

mains, because this loss of head must increase with the growth of consumption in the city. The uniform steady supply of the pumps will meet all requirements of the average consumption of the 24 hours, but not always those of excessive draught, hence the necessity for a reservoir. Again, when the Barton reservoir is called upon to supplement the deficient supply of the pumps it can only hurry its stored surplus into the city at a sacrifice of pressure in proportion to the velocity, and, therefore, increasing with the growth of the deficiency. As the loss of head is entirely a question of distance and is proportional to it, the remedy is to transfer the office now performed by the Barton reservoir to a central city one, and take advantage of the opportunity to increase the elevation so as to secure a fire pressure over the Dundurn ridge and an improvement of that now existing over all points of the city below that ridge. This will involve a slight increase in the consumption of coal, but will be well worth it in securing simplicity and certainty of action as compared with the high level reservoir to be turned on only during fires. Under such circumstances the Barton reservoir would be shut off and held as a storage reservoir in cases of emergency and for a distributing reservoir to the eastern district in the future.

It will not be necessary to extend both the mains to the city reservoir, but for fire purposes the branch connecting the former with the latter should not be less than 21 inches.

THE ESTIMATE.

As there are several sites for a central city reservoir, the selection of which will be governed by the cost of and the advantages offered by the ground for such purpose, we have put down a round sum for construction only which may probably be reduced when the site is selected and the plans determined upon. The total cost exclusive of land purchase, foots up to \$175,000, as follows:—

New pumps and boilers and connections (for present pumping engines)	\$ 14 000
Duplication of pumping main, 18-inch diameter from engine house to Queen street, <i>via</i> Brethour's, corner King, James and Main streets, 31,550 feet, at \$3 per foot.....	94 650
Valves, valve chambers and special castings on do.....	2 700
Branch main to city reservoir, 21 inches diameter, say 3,500 feet, at \$4 per foot	14 000
Valve chambers and special castings.....	1 000
New central reservoir in city, say.	40 000
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	\$166 350
Contingencies, superintendence, etc	8 650
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	<u>\$175 000</u>

(Signed)

THOS. C. KEEFER,
JOHN KENNEDY.