

The foundation is assumed to be at an elevation of 56.00, the sill of the submerged portion 76.00, and the crest of the dam 90.00; the total depth from the crest of the dam to the foundation being 34 feet. The dam will be 700 feet in length, extending into the banks on both sides.

The foundation will be on either solid rock or hard pan. The borings not being completed at this date there may be alterations necessary in the foundations which will change the estimated cost to a limited extent.

On the supposition that most of the water may occasionally be drawn from the lower side, the dam has been proportioned to withstand the water pressure on its upper side alone due to its full height. Provision has also been made to permit of the water above the crest of the dam being raised to 92 or 93, though all calculations of power are based upon an elevation of 90 only. The static water pressure against the dam will be 22.56 tons per lineal foot, and against the moveable portion of the dam 3.06 tons per lineal foot.

The area of the moveable portion of the dam provided for the discharge of surplus water will be, below the crest of the dam, 5,600 square feet.

There are five (5) openings for the moveable portion of the dam, each 80 feet by 14 feet. The openings are separated from each other by piers which carry the bridge and truss against which the upper ends of the needles rest.

The piers are 50 feet in length and 10 in width. They are provided with massive masonry ice-breakers.

The moveable portion of the dam consists of pine needles resting their lower ends upon the sill of the submerged portion of the dam, and their upper ends against the truss provided for that purpose. The needles are to be provided with chains and fastenings, so that they can be readily lifted and suspended out of reach of the water. It is proposed to do the work necessary in lifting and replacing the needles by an electric hoist, travelling on a truck along the bridge, the power for which is to be obtained from a water-wheel.

From the memorandum on ice flow attached to this report it will be seen that not much trouble is to be feared from that source. The piers of the dam are to be provided with substantial ice-breakers, and the needles so arranged that they can be raised if necessary while the ice is running.

The 80-foot bays might be fitted with trussed steel gates instead of the needles, at an additional cost of \$20,000.