This outfit was operated by hydraulic pressure furnished by a large Worthington high pressure pump, having the necessary attachments and connections; two 30 H. P. boilers, two 32 H. P. hoisting engines with derricks and swinging gear complete, one 1¼-yard orange peel bucket; two 20 H. P. hoisting engines with derricks; four large scows, 24′ x 60′, and two tugs; two sets of diving apparatus, in addition to many other odds and ends of machinery. The drilling machinery was placed on the scows, which were anchored at the pier sites. After holes were drilled, they were shot with dynamite, and the loose rock removed by means of the orange peel bucket, or a derrick with chains and grappling hooks at the bottom, until the foundation had been properly benched and levelled off. Holes were then drilled in the rock about 4 feet apart, and 2-inch diameter steel dowels, 6 feet long, set in them, and projecting about 3 feet up into the concrete footing. The timber caisson for pier No. 1 was built about 48 feet high and well reinforced with timber braces. Heavy canvas was attached around the bottom on the inside, and after the caisson was sunk into position, the divers went down and rolled this out. Concrete in sacks was then deposited around the edges to make it conform to the contour of the rock and so prevent any wash or current through the pier. Mortar, of a consistency of one part of cement to two parts of sand, was then deposited to the amount of 50 cubic yards, followed without any intermission, by the work of concreting, which was carried on by means of bottom-dumping buckets. The concrete, up to water level, was mixed in proportions of one part of cement, two of sand, and four of broken stone, and above water one part of cement, three of sand, and five of broken stone. Similar methods were followed in constructing the second and smaller pier.

The quantities of concrete in the substructure aggregate 3020 cubic yards, as follows: North abutment, 913 cubic yards; No. 1, or main pier, 1421 cubic yards; pier No. 2, 226 cubic yards; and south abutment, 460 cubic yards; rock excavation, 337 cubic yards; earth, 141 cubic yards.

The above layout required one 415-ft. span, over the deepest part of the crossing, which was designed as a rivetted, subpanelled, through Warren truss with inclined top chords (weighing 2,563,362 pounds) and two 60-ft. deck plate girder spans (weighing together 126,540 pounds) over shallower water to the south abutment. The superstructure was designed in accordance with the requirements of Canadian Pacific Railway 1905 Specification, providing for a live load of two typical consolidation engines coupled together, weighing 337,000 pounds each, followed by a uniform train load of 4000 pounds per lineal foot.