piles are of wrought Iron (not cast) and not liable to damage by ships sides coming against them. The Cranes for the convenience of the discharge of heavy Cargo is a suggestion of our own, as well as the stair for the landing of passengers but these may be omitted if not required.

Copy.

Glasgow, 8 August 1872.

Yokohama Harbour Pier.

We now beg to hand you a detailed Drawing of a wrought Iron Pier prepared to the dimensions furnished by Mr. Siber viz. 300 feet long by 60 feet wide with a T head 350 feet long on the sea face by 80 feet wide. The height shown is based upon information also furnished by Mr. S. as to the Sea bottom viz. 8 feet of mud and then clay, and this we have assumed to exist throughout the entire site. The piles pass through the mud and screw into the clay from 7 to 8 feet.

Then at the Sea end there is an allowance of 22 feet of water at low tide. The deck line is placed 18'6" above low water line then allowing for a 6½ ft. tide with a probable rise of 2 feet more by high winds, giving a total length of piles at Sea end of about 52 feet.

For a distance of 380 feet from the Shore end the piles are proposed to be 5" diameter and for the remainder 6". The structure will be prepared in a manner similar to our former specification,
except

2.
except that there will be longitudinal wrought-iron girders under the rails instead of Timber. - This may add considerably to the first cost, but we find that the Timber-beams depreciate so much by exposure to the sun that it will be all together better to construct the whole frame work of wrought Iron. - It is intended to cover the whole deck with 4" timber fastened to Timber-runners which rest on the top of rail girders. - Provision is also shown for 3 lines of railway with the necessary switches, curves, turntables etc., but the price given below does not include the Timber or railways with their fittings. There is also a footway on one side and a carriage drive on the other.

We include in our estimate the following materials only viz: The piles, screws, braciags, girders, couplings, sockets, caps, bolts & nuts and spikes for fixing the planking, being the whole of the wrought-and cast-Iron work to the under side of planking, also the hand-railing along the sides of the Pier, - an ornamental railing and gates across the Entrance; Two portable 5 Ton Steam-Cranes

Cranes, one Tonnage weighing machine, likewise tools and plants sufficient to erect the work. These we offer to supply and deliver free at ship's side Glasgow for the lump sum of £296,380.", which makes, if you add Freight on 2100 Tons, Shipping Charges ^(p. 1st & 2nd) and Marine Insurance, £326,554." delivered at Yokohama.

We also enclose a plan of a Pier 800 feet long x 30 feet wide, with a head 250 feet long & 45 feet wide prepared for two lines of railway, but the height and all other particulars will be the same as in the larger design, and the price free at ship's side Glasgow £185,783.", or including Freight on 1300 Tons, Shipping Charges and Marine Insurance, £204,512." delivered at Yokohama.

We would suggest that two experienced mechanics should be sent out capable of taking charge of the erection; their remuneration to be arranged afterwards.

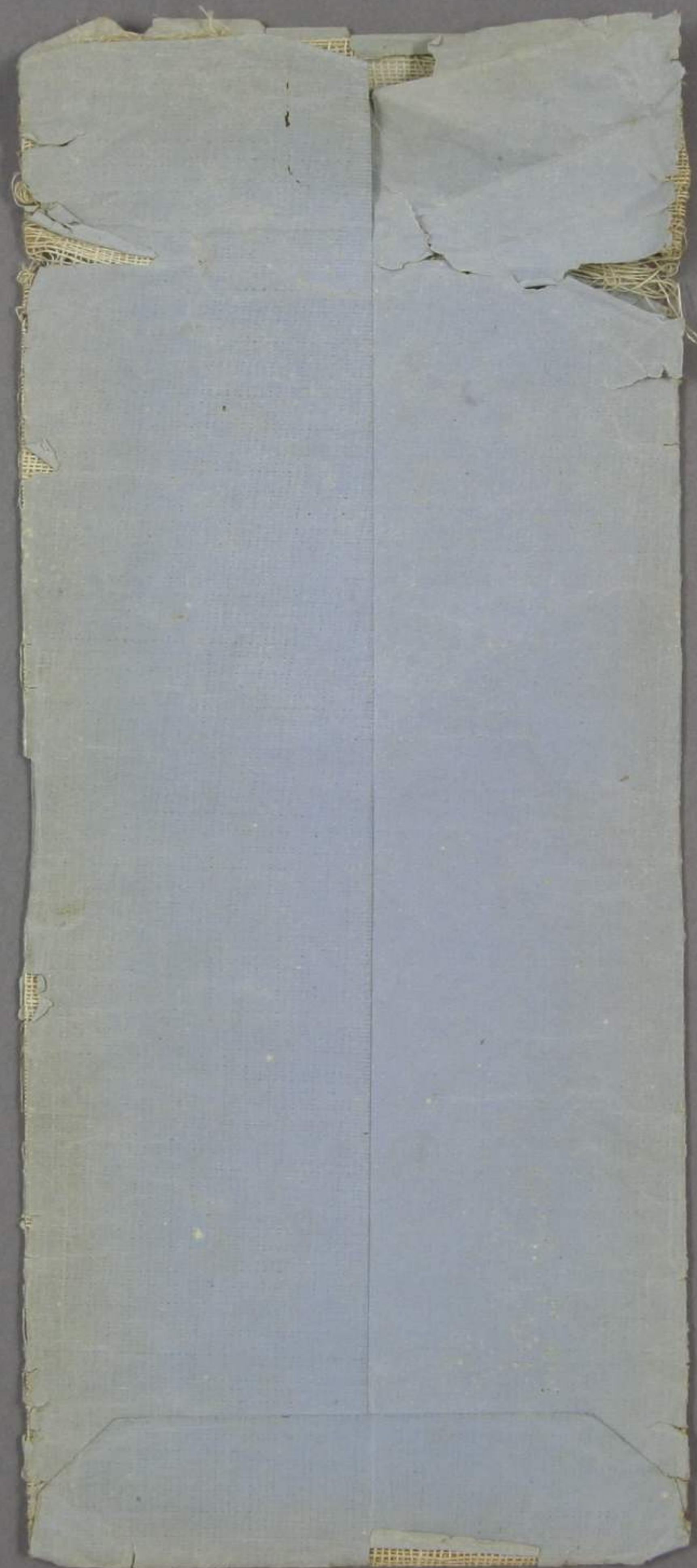
In the present very unsettled state of the Iron & Labour markets it is important that the contract be arranged immediately; should any further information be required please to let us know.

Yours truly

Plans of Pier.

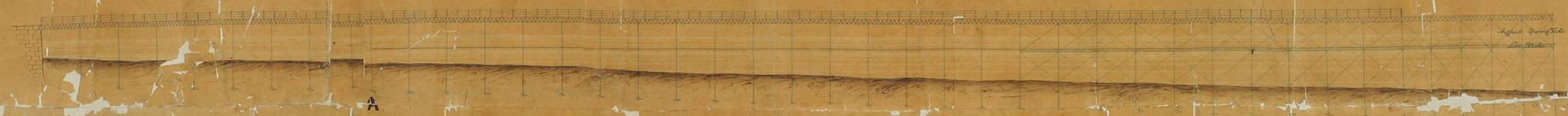
橫濱波多埠
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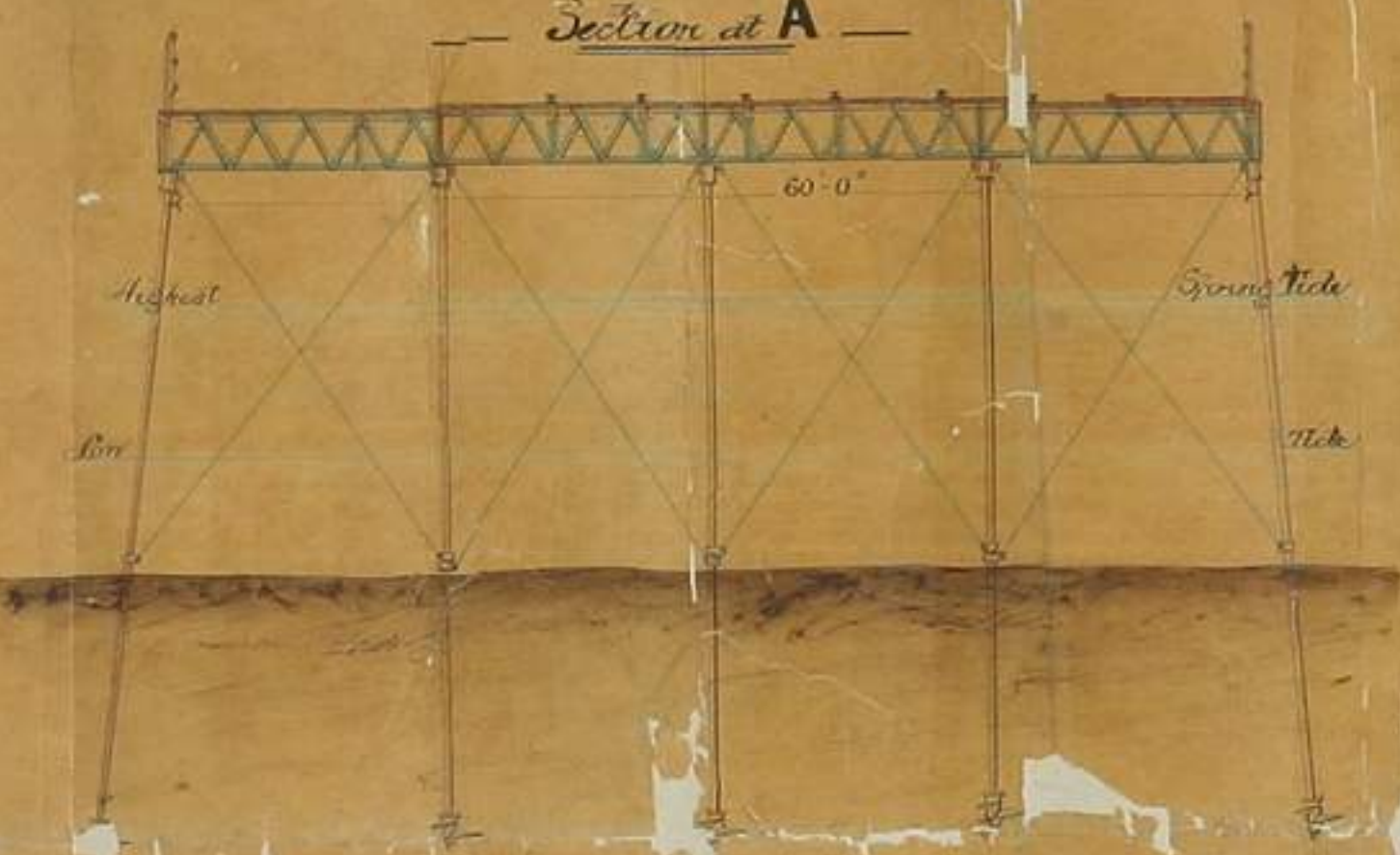


MOLE FOR YOKOHAMA

ELEVATION



Section at A



Section at B



B

Section on line C D

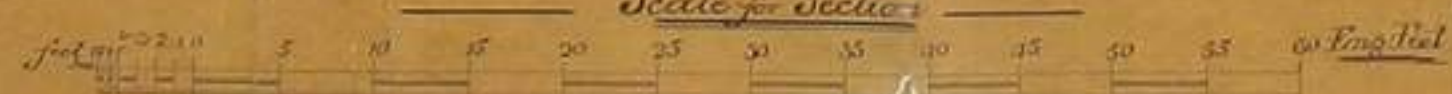


800 feet

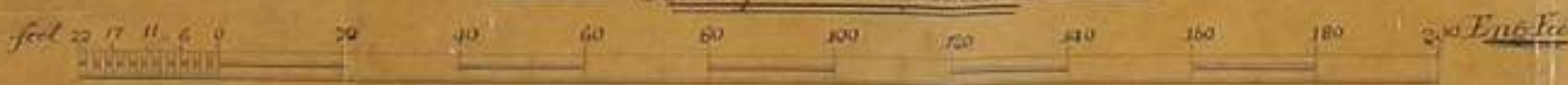
PLAN



Scale for Section



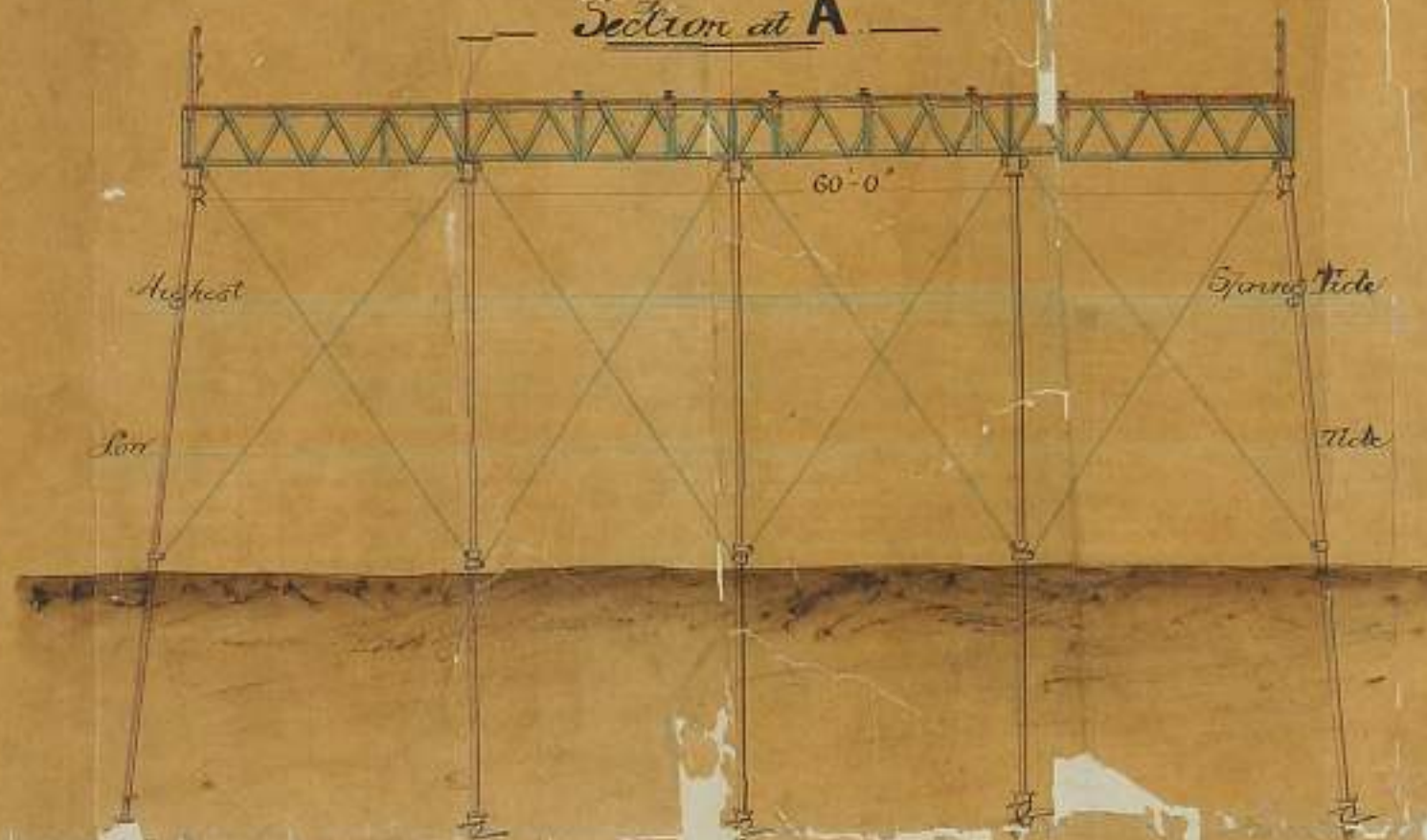
Scale for Plan & Elevation



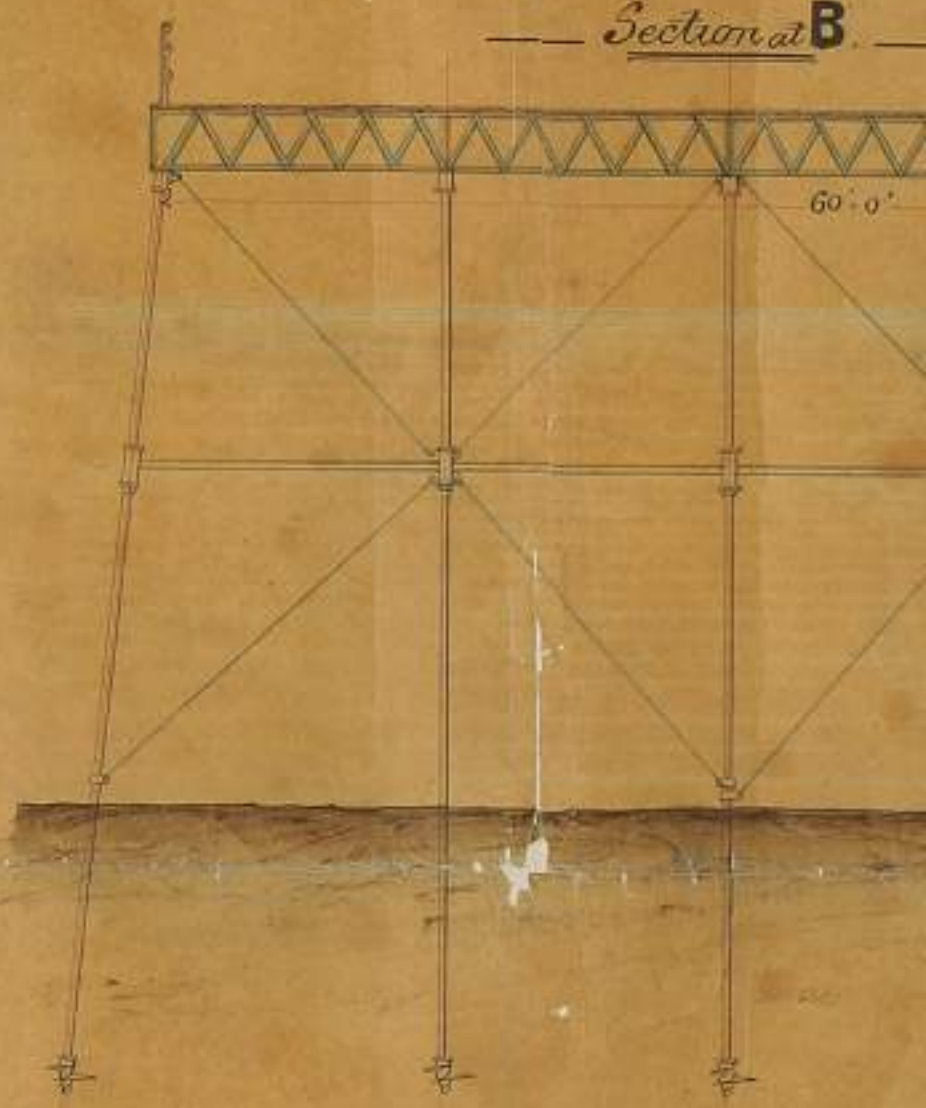
MOLE FOR

E

Section at A



Section at B



800 feet

60'-0"

End Elevation of Head



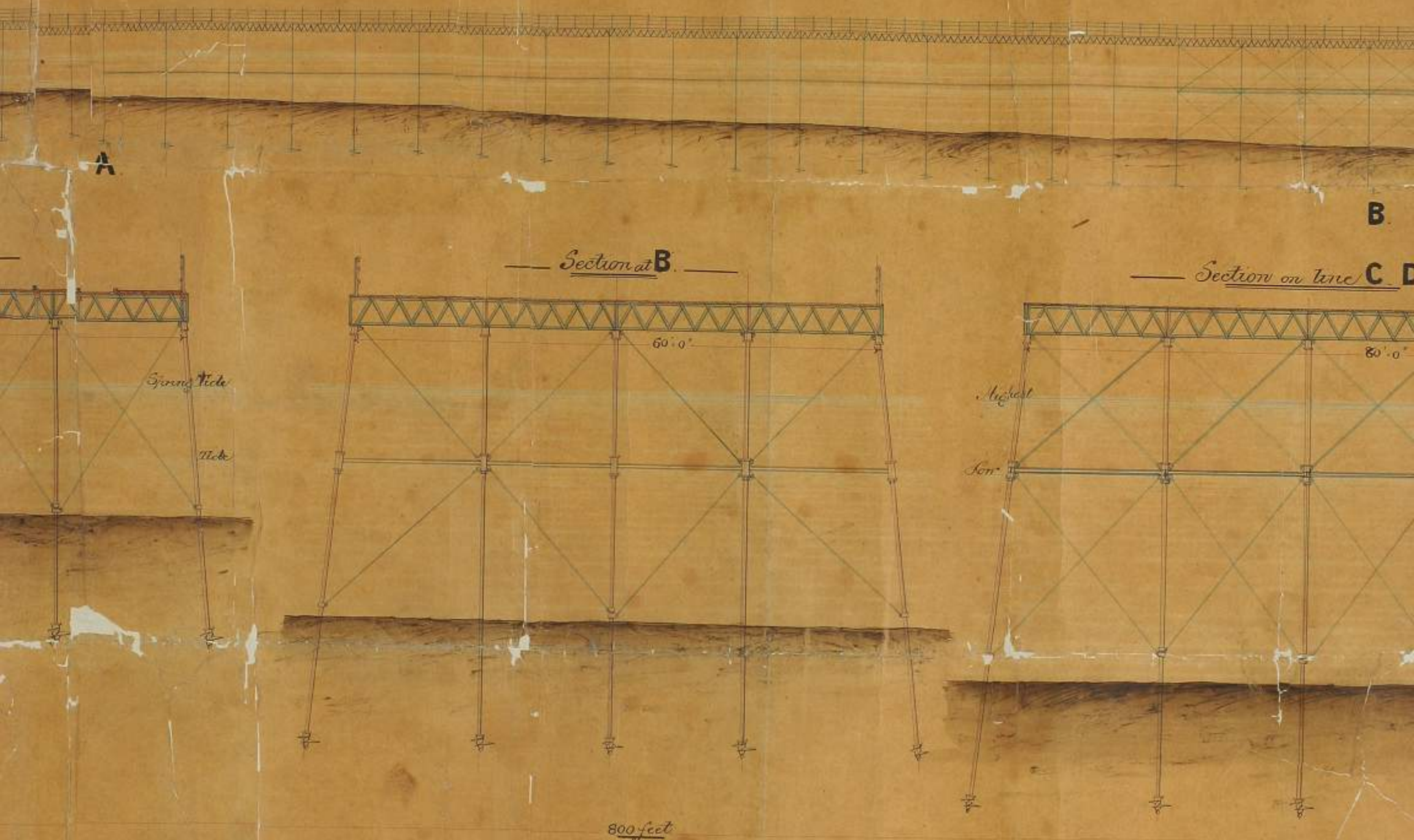
PLA

Scale for

Scale for PL

MOLE FOR YOKOHAMA

ELEVATION



PLAN



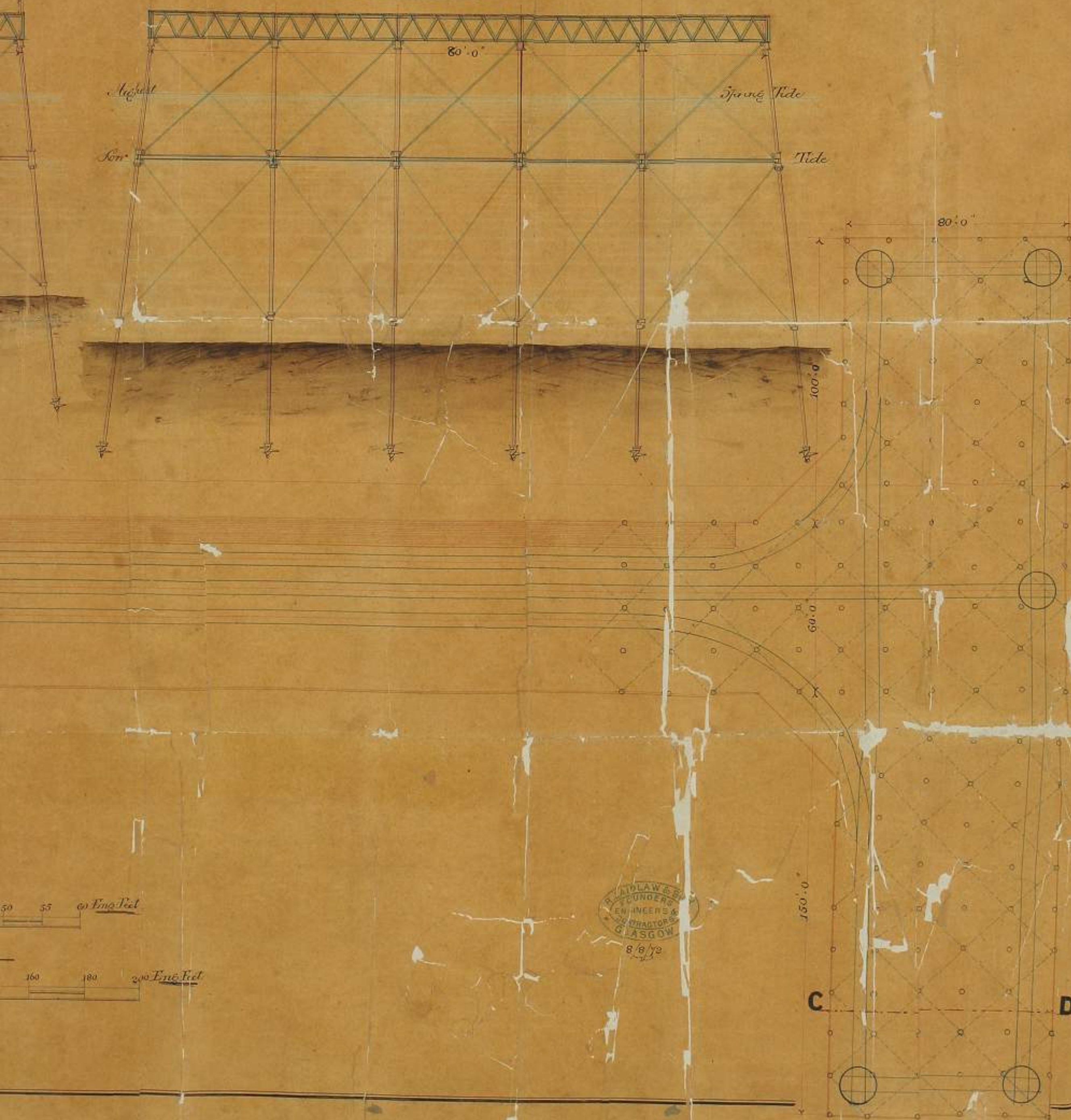
KOHAMA

ON



B

Section on line C D



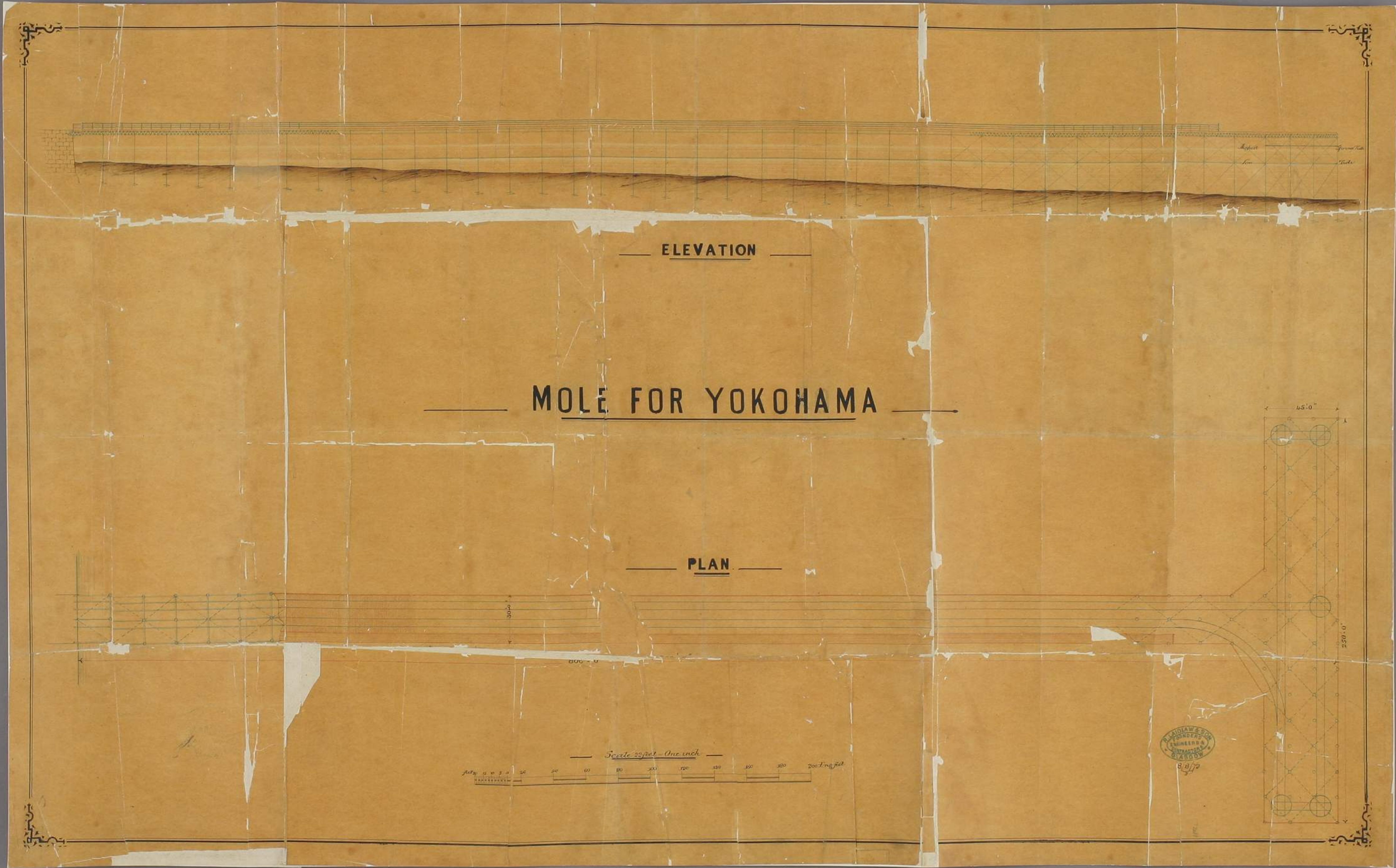
50 55 60 Eng Feet

160 180 200 Eng Feet



C

D

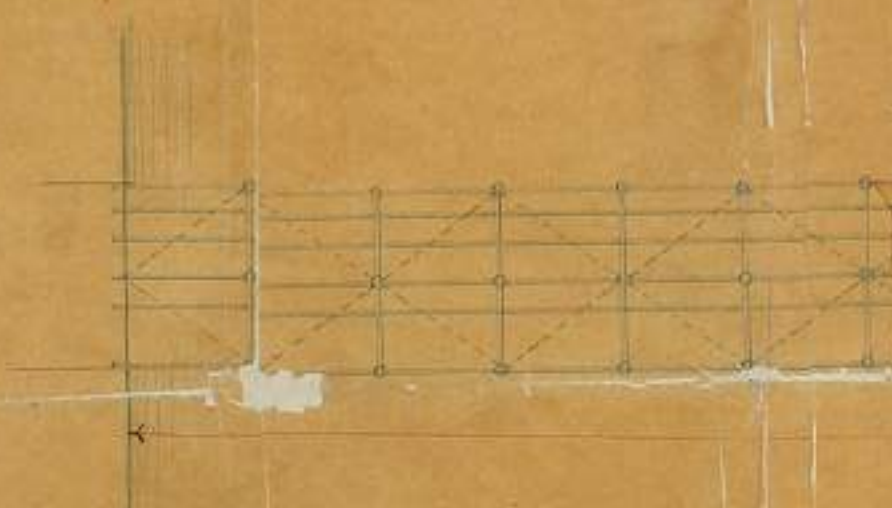




ELEVATION

MOLE FOR YORK

PLAN



Scale 20 feet - One inch



ELEVATION

OR YOKOHAMA

PLAN

