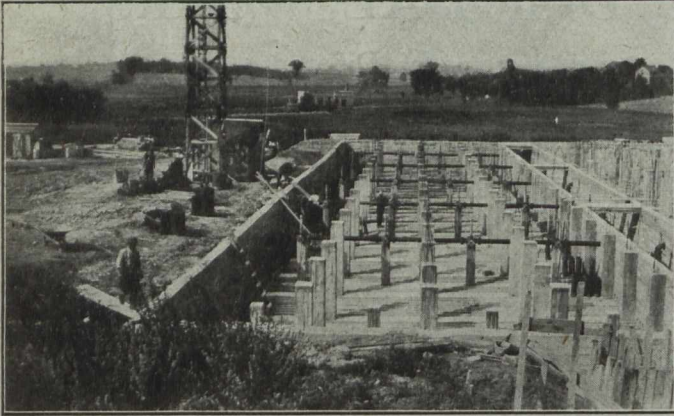


gallons per minute each; two 60-h.p. motors; and one sludge pump with a capacity of 500 gallons per minute.

4.—Sixteen natural sand filtration beds, containing 14 acres of filtering area.

This system gave excellent results, giving off an odorless effluent as clear and sparkling as spring water. It is still giving these results to-day.

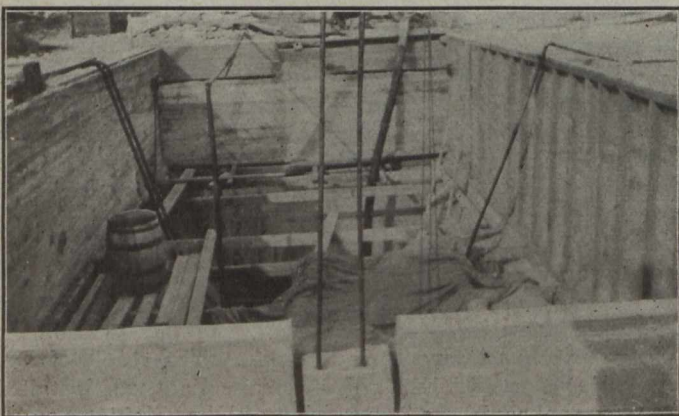


General Interior View of Filters.

In 1911 the amount of sewage was beyond its capacity and the writer, as city engineer, recommended its extension. The sewerage commission asked the city council for the money. Owing to other difficulties between the council and the commission, the work was taken over by the council and the commission was dispensed with.

Nothing more was done until 1914, when the farmers again complained of sewage going into the creek. The area of the beds was then extended to twenty acres. This was still insufficient to take care of all the sewage, so the provincial board of health was interviewed by the sewer committee. The board recommended that either the present system be extended or that deep two-story sedimentation tanks and a spraying system be constructed.

As all the available land suitable for filtering purposes on the present farm had been used, and as it was uncertain whether the spraying system of filters would give an effluent pure enough to discharge into the creek,



Sedimentation Tanks.

owing to the factory wastes in the sewage, it was decided to call in Willis Chipman, of Toronto, as consulting engineer to solve the problem.

The writer suggested extending the trunk sewer down the creek to the Grand River about two and a half miles, and adopting the deep sedimentation tank and

spraying filters. This would give plenty of head to operate the plant by gravity, while at the present works all the sewage has to be pumped. Also, it would not require so many for its operation, and the effluent would be diluted by a much larger stream of water, and all trouble with the farmers would be overcome. As the present farm is partly in the city, it could be sold later at a good price. This was not adopted as the initial expense was considered too high.

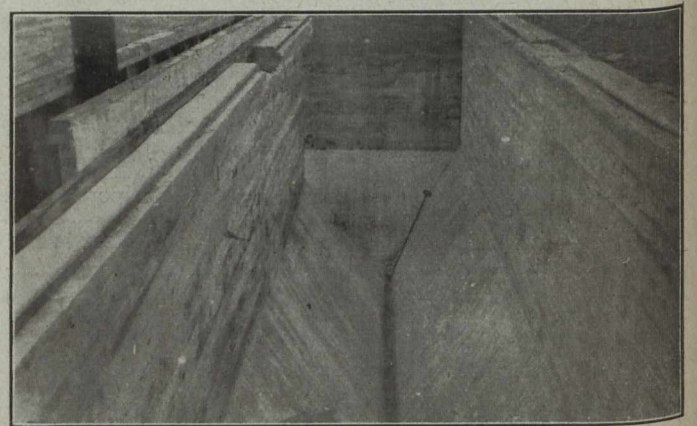
Mr. Chipman recommended:—

1.—That, as the city has two main trunk sewers, an 18-inch pipe and a 48-inch pipe, that the domestic sewage be diverted to the 18-inch sewer and the factory sewage into the 48-inch sewer and the old system of septic tanks and sand filters be used to treat the sewage from the 48-inch sewer.

2.—That sedimentation tanks of the two-story type be constructed with a capacity of 500,000 gallons per twenty-four hours for the treatment of the domestic sewage, conveyed by the 18-inch sewer.

3.—That two spraying filters be constructed to treat the effluent from these tanks.

4.—That two small humus tanks be constructed to remove the suspended matter.



Sedimentation Tanks, Showing Aprons.

5.—That sludge beds be constructed for drying the sludge from the sedimentation tanks.

6.—That a pumping plant be installed.

He gave the following reasons for recommending these:—

1.—Small area of land required and no expenditure for additional land.

2.—Extensions possible to 2,000,000 gallons per day without material changes.

3.—Better results in winter months than with beds.

4.—Sludge nuisance practically eliminated.

5.—Old works and new works together, cost of maintenance and operation therefore reduced.

6.—The new system will produce a satisfactory effluent in winter and in summer.

This report was adopted and the contract for the work was let in September, 1915. The new plant consists of the following:—

Diversion Chamber.

The diversion chamber consists of a concrete building in which are the screens and valves controlling the flow of the sewage. From the 48-inch sewer the factory sewage runs to the old septic tanks. From the 18-inch