ROSEDALE CREEK SEWER EXTENSION, TORONTO

Circular Brick Sewer 2,598 Ft. Long, 6 Ft. 6 Ins. Diameter, One Per Cent. Grade—Constructed Partly in Tunnel, Using Compressed Air

WITHIN a couple months, the sewer section of the Department of Works, Toronto, will have completed, by contract, the Rosedale Creek sewer extension, which will take the creek flow at the Toronto High Level Pumping Station, and ultimately will also relieve the St. Clair Ave. sewerage system. The extension is 2,598 ft. in length, of which 332 ft. was built in open cut, and the remainder in tunnel, compressed air being required in the last 500 ft.

The extension commences about 200 ft. north of Macpherson Avenue, and follows the old creek bed toward the pumping station. Skirting the station grounds, the line continues along Poplar Plains Road to the intersection of Russell Hill Road, where provision is made for connection to the existing 15-in. tile sewer which continues along Poplar Plains Rd. The extension then turns into, and follows the windings of, Russell Hill Road to the centre line of Clarendon Road, where provision is made for future extension to St. Clair Ave. and to the junction of the creek



PLAN SHOWING LOCATION OF BELLMOUTH

at Spadina Road bridge, south of St. Clair Ave. The sewer was design-

ed as a circular, threecourse wall of hard, redshale brick, 14 inches in width except for 165 lineal feet where the thickness was increased to 18 ins. The inside diameter is 6 ft. 6 ins., and the outside, 8 ft. 9 ins. and 9 ft. 6 ins. One layer of selected brick was required in the water run for the entire length of sewer.

Suitable manholes, ranging in depth from 20 to 60 ft., were provided at fixed points. Five are typical and two are special drop manholes, the deepest being at the corner of Clarendon Ave. The inverts of two manholes on existing tile sewers were reconstructed and connected to new drop manholes.

An inlet for the creek was built near the High Level Pumping Station. As the creek, in early spring, rapidly dammed with the ice and overflowed the surrounding property, it was necessary to design the inlet to the sewer as a "Y" branch and to enclose the creek itself in a concrete flume for a distance

of about 100 ft., connecting with an existing culvert on Poplar Plains Road.

The grade of the new extension is 1 in 100, which is maintained from the creek at Spadina Road (Station 34 + 55) to Sta. 4 + 55. At the latter point, a vertical ramp of 7 ft. head was constructed and the remaining grade to Sta. 0 + 00 is 1 in 122.

Borings were taken by the works department along the line of the sewer extension. The soil ranged from hard blue clay near the creek to running sand on Russell Hill Road. Work was commenced on the "open cut" at the High Level Pumping Station, where borings showed hard blue clay. As the contractor was required to take care of the flow in the creek at all times and under all conditions, it was first necessary to divert the water. A small dam, about 6 ft. in height, was constructed across the creek bed half way along the "open cut." At this point there was found an old



CREEK FLOW ENTERING BELLMOUTH—ICE ON BANKS IS EVIDENCE OF RECENT FLOOD

feed pipe supplying the pond immediately to the east from which soft water is pumped for use in boilers, etc., at the pumping station. At the south-west corner of this pond was an overflow which in time of creek flood released excess water to the brick sewer already constructed at Station 0 + 00. This formed an adequate by-pass for the first section of excavation for the "open cut." The excavation was then effected with the aid of small charges of explosives.

Great care was exercised to ensure the safety of the 36-in. cast-iron water main running parallel to the sewer extension, of the pond immediately to the east, and of the buildings of the pumping station.

The sewer was built in this section, as far as the first temporary dam, with an opening in the top to be used in draining the second section of the "open cut." In the second section, another temporary dam was built to clear the branch of the Wye Inlet. The water passed through 36-in. galvanized iron piping to the opening left in the first completed section, where part was diverted to feed the pond.

The creek inlet bellmouth was built in two sections. Brick was used for the entire lower half of the 6 ft. 6 in. circle. Concrete was then placed, bringing the walls vertically to 8 ft. 6 ins. above the water run. The roof was laid as a reinforced concrete slab 7 ins. thick, supported by three reinforced concrete beams. The creek bed was excavated to the existing road culvert on Poplar Plains Road,



OF BRICK SEWER

the flow of the creek being directed through iron piping to the bellmouth inlet already constructed.

A vertical ramp was constructed in concrete, raising the grade of the invert 6 ft. 2 ins. above the invert of the bellmouth. The ramp changes in design from circular bottom at bellmouth to rectangular at the higher level and continues to the road culvert as a rectangular structure of 8 ft. effective width and 6 ft. effective height.

The roof was poured as a reinforced concrete slab, 12 ins. thick. In this roof two openings were left to permit any possible overflow to enter the sewer. The openings are 9 ft. x 3 ft. and 4 ft. x 2 ft., the larger being upstream.