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## The Mangere Bridge

Those unfamiliar with the exact locality of Mangere Bridge, Auckland, will find it difficult to realise the magnitude of the ferro-concrete structure that is at present in progress of erection. This bridge forms the connecting link between Onehunga and the opposite side of the Manakau Harbour, taking its name from the district on which its southern end abuts. The original structure was built some forty years ago, and was in those days considered somewhat of a feat, and to the present time it is carrying all the district traffic.

The new bridge which is to replace the present one is now well under way, the first pile of the structure having been driven by the Prime Minister on June 20th last. The estimated cost of the whole bridge and approaches is about £25,000 of which sum the Government are contributing £4,500. The main dimensions are as follows: Total length of reinforced concrete work 820ft. Width of roadway between kerbs 38ft. with two footpaths each six feet, or a total width of 50 feet over all. Decking 12 ins. thick, girders 12 ins. by 36 ins. with 50 feet span. Columns 24 ins. by 24 ins., with an average length of 55 feet. Tie members and bracing 16 ins. by 12 ins.

A departure from the ordinary method of reinforced construction is that, instead of the various parts being built in place, each is separately being manufactured away from the site, to which they will be afterwards taken and assembled. The girders will weigh when finished about 11 tons and the piles on an average 12 tons.

The method of construction is, that after the piles are driven, the beams and girders will be taken to the site and erected in position, then when the whole structure is in skeleton form, the decking will be placed in situ and will complete the monolith. The bridge will contain 17 spans in the length of 820ft.

In order not to interrupt traffic during building operations the bridge is to be built in two sections, the first of which, 35ft. wide is now well under way, and when this is finished, and in a condition to carry traffic, the old wooden landmark will be removed and the structure finished out to its complete width of 50ft.

## Special Flux for Aluminium

The soldering of aluminium has not yet been perfected, although fairly satisfactory results have been obtained. Repairs made by the oxy-acetylene and electric welding processes, however, are highly satisfactory. A recipe which has been used to advantage in Germany is as follows: Tin, 80 per cent.; and zinc, 20 per cent. The flux consists of eighty parts of stearic acid, ten parts chloride of zinc, and ten parts of chloride of tin. A solid nickel soldering iron should be used, so as not to discolour the metal