

# The Canadian Engineer

*A weekly paper for engineers and engineering-contractors*

## SOOKE LAKE WATER SUPPLY FOR VICTORIA, B.C.

A PROJECT TO CONVEY 16,000,000 GALLONS PER DAY THROUGH 27.3 MILES OF REINFORCED CONCRETE GRAVITY PIPE LINE AND 10 MILES OF STEEL PRESSURE PIPE, WITH A 136,000,000-GALLON INTERMEDIATE RESERVOIR.

**T**HERE is some interesting history associated with the present undertaking by which the city of Victoria, B.C., will be supplied with 16,000,000 gallons of water daily through the Sooke Lake system. The question of water supply for the city extends back to 1868, when a system was adopted whereby a private company supplied the city through wooden pipes

In July, 1911, the city decided to actively engage without delay upon plans for the extension of its water supply. Sooke Lake, which lies about 18 miles northwest of Victoria, was subjected to careful hydrographic investigation, including the study of rainfall, run-off, contour surveys, determination of area of watershed and possible supply. Owing to the expeditious circumstances, this

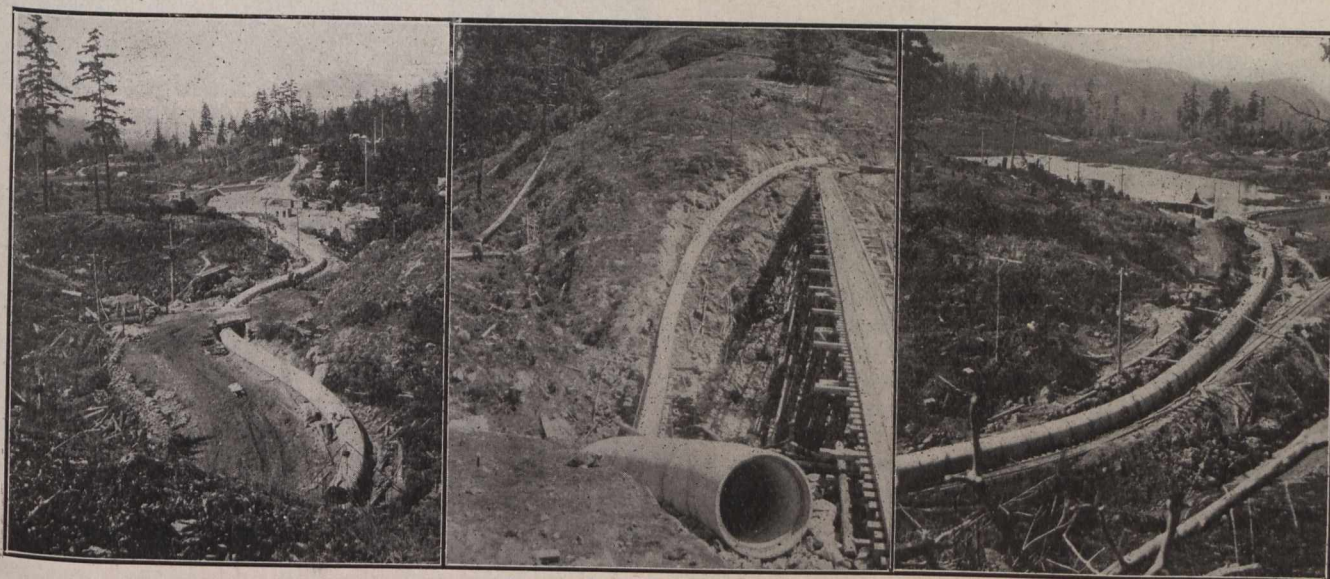


Fig. 1.—Portion of Reinforced Concrete Flow Line Near Humpback Reservoir.

Fig. 2.—One of the Inverted Siphons. Construction railway is also shown.

Fig. 3.—Site of Humpback Reservoir.

from a series of wells. Four years later the city began to investigate Elk Lake (see Fig. 4) as a possible source of supply. The official report concerning it estimated a supply of 25 gal. per capita per day for a population of 90,000. A scheme was entered into whereby for many years the city has received its supply from Elk Lake through open gravity sand filters and by a gravity system. Later, a pumping plant was installed, necessitated by fire protection requirements and by increased consumption. As the daily consumption further increased, the level of Elk Lake became lowered considerably and the quality of water impaired. Meantime the Esquimalt Waterworks Co. supplied Victoria West from the Goldstream Lakes. The cost to the city of the former is 2 cents per thousand Imp. gal. and of the latter 6 cents per thousand Imp. gal. Compared with this, the old well system in vogue before the Elk Lake scheme cost the city 0.75 cents per gal.

work was pushed ahead with all speed, and before the end of the year tenders were called for. This procedure was authorized by a by-law which had received the assent of the electors on January 12th, 1911, for the borrowing of \$1,500,000 for acquiring and constructing the Sooke Lake water system. In January, 1912, the contract for the construction of the entire work was let to the Westholme Lumber Company, of Victoria, for the sum of \$1,169,170, the system to deliver 16,000,000 gal. of water daily, as stated. In April, 1913, after completing 38½ per cent. of the work when, according to contract, 65 per cent. of it should have been completed, the Westholme Lumber Company abandoned the contract and Water Commissioner C. H. Rust thereupon took over the work, to be done by the city, charging the expense to the contractor, as he was entitled to do by the provisions of the contract. The city has since been carrying out the work by day