

The Canadian Engineer

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TORONTO'S MECHANICAL FILTRATION PLANT

SIXTY-MILLION-GALLON RANSOME DRIFTING SAND FILTER BUILT AT COST OF OVER MILLION DOLLARS—FIRST MUNICIPAL PLANT OF ITS KIND ON THIS CONTINENT—NO SEDIMENTATION—SAND CONSTANTLY WASHED.

IN *The Canadian Engineer* of April 23rd, 1914, April 8th, 1915, and November 25th, 1915, there were described in a general way some of the details connected with the 60-million-gallon Ransome drifting sand water purification plant for the city of Toronto. As the plant is now practically completed, with the exception of filling the filters with sand, a more up-to-date description is possible.

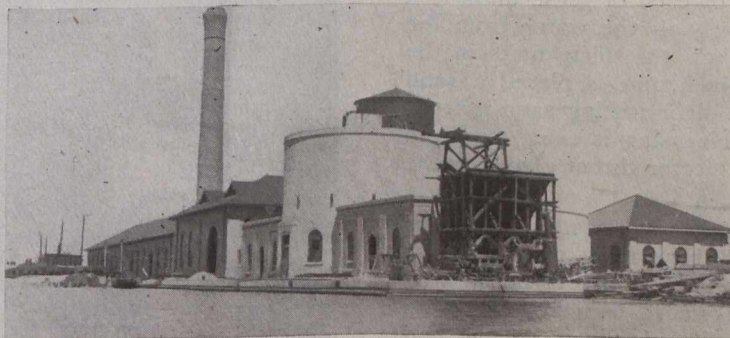
Fig. 1 shows the general arrangement of the plant as built. Generally speaking, the substructures of the buildings are built of reinforced concrete and the superstructures of a buff pressed brick. The cement was supplied by the Canada Cement Co. On the steel framework forming the roof is placed boarding and on top of this red Spanish tile. The only exception to this form of construction is the coal chemical building which is built almost entirely of reinforced concrete with flat roofs, but having on the western elevation a brick front similar to the other buildings.

Fig. 2 shows a longitudinal section of the plant (not drawn to scale) as well as a section through a single filter. The water flows from Lake Ontario through two 72-inch diameter steel intake pipes into the suction well building. At the end of each of these pipes is placed a 72-inch

hydraulically operated valve. These two valves are shown in Fig. 9. In the centre of the suction well the water passes through a duplicate set of screens, and after being treated with sulphate of alumina, it is pumped through one or more of three 36-inch diameter suction pipes connected with three 36-million-Imperial-gallons-per-day, low-

lift pumps situated in the pumping station building. The plant has a maximum capacity of 72 million Imperial gallons per day and any two of these pumps will give this capacity. From the pumps the water passes through 36-inch check valves, thence through a 36-inch hydraulically operated stop valve, into a 72-inch steel pipe which supplies the filters. On this 72-inch pipe is placed a venturi meter to register the amount of water be-

ing filtered. The amount of water passing through this pipe, as registered by the venturi meter, is transmitted to a chemical feed control device situated in the chemical building. This 72-inch pipe is situated in an underground passage connecting the pumping station and the filter house.



General View of Plant—Progress Photograph Taken August 17, 1916.

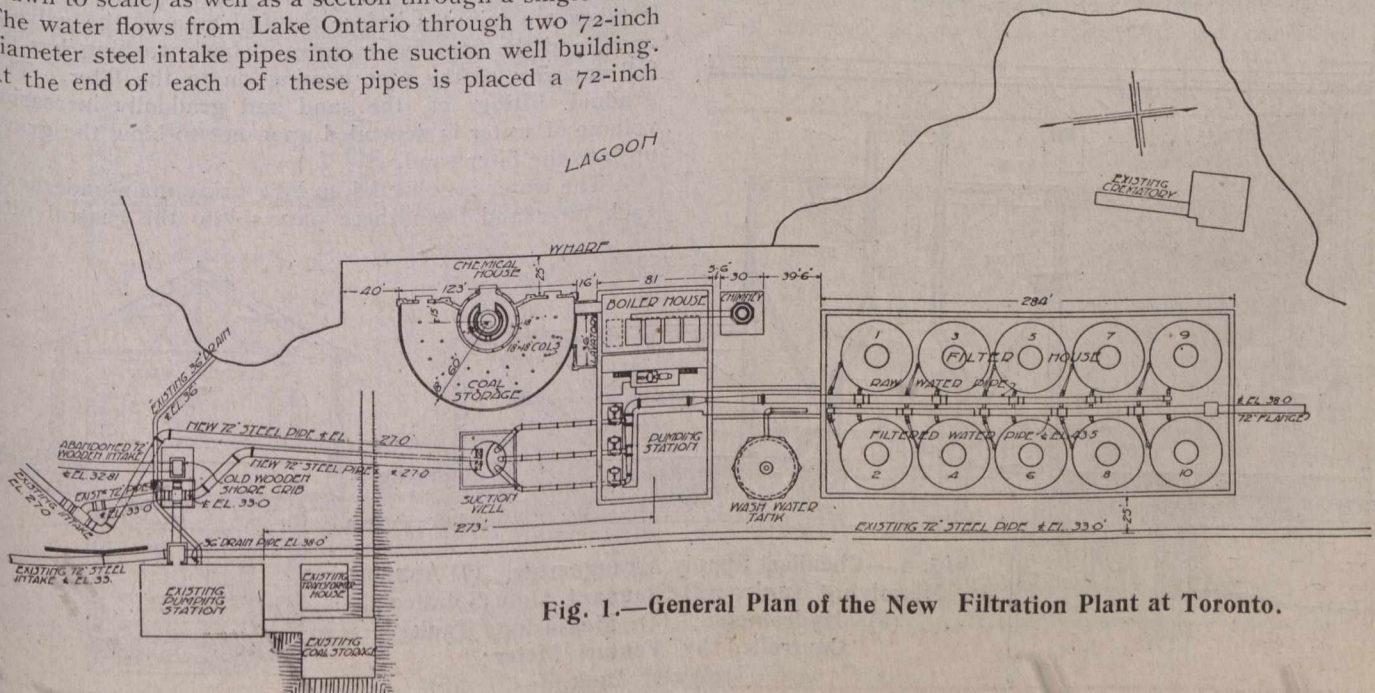


Fig. 1.—General Plan of the New Filtration Plant at Toronto.