

on April 26th, 1915, and will likely be completed about June 7th, 1915.

The water from the mills at present flows back into Cobalt Lake. This average flow amounts to about 2,350 gals. per min., so that the pumps are gaining only 4,650 gals. per min. in the drainage operation, without deducting the surface drainage from the Cobalt Lake watershed. It is proposed to maintain a sump in the deeper portion of the north end of the lake, and to allow the mills to continue to discharge into this sump. This will require continuous pumping to keep the water in the sump down to the level desired, and also in order to take care of the

over the area of the foundation of the dam, over the bearing piles, and tied into the rock shore at both sides. A concrete cap 14' high, 10' wide at the bottom, and 2' wide at the top, was placed on top of this slab, with batter-face down stream. This cap was also fitted into the rock at the sides. The cap was tied to the slab with reinforcing steel. This dam made a reservoir of Short Lake sufficient for two weeks' requirements for all purposes.

The diverting dam at the south end of South Pickerel Lake is 150' long and 8' high. It is constructed of timber bents, covered over with two layers of tongued and grooved sheeting, with a layer of Ruberoid waterproof

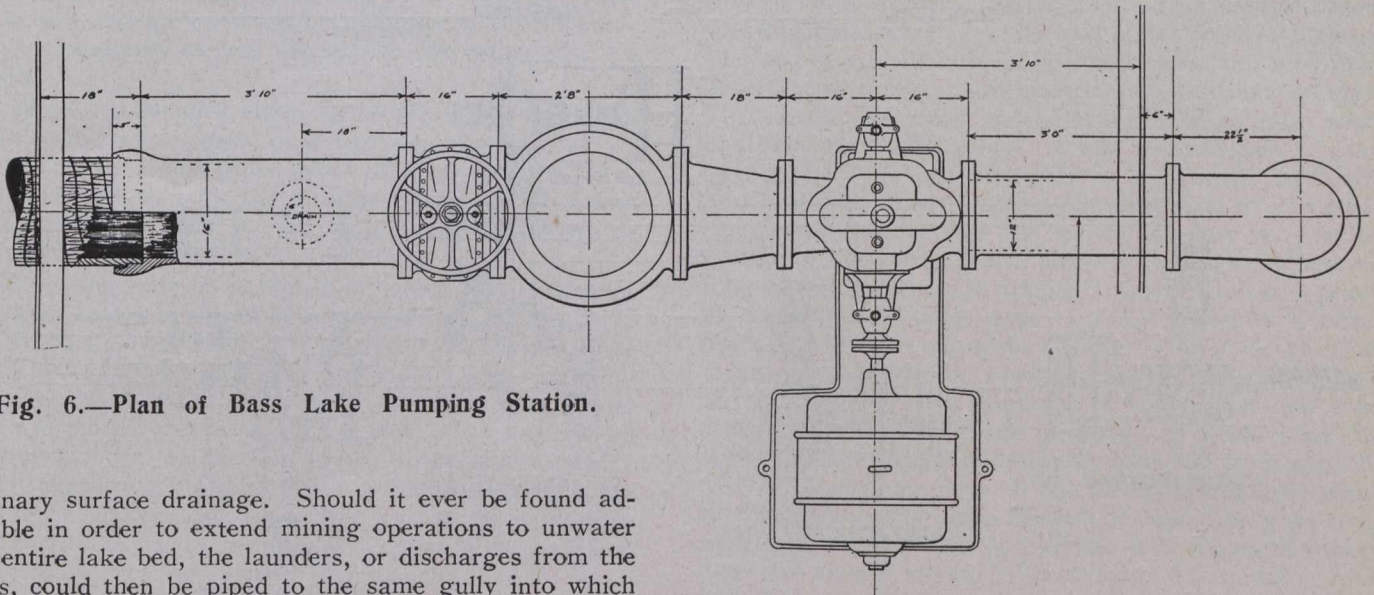


Fig. 6.—Plan of Bass Lake Pumping Station.

ordinary surface drainage. Should it ever be found advisable in order to extend mining operations to unwater the entire lake bed, the launders, or discharges from the mills, could then be piped to the same gully into which the drainage pumps are now discharging. For the present the launders will be carried as open flumes to the sump, the velocities of the discharges being high enough to prevent freezing.

One of the largest single operations in the entire work was the dam at Short Lake. This dam is 293' long, 20' high, and contains 2,200 cu. yds. of concrete. Two

paper between the two sheetings. 3" x 10" fir piles were driven to a depth of from 6' to 10' along the toe as a cut-off.

As previously mentioned, three other small concrete cut-offs were necessary to retain the water in Pickerel Lake basin. One of these was equipped with a spillway and gate.

A Smith concrete mixer and Marsh & Henthorn hoist were used throughout on the work. The cement was purchased from the Canada Cement Company. All pumps were purchased from the Turbine Equipment Co., Ltd.

A telephone line was built which connects all the pump houses to all the mills. Material for this line was supplied by the Northern Electric Company.

No difficulty was found in obtaining water-tight joints in the wood pipe lines, and as high as 400' of this kind of pipe was laid by six men in half a day.

The cost of the entire scheme was approximately \$110,000, and the estimated annual charge is between \$25,000 and \$30,000.

A complication that threatened the undertaking in its initial stage was the fact that the town had been using the lake as a place of disposal for its sewage, but this was satisfactorily solved by the order of the Board of Health that the town would be required, regardless of the drainage operations, to carry its sewage to a more distant point and to treat it or otherwise dispose of it satisfactorily.

An intercepting sewer was laid last year by the town to a line and level which enabled it to connect with and receive the discharge from all other sewers, and this intercepting sewer now carries the sewage to the same gully into which the drainage pumps are discharging.

Power for driving the pumps is obtained from the Northern Ontario Light & Power Co., and as this com-

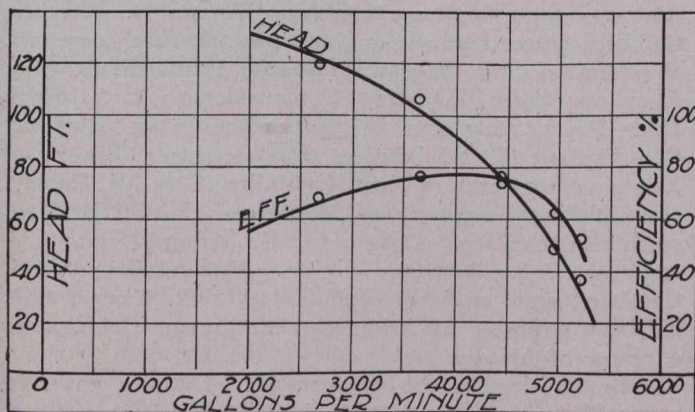


Fig. 7.—Characteristic Curves of Cobalt Lake Drainage Pumps.

parallel lines of Wakefield sheet piling were driven 30' apart across the narrow neck of the lake. It was impossible to reach bed rock, but the piling was driven from 10' to 40', as far as the ground was permeable. Bearing piles of 8" to 10" diameter were driven at 4' centres over the entire area between the lines of sheet piling, the bearing piles also being driven to a depth of from 10' to 40'. The sheet piling was carried close to the rock shore on both sides of the lake. A concrete slab 6' thick was laid