

the north-east part of the city, it was decided early in 1914 to relieve the congestion in the intercepting sanitary sewers, and the flooding along Carling Creek, by constructing two intercepting sewers from the south branch of the river north-erly along Egerton St. to Dundas St.

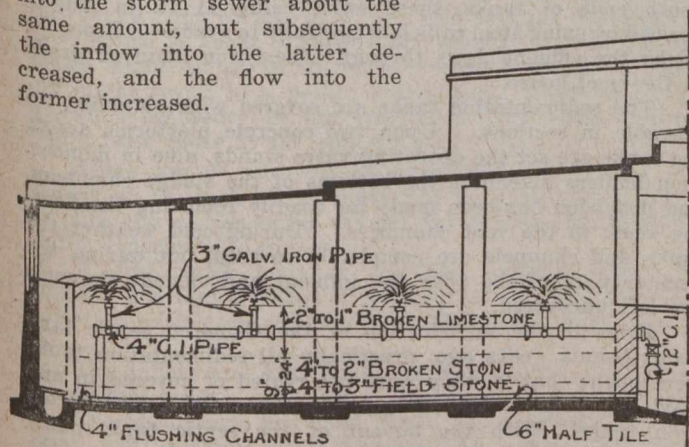
One sewer was designed to convey the domestic sewage, and a larger sewer laid alongside the sanitary was designed to take Carling Creek and the street water. In the design adopted, the cross section of the sanitary sewer is 2.7 sq. ft. and the storm sewer 13.7 sq. ft., laid on a grade of one in six hundred. The two were built together as a monolithic reinforced concrete structure.

The capacity of this sanitary sewer is about 7.7 cu. ft. per second, or about 2,600 gallons per minute, and of the storm sewer 90 cu. ft. per second. The sanitary sewer should be of sufficient capacity to serve a population of approximately 20,000, if the surface water be rigidly excluded.

The total length of the double sewer is 5,886 ft., the greater part of the excavation being in loose fine sand and gravel. For 4,350 ft. the bottom of the sewer was in sand or gravel, and for 1,500 ft. in clay. The average depth of excavation was 24 ft., and the maximum 29 ft. One short section, 93 ft. in length, under G.T.R. tracks, was tunnelled.

During construction the flow of water into the trench attained a maximum of 400 gallons per minute.

The maximum leakage in the 5,886 ft. of sanitary sewer after completion was about 50 gallons per minute, and into the storm sewer about the same amount, but subsequently the inflow into the latter decreased, and the flow into the former increased.



HALF CROSS-SECTION OF FILTER HOUSE

The leakage into the sanitary sewer cannot now be checked, as several tributaries that drain wet sandy areas have been connected with it, which has materially increased the inflow.

Construction on the Egerton St. double sewer was commenced on June 9th, 1914, and completed in March, 1917. The work was constructed under our general supervision.

At Beatrice Street the sanitary sewer was diverted easterly from Egerton to Price St., through a 22-in. tile sewer with a capacity of 7.9 cu. ft. per second, thence along Price St. southerly to the site acquired for sewage disposal works. The sewer on Pine Street was made 24 ins. in diameter, with a capacity of 9.7 cu. ft. per second, the size being increased to serve eventually several streets east of Egerton.

The storm sewer was continued southerly on Egerton 683 ft. as a 54-in. circular section, thence continued as an open concrete flume to the river, an additional distance of 843 ft.

The storm sewers comprised in the 1913-1914 program were completed during 1914, 1915 and 1916 under our supervision, and certain extensions to the sanitary sewers and storm sewers have been laid by the city engineer between 1913 and 1919. The storm sewers constructed in 1914, 1915 and 1916 comprised 20 miles, varying in size from 38 sq. ft. rectangular cross section to small tile pipes.

Sewage Disposal

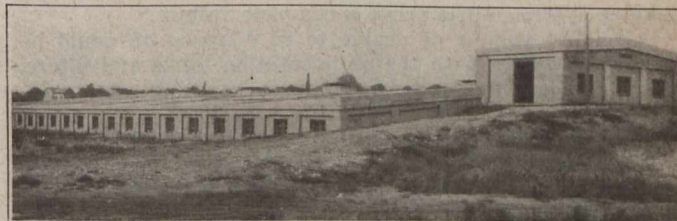
The area tributary to the Egerton St. sewers comprises about 1,500 acres, of which 250 acres are now outside the city limits. The existing population within the area is less than

5,000, but owing to the erection of factories along Dundas St. East, this population will doubtless increase rapidly.

The following factories and plants are now erected and in operation in this area:—

- (1) Grand Trunk shops, west side of Egerton;
- (2) London Gas Power Co., machine shop;
- (3) W. K. Kellogg Co., corn flake factory;
- (4) Empire Manufacturing Co., plumbers' supplies;
- (5) Middlesex Mills, dyeing work;
- (6) Jones & Son, lithographing;
- (7) McCormick Mfg. Co., confectionery;
- (8) Hunt Milling Co., flour mill.

As the south branch of the river flows from east to west through a residential section of the city, and is crossed by half a dozen bridges, it was obvious that the discharge of

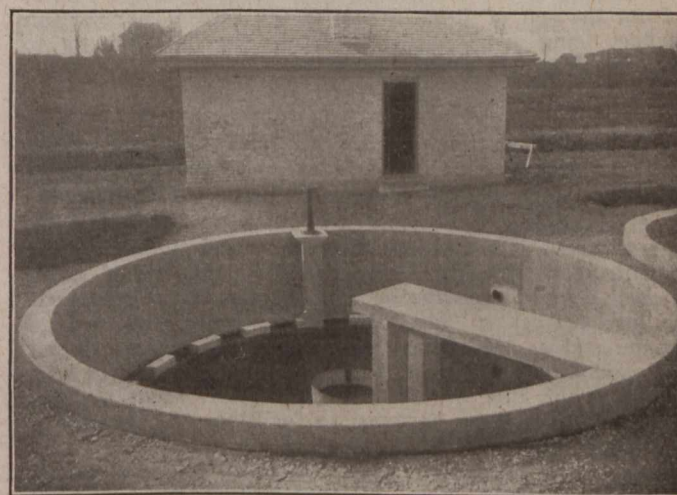


GENERAL VIEW OF FILTER BUILDING AND HEAD HOUSE

any large volume of a crude sewage into the river would not be tolerated. Although the population of the area now draining to Price St. is less than 5,000, we decided to design the trunk sewer on Price St. for 30,000 population and the Egerton sanitary for 20,000 population.

The sewage disposal works proper are, however, only designed for about 6,000 people, but extensions can be made without involving serious alterations.

In deciding upon the system to be adopted, it was considered essential that the effluent should be free from visible floating substances; also, that it should be stable; that is, it should not cause offensive deposits nor odors. It was also essential that the sewage disposal works should not be, nor cause, a nuisance within the vicinity where constructed. As the most troublesome problem in connection with sewage purification is the disposal of the sludge, it was necessary to secure a sufficient area of land.



HUMUS TANKS AND PUMP HOUSE

After considerable time had been expended in negotiations and in securing options on various plots of land along the river, about thirty acres of vacant land were acquired for sewage disposal works on the east side of Egerton Street and adjoining the river, and preliminary designs for proposed works were prepared in 1914, but the construction of the works was not authorized until 1916.